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Life Cycle Assessment of Autoliv's Front Seatbelt

Master's Thesis in the Master Degree Programme, Quality and Environmental Management

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Gothenburg, Sweden, April 2010
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Abstract

Autoliv as a world leading enterprise in automotive safety has determined four Life Cycle Assessment (LCA) study for its main products including airbag, seatbelt, Electronic Control Unit (ECU) and Night Vision Camera to improve its knowledge about these products and their supply chain. This particular LCA study has been carried out for Autoliv's pyrotechnic front seatbelt.

In this study the whole life cycle is considered; starting from extraction and production of raw materials, manufacturing of components at suppliers plants, seatbelt assembly at Autoliv plant in Hungary, installation in Audi Ingolstadt, use phase in the cars and finally seatbelt's end of life when it is shredded together with the car.

The results of the study indicate that over the course of the life cycle of the seatbelt, the use phase has the largest potential to cause global warming (total 41 kg), acidification (total 75 g), eutrophication (total 8.72 g) and air ecotoxicity (total 90 kg). This is mainly due to high amount of CO2 and variety of other toxic substances that are released during combustion of fuel and could be improved through weight reduction. In case of water ecotoxicity (total 6 kg) the most influential activity is manufacturing and for soil ecotoxicity (total 3 g) and human toxicity (total 1.8 kg), material production is the main responsible.

From the results, it could also be observed that pretensioner retractor is the component which has the largest environmental load, due to its complexity and high number of the components which involve variety of suppliers in its realization.

The comparison between airbag and seatbelt shows that considering global warming potential airbag has larger impact in the production phase and end of life while smaller in the use phase. Regarding acidification and eutrophication, in production phase the results are quite similar but in use phase, seatbelt dominates quite significantly. In cases of air and water ecotoxicity and human toxicity the result represents that airbag has larger impacts.

Moreover, results signify that production processes carried out in Autoliv's plants are less harmful to environment in comparison with the production processes carried out in other suppliers' plants and also other phases in the life cycle.

The results also prove that transportation has quite low contribution in global warming.

The results show that about 70% of seatbelt is recycled and 26.4% is recovered as energy.

It is worth to mention that against our initial expectation, studied seatbelt was a quite complex product since it has the features of seatbelt pretensioner and load limiter.

Key words: LCA, Autoliv, seatbelt

Foreword

This work has been carried out as a Master thesis at the department of Energy and Environment of the Chalmers University of Technology.

We want to thank our Autoliv supervisor Johan Dahlström and our Chalmers supervisor Birgit Brunklaus for their cooperation and devotion during this work and our examiner Henrikke Baumann for her constructive feedbacks. Also we would like to appreciate Torbjörn Andersson's valuable support during this project.

We hereby certify that all material used in this report, which is not our own, have been clearly identified, and that no material is previously used for obtaining another degree.

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Abbreviations

LCA: Life Cycle Assessment

NHTSA: National Highway Traffic Safety Administration

ALH: Autoliv Kft. Hungary

NCS: Autoliv Survilliers France

STA: Autoliv Stakupress GmbH Germany

ISO: International Organization for Standardization

TC: Technical committee

SC: Sub committee

LCI: Life Cycle Inventory Analysis

LCIA: Life Cycle Impact Assessment

PLM: Product Lifecycle Management (Autoliv internal database for products and suppliers of the components)

IMDS: International Material Data System

AGPS: Autoliv Global Purchasing System

CPM: Chalmers Center for Environmental Assessment of Product and Material System

ELCD: European Life Cycle Database

POM: Polyoximethylene

EP-GF50: Epoxide plastic - Glass fiber 50 (duromers)

PA66: Polyamide 66

FKM: Fluoro-rubber Caoutchouc (Basic rubber)

PA66-GF20: Polyamide 66 - Glass fiber 20

C4C, C10C, C60S, C60E, DC01, DC04, DC06 and e235: are different standard grades for steel based on the proportion of C, Mn, Si, etc.

PBT-GF10: Polybutylene terephthalate Plastic – Glass fiber 10

PAK: Polyacrylate Plastic (adhesive)

EPDM: Ethylene/propylene/diene terpolymer Caoutchouc (elastomeric compound)

E/P: Ethylene-propylene (copolymer Plastic)

PET-I: Polyethylene terephthalate impact modified

PAH: Polyaromatic Hydrocarbons

1. Introduction

1.1. Background

These days rise of knowledge and as a result concern of the societies about environment, force the industrial sectors to consider the environmental impacts of their activities and the inputs and outputs of them. A car as one of the symbols of industrialization is the one which takes much attention of the societies. This obliges automotive industries to take serious actions to be less harmful for the environment. Autoliv, as a member of this sector, puts much attention to environmental performance and tries constantly to mitigate the environmental impact.

In line with this approach, Autoliv decides to carry out the LCA studies for some of its main products named airbag, seatbelt, electronic control unit (ECU) and night vision camera. In this report the performed LCA study on seatbelt is presented.

1.2. Purpose and method

The purpose of this study is to investigate the environmental impacts of the pyrotechnic front seatbelt produced by Autoliv among its life cycle from extraction of raw materials to its end of life. The purpose of the study is discussed in more details in section 4.1.

The method used for fulfilling the purpose of this study is an LCA based on quantitative data which are collected in forms of site specific and general data. Assessments and analyses have been carried out to evaluate the environmental impacts of seatbelt production during its whole life cycle from cradle to grave. Energy and water consumption, waste generation and emissions to air, soil and water are considered.

2. Seatbelt production by Autoliv

2.1. About Autoliv

Autoliv is a leading enterprise in automotive safety, with the vision of saving lives and reducing traffic injuries. As a pioneer in both seatbelts and airbags, and a technology leader with the widest product offering for automotive safety, Autoliv develops and manufactures automotive safety systems for all major automobile manufacturers in the world (Autoliv, Introduction, 2010).

As a world leader in automotive safety, Autoliv develops different safety equipment which could be divided into two groups of passive and active systems. Seatbelt systems, steering wheels and airbags, electronic control units (ECU) and remote sensor units (RSU) which are made to prevent occupant injuries and fatalities are the examples from the first group, while night vision system, radar system and safety cameras that are made to prevent crashes are the members of the second one.

2.2. Production of seatbelts

More than 60 years ago, in 1956, production of 2-point static seatbelt started in Autoliv and just three years after the next generation of seatbelt; 3-point belt was invented by Autoliv and installed in Volvo. The next seatbelts generation named 3-point retractor belt and seatbelt pretensioner have been developed by Autoliv in 1967 and 1986 respectively. The number of seatbelt systems produced annually by Autoliv, its joint ventures and licences are more than 110 million (Autoliv, Seatbelts, 2010).

2.3. Seatbelt function

In frontal crash the pyrotechnic charge makes the retractor and buckle pretensioner to tighten the seatbelt and eliminate the slack which holds back the occupant rapidly (on 0.01 second).
The new generation of seatbelt, which is called active seatbelt, starts its function before a crash through tightening the seatbelt (when driver pushes the break) and releasing the webbing using electrical motor in case that crash is avoided. The load limiter role is during the accident, when it controls the release of some webbing to reduce the load on occupant's chest which previously was one of the causes of injuries.
In order to avoid sliding under the belt during crash which might increase the risk of serious leg injuries, lap pretensioner is also designed to tighten the webbing in this case.

The combination of the above mentioned features of the seatbelt work together with frontal airbag to greatly decrease the risk of head or chest injuries in frontal crashes (Autoliv, Annual Report, 2008).

In Figure 1 the sequence and timing of this combined function are illustrated.

Figure 1 What happens after the crash? (Autoliv, Product training AGB 101 RP, 2001)

2.4. Studied product

This study has been conducted on pyrotechnic front seatbelt which has the advanced technologies of pretensioners and load limiters. This seatbelt is assembled in Autoliv plant in Sopronkövesd, Hungary (ALH). The part number of this seatbelt system is 615484900A and it weighs 1130 grams and consists of nine main components. (See chapter 6.1)

The variety of materials is consumed during seatbelt production. However, the main materials are metals which contribute in about 72% of the weight of the seatbelt followed by plastics with around 27%. The other materials (e.g. chemicals, adhesives, lubricants, etc) all together cover around 1% of the seatbelt's weight.

3. Theory of Life Cycle Assessment

3.1. LCA concept

LCA is a technique for compiling and assessing the environmental aspects and potential impacts of the inputs (i.e. energy, raw material, etc.) and outputs (i.e. solid waste, emission, etc.) on environment throughout the whole life cycle of a product which can be the result of any industrial system. This assessment could be performed for the whole life cycle of a product (cradle to grave) from raw material extraction through production, use and to disposal (ISO14040, 2006).

The main applications of LCA are in:

- Production process improvement
- Supply chain re-arrangement
- Product development and improvement (ISO14040, 2006)
- Strategic planning (ISO14040, 2006)
- Choosing between number of comparable products (Guinée, et al., 2002)
- Comparing improvement variants of a given product (Guinée, et al., 2002)
- Marketing (ISO14040, 2006)
- Identification of significant environmental aspects of the products (ISO14040, 2006)
- Public policy making (ISO14040, 2006)
- Learning (Baumann & Tillman, 2004)
- Communicating (Baumann & Tillman, 2004)
- Ecolabelling (Baumann & Tillman, 2004)
- Environmental product declaration (Baumann & Tillman, 2004)
- Benchmarking (Baumann & Tillman, 2004)

3.2. Phases of LCA

The four main phases of LCA study; goal and scope definition, inventory analysis, impact assessment and interpretation are shown in Figure 2 and described in the following sections.

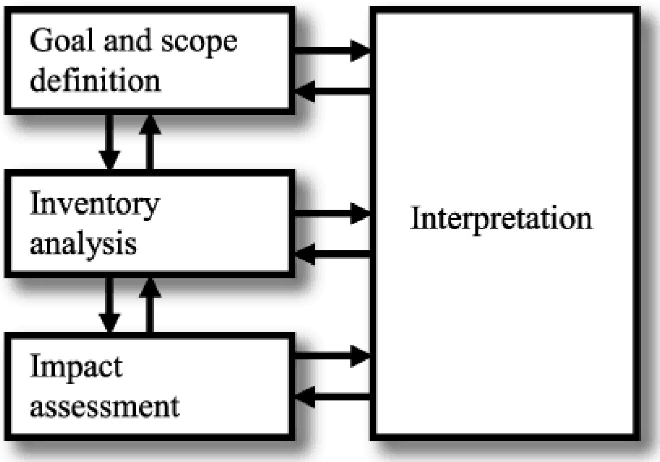

Figure 2 Phases of an LCA (Baumann & Tillman, 2004)

3.3. Goal and scope definition

In the goal setting and scope determination phase, the LCA is planned. According to ISO the goal of the LCA study needs to be set in a way that clearly addresses the intended application, the reason of its conduction and the intended audience (ISO14044, 2006). According to ISO the scope also needs to cover: the product functions and the product system to be studied, the functional unit, the system boundaries, allocation procedures, types of impact assessment methodology and types of environmental impacts, data requirements and quality, assumptions, limitations.

Since LCA is an iterative process, when more data is collected and more is learned about the product system, the goal and scope and other phases of the study might be revised.

3.4. Life cycle inventory analysis (LCI)

Inventory analysis is the second phase of the LCA study which is done based on the defined goal and scope. In this phase, the data (including site specific and generic) are collected and calculation procedures are performed to quantify the relevant inputs and outputs.

The inventory analysis should include (Baumann & Tillman, 2004):

- Construction of the flow model (usually in a form of flowchart) according to the system boundaries decided on in the goal and scope definition.
- Data collection for all the above mentioned activities in the product system followed by documentation of collected data.
- Calculation of the environmental loads of the system, including consumed resources and generated pollutant emission, in relation to the functional unit.

Usually outputs of technical processes are more than one product and for this reason the environmental loads including use of resources and generation of emissions and wastes need to be allocated between different products.

3.5. Life Cycle Impact Assessment (LCIA)

LCIA describes environmental consequences of the environmental loads quantified in the previous phase. In other words, it is translation of environmental loads into environmental impacts. This translation helps to make the results more environmentally relevant, more understandable (thus easier to communicate) and more comparable. It also improves the readability of the results. (Baumann & Tillman, 2004)

The subphases of impact assessment are:

3.5.1. Classification

Classification is a qualitative step and it is related to sorting and assigning inventory results into each category of the impact based on the expected types of impact which make the results highlighted.

Basically, certain substances can bring emissions into more than one impact category i.e NO_x which needs to be assigned to both categories; acidification and eutrophication. In these cases partitioning between the categories needs to be performed to allocate the impacts while in practice it is rarely carried out due to the difficulties. This might even cause unavoidable double counting in allocating impacts (Lindfors, et al., 1995).

Some of the main impact categories are:

3.5.1.1. Global warming

In a simple word global warming is about heating up our planet caused by industrialization which increases the release of greenhouse gases (i.e CO_2) within the decades instead of thousand years. These green house gases increase the earth's temperature faster and it causes problem for some species which might not be able to adapt (National-Geographic, 2010). Some other probable problems caused by the rise of the temperature are: expansion of subtropical deserts, rise in sea levels and melting of glaciers. Global warming will be expressed in grams of CO_2 equivalents.

3.5.1.2. Acidification

Acidification occurs as a consequence of release of pollutant such as; SO_2, NO_x, HCl and NH_3 that all form acidifying H^+ ion which causes deposition of acid in atmosphere through acid rains and atmosphere pollutant deposition due to fog, snow and dew (Baumann & Tillman, 2004). These could end up to marine species mortality, leaching of toxic metals out of soil and rocks and damage to forest, buildings and monuments (Harrison, 1990). Acidification potential is expressed in grams of SO_2 equivalent.

3.5.1.3. Eutrophication

Eutrophication is another category of impact that could affect terrestrial and aquatic ecosystem which in most cases occurs as a result of release of nitrogen and phosphorus (Baumann & Tillman, 2004). These nutrients could cause change in species composition and increase biological productivity i.e. algal bloom which leads to oxygen consumption. As a result it might cause growth limitation in both ecosystems (Harrison, 1990). Eutrophication is geographically differentiated since different ecosystems are limited by different nutrients. Eutrophication potential is expressed in grams of PO_4^{-3} equivalent.

3.5.1.4. Toxicity

This is one of the most complex categories, due to many types of toxic impacts on different kinds of species. It can be caused by variety of substances i.e. heavy metals, organic solvents and pesticides. Since the toxic substances tend to spread, and this could cause problem for different living organisms, the toxicity categories could often be divided to sub-categories of human toxicity and ecotoxicity (CML, 2002). The ecotoxicity could also be divided to aquatic and terrestrial toxicity and again aquatic toxicity could be divided to freshwater and marine toxicity.

In characterization of toxic substances it is important to consider the concepts of the fate, exposure or intake and effect of the substance since these concepts will influence selection of analyzing method (Baumann & Tillman, 2004). Ecotoxicity and human toxicity are both expressed in grams of dichlorobenzene (DCB) equivalent. It can also be expressed in different ways such as m^3 polluted water and soil or kilogram/gram of human body weight.

3.5.2. Characterization

Characterization could be defined as a qualitative process where the certain extent of the environmental impacts is calculated for each category considering equivalency factor. For instance the LCI results of all global warming emissions such as CO_2, CH_4, N_2O, etc. will be summed based on their equivalency factors to give the indication for the extent of the global warming impact (Baumann & Tillman, 2004).

3.5.3. Weighting

As an optional step of life cycle assessment (ISO14044, 2006), weighting deals with allocating a weighting factor to each category of impacts related to its importance. The weighting factors generation could be done through different methods among which all try to express how the society thinks in response to the results of the characterization.

3.6. Interpretation and presentation of the results

The last phase of LCA study associates with evaluating the results in order to draw the conclusion of the study as well as explaining limitations and providing recommendations based on the findings in former phases.

These all need to come up together and be reported in a transparent manner (ISO14044, 2006).

4. Goal and scope definition

In this chapter the goal and scope of the study together with the flowchart, the functional unit, impact categories, system boundaries and allocation methods are determined.

4.1. Goal

The main goal of this study is to investigate the chosen environmental impacts of seatbelt production.

The study was commissioned by Autoliv Research AB at Vårgårda, Sweden and they are also the intended audience.

The intended application is also to learn and improve the knowledge of life cycle assessment of seatbelts produced by Autoliv, especially regarding sub-suppliers.

By using a dominance analysis, the activities in the life cycle which have the largest contributions to the total environmental impact can be determined. By focusing on the interpretation phase, the results of the work could be used for communication with suppliers, customers (car manufacturers) and board at Autoliv e.g. eco-design suggestions, suggestions about materials that should be avoided.

In the end the environmental impact of the seatbelt production is compared with other Autoliv’s studied product; airbag.

During this study the following questions are answered:

- What are the potentials for chosen environmental impacts?
- Which activities in the life cycle of seatbelt have the biggest contribution to the environment impact?
- Which activities in the life cycle can be improved in order to decrease the environmental impact?

- What is the environmental performance comparing to one unit of airbag?
- What is the environmental performance caused by Autoliv plants comparing to other plants involved in manufacturing of the studied product?
- What is the ratio of transportation and other activities in life cycle of seatbelt in causing global warming?
- How and in which proportions is the seatbelt recovered – what is the scenario for end of life?

4.2. Scope and other requirements

4.2.1. Work division

The study was done by Nima and Katarzyna when Nima focused more on collecting site specific data from suppliers and writing the report while Katarzyna focused on collecting general data and doing the calculations.

The LCA is critically reviewed by the supervisors at Chalmers and Autoliv as well as by the examiner at Environmental System Analysis at Chalmers University of Technology.

4.2.2. Functional unit

In order to easily communicate the result of the study to Autoliv, its suppliers and customers, one seatbelt was chosen as a functional unit and all data will be related to this unit.

4.2.3. Impact categories and method of assessment

Based on commissioner's request, the below impact categories are chosen: global warming, human toxicity, ecotoxicity, acidification and eutrophication. The accounting type of LCA was chosen.

4.2.4. Allocation methods and system boundaries

4.2.4.1. Different allocation methods

The economic value-based allocation method was the most commonly used allocation method in this study. In adapting data for manufacturing processes, weight method for allocation was used. In case of processes performed in Autoliv Hungary the method is based on operation time for each component.

4.2.4.2. Natural boundaries

The life cycle begins with extraction of raw materials (cradle) and ends with shredding of seatbelt together with the car (grave). The study considers emissions to air, water and soil.

4.2.4.3. Geographical boundaries

The seatbelt is assembled in Hungary, and installed in Audi A3 in Germany. Most of the suppliers are located in Europe and only four suppliers are outside; in China, Singapore Tunisia and United States.

4.2.4.4. Time boundaries

All site specific data were collected from the current active suppliers. The general data are usually not older than 10 years, but there was a focus to use the most recent, applicable data.

4.2.4.5. Technical boundaries

Production and maintenance of production capital and also personnel related environmental impacts are excluded. Production of buckle is not included in this study.

5. Methodology

Life cycle assessment project for real product is a very time-consuming and complicated and that is why planning phase is a crucial activity. This activity is needed at every stage of carrying out the project. The most effort should be made in the beginning, but also by every stage; starting with data collection from suppliers, collecting general data, doing calculations, making analyses etc. By every stage reflection and analysis have to be done, because it will influence the efficiency of performing this particular stage. In practice, 5 months for such a project is not much time, that is why it has to be used in the most efficient way.

5.1. Methodology during data collection

During data collection, different databases and sources are used. Autoliv's plant in Hungary (ALH) and France (NCS) were the main sources for site specific data about manufacturing processes. Autoliv's Product Lifecycle Management (PLM) database was used for gathering data related to structure of the product, materials that is built from and suppliers of the components. Data related to material composition of the components were also collected through International Material Data System (IMDS) database. Moreover, Autoliv Global Purchasing System (AGPS) was used for collecting data related to suppliers' locations and contact information.

The project was carried out according to the Life Cycle Assessment standard, ISO14040:2006, by using the methods presented in this international standard. The site-specific data were preferable and were collected whenever it was possible and if not, average data were acquired from online databases mainly Chalmers Center for Environmental Assessment of Product and Material System (CPM), European Life Cycle Database (ELCD) and other reliable sources and literature which are addressed in the reference list of this report.

5.2. Methods for site-specific data

Collecting site-specific data from the involved parties in the production of studied product is one of the trickiest parts of an LCA study. Encouraging suppliers and other parties for providing data is not always easy to achieve. For this reason advanced planning for collection site-specific data from customers, suppliers and sub-suppliers is required.

5.2.1. Initial phase

In the planning phase of this study, first some general knowledge about the product were achieved, and an initial flowchart was developed to understand the product structure.

In the next step data collection questionnaire (see appendix II) was developed. Data requested in this questionnaire were about supplier information, short process description and steps, type and amount of energy consumption, type and amount of material used, type and amount of emission and waste generated, subsuppliers information and their distances, unit price, weight and annual sale. In the questionnaire there was included a sample that led suppliers on how to fill the form.

A short explanation of the study aim as well as the role of the data provider organizations were developed to be sent together with the questionnaire. In this study this short introduction addressed issues as; this project is done by Autoliv, the other Autoliv LCA studies, brief explanation about LCA, that specific supplier product and role in this study, our request and perhaps the deadline. Also it should be decided what to tell when calling to the company.

In conjunction with the above mentioned activities a database of suppliers and their related produced products was developed based on the information received from seatbelt assembly plant of Autoliv in Hungary, Autoliv’s Product Lifecycle Management (PLM) and also Autoliv Global Purchasing System (AGPS) database. In this database all the suppliers were listed together with the components they produce, contact information to different departments and space for comments. The way of putting the comments in this database should be discussed between practitioners (for example name, data and short comment).

Contact information from Quality, Purchasing, and Lead buyers is available and it would be better to start with quality personnel since usually they are in charge also for environmental issues. The precise information related to the distances of suppliers from the Autoliv’s plant in Hungary was also provided by ALH. However, location of the suppliers which is needed for transportation calculations is also available in AGPS.

We have to be prepared for many scenarios: what if they say that the data are confidential, what if they do not have these data, what if there is nobody who can help? nobody has time to do it? what if they do not speak English?

About the confidentiality problem, it can be discussed with the company’s supervisor, because maybe in the contract is written that the company is obliged to give such data. The other option is the recommendation from supervisor or person in the company that has high position. It is also possible to send declaration that data will be not published and will be used only for internal purpose. For the rest scenarios we have to be prepared to explain exactly what we need and even in the beginning give up some data such as emissions and ask only about suppliers, electricity and materials used. In fact usually only these data are given. Even if there is no person responsible for environment or quality it is maybe worth to ask for accountant or directly boss. We have to know, who may provide these data. Language problems occur very often. Sometimes people have problems with speaking so advisable is to switch immediately to email channel for communication. Sometimes unfortunately even this does not bring any effect so it just has to be given up in order not to lose time for this supplier.

5.2.2. Execution phase

In the beginning of our survey, we decided that the information about it that data are collected for master thesis purpose will not be communicated to the suppliers. It is not a rule, but some of the companies could treat students less seriously than employees.

The strategy in our case was to find a responsible person by phone, explaining the purpose of our call shortly and then sending email with explanation directly to this person.

The contact information for the next levels of suppliers (subsuppliers) was collected through suppliers and they were contacted within the same procedure with just few customizations to add the role of their first hand customer.

In follow up calls sometimes it is needed to use some tricks such as:

- Informing supplier about the other supportive suppliers to encourage them to help,
- Asking supplier to provide the data as much as they can and then help them to complete them,
- suggesting higher figures for their emissions to motivate them to correct your assumption.

It has to be remembered that the data collection process could continually be improved. And if only we see some potential for improvement, it has to be done.

When suppliers send the answer, it has to be checked immediately and in case of some doubts or lacking information, they should be called back, so they still remember this case and are not involved in other activities.

From the total 51 suppliers, 30 provided the required data (59 %), 11 suppliers refused to supply any data (21 %), 3 provided insufficient data (6 %) and 7 suppliers after about five months are still promising the data (14 %).

5.3. Methods for general data

In case of unavailability of site-specific data, general data was acquired from different sources. LCI data for material production is collected from Center for Environmental Assessment of Product and Material System (CPM) and European Life Cycle Database (ELCD). For some production processes, data from other similar production processes were adapted.

General data collection should be started not so long time after starting calling the suppliers. If there are two people, one can follow with calling and the other can analyze databases and information that are needed from there. Since it is difficult to get information from suppliers of materials (like steel, plastic etc.), after calling few of them it was decided that we would take the data from databases. There can be prepared some standard forms and filled for every material (at least the popular ones) so during later calculation it will be easy to find them and paste into calculation sheet.

When choosing the data for specific material it is advisable to read about it, what is it made of, what is the production process etc. Having this information it is easier later to choose appropriate data from database. There can be created even some excel file with abbreviations, names short descriptions of our materials.

After entering database, first content of material, then production process and a year of creation should be checked and based on those appropriate data chosen.

5.4. Methodology for performing calculations

If the product is complex, it should be planned how to distribute the data to different files. It can be done for every component, but sometimes this way is not applicable. In the beginning of this phase some time should be spent for planning how the calculation data files should look like. The tables have to be clear and simple. In our case, in the first sheet there was a “flowchart”, in the second one “input data”, then “normalization”, “aggregation 1”, “aggregation 2”, “classification, characterization” and in the end data for “transportation” and “electricity”. Creation of every sheet required planning – the structure the method and use for next steps.

In “input data” sheet there were data as collected and then they were calculated for 1000g for every product. Thanks to this, comparison between all the processes was very easy, because they had the same unit. In “normalization” sheet, data were normalized to functional unit. In “aggregation 1”, data normalized to functional unit were analyzed and all the desired factors were extracted from them. It was possible thanks to the conditional formula “if(x1=”CO2”;x2;0)”. This formula allowed all the factors to be found and summed without doing it “one by one”. Thanks to this method, also distinction between emissions to air, water and soil was done. It was also possible to determine where these emissions come from: transportation, material production or manufacturing. In “aggregation 2” sheet data for each single process (transportation or material production or manufacturing) were summed and showed in a explicit way. In “classification&characterization” sheet, results from the previous sheet were classified to impact categories and characterized as a sum and also with division into transportation, material production and manufacturing.

5.5. Methodology for making analysis

It is quite time consuming to collect all the data that we are interested in. And again it is good to spend some time to think and analyze which way will be the fastest one. In our case, we created the paths to target files and copy this formula for for example every component. The second step was only to change the extent of sums in “aggregation 2” sheets and they were changed automatically in summary file.

In creating the charts it is important to reflect on which results we want to stress, how we want to present them and in which way the most information can be showed.

6. Inventory analysis

6.1. Flowchart

Seatbelt is assembled in Autoliv plant in Sopronkövesd, Hungary (ALH) and transported to Audi Ingolstadt in Germany to be installed into Audi A3 and be sold together with the car to the users. Finally seatbelt is shredded together with the car. The weight of the studied seatbelt is 1129.865 grams and it consists of nine main parts. The most complex part is pretensioner retractor which owns about the 67% of the total weight of the seatbelt. The other eight parts are pin for webbing, guide webbing, webbing, pillar loop, tongue, button cover, button loop and sleeve data carrier. The seatbelt is then installed into Audi A3 and sold with the car to different customers all over the world and it is remained in the car during the car life time. Finally the seatbelt is shredded together with the car as the end of life. The simplified flowchart for the seatbelt is presented in Figure 4 and the detailed flowchart for the whole pyrotechnic front seatbelt system is presented in Appendix I. Moreover the life cycle inventory data for all components and all phases of seatbelt life cycle could be found in Appendix IV. The calculation of energy consumption and emission generation caused by transportation is also presented in Appendix VI.

Assembled seatbelt is shown in Figure 3.

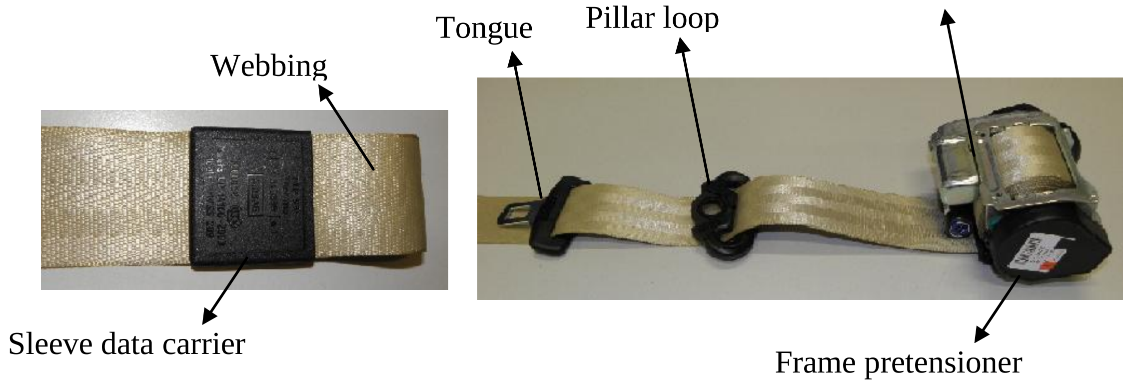

Figure 3 Assembled seatbelt

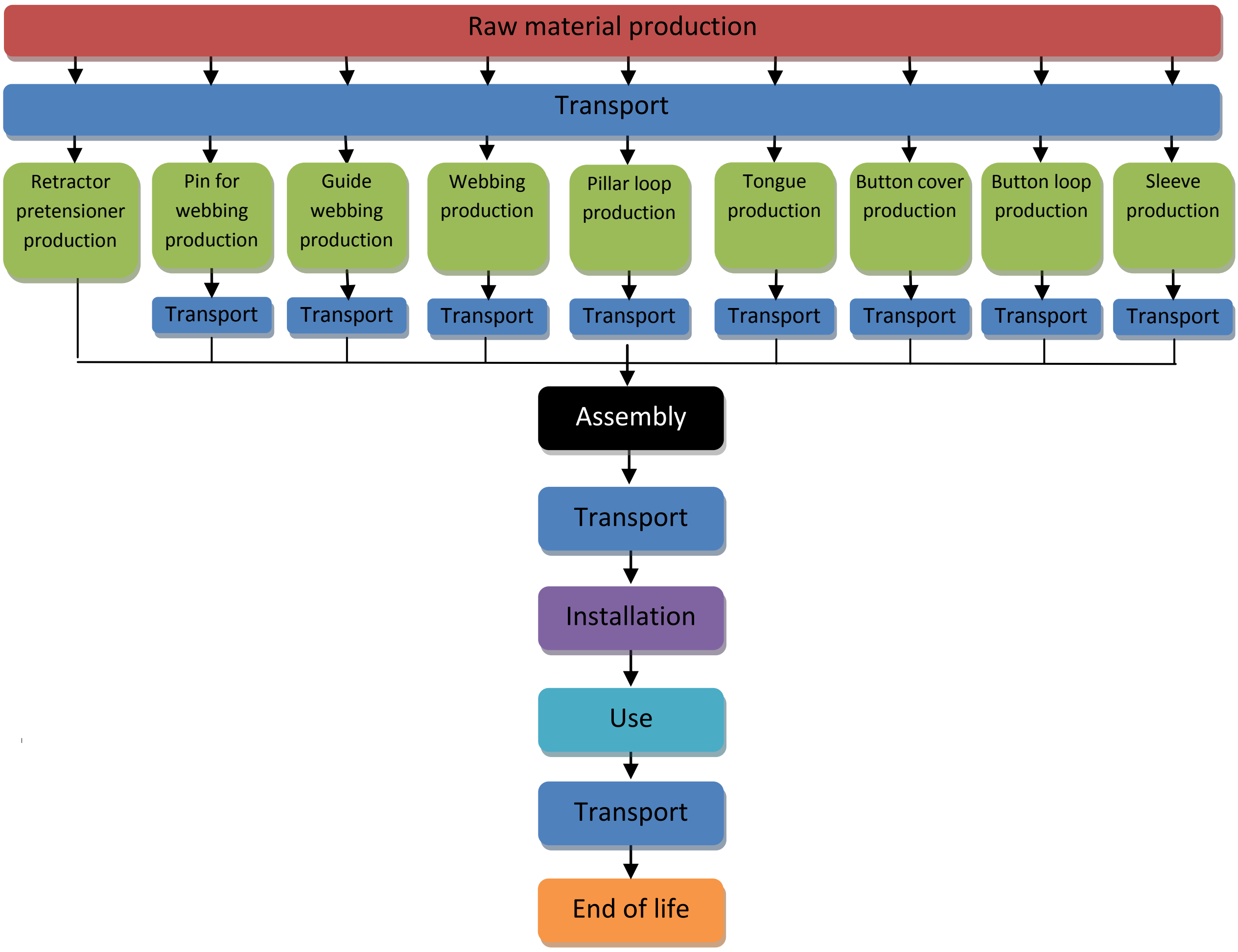

Figure 4 Simplified flowchart for life cycle of Autoliv's pyrotechnic front seatbelt system (615484900A)

6.2. Production of Pretensioner retractor

Pretensioner retractor (602134200E) is the most complex part of the seatbelt components assembled in Autoliv plant in Sopronkövesd, Hungary (ALH). It weighs 759.292 grams and consists of 16 subcomponents. Most of the subcomponents consist of number of subsubcomponents which are presented from clause 6.2.1 to 6.2.16.

Due to high number of activities that need to be carried out for the manufacturing of pretensioner retractor only the simplified flowchart is presented in Figure 5 and the rest is described in each sub-component description.

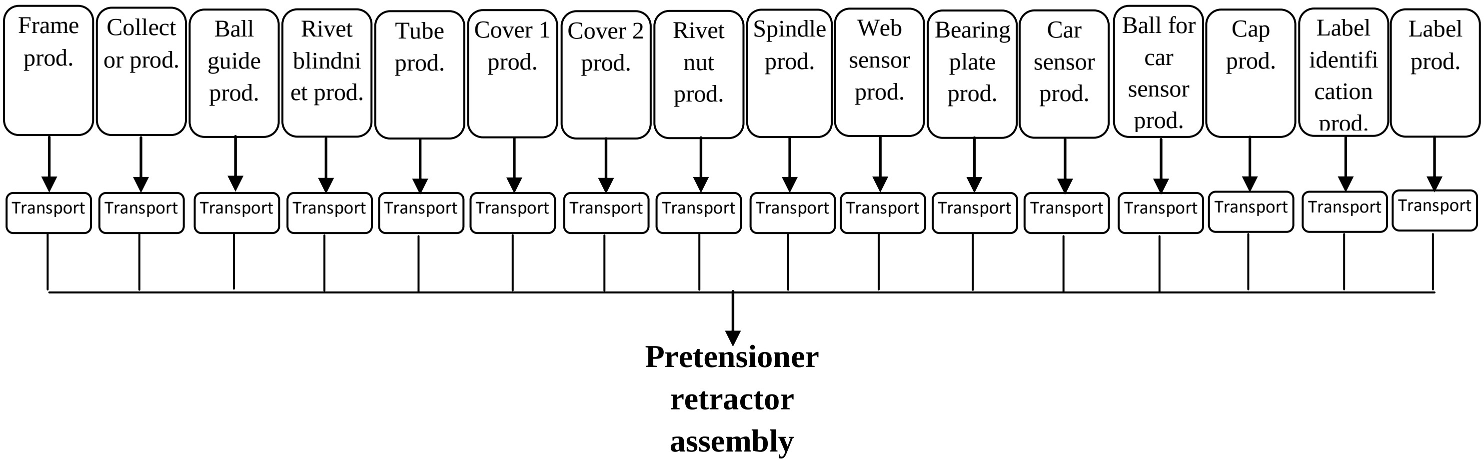

Figure 5 Simplified flowchart of pretensioner retractor assembly process

6.2.1. Production of Frame

Production of frame (560543921E) takes place in Autoliv Stakupress GmbH (STA) in Norderstedt, Germany. The weight of the frame is 169.5 grams and it is made of steel DC1, top coating and zinc flakes which both are transported from suppliers' plants to STA by medium size truck. The production process of frame starts with stamping which implemented on steel by adding stamping oil, then through soft grinding the desired smooth surface is achieved. Then it is transferred to neighborhood supplier plant for heat treatment. Finally, frame is coated by zinc flakes and transported to Autoliv in Hungary by long distance truck with semi-trailer. Frame manufacturing process is demonstrated in Figure 6.

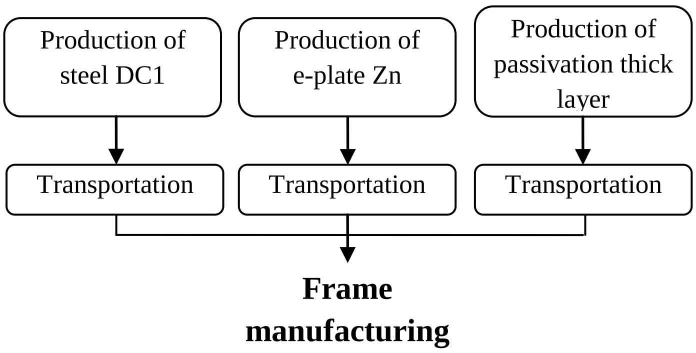

Figure 6 Frame manufacturing process flowchart

6.2.2. Production of Collector

Production of collector (566185021C) takes place in supplier's site situated in the east of Czech Republic. The weight of the collector is 27.33847 grams and it is made of steel, zinc and passivation layer which are provided by supplier from the west of Germany. The production process of collector starts with stamping which is implemented on steel by adding stamping oil, then through grinding the smooth surface is achieved. It is transported to supplier plant for surface coating. Collector is transported to Autoliv in Hungary by long distance truck with semi-trailer. Collector manufacturing process is demonstrated in Figure 7.

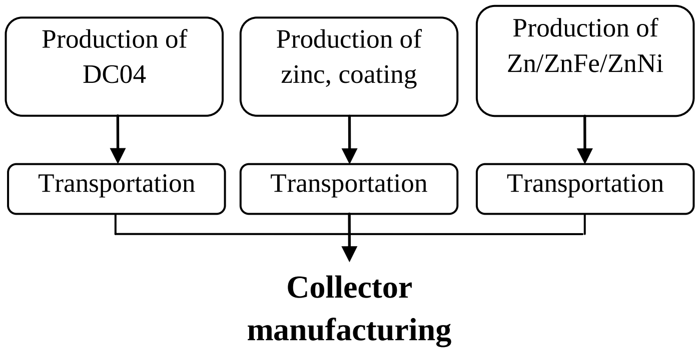

Figure 7 Collector manufacturing process flowchart

6.2.3. Production of Guide ball

Ball guide (602146200A) is produced in supplier's plant located in the north of Germany. The weight of the ball guide is 6.5 grams and it is made of thermoplastic (POM) which is provided by subsupplier in Belgium. It is shaped by injection molding process and transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.4. Production of Rivet blindniet

Rivet blindniet (560967021A) is produced by supplier situated in the northeast of Austria. The weight of rivet blindniet is 3.197 grams and it is made of iron steel, steel C10C, passivation thick layer Zn/ZnFe/ZnNi and e-plate Zn. Rivet blindniet production starts with stamping which implemented on steel and steel C10C by adding stamping oil and when the surface is prepared the coating is applied. Rivet blindniet is transported to Autoliv in Hungary by medium size truck. Rivet blindniet manufacturing process is demonstrated in Figure 8.

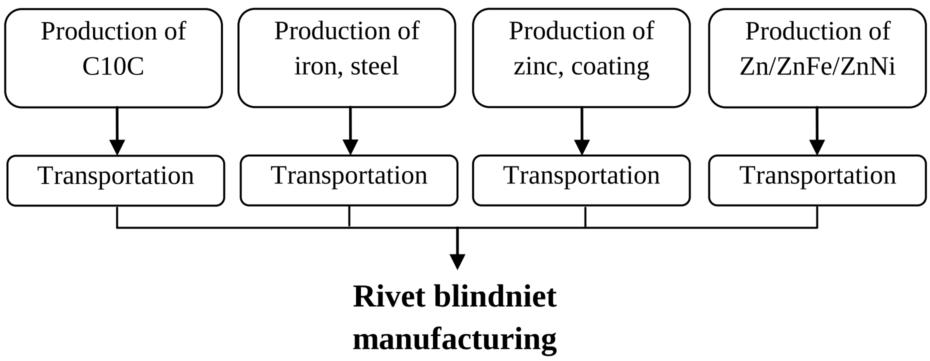

Figure 8 Rivet blindniet manufacturing process flowchart

6.2.5. Assembling of Tube

Tube (603809800B) assembling takes place in Autoliv plant in Sopronkövesd, Hungary (ALH). The weight of tube is 136.779 grams and it consists of nine subcomponents named; synchronization ball, snap-in-fastener, identification label, tube, compression spring, ball car sense, piston, spring anti retour and gas generator. The simplified flowchart for tube assembling is illustrated in Figure 9.

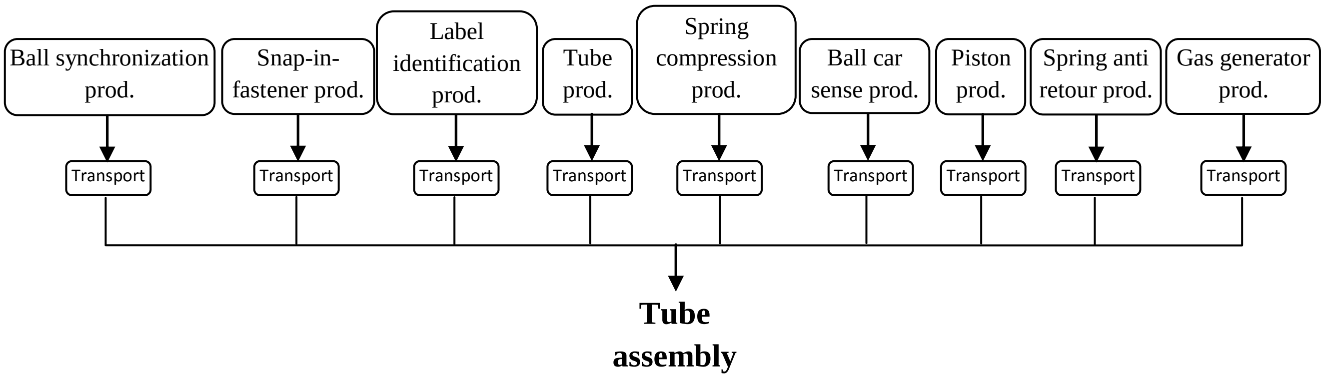

Figure 9 Simplified flowchart of tube assembly process

6.2.5.1 Production of Synchronization ball

Synchronization ball (608163500A) is produced in suppliers' plants situated in the west Turkey and California, US. The weight of the ball is 6.34 grams and it is made of alloy (ZnAl4Cu3) and lubricants. Synchronization ball is shaped through casting process and then it is polished to achieve the smooth surface and finally lubricants are applied for friction reduction. Then ball is packed and transported to Autoliv in Hungary by long distance truck with semi-trailer and in case of US by ship to Hamburg and then long distance truck with semi-trailer to Hungary.

6.2.5.2 Production of Clip (Snap-in-fastener)

Clip (560926211C) is produced at supplier's plant situated in the southeast of Germany and it weighs 0.2 gram. The main material is thermoplastic (POM) and it is shaped through plastic injection molding process. POM is provided by sub supplier located in the west of Germany and transported to supplier's plant by medium size distribution truck. Clip is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.5.3 Production of Identification label

Identification label (561014960A) is provided by supplier located in the center of Germany and it weighs 0.2 gram. It is made of paper and acrylic resin. The label is realized through applying adhesives to paper and cutting and preprinting or printing the information of label according to customer's demand. Label is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.5.4 Production of Tube

Tube (566185921E) is produced in supplier's plant situated in the north of Austria. The weight of the tube is 97.5 grams. At first raw tube (provided by subsupplier) is produced through carbon steel rolling and welding and then coating, painting and shaping. HCl which is used for purification in this process is provided by subsupplier located in northeast of Austria. The raw tube purified by HCl and then drawn with internal rod. This process is followed by annealing at 900°C and then continues with drawing process again and annealing at the same temperature. After that, the tube is trued shaped through bending, stamping and expanding. Finally tube is inspected and packed and transported to Autoliv in Hungary by long distance truck with semi-trailer. Flowchart for tube manufacturing process is illustrated in Figure 10.

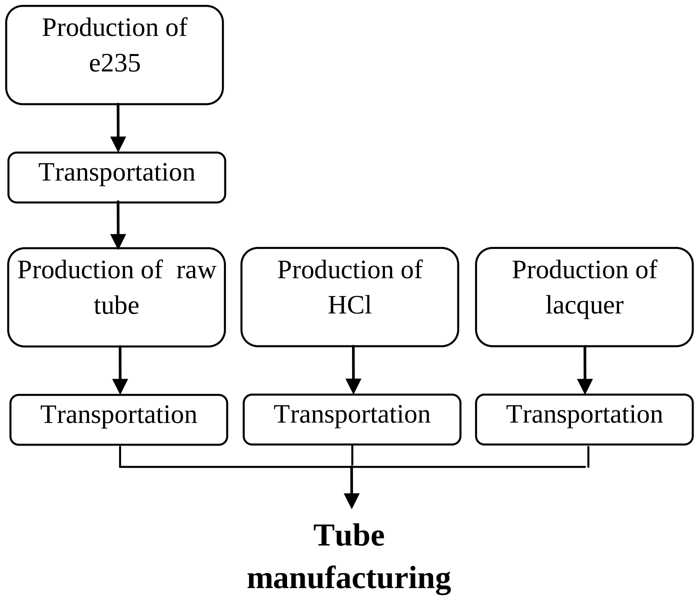

Figure 10 Flowchart of tube manufacturing process

6.2.5.5 Production of compression spring

Compression spring (566186325A) is produced in supplier's plant located in the north of Germany. The weight of the spring is 0.37 gram and it is made of stainless steel which is produced in South Korea and transported to Germany by airplane and long distance truck with semi-trailer. Spring is shaped through winding and heating process. Inspected and packed spring is then transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.5.6 Production of Ball car sense

Ball car sense (566217331A) is produced in suppliers' plants situated in the northeast of Tunisia and in the center of Germany. The weight of the ball is 1.65 grams and 12 balls are used in production of each tube. It is made of aluminium alloy (AlCu4MgSi) which in case of Tunisian supplier, it is supplied from France and US and transported to Tunisia by large ship. Ball is shaped through pressing and then by flashing the surface defects are removed. It is then polished to achieve the smooth surface. Balls are transported to Autoliv in Hungary by ship and long distance truck with semi-trailer from Tunisia balls. In case of German supplier, sub suppliers distances are 300km and 350km. The ball is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.5.7 Production of Piston

Piston (566271411B) is produced in supplier's plant situated in the center of Germany. The weight of the piston is 0.84 gram and it is made of an elastomer called NBR. Piston is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.5.8 Production of spring anti retour

Spring anti retour (600275100B) is produced in supplier's plant located in the south west of Germany. The weight of the spring is 0.28 gram and it is made of stainless steel which is provided by subsupplier which is located in the west of Germany. Spring is shaped through winding and then it is heated. Packed and inspected spring is then transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.5.9 Assembly of Gas generator

Gas generator (603904411B) assembly process takes place in Autoliv plant in Survilliers, France (NCS). The weight of the gas generator is 11.249 grams. Gas generator consists of nine subcomponents named, holder, shunt ring, sealant, o-ring, initiator, cup, propellant BTU, propellant B7T and bar code. A schematic picture of a gas generator and its components and the simplified flowchart of it are illustrated in Figures 11 and 12 respectively. The assembled gas generator is transported to Autoliv in Hungary by long distance truck with semi-trailer.

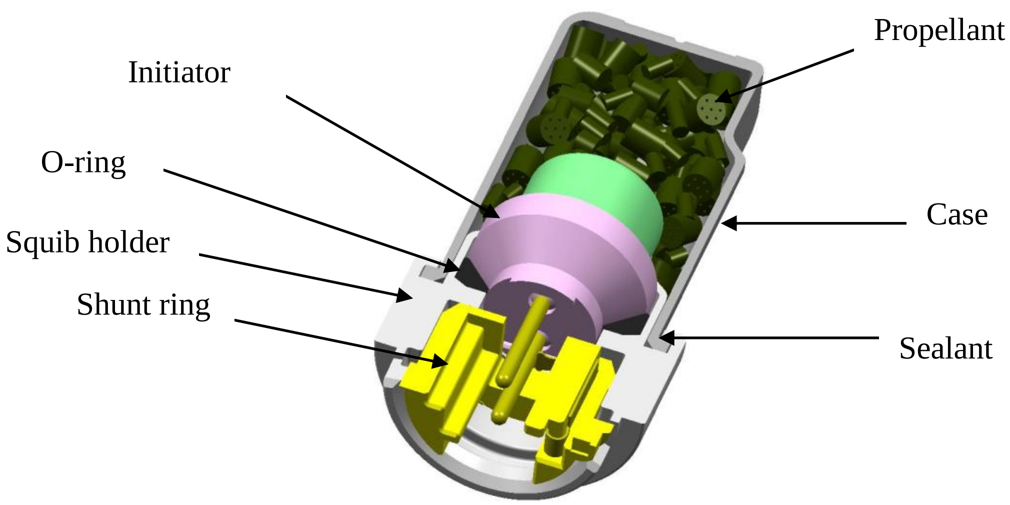

Figure 11 Gas generator at a glance

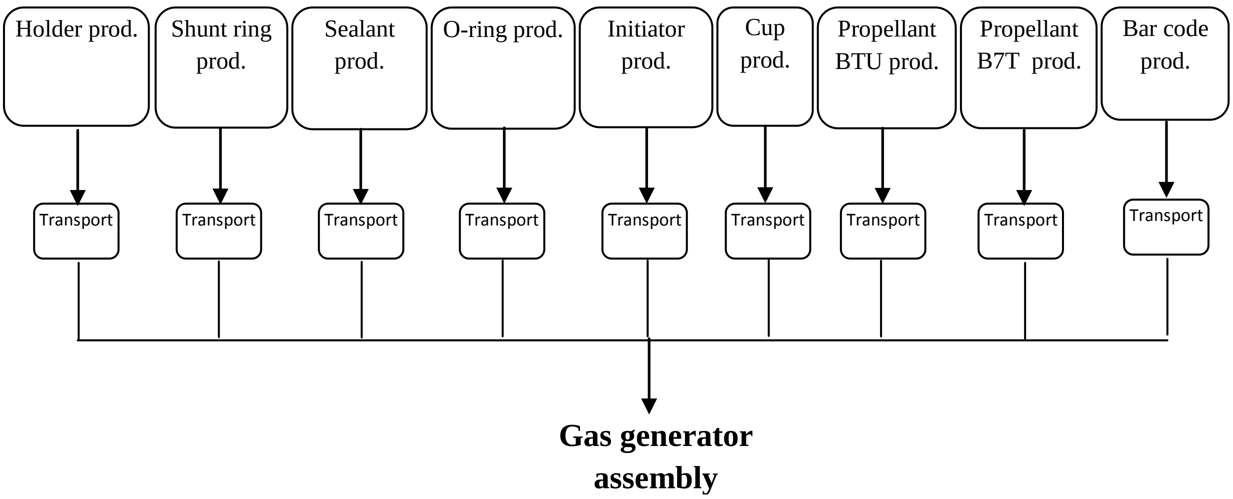

Figure 12 Simplified flowchart of gas generator assembling process

6.2.5.9.1 Production of Holder

Holder (554627100C) is produced in supplier's plant situated in the north of France. The weight of holder is 3.119 grams and it is made of alloy AlMg1SiSn which is provided by sub supplier in the north of France. Holder is transported to Autoliv in France by long distance truck with semi-trailer.

6.2.5.9.2 Production of Shunt ring

Shunt ring (554645211A) is produced in supplier's plant situated in the center of Germany. The weight of shunt ring is 0.454 gram and it is made of alloys (Ep-Fe/Au, Ep-Fe/Ni and CuBe2) and thermoplastic (PBT-GF10) and is manufactured through automatic machine.

Assembled shunt ring is transported to Autoliv in France by long distance truck with semi-trailer.

6.2.5.9.3 Production of Sealant

Sealant (554505100A) is produced in supplier's plant located in the east of Ireland. The weight of this adhesive that is used to fill the gap between assemblies and joints in gas generator is 1 gram. The manufacturing process is a mixing and blending operation and it mainly made from adhesive (PAK). Raw materials are charged to the vessel in specified quantities and order of addition. Every batch is tested during quality control and when approved it is transferred to the Bottling & Packaging Department where it is filled into a variety of pack sizes. The product is then shipped to supplier's branch in France by ship and truck and then to Autoliv in France by long distance truck with semi-trailer.

6.2.5.9.4 Production of O-ring

O-ring (554500600A) is produced in supplier's plant located in the west of France. The weight of o-ring is 0.1 grams and it is made of EPDM rubber. O-ring is transported to Autoliv in France by long distance truck with semi-trailer.

6.2.5.9.5 Assembly of Initiator

Initiator (603395800A) assembling process takes place in Autoliv plant in Survilliers, France (NCS). The weight of initiator is 4.125 grams. Initiator consists of ten subcomponents named, initiator overmoulding, header, PCB, solder paste lead free, solder alfafry, paste, powder, loaded cup, o-ring and cover. The simplified flowchart for tube assembly is illustrated in Figure 13. The assembled initiator is transported to Autoliv in Hungary by long distance truck with semi-trailer.

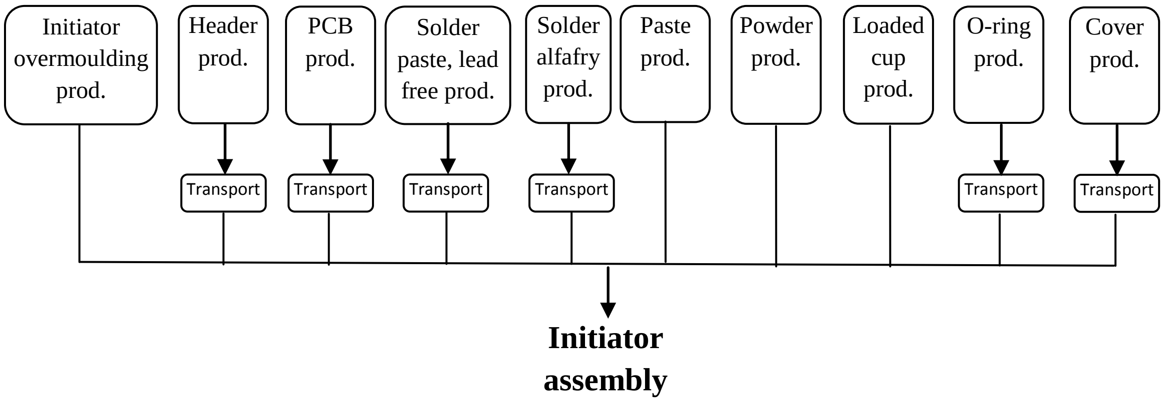

Figure 13 Simplified flowchart of initiator assembly process

6.2.5.9.5.1 Production of Initiator overmoulding

Initiator overmoulding (603692712A) is produced in Autoliv plant in France (NCS). The weight of initiator is 0.418 gram and it is made of granules through thermoplastics extrusion process which is performed by subsupplier in France. Thermoplastic (PA66) and glass fiber which is used for granule production are respectively provided by suppliers from Italy and Malaysia. The initiator manufacturing flowchart is showed in Figure 14.

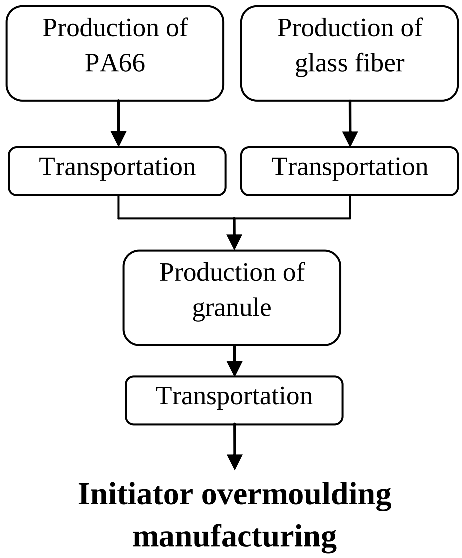

Figure 14 Flowchart of initiator overmoulding manufacturing process

6.2.5.9.5.2 Production of Header

Header (554813900A) production takes place in supplier’s plant located in the northeast of Czech Republic. The weight of header is 1.9147 grams and it is made from steel, ceramic glass and coating materials which are nickel and gold and steel 11SMnPb37 and alloy NiFe47. The header is transported to Autoliv plant in France by long distance truck with semi-trailer. The flowchart for the manufacturing of header is showed in Figure 15.

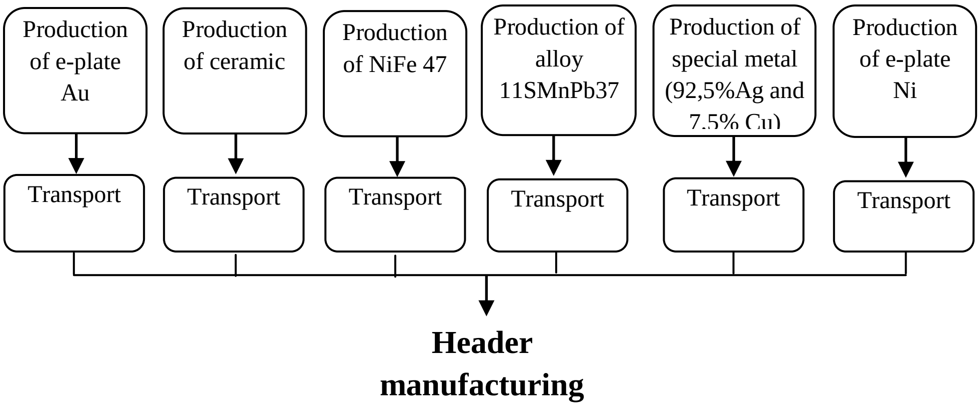

Figure 15 Flowchart of header manufacturing process

6.2.5.9.5.3 Production of PCB

Printed Circuit Board or PCB (615928400A) is produced in supplier's plant located in the west Switzerland. The weight of PCB is 0.009675 gram and it is made from copper for coating, duromer (EP-GF50), alloys (NICR80-20 and electroless tin) and acrylic resin. The PCB is made of two metalized areas and one resistive element (2W) which produces heat when the current goes through it. The PCB is transported to Autoliv plant in France by long distance truck with semi-trailer.

The flowchart for the manufacturing of PCB is showed in Figure 16.

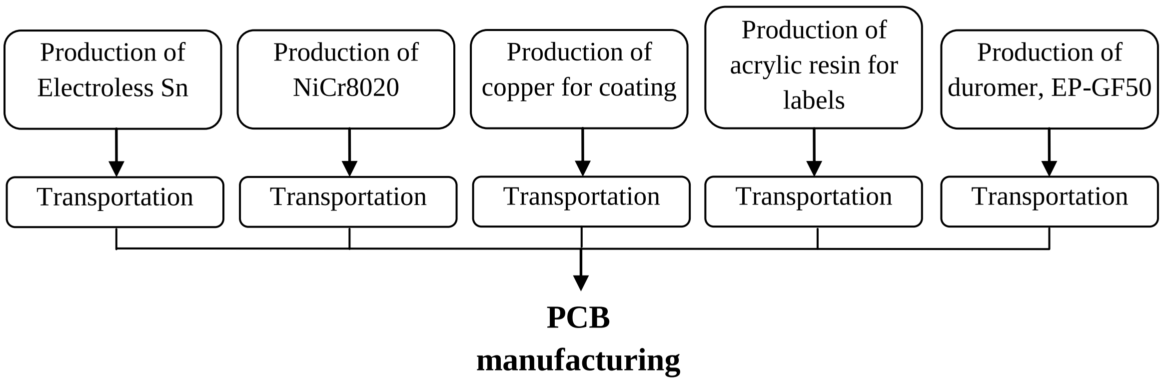

Figure 16 Flowchart of PCB manufacturing process

6.2.5.9.5.4 Production of Solder paste lead free

Solder paste (608838600A) is produced in supplier's plant situated in the east of France and it weighs 0.01 gram. It is produced through mixing of alloys (Sn62Pb36Ag2) and flux and fulfilling the plastic syringe. Solder paste is transported to Autoliv plant in France by medium size distribution truck.

The flowchart for the manufacturing of solder paste as well as solder alfafry is shown in Figure 17.

6.2.5.9.5.5 Production of Solder alfafry

Solder alfafry (554810600A) weighs 1 gram and it is produced by two suppliers which are located in the east and west of France. It is produced through mixing of alloys (Sn96Ag3Cu1) and flux and fulfilling the plastic cartridge.

Solder paste is transported to Autoliv plant in France by long distance truck with semi-trailer.

The flowchart for the manufacturing of solder alfafry and solder paste is showed in Figure 17.

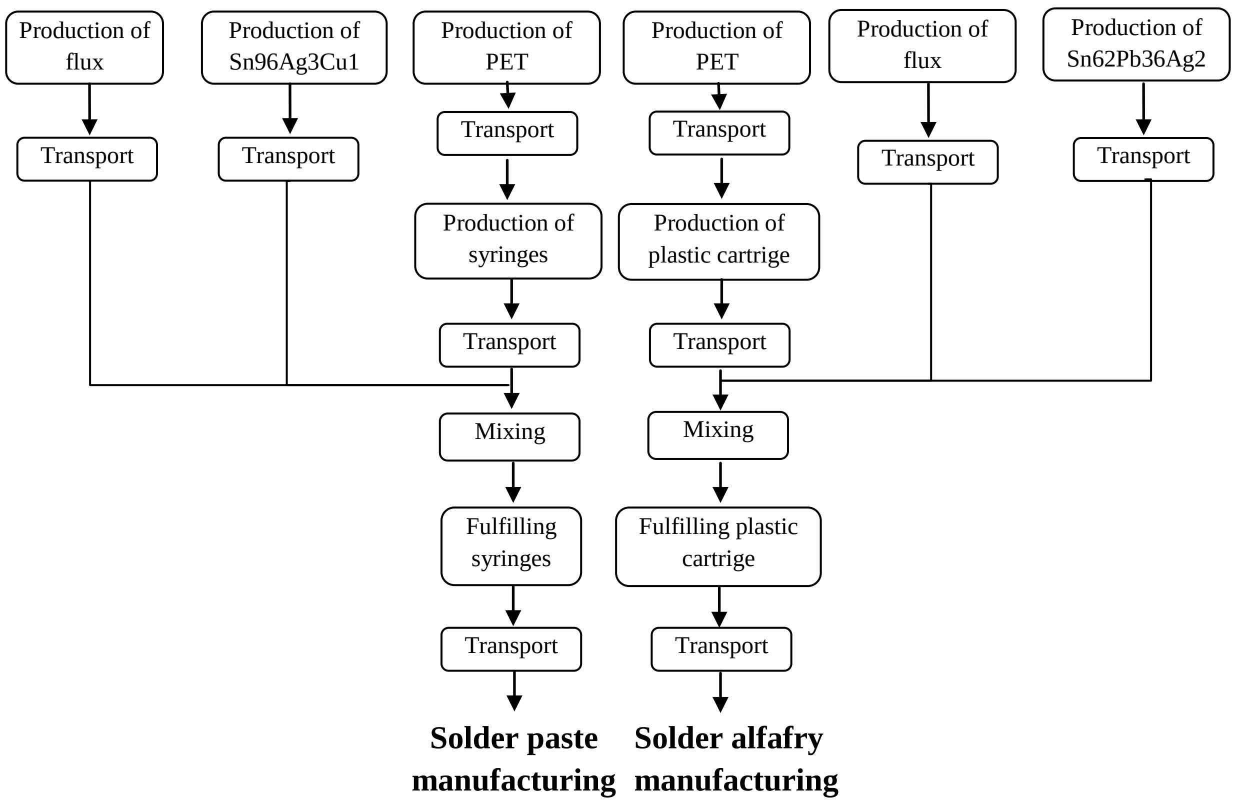

Figure 17 Flowchart of solder paste and solder alfafry manufacturing process

6.2.5.9.5.6 Production of Paste

Paste (554823600A) is produced in Autoliv plant in Survilliers, France (NCS). The weight of initiator is 0.017 gram and it is made from potassium perchlorate and zirconium.

6.2.5.9.5.7 Production of Powder

Powder (554803200B) is produced in Autoliv plant in Survilliers, France (NCS). The weight of powder is 0.045 gram and it is made from potassium perchlorate and titanium-dihydride.

6.2.5.9.5.8 Production of Loaded cup

Loaded cup (603338100A) is produced in Autoliv plant in Survilliers, France (NCS). The weight of Cup is 0.575 gram and it is made from steel (DC06) and e-plate ZnNi.

6.2.5.9.5.9 Production of O-ring

O-ring (554808900A) production takes place in supplier's site situated in the west of France. It weighs 0.0327 gram and it is made from thermoplastics (Elastomer FKM). O-ring is transported to Autoliv in France by long distance truck with semi-trailer.

6.2.5.9.5.10 Production of Cover

Production of Cover (603056705A) takes place in supplier's plant situated in the north of France. The weight of cover is 0.1 gram and it is made of thermoplastic (PA66-GF20) through plastic injection molding process. The cover is transported to Autoliv plant in France by long distance truck with semi-trailer.

6.2.5.9.6 Production of Cup

Production of cup (603338100A) takes place in Autoliv plant in Survilliers, France (NCS). Cup weighs 1.85 grams and it is made of steel (DC06) which is provided by subsupplier located 270km from NCS and e-plate ZnNi(12-15) for coating which is provided by subsupplier situated 470km from it. Cup is shaped through stamping of steel and then it is coated.

6.2.5.9.7 Production of Propellants BTU and B7T

Propellants' BTU (554503301B) and B7T (554515401B) production takes place in supplier's site located in the southwest of France. They weigh 0.2 gram and 0.4 gram respectively and are made from highly flammable compound named nitrocellulose and an organic compound named diphenylamine. BTU and B7T are transported to Autoliv in France by long distance truck with semi-trailer.

6.2.5.9.8 Applying Bar code

Bar code (554823200B) application takes place in Autoliv plant in Survilliers, France (NCS). It weighs 0.001 gram and it is made of black and white inks with required additives respectively provided by companies in France.

6.2.6. Production of Cover spring side green (1)

Assembly of cover spring side 1(566184851D) takes place in supplier's plant situated in the center of Germany. The cover's weight is 124.688 grams and it consists of five subcomponents named; spring retraction (567469A), cover spring side (566184931G), bearing bush (566185711A), spring core (565283B) and number label (607027800A) which respectively weigh 54.95 grams, 69 grams, 0.22 gram, 0.5 gram and 0.018 gram. These subcomponents are assembled together in the following steps to shape the cover. First spring is assembled to spring cover using lubricants and then spring core is assembled to bearing bush and spring in cover. The assembled cover spring side is then packed and transported to Autoliv in Hungary by long distance truck with semi-trailer.

The cover manufacturing process is illustrated in Figure 18.

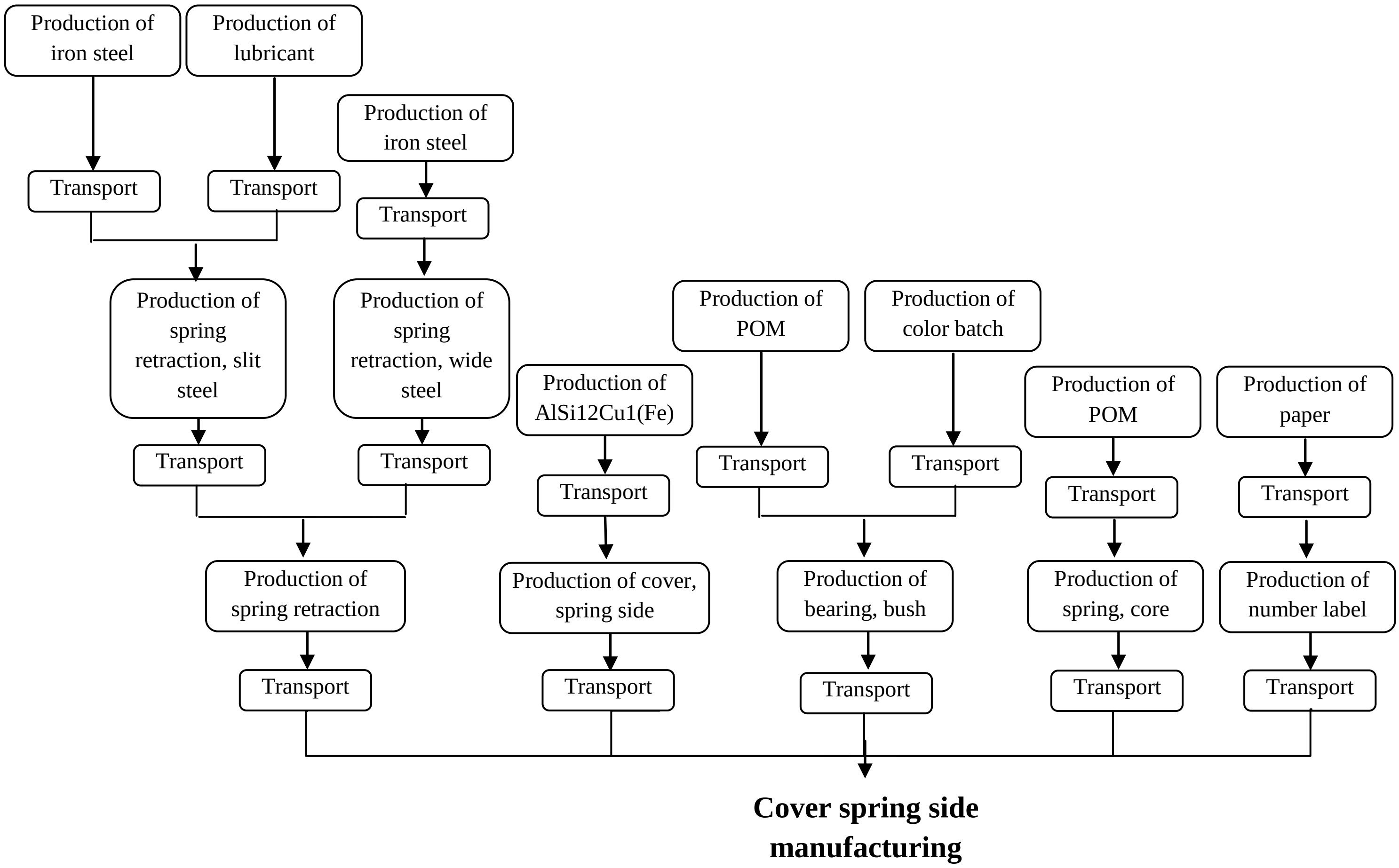

Figure 18 Flowchart of cover spring side manufacturing process

6.2.7. Production of Cover spring side (2)

Cover spring side 2 (566187011G) is produced in supplier's site located in the north of Germany. It weighs 6.1647 grams and is mainly made from thermoplastic through injection molding process. Medium size truck is used for transport of raw material from sub supplier's plant in the north of Germany. Cover is transported to Autoliv plant in Hungary by long distance truck with semi-trailer.

6.2.8. Production of Rivet nut

Production of rivet nut (616066100A) takes place in supplier's plant situated in the north of Germany. It weighs 3.211 grams and two rivet nuts are used in the production of each pretensioner retractor. It is mainly made of iron steel, zinc layer and thick layer Zn/ZnFe/ZnN and it is shaped through pressing of iron steel and then it is washed and coated. Rivet nuts are packed and sorted by 100% control sorting machines. Then it is transported to Autoliv plant in Hungary by long distance truck with semi-trailer. Rivet nut manufacturing process is illustrated in Figure 19.

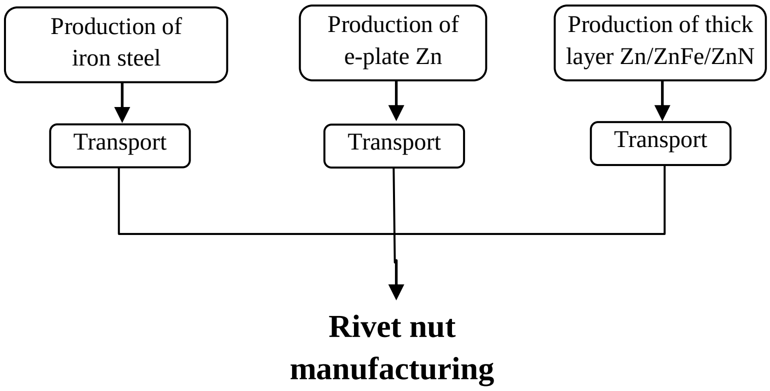

Figure 19 Flowchart of rivet nut manufacturing process

6.2.9. Production of Spindle

Spindle (608142500B) production takes place in Autoliv Plant in Sopronkövesd, Hungary (ALH). It weighs 229.9182 grams and consists of eight subcomponents named; safety plate (561029321A), spring wire (566291121C), gear wheel (566281621A), tread head (600975303A), bar torsion (560968621B), bobbin (601568500A), gear ring (602707500B) and barcode (600798400A) which respectively weigh 2 grams, 3.211 grams, 8.0072 grams, 40 grams, 38 grams, 101 grams, 35 grams and 0.9 gram. The main materials which are used in spindle production are alloys (61.7%) and steel (37%) and the rest are chemicals, paper and acrylic resin.

Spindle is transported to Autoliv plant in Hungary by long distance truck with semi-trailer. Spindle manufacturing process is illustrated in Figure 20.

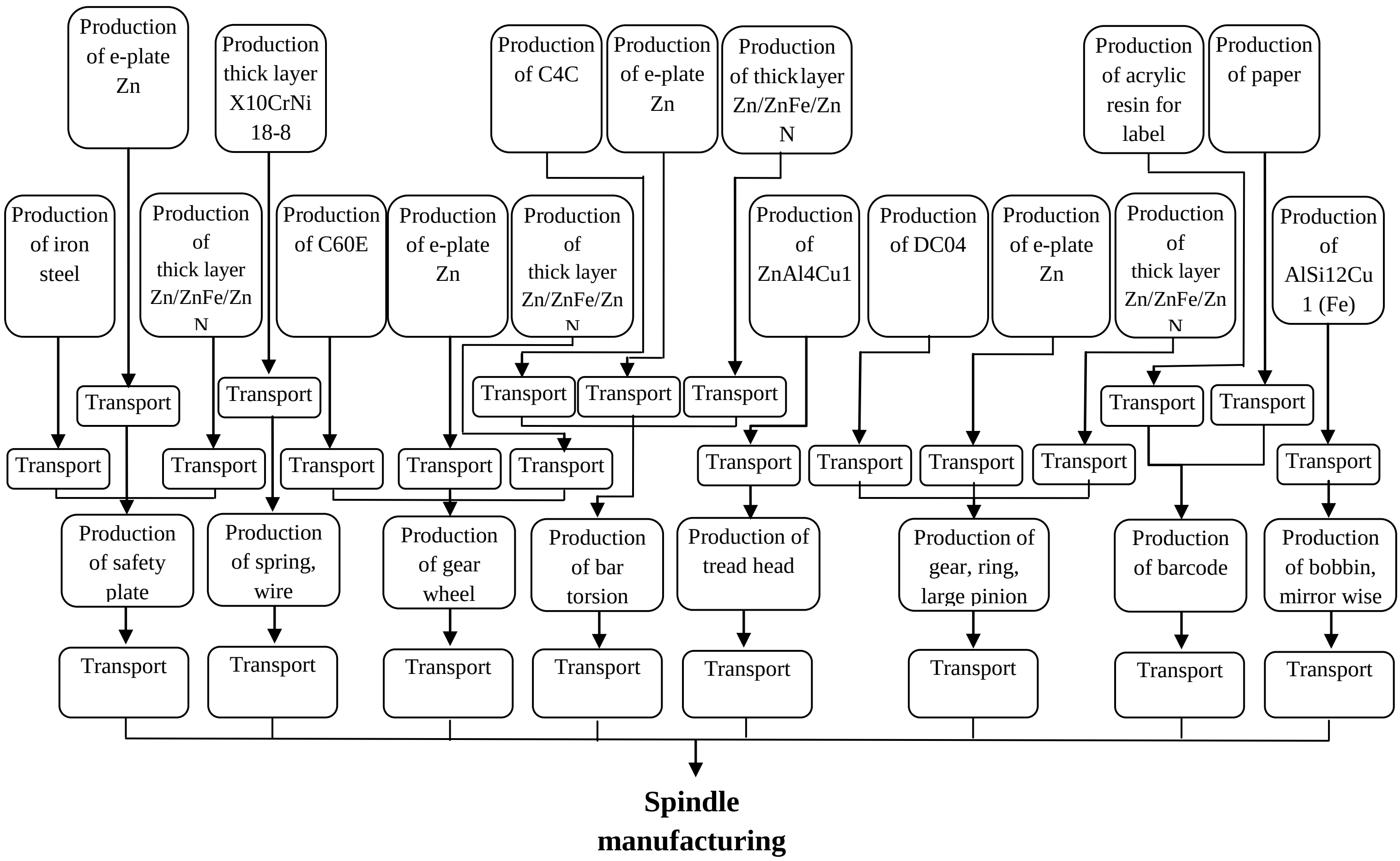

Figure 20 Flowchart of spindle manufacturing process

6.2.10. Production of Sensor Web Sense

Sensor web sense (566107600E) production takes place in Autoliv plant in Sopronkövesd, Hungary. The weight of the web sensor is 18.035 grams and it consists of four subcomponents named ratchet wheel (602916500A), lever web sense (602917000B), spring web sense (56609800B) and mass web sense (602916600A) which respectively weigh 5.7 grams, 0.3 gram, 0.035 gram, 12 grams. Sensor manufacturing process is illustrated in Figure 21.

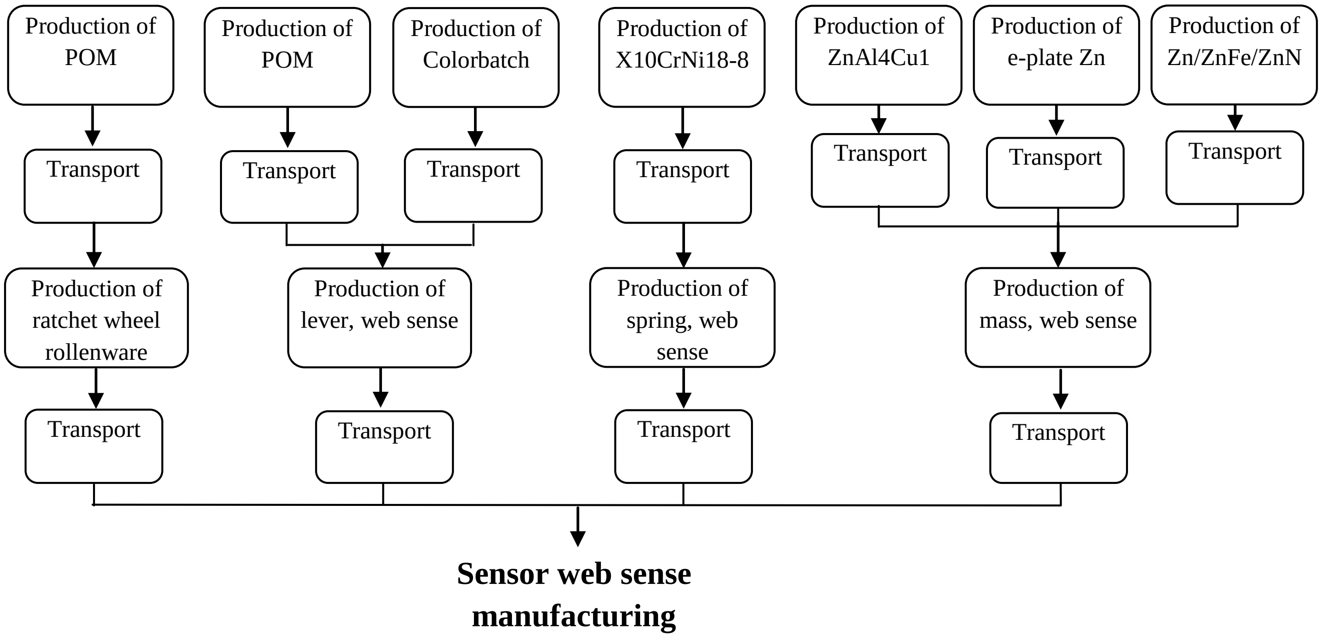

Figure 21 Flowchart of sensor web sense manufacturing process

6.2.11. Production of Bearing plate

Production of bearing plate (566025500E) takes place at supplier's site situated in the center of Germany. The weight of bearing plate is 10 grams and it is made of thermoplastic (POM) and colorbatch, which are respectively provided by suppliers from the north and the east of Germany using long distance truck with semi-trailer. Bearing plate is produced through injection molding process and transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.12. Production of Sensor Car sense

Production of sensor car sense (601842400A) takes place in supplier's site situated in the north of Germany. The weight of car sensor is 2.56 grams and it consists of three parts named; spindle achse (566001300A), housing ball (601842600A) and lever car sense (601842800A) which respectively weighs 1.05 grams, 1 gram and 0.56 gram. Sensor is transported to Autoliv in Hungary by long distance truck with semi-trailer. Car sensor manufacturing process is illustrated in Figure 22.

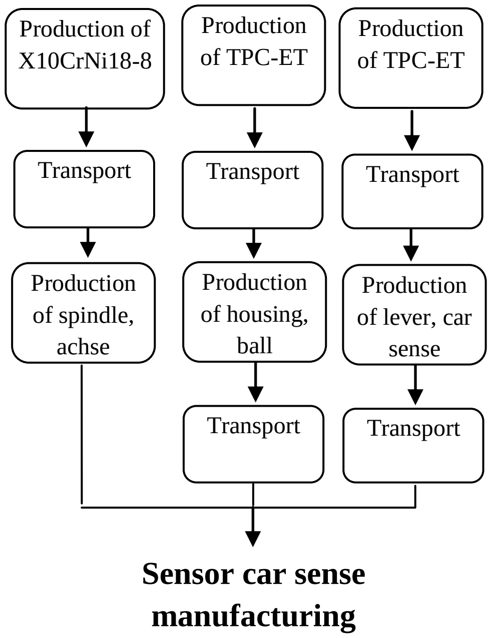

Figure 22 Flowchart of sensor car sense manufacturing process

6.2.13. Production of Ball for car sense

Ball for car sense (600574200A) is produced in supplier's plant located in the center of Germany. The weight of the ball is 9 grams and it is made of stainless steel (X46Cr13) and lubricant. Ball for car sense is shaped through pressing and then surface defects are removed through flashing and it is polished to achieve smooth surface. Ball is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.14. Production of Cap

Cap (608849400C) is produced in supplier's plant located in the northeast of Slovenia. The weight of the cap is 9 grams and it is made of thermoplastic E/P. It is produced through injection molding process and transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.15. Production of Label identification

Label identification (600822800A) is produced in supplier's plant situated in the east of Germany. The weight of the label is 0.095 gram and it is made from paper and acrylic resin which are provided by the company in the east of Germany. Label is then transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.2.16. Production of Label bam

Label bam (566292289B) is produced in supplier's site situated in the south of Germany. The weight of the label is 0.095 gram and it is made from thermoplastic (PET-I), acrylic resin, ink and paper. The produced roll of label bam is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.3. Production of Pin for Webbing

Production of pin (550786600A) takes place located in the west of Turkey. The weight of pin is 2 grams and its material is thermoplastic (POM). It is produced through injection molding process. Further additives are also added. Pin is then transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.4. Production of Data carrier

Data carrier (615486400A) is not a physical part. It is only the information that is printed onto the sleeve data carrier (561127510E) in Autoliv plant in Hungary.

6.5. Production of Guide for webbing

Guide (550651400B) is produced in supplier’s plant located in the northwest of Czech Republic. The weight of the guide is 6.3 grams and it is made of thermoplastic (POM) which is provided by subsupplier in Belgium. Guide is produced through injection molding process and is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.6. Production of Webbing

Webbing (615741100A) is produced in supplier’s plant situated in the west of Belgium. The weight of the webbing is 217.77 grams and it is made of yarn, dyestuffs and auxilliaries which are respectively provided by suppliers from Thailand (medium ship), Germany and Belgium. Webbing is formed through yarn weaving and then weaved yarn is dyed in dying process and finally it is cut into desired lengths for seatbelt. The final product is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.7. Production of Pillar loop

Pillar loop (560212255B) is produced in Autoliv Stakupress in Norderstedt, Germany. The weight of the pillar loop is 79.0096 grams and it is made of steel (C60S), thermoplastic (POM) and zinc flakes. The production process of pillar loop starts with stamping which is implemented on steel C60S by adding stamping oil and then through soft grinding the desired smooth surface is achieved. Then it is transferred to neighborhood supplier plant for heat treatment. Pillar loop is coated with zinc flakes and finally pillar loop is overmoulded in STA Rellingen. Pillar loop is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.8. Production of Tongue

Production of tongue (600917200A) takes place in Autoliv Stakupress in Norderstedt, Germany. The weight of the tongue is 52.493 grams and it is made of steel (C60E), thermoplastic (E/P), copper and chromium for coating and e-plate Ni. The production process steps of it are the same as in pillar loop case. However, in the end tongue is coated by copper and chromium. The tongue is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.9. Production of Stop button cover

Production of stop button cover (350670C) takes place at supplier's plant situated in the southeast of Germany. The weight of stop button cover is 0.5 gram. The main material is thermoplastic (POM) and it is produced through plastic injection molding process. POM is provided by subsupplier in west of Germany and transported to supplier's plant by medium size distribution truck. The stop button cover is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.10. Production of Stop button loop

Production of stop button loop (350662C) takes place at supplier's plant situated in the southeast of Germany. The weight of stop button loop is 0.5 gram. The main material is thermoplastic (POM) and it is produced through plastic injection molding process. POM is provided by subsupplier in west of Germany and transported to supplier's plant by medium size distribution truck. The stop button loop is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.11. Production of Sleeve data carrier

Sleeve data carrier (561127510E) is produced at supplier's plant situated in the southeast of Germany. The weight of data career is 6 grams. The main material is thermoplastic (E/P) and it is produced through plastic injection molding process. Thermoplastic is provided by subsupplier in west of Germany and transported to supplier's plant by medium size distribution truck. The data career is transported to Autoliv in Hungary by long distance truck with semi-trailer.

6.12. Assembly of seatbelt

Finally all the parts assembled together in Autoliv plant in Sopronkövesd, Hungary. The weight of the seatbelt is 1129.865 and it is transported to Audi plant in Ingolstadt, Germany by long distance truck with semi-trailer.

6.13. Installation of seatbelt

The studied seatbelt is installed in the car in Audi plant in Ingolstadt, Germany. Seatbelt together with the buckle and height adjuster are put into Audi A3 and fastened with screws.

6.14. Use phase of seatbelt

After seatbelt installation, it is sold to the customers. In this phase, the fuel consumption is the main issue causing environmental impact. Hence, the fuel consumption related to one seatbelt was based on its weight comparing to the whole car. The life time of the car was assumed to be 10 years or 200,000km. This assumption has been made based on the discussion with Autoliv supervisor. In the use phase there were included three activities: operation, maintenance and repair. Data for operational phase were calculated using software Copert 4 for the car with the gasoline engine 1.6-2.0 l, so it might be applied also for other cars. Some assumptions were done; data were calculated for Germany, for the year 2009. The data were calculated for 40% of urban conditions, 40% for (rural) and 20% for highway. The weight assumed for the car was 1295kg (the weight of Audi A3). It has to be noticed that if the weight was assumed as higher, the results would be different. Hence, if the weight were higher, the lower emissions would appear.

Data for maintenance and repair were adapted from LCI USCAR report (LCI USCAR, 1998). This study was done for three cars: Dodge Intrepid, Chevrolet Lumina and Ford Taurus. The average data were calculated in the end for those three cars. In this work the assumptions for allocation were done that the data are for Ford Taurus (model 1996) with engine 3.0l (average fuel consumption in the city 12.1 l and highway 8.2 l) and weight 1493 kg. It was also assumed that Audi A3 is recent model with engine 1.6 FSi (average fuel consumption in the city 9.4 l and on highway 5.4 l) and it weighs 1295 kg. The total fuel consumed for these cars is respectively 19240 l and 14290 l. The allocation was done based on fuel consumption and the weights of the vehicles.

6.15. End of life of seatbelt

The study for end of life for vehicles was mainly done for Europe. It was assumed that the numbers in US could be comparable with Europe (Torring, 2010). According to the European Directive 2000/53/EC on end of life vehicles, currently the rate of recovered car should be 85% and by the year 2015, 95%. Within these percentage numbers, 80% and 85% respectively has to be reused or recycled. Only 5% and 10% respectively can be used for energy recovery (EU-Directive, 2000).

The scenario for studied seatbelt was to be deployed in the car and shredded together with it (Heil, 2010). One of the biggest recycling companies in Sweden, Stena, states that 99-99,8% of the car is recovered in reality. 96-99% of metals like copper or aluminium and the same number for iron are recycled. 99% of plastics is energy recovered fraction (Torring, 2010). This indicates that in case of seatbelt there will be quite high ratio for recovering; 69.2% to 71.4% of it will be recycled and 26.4% will be recovered as energy.

The assumption for this project was that after the end of use phase, car is transported to first stage recycling company, which usually is workshop or garage. The distance to this site was assumed to be 50km (Torring, 2010). At this place, the parts and fluids such as batteries, oils, fuels, wheels, catalytic converters etc. are removed (Krinke, Dr. StephanKrinke, Boβdorf-Zimmer&Goldmann, 2005) and the seatbelt is deployed. The further step is to crash the remaining body into the lump and then sent to recycling company. The assumed distance for this transportation was 100km and the vehicle - medium size truck (Torring, 2010). In the recycling company the car is shredded and the small parts from this process are separated using different methods like: magnetic separation, water separation, wind stream etc.

In the calculations the recycling rate and energy recovery rate were not included. It was assumed that the seatbelt is single used. If this information was included, it would increase the severity of the meaning of use phase.

7. Inventory results

Inventory results concerning emissions (selected substances), energy and water consumption and total waste for the seatbelt's components production, use phase, and end of life are presented in Appendix VII.

8. Life Cycle Impact Assessment

In this chapter the results from classification and characterization phase are presented. Each table with results is followed by short a discussion.

In the beginning of this chapter some general comments have to be made. The first one is that percentage of data for production of materials and other stages in life cycle differs (see also chapter 10.2). Important is also that data for material production come from databases what means that they are more detailed. Data for production processes, installation, use phase and end of life are less detailed and were usually calculated through allocation, so there could be also deviations from real data. These facts can influence the results from impact assessment part and also the proportions between contributing activities.

It was expected that, due to the weight and complexity, pretensioner retractor will have the highest contribution in manufacturing phase analyses for all categories of impacts. Hence it is important to pay more attention to the other components and their contributions of total potential for each impact category.

In manufacturing contribution analyses all the processes connected with particular component were included: production of materials, transportation and manufacturing of components.

8.1. Global warming

The analysis of potential impact of global warming was calculated for 100 years. Substances that contribute to global warming are emitted during all of the phases in life cycle of seatbelt. Emitted substances from each phase of seatbelt life cycle have been characterized and added as CO2 equivalents. Some of the substances were excluded from the analysis since they have not appeared in inventory data.

The total global warming potential caused by life cycle of seatbelt is 40781g of CO2 equivalents. The most contributing in global warming potential substance is carbon dioxide. Carbon dioxide is emitted during all of the processes: production of materials, electricity, transportation, manufacturing, assembly, installation, use phase and end of life. Because of that, it is difficult to focus on some particular phase in life cycle, because most of them should be improved.

The subsequent significant substance is methane which comes from production both materials and components (mainly from electricity production), but also installation, use phase and end of life.

Third significant substance that has potential to cause global warming is nitrous oxide. This substance comes usually from production of steel. Data for steel production come from database and the used data come from 1996. There is a base to assume that nowadays the technologies of steel production have changed and they do not cause so significant damage to environment. So probably the results for nitrous oxide show the worst scenario.

Other substances have not so high potential to cause this impact category. They come from production of materials, but not in a high quantity.

Beneath on Figure 23 the contributions of subsequent activities in a life cycle are presented:

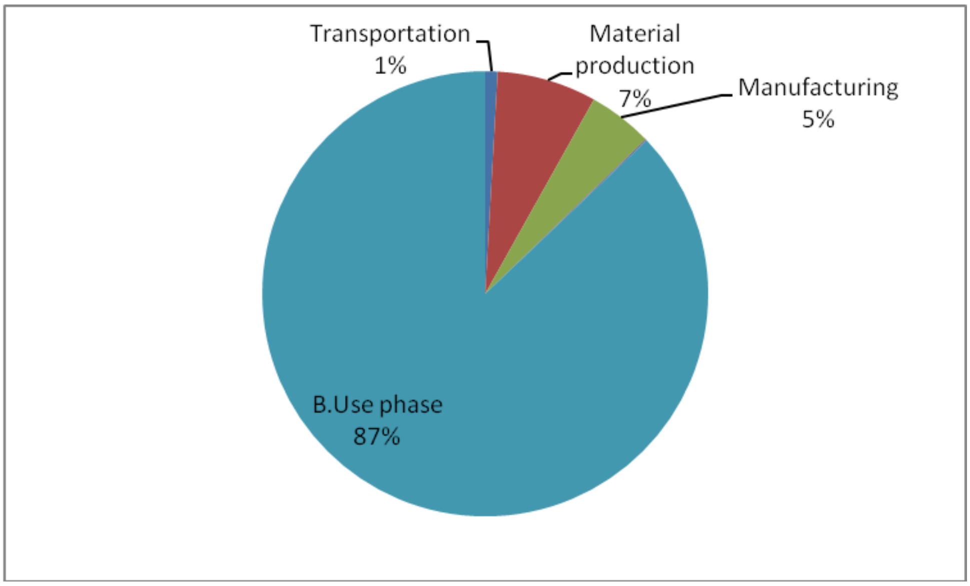

Figure 23 Contribution of subsequent activities in global warming potential

As it can be seen at the chart, the largest contribution has the use phase. It causes more than three fourth of total impact, which means that the attention should be put on this phase in order to mitigate the total impact. Severity of this phase is caused mainly by carbon dioxide emitted during combustion of fuel. Methane and nitrous oxide have very negligible importance.

Material production has the second and manufacturing of components the third biggest impact on global warming but in the comparison to use phase they have very low severity. As a contrary to expectations, transportation processes have very small contribution to total potential.

The subsequent analysis was done for manufacturing of components. According to expectations, pretensioner retractor has the highest potential to cause global warming (87%). Subsequent are productions of pillar loop (6%), webbing (3%) and tongue (3%). Pillar loop and tongue consist of some significant amounts of steel, during which production much of carbon dioxide and methane are emitted.

8.2. Acidification

Acidification is the second impact assessment category to be analyzed. Emitted substances responsible for acidification have been characterized and added as SO_2 equivalents. Similar to global warming, activities influencing acidification include all stages of life cycle – from material extraction to end of life. Some of the substances were excluded from the analysis since they have not appeared in inventory data.

The total acidification potential equals 75 grams of SO_2 equivalents. The two most significant substances contributing to acidification are respectively nitrogen oxide (50%) and sulfur dioxide (47%). Both of them are emitted during the whole life cycle: from extraction of materials to end of life and also transportation processes between manufacturing sites.

The rest of contributing substances is almost negligible. Ammonia (1%) for example is emitted during production processes (from electricity production), material extraction and production and also installation, use phase and end of life.

The contributing phases are shown at Figure 24.

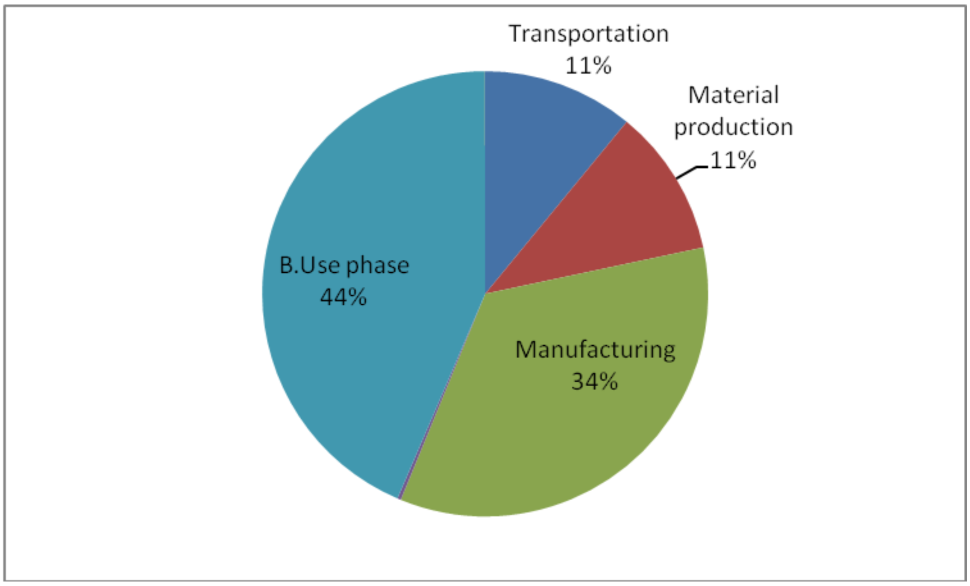

Figure 24 Contribution of subsequent activities in acidification potential

As it can be observed at the chart, the dominance of use phase is much lower than in global warming case. The second significant contributing group of activities is manufacturing due to mainly electricity production when the substances like nitrogen oxide, sulfur dioxide and ammonia are emitted but also manufacturing process of bobbin wise in China when high amounts of nitrogen oxide and sulfur dioxide are emitted. Considering the number of data for manufacturing in comparison to other activities, it might be suspected that contribution of manufacturing processes would increase if there were more data.

Third and fourth are respectively transportation and material production. Both of them have almost the same contribution and they are quite important in causing acidification.

The subsequent analysis was done for manufacturing of components. The dominance of pretensioner retractor is even higher (92%) than in global warming case. Out of the other parts, the highest contribution has webbing. The weight of it is 217.7g and the raw material is transported from Thailand what causes relatively high emissions of nitrogen oxide and sulfur dioxide. Also during the manufacturing process nitrogen oxide, sulfur dioxide and ammonia are emitted due to electricity production.

Pillar loop may cause 2% of total acidification, what mainly comes from steel production and final manufacturing of the product (also electricity production). Tongue and webbing guide contribute both in amount of 1% in total acidification.

8.3. Eutrophication

Emitted substances responsible for eutrophication have been characterized and added as PO4-3 equivalents. Some of the factors were excluded from this analysis due to lack of presence in inventory data. The total eutrophication potential is equal to 8,72 grams of PO4-3 equivalents.

The biggest influence on eutrophication in case of seatbelt has nitrogen oxide. The importance of the rest of the substances is practically negligible.

Nitrogen oxide comes from all the phases in life cycle of seatbelt. It comes mainly from combustion of fuel during use phase. The other contributing activities can be seen below.

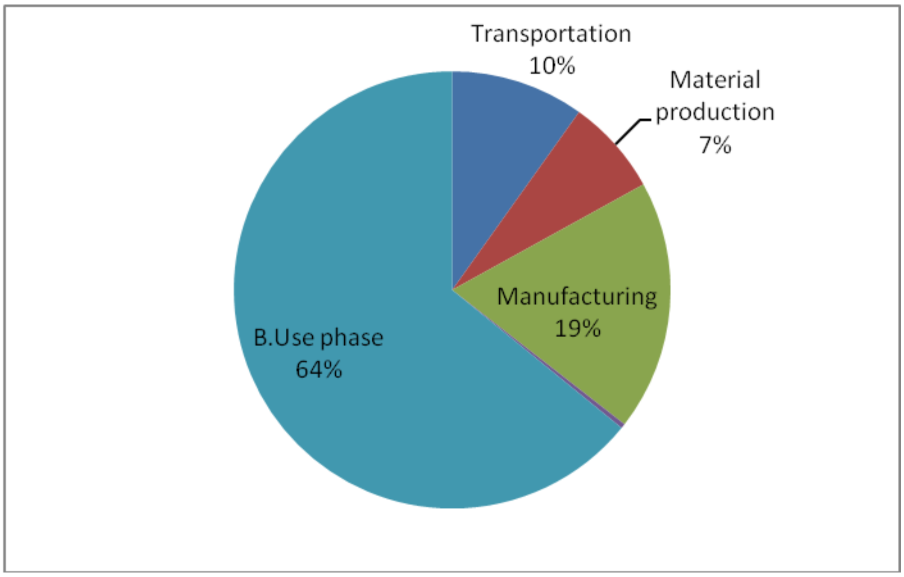

Figure 25 Contribution of subsequent activities in eutrophication

As it was written, the most important phase in life cycle from the point of view of eutrophication is the use phase. The subsequent but much lower severity has manufacturing of components, especially electricity production and manufacturing of bobbin in supplier's plant in China. The subsequent activity is transportation what confirms that activities connected with road transport have great influence on eutrophication. The last activity with some (7%) importance is material production.

The subsequent analysis was done for manufacturing of components. Pretensioner retractor has vast dominance in causing eutrophication (91%). The substances come from all the processes like material production, transportation and manufacturing of components.

Comparing the rest of components, webbing has the highest contribution (5%). Emissions come from transportation and electricity production. The subsequent are pillar loop (2%) (mainly production of steel, electricity, transportation), tongue (1%) (mainly production of steel and electricity, transportation) and guide webbing (1%) (material production, electricity production and transportation).

8.4. Ecotoxicity

Emissions of substances responsible for ecotoxicity have been characterized and added as equivalents of 1,4 dichlorobenzene. There are three main categories for ecotoxicity: to air, water and soil. Each of them was also divided into three subcategories: freshwater aquatic ecotoxicity (FAETP), marine aquatic ecotoxicity (MAETP) and terrestrial ecotoxicity (TETP). The results from subcategories were summed up and expressed as a total ecotoxicity for every category: air, water, soil.

The fact that has to be discussed before presenting the results is the reliability of the data. The substances in these categories are very specific and almost not mentioned by the suppliers. If any of them is mentioned, there is no division into air, water and soil. Some of the substances are emitted during electricity production (for example cadmium, mercury and lead) but not in a great amount. The rest of the substances exist only in general data for material production and use phase (for air only). That is why the results are deviated from reality and are dominated so much by material production and in case of air ecotoxicity – use phase (see also chapter 10.2).

8.4.1. Ecotoxicity – emissions to air

The total ecotoxicity potential from air emissions equals 90009 grams of 1,4 dichlorobenzene equivalents. The most severe ecotoxicity can be done to marine aquatic sphere (MAETP). The other fact is that the most important contributor here is nickel, which dominates quite significantly. Nickel comes mainly from material production processes but can be also emitted during manufacturing processes.

Different subcategories have different important substances. For freshwater aquatic ecotoxicity (FAETP) except nickel, there are also copper, zinc and vanadium. Most of them come from the use phase and material production. In marine aquatic ecotoxicity (MAETP), significant potential is caused also by copper, nickel, mercury and cadmium. All of them are emitted during use phase in vast amount but some like cadmium and mercury, are also emitted during material production and electricity production in manufacturing processes.

Below the comparison between activities can be seen.

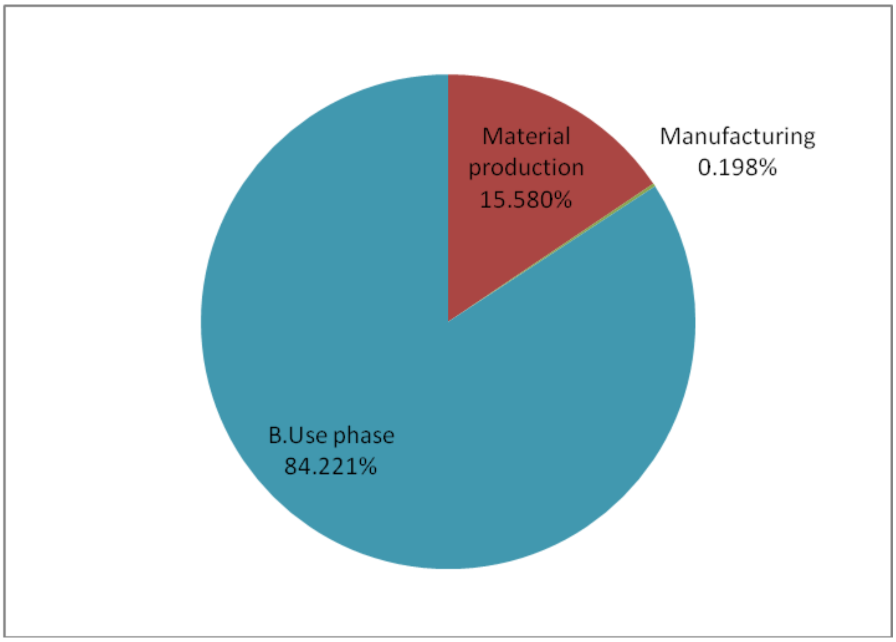

Figure 26 Contribution of subsequent activities in ecotoxicity potential - emissions to air

As it can be seen, use phase dominates very significantly. Some influence has also material production. During use phase many of toxic substances are emitted and since the distance was assumed to be 200000km, the total amount of them is quite significant.

The second analysis shows, that again pretensioner retractor dominates the results very significantly (98%). It is caused by the complexity and amount of materials. The two other components that have some contribution are tongue and pillar loop which are both produced by Autoliv Stakupress. Only this company delivered data about specific emissions like nickel, chromium, zinc and copper.

8.4.2. Ecotoxicity – emissions to water

The calculation in classification and characterization phase for ecotoxicity for emissions to water showed that the total potential is 5758 grams of 1,4 dichlorobenzene equivalents.

Nickel is again the dominative substance according to severity of ecotoxicity caused. In two first subcategories it is the most important. For freshwater aquatic ecotoxicity, the other important substances are copper, polyaromatic hydrocarbons and zinc. For marine aquatic ecotoxicity, except nickel, important are also copper, zinc and arsenic. In case of terrestrial ecotoxicity, the most significant is mercury. The rest is practically negligible. Having done the further analyses for steps and activities in life cycle of seatbelt it was discovered that all the substances that have influence on water ecotoxicity come only from material production and manufacturing processes. Other activities like transportation, installation, use phase and end of life have no influence on this ecotoxicity. The proportion between material production and manufacturing can be seen on the chart below.

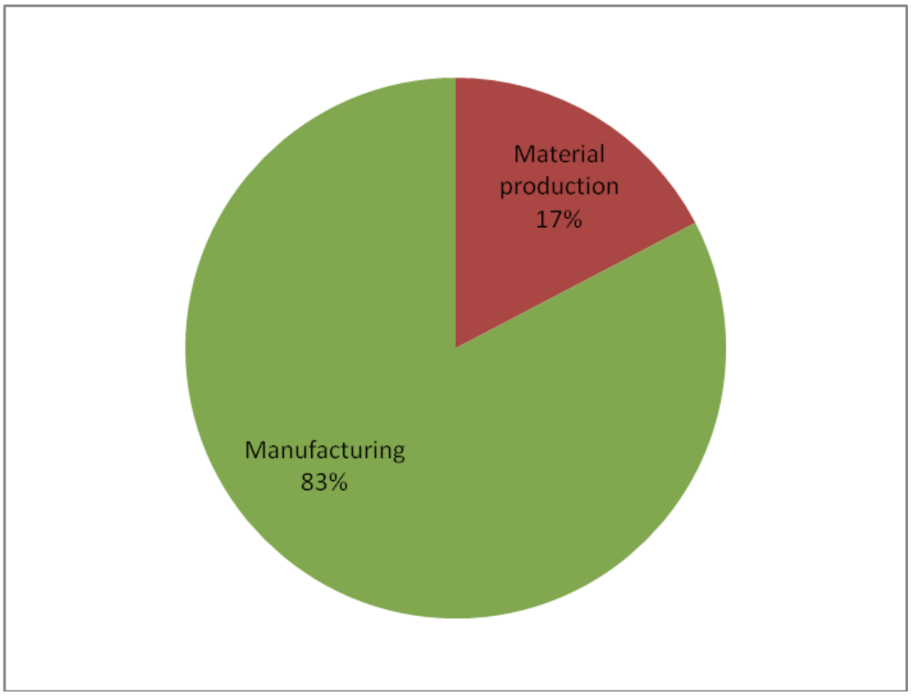

Figure 27 Contribution of subsequent activities in ecotoxicity potential - emissions to water

According to the chart, more than three fourth of the emissions causing this ecotoxicity comes from manufacturing. Activities connected with production of pretensioner retractor are the most harmful from the perspective of water ecotoxicity (54%). Productions of pillar loop (32%) and tongue (14%) have the second and third importance.

The reason for this distribution is that only one company (Autoliv Stakupress) provided so detailed data about the emissions (like zinc, copper, nickel and chromium). That is why the distribution on the first figure has these proportions.

8.4.3. Emissions to soil

The results from classification and characterization phase for ecotoxicity for emissions to soil show that the potential is equal to 3,09 grams of 1,4 dichlorobenzene equivalents.

For freshwater aquatic ecotoxicity, the most important factor is copper, for marine aquatic ecotoxicity nickel and for terrestrial ecotoxicity chromium.

All the emissions come from material production processes. 96% of them is emitted during the processes connected with production of pretensioner retractor. The other two parts that have any importance are pillar loop (2%) and tongue (2%) due to production of materials for coating. Since in pretensioner retractor there are many parts that are coated, this part dominates so significantly. The same explanation can be applied also for pillar loop and tongue. In both of them there are steel parts which are coated.

In general, the impact is quite low in comparison to other ecotoxicity categories. It is caused by the fact that the weight of metals for coating is usually very low.

8.5. Human toxicity

Emitted substances responsible for human toxicity have been characterized and added as 1,4 dichlorobenzene. In this case there are three main categories: air, water and soil. For every category there is a different factor and the quantities of substances are multiplied by them and in the end the total impact is summed. The total potential of human toxicity is equal to 1774g of 1,4 dichlorobenzene equivalents.

In comparison with ecotoxicity, two more substances are considered: sulfur dioxide and nitrogen dioxide. They are considered only for air human toxicity. The most important for first category are cadmium, nickel, copper, chromium VI and polyaromatic hydrocarbons. The rest of the substances have less importance. Most of the cadmium, nickel and copper come from use phase. Nickel comes also from the activities like production of materials and also manufacturing processes. Chromium VI and polyaromatic hydrocarbons come mainly from material production but also manufacturing processes. For water category, the most contributing are polyaromatic hydrocarbons and for soil category chromium III and lead. Chromium III comes mainly from material production and lead from material production but also manufacturing process (emitted also during electricity production).

Beneath we can see the origin of the total impact.

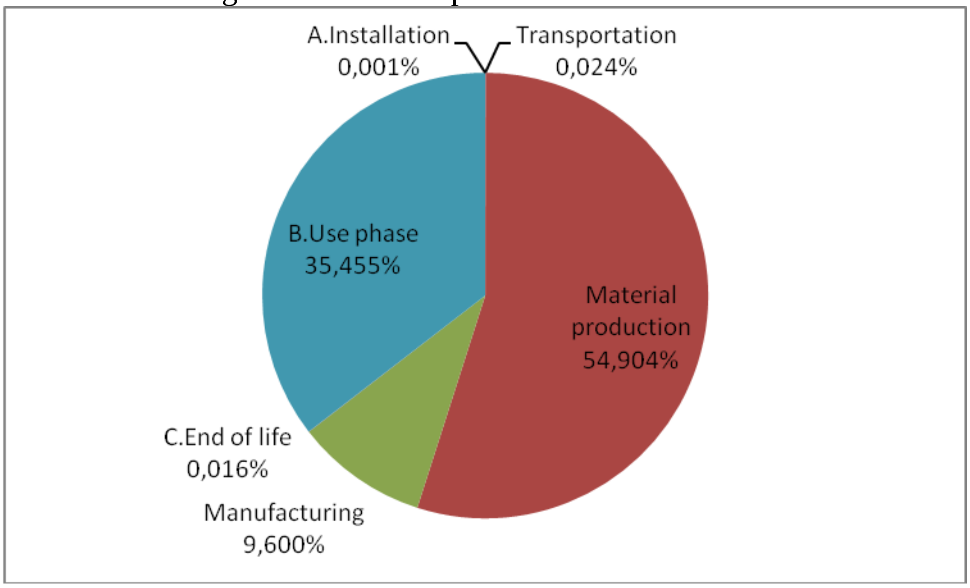

Figure 28 Contribution of subsequent activities in human toxicity potential

As it can be seen, impacts caused by end of life, installation and transportation are almost negligible, because their equivalent is below 1. The most contributing is material production (more than half). The other activities that contribute to total human toxicity are use phase and manufacturing.

Further analyses of material production, transportation and manufacturing led to creation of comparison between contributions of impacts connected with each part. It showed that the most important component in contributing to human toxicity is pretensioner retractor (91%). From the rest, the most important parts are pillar loop (5%), tongue (3%) and webbing (1%). What distinguishes pillar loop and tongue from the others is that these parts are quite heavy and consist of quite much of coated steel and plastics during which production quite much of specific substances responsible for human toxicity is emitted.

9. Analyses

9.1. Dominance analyses

In the dominance analyses the results will be analyzed again for different factors. In the next chapters energy consumption, chosen emissions, water consumption and waste will be analyzed.

9.1.1. Analysis of impact categories

In this analysis all the impact categories will be analyzed together with the most contributing phase of life cycle – production (material extraction, production, transportation between manufacturing sites, manufacturing of components and assembly), installation, use phase and end of life.

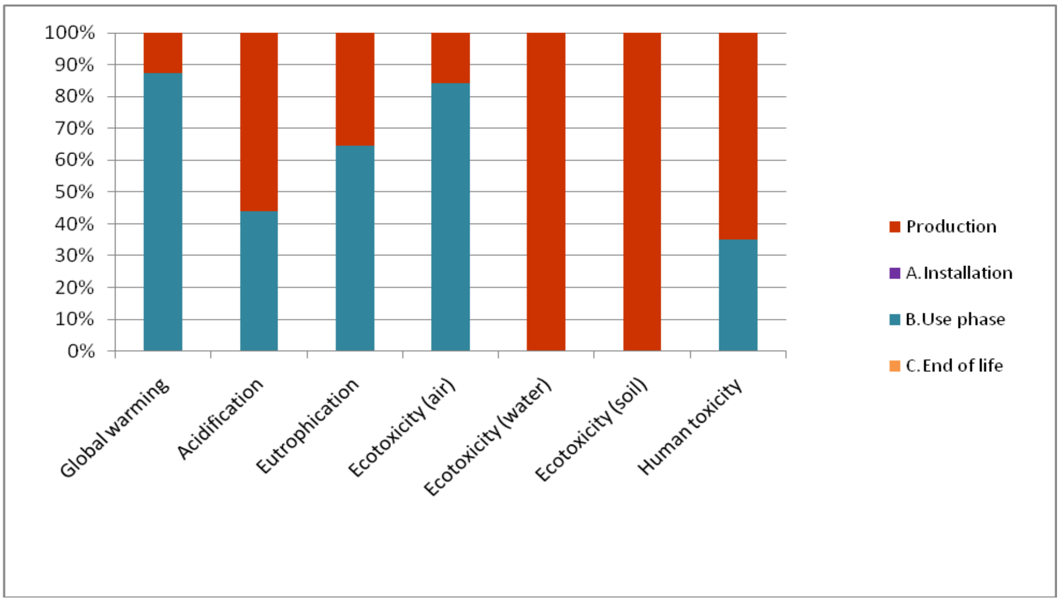

Figure 29 Contribution of each phase in seatbelt life cycle to each impact assessment category

As it can be seen in the chart the importance of installation and end of life is practically negligible.

In case of global warming, eutrophication and air ecotoxicity, the dominative position has use phase due to gases emitted during the combustion of fuel. Lower importance but still quite significant has production phase. For acidification and human toxicity bigger importance than use phase has manufacturing step.

In ecotoxicity for water and soil category overwhelming dominance has production phase, because the specific data with division into emissions to water and soil were given only for material production and some of manufacturing processes. This problem will be discussed in chapter 10.2.

9.1.2. Energy consumption

Total energy consumption during the whole life cycle is 640 MJ from different sources. It can be analyzed from two different perspectives: sorts of energy and which processes consume the most energy. The first analysis can be seen below.

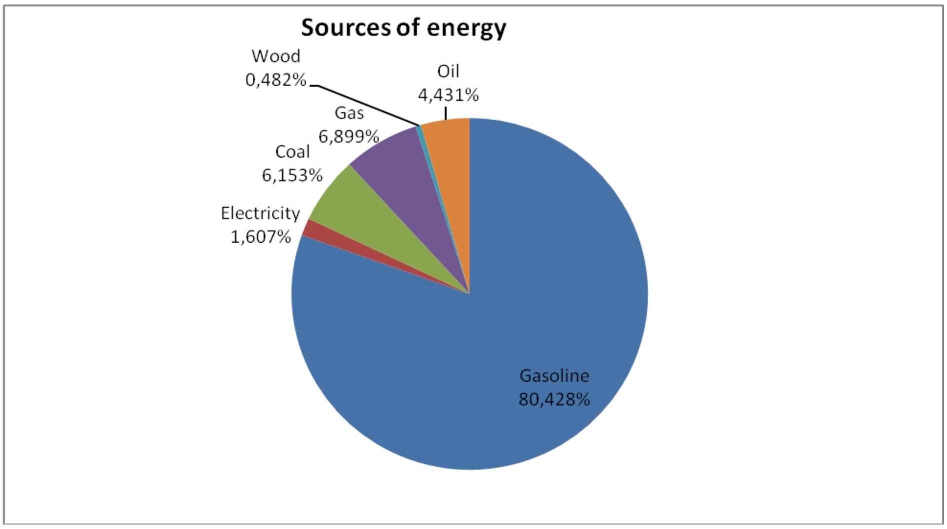

Figure 30 Types and proportions of energy consumption during seatbelt life cycle

As it can be seen the dominating source of energy is fuel, which is mainly consumed during use phase and some in transportation activities. From the rest gas and coal have the biggest contribution. Both of them are used mainly in material production phase, especially in steel production. The fourth source is oil which is used also in material production processes but also in maintenance and repair phase. The fifth source is electricity and it is used mainly during production phase in material production and manufacturing. Some of electricity is also used in installation and maintenance&repair phase.

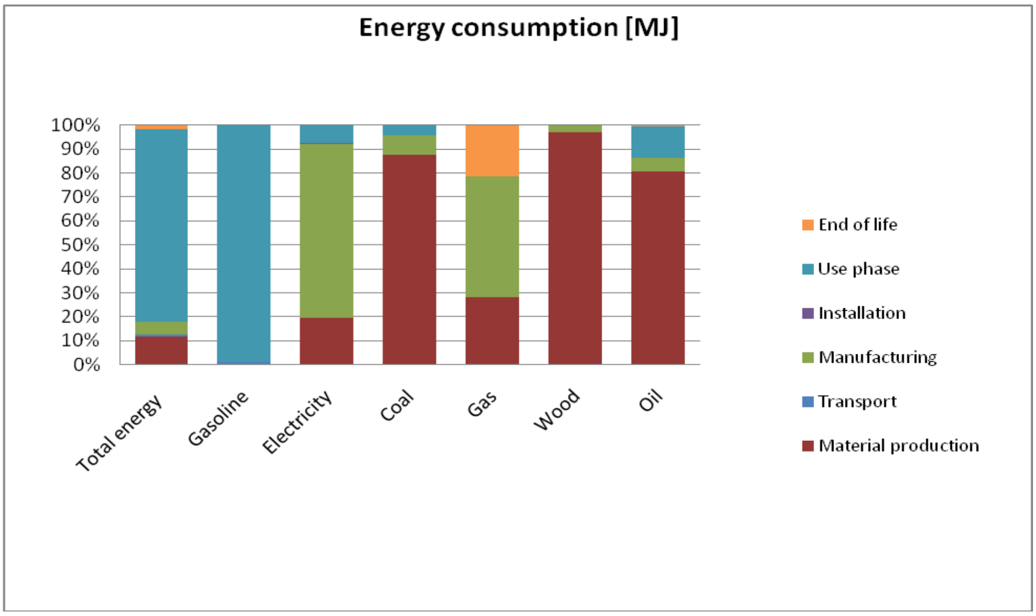

Figure 31 Energy consumption in each phases of seatbelt life cycle

As it can be noticed in the chart, use phase dominates in total energy consumption. Material production and manufacturing have some noticeable contribution as well. In case of fuel consumption, according to expectations, the use phase dominated transportation very significantly. Most of the electricity is used during manufacturing processes. Around one fourth of it is consumed for material production and some for use phase for processes connected with maintenance and repair in the use phase. In case of coal, the most is used for material production but also some for manufacturing (for electricity production) and use phase. Gas is mostly used in similar proportions during material production, manufacturing and end of life. Wood and oil are needed mainly in material production. As a contrary to wood which is used basically only during one phase, oil is consumed also in use phase (maintenance and repair) and manufacturing.

9.1.3. Emissions

Some of the analyses have been done and shown in appendix VII, where the emissions during processes connected with every component production and other phases were analyzed. In this part there will be discussed contribution of every phase in emission of few main substances. The subsequent analyses will be done for every activity – which substances were emitted during them based on the weight. In the latter part, all the substances will be presented in grams, except carbon dioxide due to its amount in every phase.

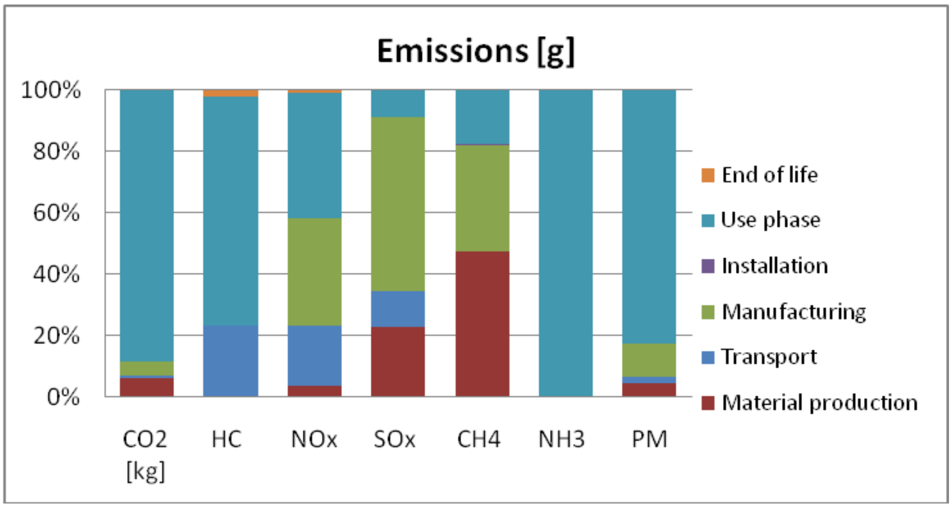

Figure 32 Substances emitted during each phases of seatbelt life cycle

Since analyzed substances are emitted in the high percentage while combustion of fuels, the dominating position in most of the cases has a use phase. Quite noticeable is also manufacturing, especially in sulfur oxide, particulate matter and nitrogen oxide emissions. Also transportation between manufacturing sites have some noticeable contribution to some emissions. Material production has quite high importance in case of sulfur oxide and methane.

Material production

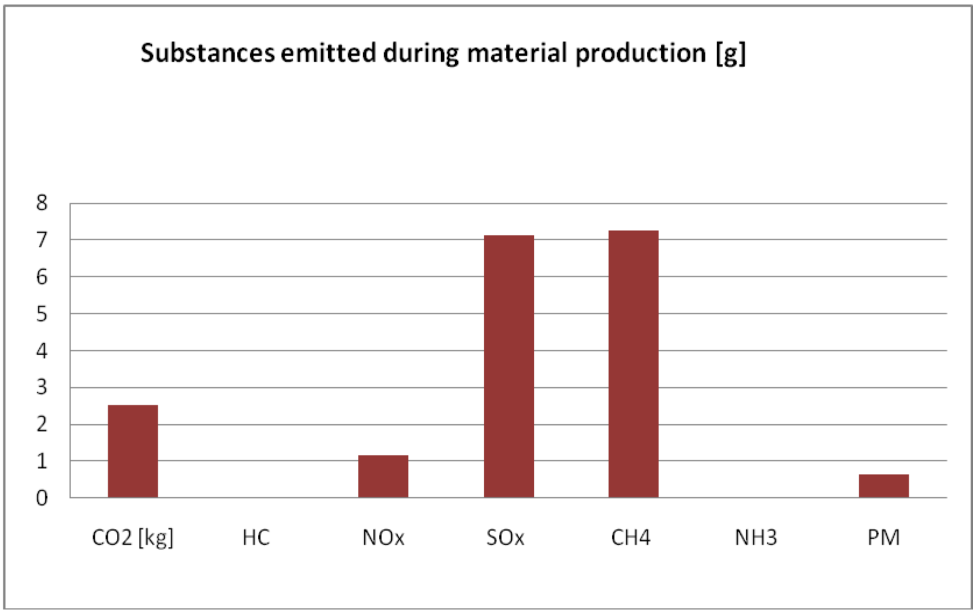

Figure 33 Substances emitted during material production [g]

As it can be seen, carbon dioxide has a decidedly dominative position among the rest of emitted substances. Sulfur oxide and methane are emitted also in quite significant amount. Carbon dioxide and methane influence global warming and sulfur oxide human toxicity and acidification. The rest of the substances is almost negligible.

Transportation

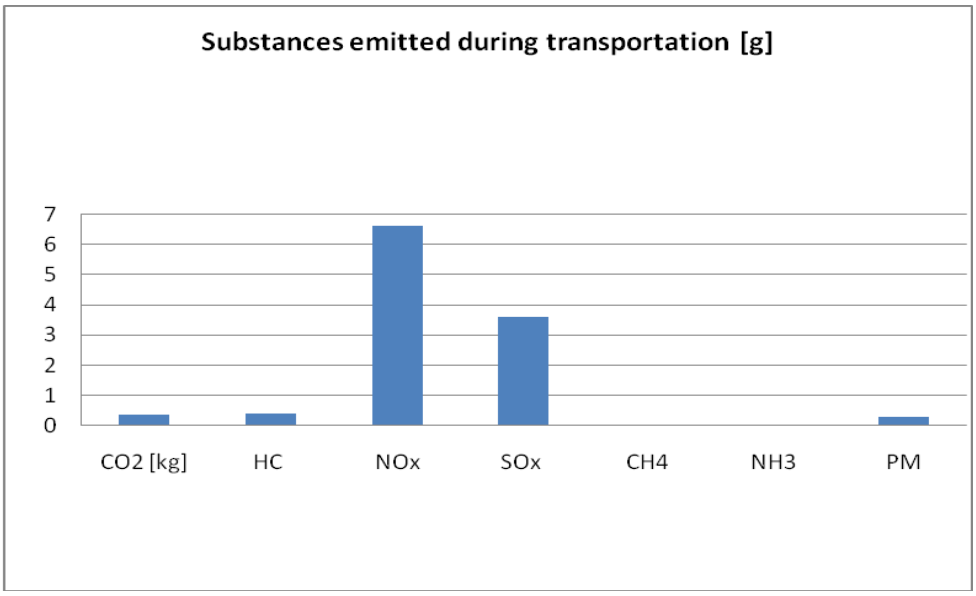

Figure 34 Substances emitted during transportation [g]

As it can be noticed during the transportation, the most important substances according to the weight (except carbon dioxide) are nitrogen oxide (NOx) and sulfur oxide (SOx). They influence acidification, human toxicity and in case of nitrogen oxide also eutrophication.

<u>Manufacturing</u>

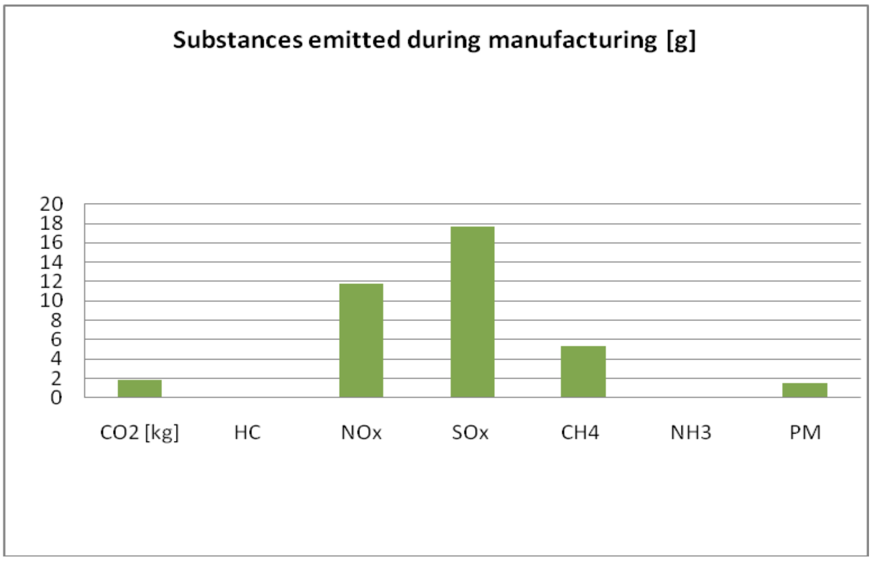

Figure 35 Substances emitted during manufacturing [g]

As it can be seen on the chart, except carbon dioxide, quite significant are also sulfur oxide and nitrogen oxide. Both of them are emitted during electricity production, but also in some manufacturing processes.

<u>Installation</u>

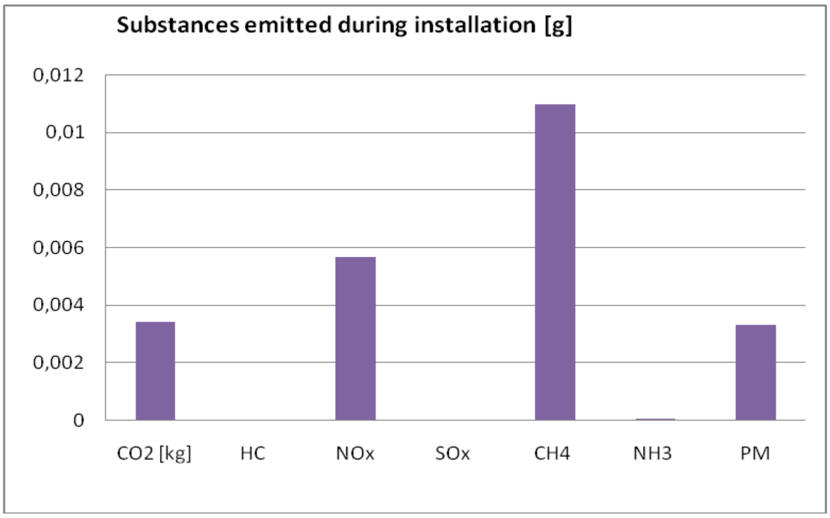

Figure 36 Substances emitted during installation [g]

In the installation phase, the emissions come from transportation to Audi and production of electricity. As it can be seen except carbon dioxide, methane and nitrogen oxide are the most significant among other substances. Methane influences global warming and nitrogen oxide contributes in human toxicity, acidification and eutrophication.

Use phase

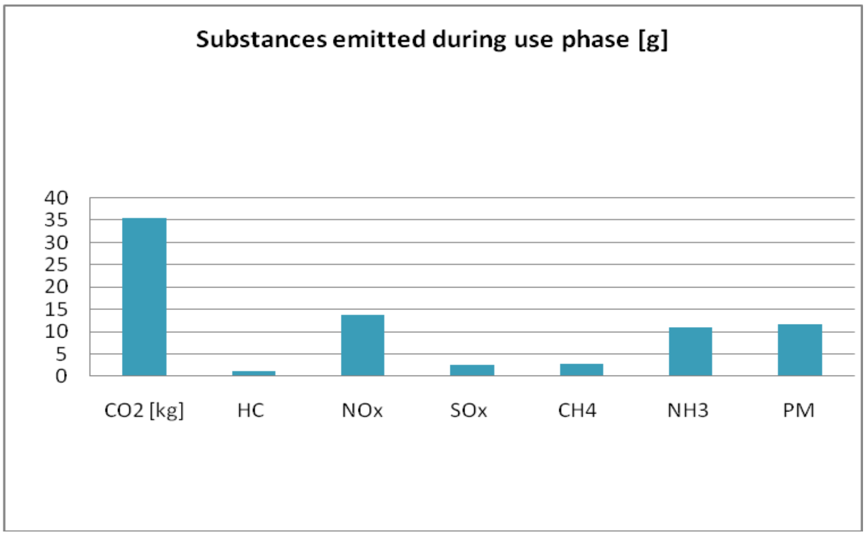

Figure 37 Substances emitted during use phase [g]

In the use phase carbon dioxide also dominates much more than in case of other phases. Second third and fourth most important substances are respectively nitrogen oxide, particulate matter and ammonia. All of them come mainly from fuel combustion. Carbon dioxide influences global warming and nitrogen oxide human toxicity, acidification and eutrophication. Ammonia contributes in causing acidification and eutrophication. Particulate matter influence air pollution but not any impact category that is analyzed in this project.

End of life

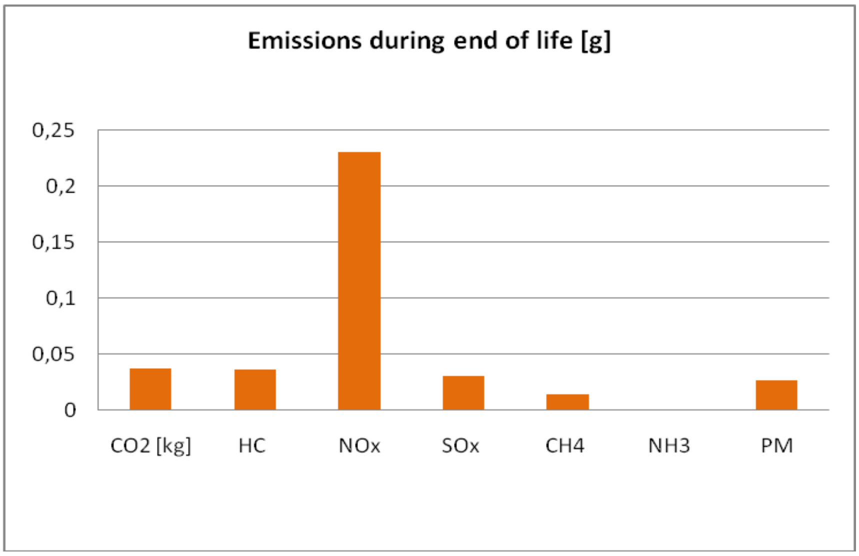

Figure 38 Substances emitted during end of life phase [g]

In end the of life phase, the dominating substance except carbon dioxide is nitrogen oxide. It influences human toxicity, acidification and eutrophication.

The general conclusion from above analyses is that the dominant substance in all the phases is carbon dioxide and it is more or less 1000 times higher than the rest of emissions. From the rest, nitrogen oxide is the second most important substance in almost all the phases.

9.1.4. Water consumption

During the whole life cycle of seatbelt, the total water consumption is 487 liters. The distribution between different processes can be seen beneath.

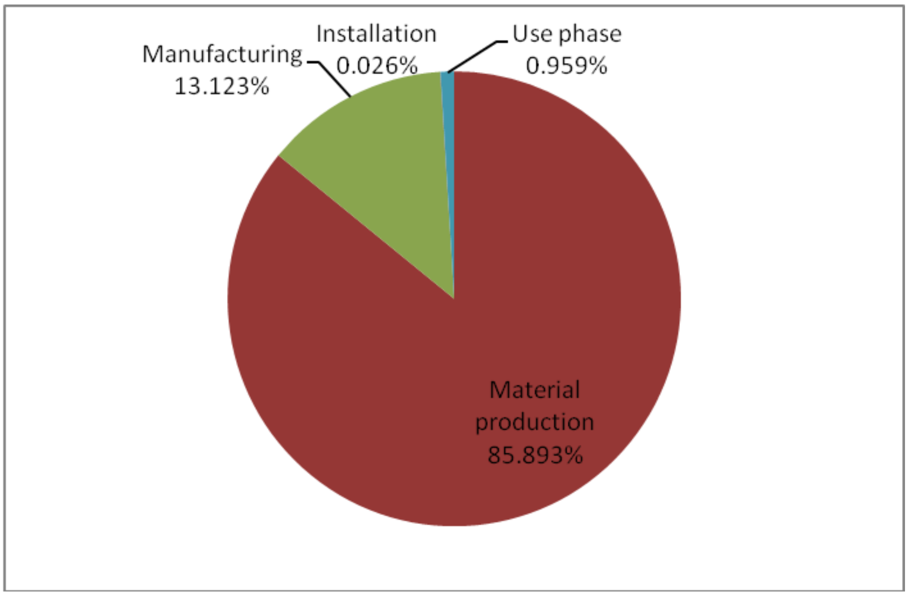

Figure 39 Water consumption proportion in each phases of seatbelt life cycle

As it can be seen, most of the water is consumed during material production. Some part of it is used during manufacturing phase. Very little is needed during the use phase (maintenance&repair) and installation phase.

9.1.5. Waste generation

Wastes are generated during the whole life cycle except transportation. The total weight of waste is 2168g from the life cycle of one unit of seatbelt which is almost twice more than the weight of seatbelt. During calculation the wastes were divided in subsequent categories: waste, hazardous waste, mineral waste, slag, municipal and industrial waste, scrap, plastic waste, wood waste, chemical waste, glass, used oil and other. In the chart below, amount of total waste is presented.

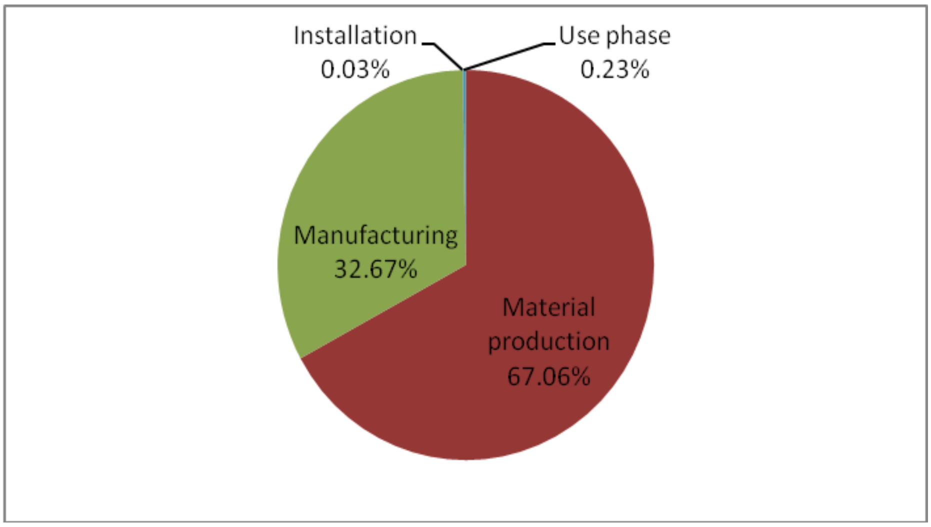

Figure 40 Waste generation proportion in each phases of seatbelt life cycle

As it can be seen, there are only two activities that in fact contribute to waste generation: manufacturing and material production. The amount of waste generated from material production is twice higher than from manufacturing. These results are also affected by the quality of data (see chapter 10.2). It can be suspected that if there were more data about manufacturing processes, it would contribute much more in waste generation.

9.2. Comparison between Airbag and Seatbelt

Since this work is a part of a large Life Cycle Assessment project in Autoliv which so far consists of four products: airbag, seatbelt, night vision camera and electronic control unit, it was decided that seatbelt should be compared to at least one of them. At this level of progress, it was possible to compare seatbelt only with airbag. Moreover, only these two products are mechanical. The other two are electronic devices so there would be difficult to compare them. Besides airbag and seatbelt are designed to cooperate with each other (see chapter 2.3) so they are quite dependent. It might be reasonable to determine which one of them is more environmental friendly.

<u>About the airbag project</u>

The study about the airbag was done by Arief Mujiyanto and Susetyo Priyojati. The project was finished and defended in January 2010 at Chalmers University of Technology. The studied product is an Assy for Volvo – P14 with part number 608178000A. The weight of this airbag is 1560g and consists of six main components: label, nut, cushion, can, cover and inflator (Mujiyanto A.&Priyojati S., 2010).

<u>Assumptions for comparison</u>

After analysis of data given by Arief Mujiyanto and Susetyo Priyojati, it was noticed that some methods of impact assessment were different than the ones used in this report. For example method for eutrophication was used to calculate total impact in NOx equivalents. In this case final result was recalculated into PO4-3 equivalents. Impact categories like ecotoxicity and human toxicity were calculated using different methods from the ones used in this report. Ecotoxicity was calculated only for water and expressed in m^3 of polluted water.

In this report ecotoxicity was divided into three categories: air, water and soil and expressed in 1,4 dichlorobenzene equivalents. In case of human toxicity, the final result was given in grams contaminated bodyweight equivalents. In this report the result in this category was given also in 1,4 dichlorobenzene equivalents. As a solution, ecotoxicity for air, water and human toxicity for airbag project were calculated once again and expressed this time in 1,4 dichlorobenzene terms.

Based on the information above, the comparison will base on global warming, acidification, eutrophication, air and water ecotoxicity and human toxicity. The compared phases in the life cycle will be production phase, use phase and end of life for first three categories and total value for the last ones.

The important fact is that chosen distance for use phase in case of airbag is 150000km and in case of seatbelt, 200000km. During the comparison the results from airbag group were recalculated to 200000km using proportions.

<u>Data for use phase</u>

As there are quite big differences between the data for use phase, it was decided to present the input data so that the final results could be more understandable for a reader.

Table 1 Comparison between the results for use phase for airbag and seatbelt (emissions to air)

	Airbag	Seatbelt	Unit
Energy (fuel)	433,33333	493,65	MJ/use phase
CO	21,333333	339,84	g/use phase
VOC	0	29,55	g/use phase
VOC evap	0	21,33	g/use phase
NMVOC	9,3333333	29,27	g/use phase
NMVOC evap	0	21,33	g/use phase
CH4	4	0,28	g/use phase
NOx	4	12,12	g/use phase
NO	0	117,52	g/use phase
NO2	0	0,36	g/use phase
N2O	8	0,05	g/use phase
NH3	1,2	10,83	g/use phase
PM 2.5	0	4,17	g/use phase
PM 10	0,8	6,12	g/use phase
PM exhaust	0	0,57	g/use phase
EC	0	0,09	g/use phase
OM	0	0,26	g/use phase
FC	0	35621,99	g/use phase
CO2	30666,667	35033,35	g/use phase
SO2	4	0	g/use phase
Pb	0	7,18E-03	g/use phase
Cd	0	1,49E-04	g/use phase
Cu	0	7,64E-02	g/use phase
Cr	0	3,18E-03	g/use phase
Ni	0	1,23E-03	g/use phase
selenium	0	1,85E-04	g/use phase

	Airbag	Seatbelt	Unit
zinc	0	3,94E-02	g/use phase
AOX	0,8	0	g/use phase
COD	386,66667	0	g/use phase
BOD	56	0	g/use phase
TOC	146,66667	0	g/use phase
Total N	6,6666667	0	g/use phase
Phenols	0,8	0	g/use phase
Cl-	84	0	g/use phase
PO4-3	1,8666667	0	g/use phase
SO4-2	29,333333	0	g/use phase
HCl	5,3333333	0	g/use phase
HF	2,6666667	0	g/use phase
H2S	0,4	0	g/use phase
C6H6	626,66667	0	g/use phase
PAH	2,6666667	0	g/use phase
Cu	1,2	0	g/use phase
Heavy metals	2,6666667	0	g/use phase

9.2.1. Global warming potential

Both of the global warming potentials were calculated for 100 years. The chart from this comparison can be seen beneath.

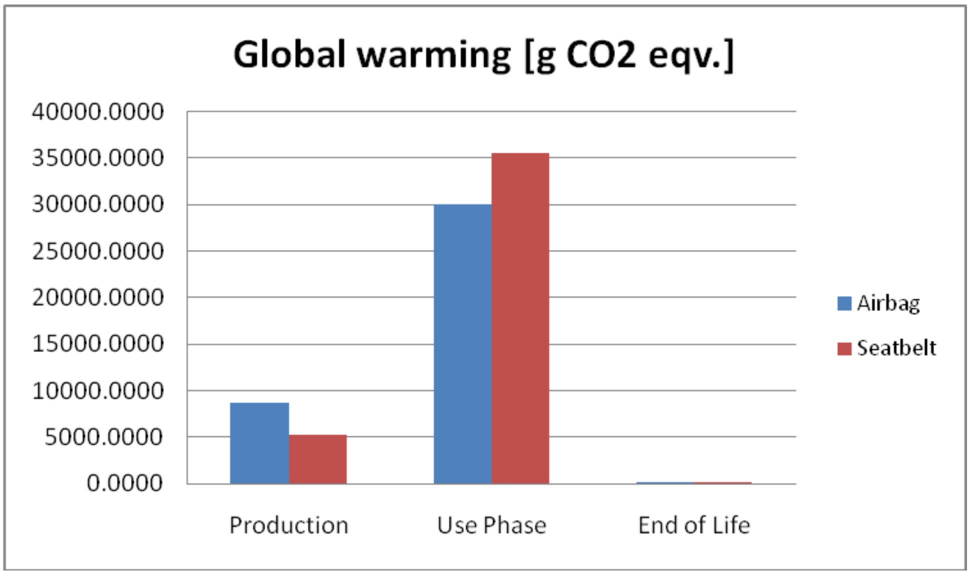

Figure 41 Seatbelt and airbag comparison – global warming potential [g CO2 eqv.]

According to the results from both studies, seatbelt during its life time has higher global warming potential.

In the production phase airbag is more harmful from the global warming point of view. The reason for such a result could be the distances between manufacturing sites. The locations of airbag components suppliers are much more differentiated than seatbelt suppliers. Cover for example is assembled in USA and its weight is 170g. Besides the weight of airbag is higher than seatbelt, so more mass has to be transported between manufacturing sites. The other reason for this difference is different data for example material production. There are slight differences between databases where the data are taken from. Some of the data for airbag were taken from US databases. Even if they were taken from the same database, they could have been adapted in a different way or from different materials. The percentage for site specific data for production processes was more or less the same, so it can be assumed that the differences come from the other activities in production phase.

The opposite trend can be noticed in the use phase. The result is surprising because the weight of airbag is higher of almost 25% and the classes of the cars where airbag and seatbelt are installed are almost the same. The reason could be that the studies for the use phase were done with different assumptions and boundaries.

In the end of life phase, there is also quite big difference between results (203g for airbag and 45 g for seatbelt). It can be caused again by different sources of data, because the assumed method was the same (shredding together with the car).

9.2.2. Acidification potential

The data taken from airbag calculations were also recalculated for use phase from 150000km to 200000km. The results from this analysis could be seen beneath.

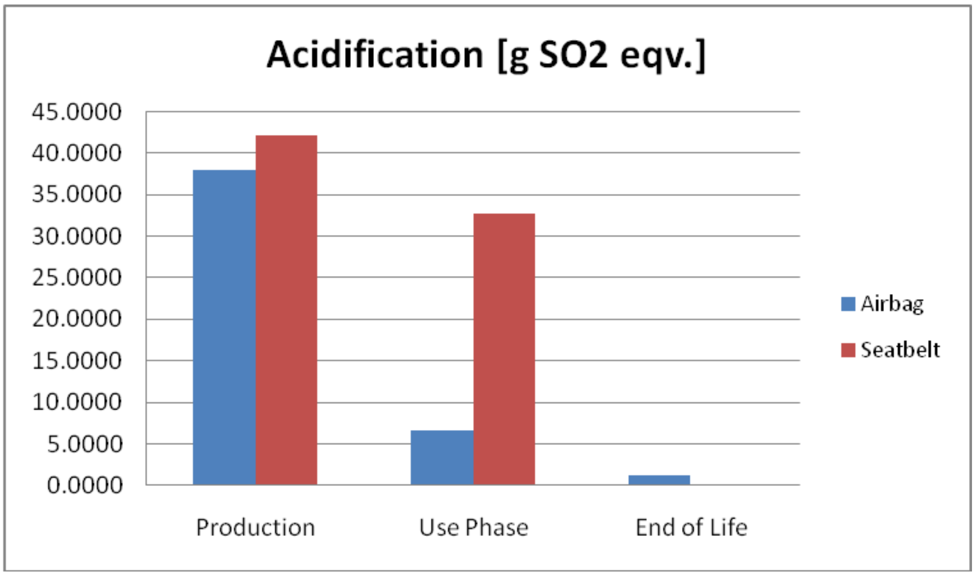

Figure 42 Seatbelt and airbag comparison – acidification potential [g SO2 eqv.]

In case of acidification, seatbelt life cycle significantly dominates airbag, especially in the use phase.

In production phase, the difference is quite small. This result is reliable because the percentage of data for material production, transportation and manufacturing was very similar.

The problem occurs in case of the use phase. The difference is not a result of different weight or some other factors. It only shows that both groups have different sources of data and one of the groups or both of them should work on their results. Data for seatbelt were very detailed and consisted of very specific substances influencing for example acidification.

In case of end of life, the difference is also very high as well (1,16g for airbag and 0,19g for seatbelt). The reason can be the same as in case of use phase.

9.2.3. Eutrophication potential

The data taken from airbag calculations were also recalculated for use phase from 150000km to 200000km. The results from this analysis could be seen beneath.

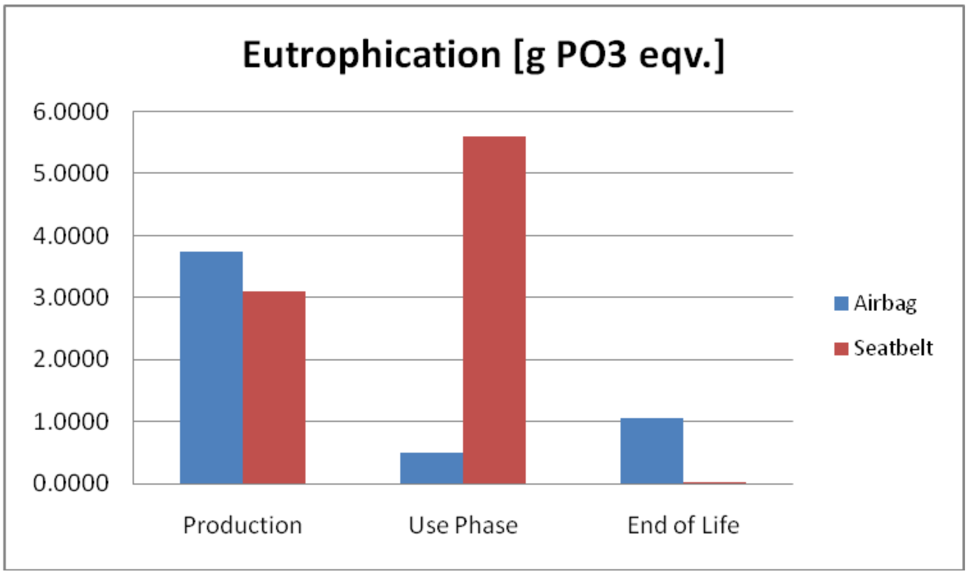

Figure 43 Seatbelt and airbag comparison – eutrophication potential [g PO4-3 eqv.]

As it can be seen in this chart, the proportions are very similar to acidification, which means that the values in production phase are quite similar but for use phase they vary a lot. It confirms that the quality of data is very similar for both products for productions phase, but unfortunately there are big differences in two other phases.

9.2.4. Air and water ecotoxicity potential

As it was written before, calculation for ecotoxicity for airbag project was done. Comparison between this data with results from seatbelt analysis are shown beneath.

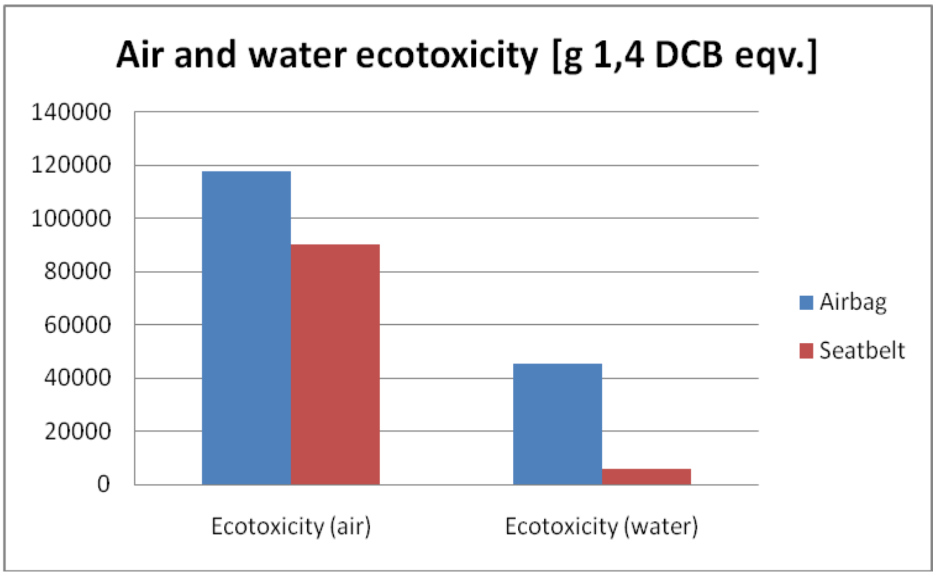

Figure 44 Seatbelt and airbag comparison – air and water ecotoxicity potential [1,4 DCB eqv.]

As it can be seen in the picture, the dominance of airbag is valid for both categories. The magnitude is quite comparable only in case of air ecotoxicity though. In water ecotoxicity the impact caused by airbag is almost nine times bigger that the second product. The main reason for this can be that in airbag there is 320g of polyamide 66. Production of this material is quite harmful for the environment so it has influenced the result quite significantly. Seatbelt also consists of some of this material, but it is only 0,27g.

The other reason for these differences is probably the weight of the products. Since the airbag is almost 25% heavier than seatbelt, it is possible that the production of components of airbag is followed by more harmful emissions to air.

9.2.5. Human toxicity

The differences between the human toxicity potential can be seen below.

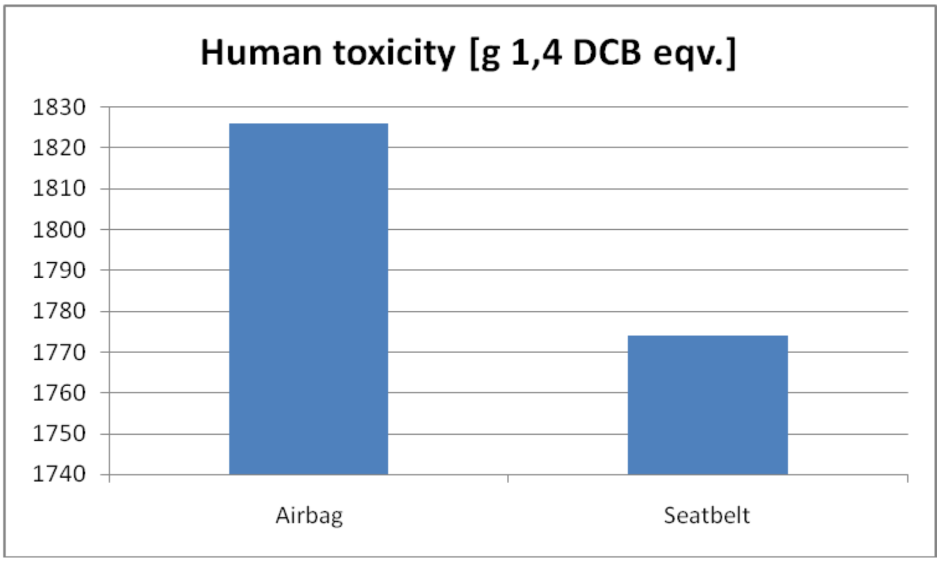

Figure 45 Seatbelt and airbag comparison – human toxicity potential [1,4 DCB eqv.]

In case of human toxicity, the life cycle of the airbag has slightly higher potential than the seatbelt. As in case of other toxicity potentials, the dominance of airbag can be caused by the weight and also by existence of PA66 in content of it.

9.3. Comparison between processes in Autoliv and the rest of life cycle

One of the purposes of this study is to investigate the impact of Autoliv processes in comparison to other activities and phases in life cycle of seatbelt. It is worth to notice that 95% of manufacturing processes is carried out by the first level suppliers or by Autoliv itself. It means that Autoliv has direct influence on the choice of suppliers, so also on manufacturing processes.

In the beginning it should be reminded which processes are performed in Autoliv plants. They are as follow:

- Autoliv Hungary (ALH):
  - Assembly of seatbelt
  - Assembly of pretensioner retractor
  - Assembly of spindle
  - Production (assembly) of tube, short tube
  - Assembly of sensor, web sense
- Autoliv Stakupress (STA):
  - Production of frame
  - Production of tongue
  - Production of pillar loop
- Autoliv NCS (Survilliers):
  - Assembly of initiator, serviceable
  - Production of initiator overmoulding
  - Production of gas generator
  - Production of bar code
  - Production of paste
  - Production of powder
  - Production of loaded cup

This aspect will be discussed in accordance to each discussed impact category.

9.3.1. Global warming potential

In case of global warming potential, the contribution of subsequent elements in life cycle is shown beneath:

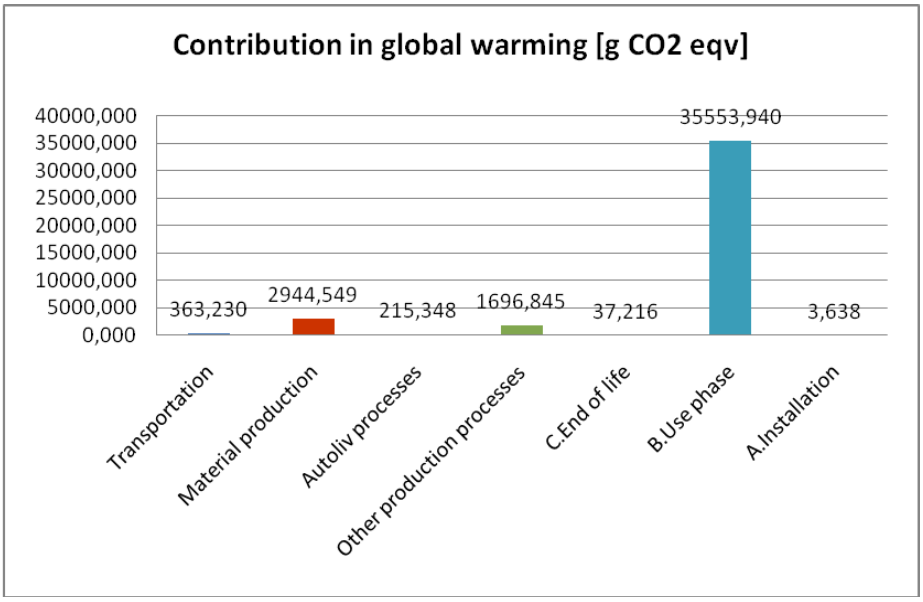

Figure 46 Share in global warming potential of processes in Autoliv plants and other phases and processes in life cycle

Global warming potential of processes performed in Autoliv constitute ca. 11% of all the manufacturing processes connected with seatbelt. Total number of all production processes of components is 79 and in Autoliv plants 15 of them is performed. It is around 19% of all the processes. It is difficult to compare them because all of them have different complexity and workload. But by the assumption that they are comparable, we can say that the processes in Autoliv are more efficient than the other average processes. With contribution of 19% of all processes they have potential to cause only 11% of global warming.

Comparing to other activities, it can be said that Autoliv's performance has quite low contribution in total global warming potential – only 0,5%. The contribution of other activities in global warming potential was elaborated in chapter 8.1.

9.3.2. Acidification potential

The comparison between different activities with extraction of Autoliv processes with respect to acidification is presented below:

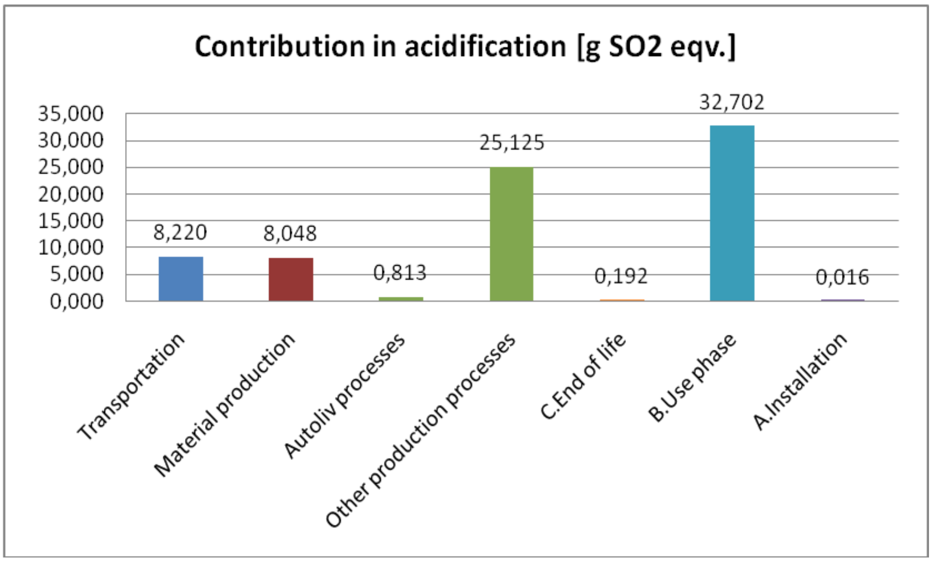

Figure 47 Share in acidification potential of processes in Autoliv plants and other phases and processes in life cycle

It can be seen that the contribution of Autoliv processes in comparison to other production processes is very low and constitutes only 3% of acidification potential. It means that Autoliv processes, which constitute 19% of all production processes, have lower impacts considering acidification.

The same can be stated after comparing acidification potential for processes in Autoliv plants with the whole life cycle. It is less than 1% of total acidification potential. The comparison of the other phases was done in chapter 8.2.

9.3.3. Eutrophication potential

Eutrophication analysis with consideration of Autoliv processes compared to the rest of life cycle is presented below.

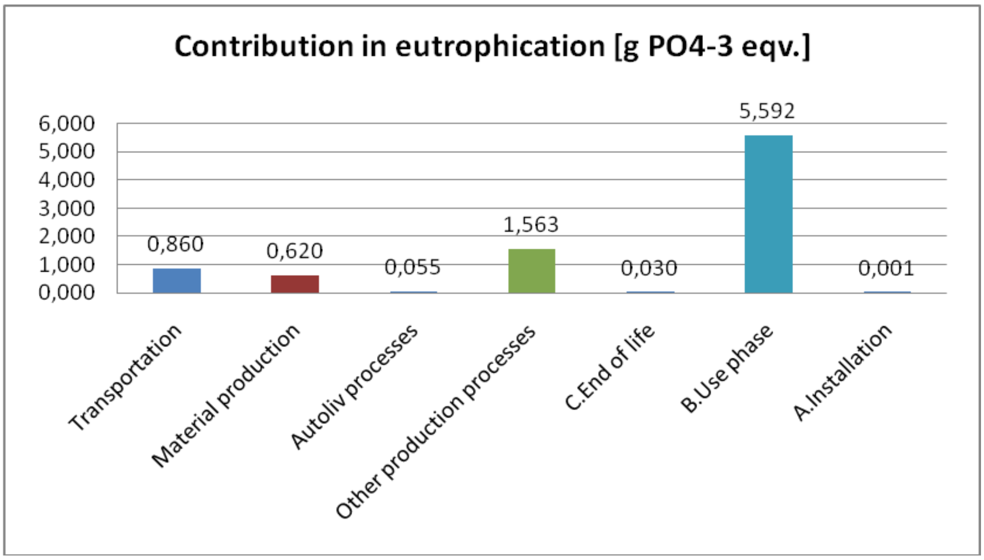

Figure 48 Share in eutrophication potential of Autoliv plants and other phases and processes in life cycle

Again it is confirmed that the contribution in causing subsequent impact category is quite low. Comparing to all production process, Autoliv processes constitute only 3.4% of potential. Furthermore, comparing the Autoliv result to potential caused by the whole life cycle, it is also very low - 0.6%.

It can be said again that in case of eutrophication Autoliv production processes have less environmental loads. Other discussion about euthrophication was written in chapter 8.3.

9.3.4. Ecotoxicity

In case of ecotoxicity, only the first two sorts of it (emissions to the air and water) will be considered. The reason for that is that, according to calculations, Autoliv does not contribute to soil ecotoxicity. The results of the analyses are presented below.

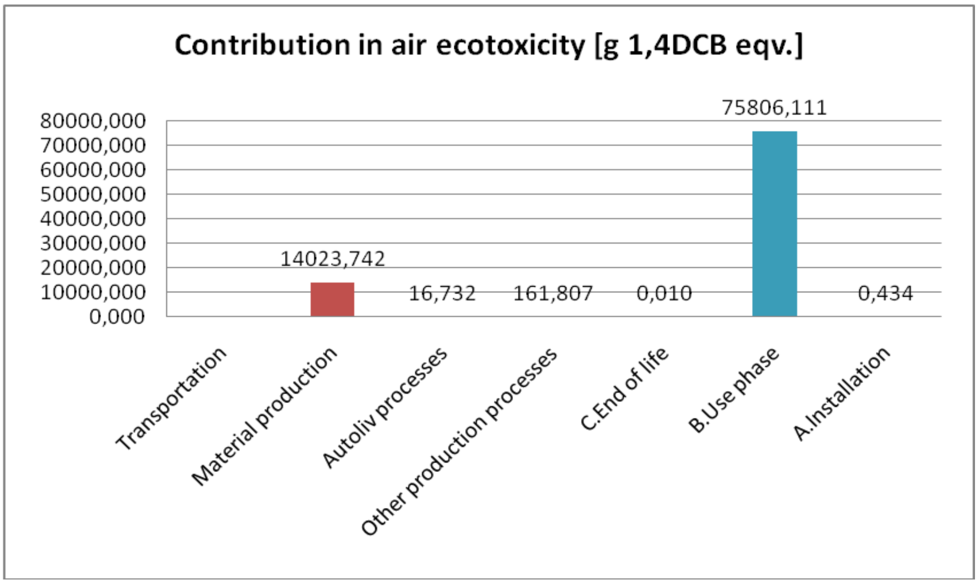

Figure 49 Share in air ecotoxicity potential of Autoliv plants and other phases and processes in the life cycle

As it can be seen, Autoliv processes contribute in creating ecotoxicity potential to the air not significantly. It constitutes only 9.3% in all production processes.

From the whole life cycle perspective, the meaning of Autoliv processes is almost negligible and is equal to 0.02%.

More about comparison of activities and their contribution in ecotoxicity was written in chapter 8.4.1.

Below the chart for water ecotoxicity is presented.

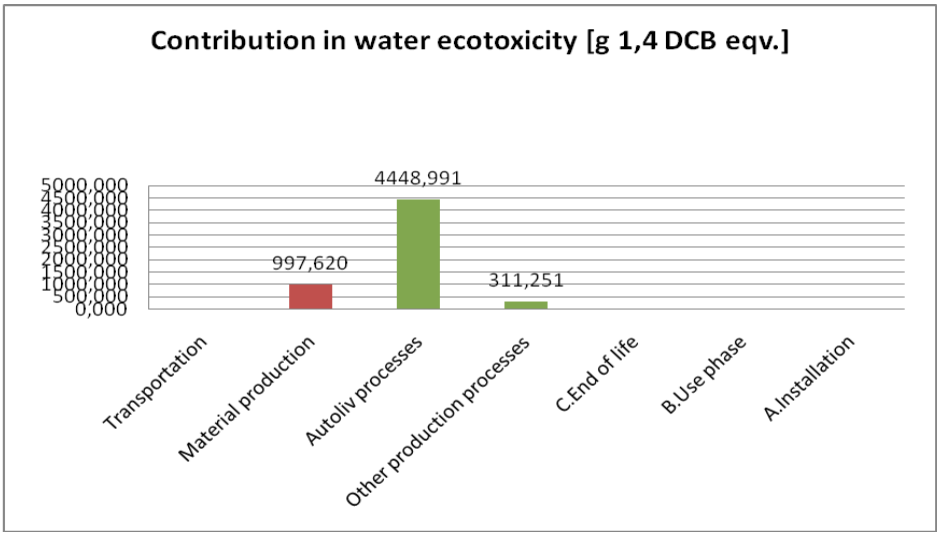

Figure 50 Share in water ecotoxicity potential of Autoliv plants and other phases and processes in life cycle

In this case the results are completely different than in other categories. There are only three activities in the life cycle which influence this toxicity. Autoliv processes dominate the other ones and constitute 75% of all production processes and 63% of the whole life cycle.

The reason for that is that Autoliv Stakupress was the only company that provided detailed data about emissions to the water (for example nickel, zinc or copper). The fact that this impact category can be caused also by other production processes is a result of adapting data from Autoliv to other similar processes as general data. For more discussion about data quality see chapter 10.2.

9.3.5. Human toxicity

The last impact category that was analyzed is human toxicity. The results are shown beneath.

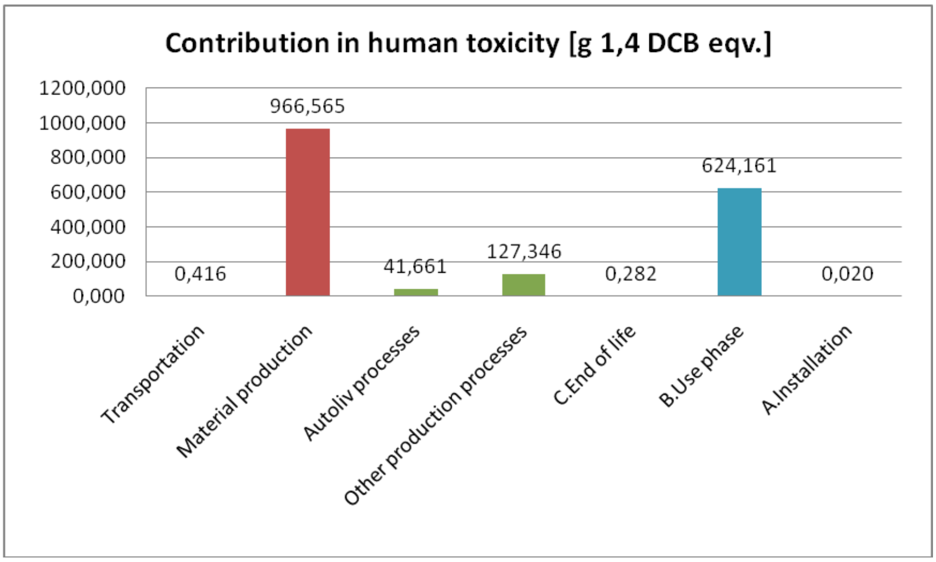

Figure 51 Share in human toxicity potential of Autoliv plants and other phases and processes in life cycle

As it can be seen, Autoliv processes influence quite much human toxicity comparing to the rest of manufacturing processes. They cause almost 25% out of all manufacturing processes, so in this case they have more environmental load. It has to be reminded though that most of the substances responsible for human toxicity were mentioned only by Autoliv Stakupress.

Comparing to the whole life cycle, it can be noticed that the contribution is not so severe. Autoliv processes cause 2.4% of total human toxicity.

9.4. Relation between the main categories of activities and transportation

Since there was some concern about contribution of transportation in global warming performance during life cycle of seatbelt, it was decided to analyze it. The ratio between transportation and other phases can be seen beneath.

Table 2 Comparison of transportation vs. the rest of the phases in causing global warming potential

	Material production	Manufacturing	Installation	Use phase	End of life
Ratio relatively to transportation	12,34%	19%	975,99%	1,02%	9983,59%

The conclusion from this analysis is that transportation has really low contribution in global warming potential comparing with other activities in life cycle. It dominates only installation and end of life phases. Comparing to use phase for example, it causes only 1% of global warming.

It can be said that surprisingly transportation does not have a significant contribution in total global warming potential. It does not mean that it is negligible and should be ignored. It means only that the other activities, especially use phase dominate it substantially. Transportation together with other phases should be also considered as a potential for improvement.

10. Discussion

This study has been carried out for particular seatbelt with the part number of 615484900A. This particular part number does not include the buckle which is a complex component and plays an important role in seatbelt function. During crash buckle should withstand high load and at the same time it should be easily opened even in worst situation right after the crash. Since it is mainly made of metals and plastics, in can be predicted that the final results would slightly increase but it is not going to influence the proportions of impact categories.

10.1. Assumptions

In each phase of the seatbelt life cycle, in case of unavailability of site specific data, assumptions were made.

10.1.1. Material production

For material production, inventory data was acquired mainly from Chalmers CPM and ELCD. Due to unavailability of data for the production of some of the materials, the data from similar material production processes were adapted. The process for choosing data for replacement was based on comparing the production processes of materials, characteristics etc. It was also important to choose data which are the most up to date.

10.1.2. Manufacturing

It is assumed that production processes of components which consist of the same materials (for example plastics POM or steel) and have similar complexity, require the same inputs and outputs (consumption of resources, energy, emission and waste generation) per 1000g of every product. Then the proportions according to weight were done. Based on this, some data from suppliers were adapted as general data for other components.

10.1.3. Installation, use and end of life phases

Data for installation were adapted from installation of Night Vision Camera in BMW.

For the use phase the data were calculated using the software Copert 4. Creation of this program was financed by European Environment Agency and aimed on calculating the emissions from road transport. It was chosen because it is used by many European agencies and the data calculated by it seem to be quite reliable (Aristotle University, 2009).

For end of life phase, data is adapted from LCI USCAR report (LCI USCAR, 1998) which is related to Ford Taurus. The data were allocated based on fuel consumption and the weight of the car.

10.1.4. Transportation

For land transportation in this study it was assumed to long distance truck with Euro 3 standard to represent the average situation of today's transportation vehicles in Europe since most of the transportations of materials and components occur inside Europe. The distances beneath 200 km were considered as using medium size truck. For data for transportation, see Appendix VI.

In case of unavailability, distances were estimated based on Google map if the names of the suppliers or the locations were known.

10.1.5. Electricity production

It was assumed that the proportions of sources used for production of electricity (coal, oil, gas, nuclear, etc) by suppliers, are the same as in production of electricity production in the country, where suppliers were located. Data about the proportions of used sources are collected from the International Energy Agency website (IEA, 2010) and can be seen in Appendix V.

10.2. Data quality

Data for the electricity production were collected through International Energy Agency (IEA, 2010) based on the average sources of electricity production for each country. This may influence the results since the chosen average sources for electricity might vary between different companies in one country. Data for electricity production come from the year 2007.

As it was written before, for land transportation of material and components, it was assumed that for the distances less than 200km medium size distribution trucks and for more than that long distance trucks with semi trailer were used. This could influence the results since it might vary in some cases. Moreover, in cases of unavailability of data, google map is used for distance estimation what also can influence quality of data. More than 70% of data is collected in this way and there is 30% lack of data for transportation due to suppliers' reluctant to data provision.

More than 94% of the data for material production is acquired from databases. There is only less than 6% of lack of data for this phase. However, the high rate of availability of detail data for material production phase comparing to manufacturing phase might influence the results. Some of the production processes of materials taken from databases have around 400 items in inputs and outputs while most of the data for production processes has for example only electricity consumption. It shows how big differences are in quality of data. It influences the proportions and the final results in impact assessment phase.

For the manufacturing phase about 48% of data is gathered from suppliers as site specific data and around 32% as general data which is adapted from similar production processes. There is a lack of 20% of data for this phase due to suppliers' reluctant to data provision. In case of manufacturing processes, it has to be noticed that the personnel in suppliers' sites usually has no experience in preparing data for LCA study. In most of the cases they also did not have a knowledge nor experience for it and its purpose what also might deviate the desired results.

The allocation methods used in this study also influence the quality of data. When carrying out weight or value allocation the result could be less reliable than for example operation time allocation.

The general comment to all the results is that they are influenced very much by quality of data. For the production processes the range is from 400 identified substances and resources to only one. It can be worth to consider it while interpreting the results. It can be said also that the proportions and order for global warming, acidification, eutrophication and human toxicity are reliable.

11. Conclusion

In this chapter the questions which are mentioned in goal and scope definition are answered.

1. What are the potentials for chosen environmental impacts?

In this study chosen environmental impacts categories were investigated. The result shows that one module of seatbelt during its whole life cycle might have the potential of contributing to global warming on the level of 40781 g CO_2 equivalents, acidification on the level of 75 g SO_2 equivalents, eutrophication on the level of 8,72 g PO_4^{-3} equivalents, air ecotoxicity on the level of 90009 g 1,4 DCB equivalents, water ecotoxicity on the level of 5758 g 1,4 DCB equivalents, soil ecotoxicity on the level of 3,09 g 1,4 DCB equivalents, and finally human toxicity on the level of 1774 g 1,4 DCB equivalents.

2. Which activities in the life cycle of seatbelt have the biggest contribution to the environment impact?

After calculating total environmental impacts for different categories, analyses for investigating the contributions of subsequent activities and production processes were done. The results for all the categories show that use phase is the most contributing phase in global warming (87%), acidification (44%), eutrophication (64%) and air ecotoxicity (83%).
This is mainly because of the high amount of carbon dioxide and also variety of other toxic substances emitted during combustion of fuel, which could be improved by weight reduction. In case of water ecotoxicity the most influential activity is manufacturing (83%) and for soil ecotoxicity material production is the only contributor. These might be related to quality of data which is discussed in clause 10.2. Concerning human toxicity the most contributing phase is material production (54.9%) followed by the use phase (35.45%).
From the results, it could be also observed that the pretensioner retractor is the component which has the largest environmental load, consuming the most energy as well as generating the highest emissions. The reason for this is the complexity and high number of the components which involve variety of suppliers in its realization.

3. Which activities in the life cycle can be improved in order to decrease the environmental impact?

The results show that more efforts need to be made on mitigating the impacts in use phase since it is the most influencing in global warming, acidification, eutrophication and air ecotoxicity. However, the two other areas for improvement that need to be considered are material production (which has the biggest contribution to soil ecotoxicity and human toxicity) and manufacturing phase (which contributes the most to water ecotoxicity).

4. What is the environmental performance comparing to one unit of airbag?

Comparison between seatbelt and airbag is made for all impact categories.
Considering global warming potential the results show that airbag has larger impact in the production phase which could be because of the higher distances of suppliers' plant from assembly plant in airbag production and also the higher weight of airbag comparing to seatbelt. However, surprisingly the result shows that seatbelt could have more impacts during use phase. This might be related to quality of data (see chapter 10.2) since airbag weight is almost 25% higher than seatbelt. The result shows that in the end of life phase airbag impacts are more than 4 times higher than seatbelt which might be related to different sources of data, since the assumed method was the same (shredding together with the car).
Considering acidification, the results show that during production phase, seatbelt is slightly more harmful. However, for the use phase seatbelt has significantly higher impacts and for the end of life phase airbag impact is considerably higher what should be investigated.
Regarding eutrophication there could be observed higher impact for airbag in production phase, significantly high dominance of seatbelt in the use phase and the opposite in the end of life what also needs to be investigated.

In cases of air and water ecotoxicity and human toxicity the results show that airbag has larger impacts. The reason could be the high amount of polyamide 66 that is used in airbag and the also the higher weight of airbag.

5. What is the environmental performance caused by Autoliv plants comparing to the other plants involved in manufacturing of the studied product?

In Autoliv 15 out of 79 processes take place. Assuming that the processes are comparable, 19% of all processes are carried out in Autoliv plants. Having this in mind, they contribute 11% to global warming, 3% to acidification, 3.4% in eutrophication, ecotoxicity from air emissions 9.3%. The only exceptions are ecotoxicity from water emissions and human toxicity where the contribution in all processes constitutes 75% and 25% respectively. It can be concluded that the processes that take place in Autoliv are very efficient comparing to the other plants that take part in creating the seatbelt. The exceptional cases are probably caused by the quality of data delivered by the suppliers.
The reasons of this efficiency might be that Autoliv puts much attention to decrease the impacts on environment. The ISO 14001 certification is mandatory for the Autoliv production sites and improvement actions such as reducing energy for the building and also conducting number of waste treatment projects are taken in this regards. Moreover, the other reason could be that 6 out of 15 processes (which take place in Autoliv plants) are only assembly of parts that could be less harmful due to less energy consumption and emission generation comparing to other manufacturing processes.

6. How much is the contribution of transportations to global warming potential?

The results prove that transportation has very low contribution to global warming. The reason might be that most of the suppliers are located in Europe and it was assumed that the vehicles have class Euro 3 and above 200km there is already long distance truck, so this is quite optimistic scenario. In reality transportation results might be different.

7. What is the recovering rate of the seatbelt?

At the end of life of the seatbelt, it is shredded together with the car and 69.2% to 71.4% (metals) of it will be recycled and 26.4% (plastics) will be recovered as energy.

The general conclusion is that the above mentioned impacts are created and all the processes connected with life cycle of the seatbelt should be continuously improved.

12. Potential use of the study and further recommended studies

12.1. Potential use of the study

In this chapter the potential use of the performed study for three key role players in realization of seatbelt is discussed.

12.1.1. Inside Autoliv

Using the result of the study inside the company for reducing environmental impacts is the most feasible case. However, it could be used not only for those departments which are involved in core processes such as product development group but also for those who are involved in supporting processes such as logistics, marketing and maintenance.

Product development team is the first group which should be aware of the study results. They are the one who can evaluate the possibilities of improvement in product weight, material composition and design. The team should work on reduction of weight, what will influence the environmental performance significantly. It can be done by reducing weight/amount of steel parts for example and replacing them with lighter equivalents. The design could be also changed in order to make the seatbelt (mainly pretensioner retractor) smaller, or maybe it could be redesigned totally with reducing the number of parts. The results could also be used for improving the efficiency of the production processes from environmental perspective. Maybe there is a technology available which is more efficient and consumes less energy. People from logistics department also can use the results to develop and improve their logistics plan in a way to reduce the environmental impacts. The network of suppliers should be analyzed and for example in case there are many suppliers that provide the same value with the same quality, the ones to which is shortest distance should be picked. Some of the suppliers are located close to each other. Maybe it is worth if they cooperate in this matter and combine the transportation cargo. Marketing and sale people can communicate the results to Audi in one way and to the society as a whole in other. For example there is no information on the Autoliv webpage that it carries out LCA studies and works on mitigating the environmental impact. This information should be shown and also the results of them should be presented in some customized way. Also for Audi it is important information since this company also works on reducing the environmental impact and carries out LCA studies. It might be the beginning of mutual cooperation in this matter. Autoliv should create campaign aiming on showing environmental awareness and attempts for improvement. The leading catchword could be for example: “We act towards our common future.” Maintenance groups can review the report and for instance try to work on production machinery adjustment using environmental glasses in order to increase the efficiency of production processes. If we all wear our environmental glasses, finding an area for improvement might not be difficult.

12.1.2. Demand chain

The results might be communicated to Audi showing the importance of working on use phase which has the largest contribution to global warming, acidification, eutrophication and air ecotoxicity. This could be done through a brief report and presentation.

12.1.3. Supply chain

In this study suppliers were the main sources of site specific data. Therefore they were contacted many times and based on the availability of data and their cooperation strategy, data was acquired in a variety of levels (from no data to fully completed questionnaire with some additional explanations). This is reflected in appendix III as “suppliers’ cooperation report” (available only for company). This report could be reviewed and used for future actions such as:

- further LCA studies,
- appreciations for supportive suppliers,
- amendments to contracts regarding necessity of collaboration in data provision in similar studies,
- any possible optimization of suppliers’ selection for future projects.

Also review of the study might guide us to set some other contractual requirements for suppliers regarding:

- declaration of environmental performance improvement,
- determination of key environmental performance indicators,
- measurement and improvement of the determined indicators,
- some advantages for suppliers which are conducting environmental studies for their products and production.

12.2. Further recommended studies

In this study due to high number of components and subcomponents not all the required data are collected from suppliers and therefore average data or assumption were made in some cases. Hence, some verification for the inventory data could make the results more reliable and fair. In order to do this, use of an LCA software (such as Gabi, SimaPro, etc.), which has available detailed inventory data, makes the process much easier and quicker, is recommended. The current data of the conducted LCA studies could be transferred from excel files to this software. Buying this program could be the beginning for Life Cycle Management program, which would include further studies for different products and also defined steps for interpreting and making use of them.

Performance of further studies for weight reduction could be recommended since more than 70% of the weight of the studied seatbelt are metal parts. This may include review of material composition or design of the seatbelt and its components.

13. Reflection

a. We were one of the first groups who started our negotiations with Autoliv and Chalmers about performing an LCA study for Autoliv's products. Among 5 available products, which on that time were available; airbag, seatbelt, radar, electronic control unit and night vision camera, we chose seatbelt or airbag because we thought that they must be the least complex ones. On the first meeting it occurred that airbag project was already taken, so we decided to carry out seatbelt project. We had an overall knowledge about this product based on the user experience so we thought that it should not be more than a webbing, tongue, buckle and few more parts. However, just few days after the beginning of the project we realized that in this 1130 grams the total amount of parts is more than 100. It was caused by the component called pretensioner retractor which not only owns about 65% of the seatbelt's weight but also is extremely complex.

b. Although in the beginning of the project transportation of materials and components was expected to be one of the most influential activities concerning global warming, the final results proved that it has only about 2% of the share in global warming potential.

c. This study has been carried out together with 3 other studies for other Autoliv's products and one of the goal of all these studies was to compare the results of different products. In order to do it, from the beginning there could have been defined some general rules for example the methods for calculating impact assessment categories. Also sources of data for example steel or particular plastics could have been defined because sometimes there are quite big differences between data from different sources. Maybe even the questionnaire could have been the same so that suppliers that were in common for more than one group would not be confused.

d. In order to collect data related to material types and weights that are consumed in each component, IMDS and PLM as well as suppliers responses were used. In many cases these data were not the same.

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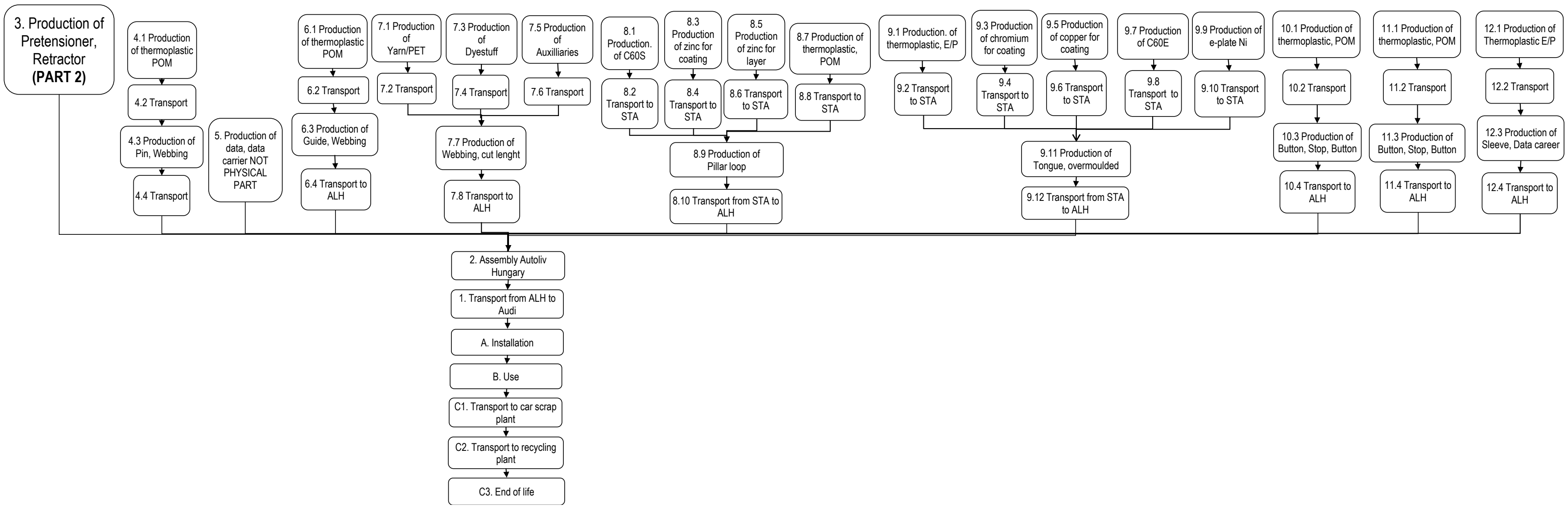
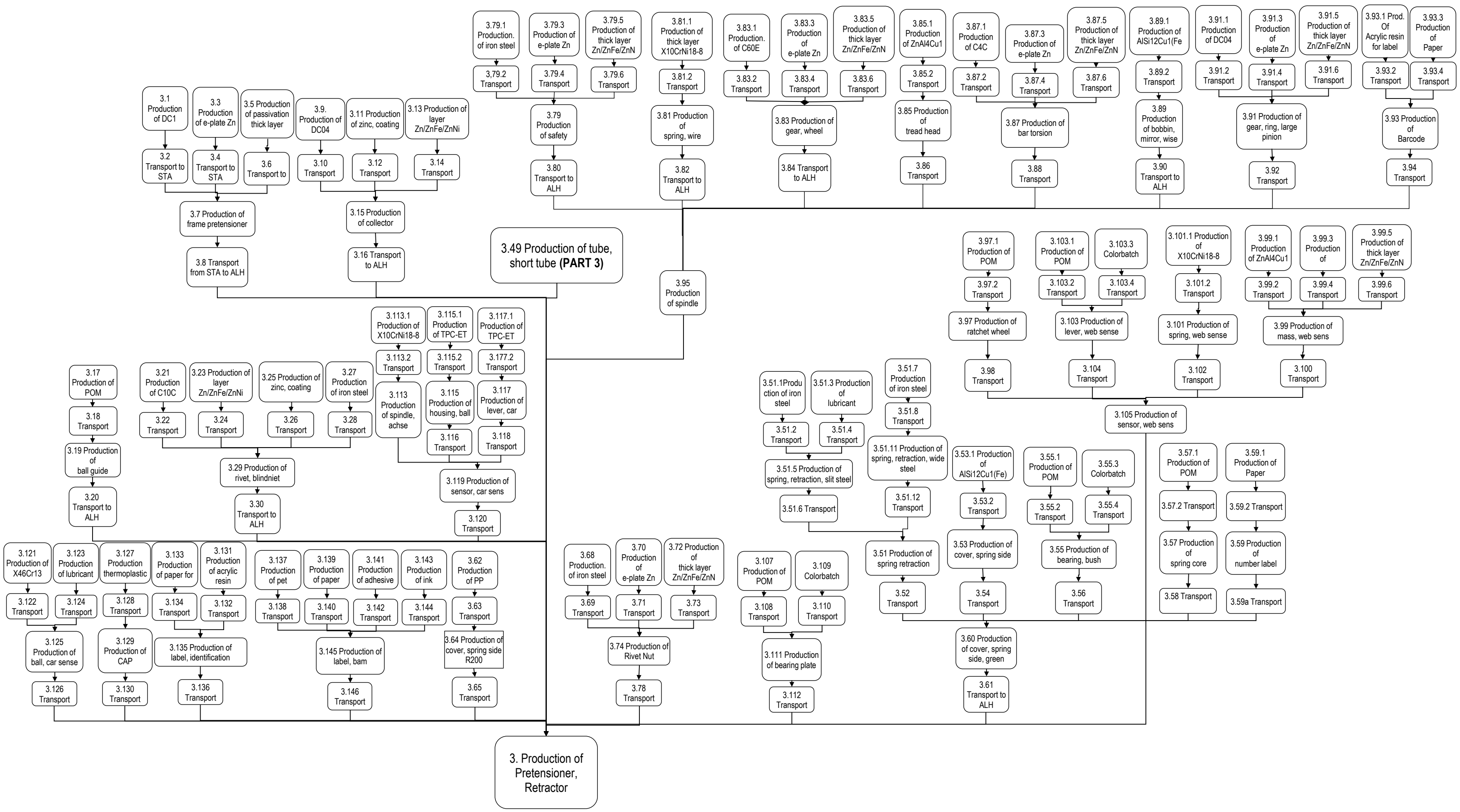
List of figures

Appendixes

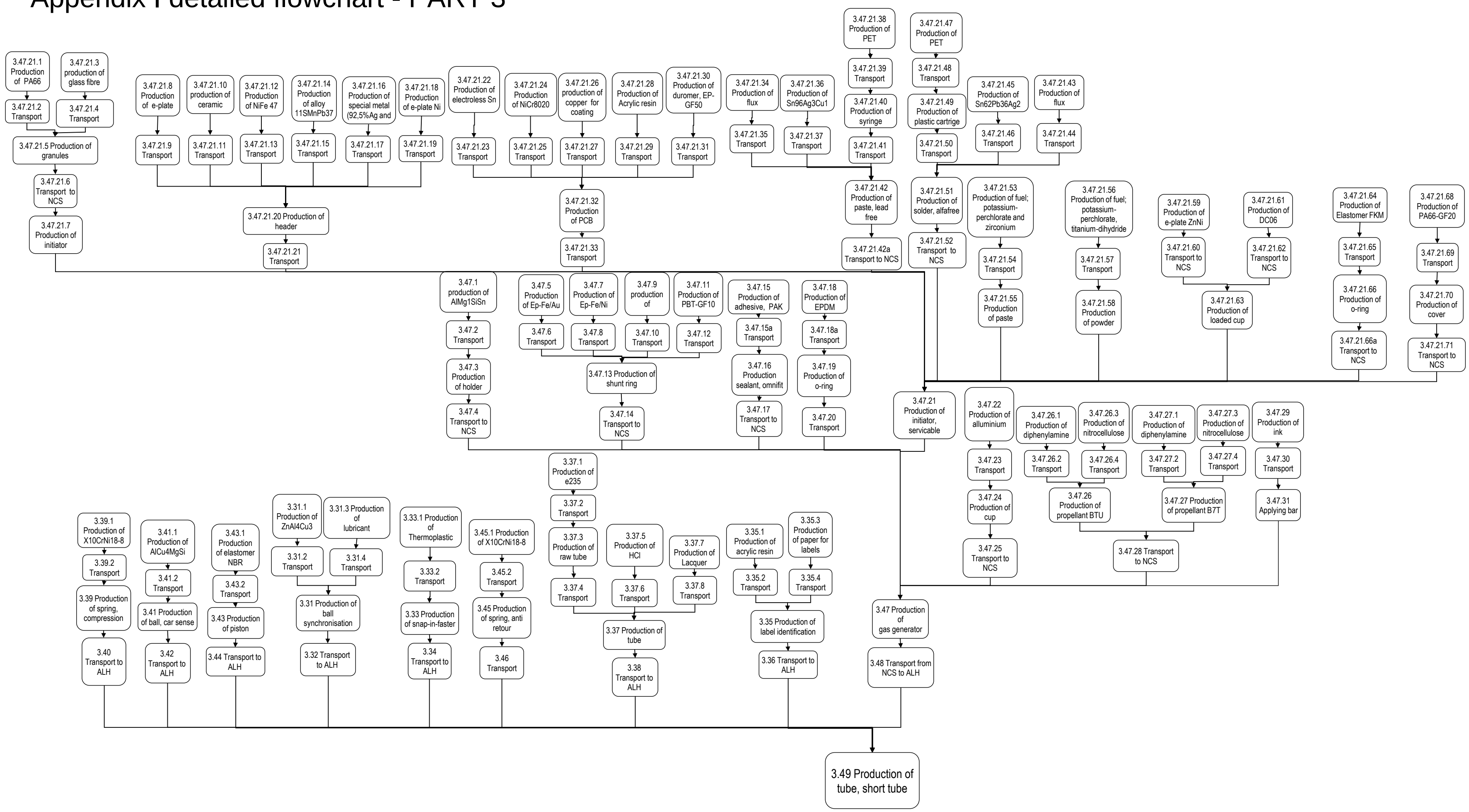
Appendix I detailed flowchart - PART 1



Appendix I detailed flowchart - PART 2



Appendix I detailed flowchart - PART 3



Appendix II Site specific data collection questinnaire

QUESTIONNAIRE FOR SUPPLIERS		
Autoliv	**Life Cycle Assessment on seatbelt part no. 615484900**	**Project responsibles: Katarzyna Iwanek Nima Samiee**

Company:		Contact person:		Direct telephone no.:	
DATA COLLECTION					
Product no.		No. of parts per seatbelt:			
Unit of data collection (for example year, month etc.)				Unit price[€]	
Production amount (per unit)				Unit weight [kg]	
Please provide short description of the process (or put it as a flowchart)					

INPUTS

Materials: Chemicals, water, raw materials (animal matter, minerals, metals, biomass, clays, elements, compounds, unspecified, etc.), etc.

No.	Material	Quantity per 1 product	Supplier	Contact information to supplier	Mode of transport and distance (from supplier)

Energy and fuel: Electricity, fuel, oil, gasoline, natural gas, propane, coal, wood, biomass, recovered energy, wind, industrial/municipal waste etc. (if you cannot provide specific data for particular product, please go to Sheet 2)

No.	Type of energy	Quantity per unit	Supplier	Contact information to supplier	Mode of transport and distance (from supplier)

OUTPUTS

Products (studied product and other products)

No.	Product	Quantity per unit	Destination	Mode of transport	Distance

Emissions to air, water and soil: (CO,CO_2, NH_3, NO, NO_x, CH_4, CFCs, HFCs etc.), liquid emissions, solid emissions (mineral waste, mixed, industrial, municipal solid, toxic wastes, etc.) - if you cannot provide specific data for particular product, please go to Sheet 2

No.	Factor	Quantity per unit	Type of emission (air, water, soil)	Treatment method	Mode and distance in case of transportation

Autoliv	**QUESTIONNAIRE FOR SUPPLIERS**	
	Life Cycle Assessment on seatbelt part no. 615484900	**Project responsibles: Katarzyna Iwanek Nima Samiee**

Value of all production [€]	
Unit of data collection (for example year, month etc.)	

ENERGY

Energy and fuel: Electricity, fuel, oil, gasoline, natural gas, propane, coal, wood, biomass, recovered energy, wind, industrial/municipal waste etc.

Type of energy	Quantity per unit	Supplier	Mode of transport (from supplier)	Distance (from supplier)

EMMISIONS

Emissions to air, water and soil: (CO,CO_2, NH_3, NO, NO_x, CH_4, CFCs, HFCs etc.), liquid emissions, solid emissions (mineral waste, mixed, industrial, municipal solid, toxic wastes, etc.)

Factor	Quantity per unit	Type of emission (air, water, soil)	Treatment method	Mode and distance in case of transportation

QUESTIONNAIRE FOR SUPPLIERS					
	Life Cycle Assessment on seatbelt part no. 615484900				Project responsibles: Katarzyna Iwanek Nima Samiee
Company:	Autoliv Sweden	Contact person:	Katarzyna Iwanek	Direct telephone no.:	46322626295
DATA COLLECTION					
Product no.	61548490	No. of parts in the product:		1	
Unit of data collection (for example year, month etc.)		1 year		Unit price[€]	€ 1.50
Production amount (per unit)		10000		Unit weight [kg]	0,05
Please provide short description of the process (or put it as a flowchart)		moulding->inspection and packaging			
INPUTS					
Materials: Chemicals, water, raw materials (animal matter, minerals, metals, biomass, clays, elements, compounds, unspecified, etc.), etc.					
No.	Material	Quantity per 1 product	Supplier	Contact information to supplier	Mode of transport and distance (from supplier)
	PE	0,058kg (because of losses during	Plastics, Hamburg	Hamburg, Karen Schmidt, +49254142541	Truck, regional distribiution, 120km
Energy and fuel: Electricity, fuel, oil, gasoline, natural gas, propane, coal, wood, biomass, recovered energy, wind, industrial/municipal waste etc. (if you cannot provide specific data for particular product, please go to Sheet 2)					
No.	Type of energy	Quantity per unit	Supplier	Contact information to supplier	Mode of transport and distance (from supplier)
	electricity	3,1MJ/kg=1550 MJ/unit	Hamburg Electricity		
OUTPUTS					
Products (studied product and other products)					
No.	Product	Quantity per unit	Destination	Mode of transport	Distance
61548490	Label, identification	10000	Autoliv Hungary, Sopronkövesd	Truck, long distance	1000km
Emissions to air, water and soil: (CO,CO_2, NH_3, NO, NO_x, CH_4, CFCs, HFCs etc.), liquid emissions, solid emissions (mineral waste, mixed, industrial, municipal solid, toxic wastes, etc.) - if you cannot provide specific data for particular product, please go to Sheet 2					
No.	Factor	Quantity per unit	Type of emission (air, water, soil)	Treatment method	Mode and distance in case of transportation
	BHT	0,3g/kg=150g	air		
	solid waste	12% of production = 60kg		ground in a mill at the recycling plant, washed and dried before being extruded and regranulated	recycling plant, truck urban distribiution, 15km

Appendix IV Life cycle inventory data

1. Transportation from ALH to Audi Ingolstadt	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			1129.865		
Energy (fuel)	0.4176	MJ/1000g of seatbelt		0.471831624	MJ/seatbelt
OUTFLOWS					
CO2	30.1600	g/1000g of seatbelt		34.0767284	g/seatbelt
NOx	0.1914	g/1000g of seatbelt		0.216256161	g/seatbelt
HC	0.0273	g/1000g of seatbelt		0.03080012	g/seatbelt
Particulate matter	0.0033	g/1000g of seatbelt		0.003735334	g/seatbelt
CO	0.0267	g/1000g of seatbelt		0.030144798	g/seatbelt
SO2	0.0075	g/1000g of seatbelt		0.008519182	g/seatbelt
Remark:					
Distance between ALH (Sopronkövesd, Hungary) and Audi Ingolstadt (Germany)in km		**580**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

2. Assembly of seatbelt in ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			1129.865		
electricity	0.2968212	MJ/1000g seatbelt		0.335367906	MJ/seatbelt
natural gas	0.1639228	MJ/1000g seatbelt		0.185210667	MJ/seatbelt
water	0.223964	l/1000g seatbelt		0.253049045	l/seatbelt
Pretensioner, retractor	672.02011	g/1000g seatbelt		759.292	g/seatbelt
Pin, webbing	1.770123	g/1000g seatbelt		2	g/seatbelt
Data carrier	5.3103689	g/1000g seatbelt		6	g/seatbelt
Guide webbing	5.5758874	g/1000g seatbelt		6.3	g/seatbelt
Webbing, cut lenght	192.73984	g/1000g seatbelt		217.77	g/seatbelt
Pillar loop	69.928354	g/1000g seatbelt		79.0096	g/seatbelt
Tongue, overmoulded	46.459533	g/1000g seatbelt		52.493	g/seatbelt
Button, Stop, Button Cover	0.4425307	g/1000g seatbelt		0.5	g/seatbelt
Button, Stop, Button Loop	0.4425307	g/1000g seatbelt		0.5	g/seatbelt
Sleeve, Data career	5.3103689	g/1000g seatbelt		6	g/seatbelt
OUTFLOWS				0	g/seatbelt
seatbelt				1129.865	g
nitrogen oxide	0.0034263	g/processes connected with 1000g		0.003871222	g/seatbelt
particles (> PM10)	3.707E-05	g/processes connected with 1000g		4.18826E-05	g/seatbelt
sulfur dioxide	0.000256	g/processes connected with 1000g		0.000289282	g/seatbelt
sludge	223.96396	g/processes connected with 1000g		253.0490449	g/seatbelt
Remark:					
Data for electricity taken as an average from oil and gas fuel production (Earth Trends, 2000)					
Calculation for 1 seatbelt based on data from company: half of total production constitutes retractors and there is 5000000 of retractors produced per year					

3. Production (assembly) of pretensioner retractor in ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.1815539	MJ/1000g product	759.2920	0.137852422	MJ/seatbelt
natural gas	0.1002652	MJ/1000g product		0.076130538	MJ/seatbelt
water	0.13699	l/1000g product		0.10401539	l/seatbelt
frame, pretensioner	150.01792	g/1000g seatbelt		169.5	g/seatbelt
collector	24.196227	g/1000g seatbelt		27.33847	g/seatbelt
guide ball	5.7528997	g/1000g seatbelt		6.5	g/seatbelt
rivet, blindniet	2.8295416	g/1000g seatbelt		3.197	g/seatbelt
tube, short tube	121.05783	g/1000g seatbelt		136.779	g/seatbelt
cover, spring side green	110.35655	g/1000g seatbelt		124.688	g/seatbelt
cover, spring side, R200	5.4561386	g/1000g seatbelt		6.1647	g/seatbelt
Rivet nut	2.8419324	g/1000g seatbelt		3.211	g/seatbelt
spindle	203.49174	g/1000g seatbelt		229.9182	g/seatbelt
sensor, web sensor	15.962084	g/1000g seatbelt		18.035	g/seatbelt
bearing plate	8.8506149	g/1000g seatbelt		10	g/seatbelt
sensor, car sensor	2.2657574	g/1000g seatbelt		2.56	g/seatbelt
ball, car sensor	7.9655534	g/1000g seatbelt		9	g/seatbelt
cap	7.9655534	g/1000g seatbelt		9	g/seatbelt
label, identification	0.0840808	g/1000g seatbelt		0.095	g/seatbelt
label, bam	0.0840808	g/1000g seatbelt		0.095	g/seatbelt
OUTFLOWS					
pretensioner retractor				756.08137	g/seatbelt
nitrogen oxide	0.0020957	g/1000g product		0.001591259	g/seatbelt
particles (> PM10)	2.267E-05	g/1000g product		1.72158E-05	g/seatbelt
sulfur dioxide	0.0001566	g/1000g product		0.000118909	g/seatbelt
sludge	136.98997	g/1000g product		104.0153904	g/seatbelt
Remark					
Data for electricity taken as an average from oil and gas fuel production (Earth Trends, 2000)					
Calculation for 1 seatbelt based on data from company: half of total production constitutes retractors and there is 5000000 of retractors produced per year					

3.1 Production of steel C60 in metal producer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	175.7900	8.877395	g/seatbelt
Chemicals	4.99	g/1000g steel		0.8771921	g/seatbelt
Coal	0.223	MJ/1000g steel		0.03920117	MJ/seatbelt
Coal	517	g/1000g steel		3.90798749	MJ/seatbelt
Diesel	0.195	MJ/1000g steel		0.03427905	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.5783491	MJ/seatbelt
Explosives	1.02	g/1000g steel		0.1793058	g/seatbelt
Gas	4.81	MJ/1000g steel		0.8455499	MJ/seatbelt

Heavy oil	2.88	MJ/1000g steel		0.5062752	MJ/seatbelt
Iron ore	2170	g/1000g steel		381.4643	g/seatbelt
Limestone	162	g/1000g steel		28.47798	g/seatbelt
Oil	0.00106	MJ/1000g steel		0.000186337	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		9.176238	g/seatbelt
OUTFLOWS				0	g/seatbelt
ammonia	0.000517	g/1000g steel		9.08834E-05	g/seatbelt
arsenic	2.08E-06	g/1000g steel		3.65643E-07	g/seatbelt
cadmium	0.0000118	g/1000g steel		2.07432E-06	g/seatbelt
cadmium	4.46E-08	g/1000g steel		7.84023E-09	g/seatbelt
CH4	4.04	g/1000g steel		0.7101916	g/seatbelt
carbon dioxide	1180	g/1000g steel		207.4322	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		0.004500224	g/seatbelt
chromium	0.00036	g/1000g steel		6.32844E-05	g/seatbelt
chromium	0.0000488	g/1000g steel		8.57855E-06	g/seatbelt
cobalt	0.0000072	g/1000g steel		1.26569E-06	g/seatbelt
cobalt	3.21E-06	g/1000g steel		5.64286E-07	g/seatbelt
copper	0.000175	g/1000g steel		3.07633E-05	g/seatbelt
copper	0.000101	g/1000g steel		1.77548E-05	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		0.007348022	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.009879398	g/seatbelt
lead	0.000529	g/1000g steel		9.29929E-05	g/seatbelt
lead	0.000402	g/1000g steel		7.06676E-05	g/seatbelt
mercury	0.0000344	g/1000g steel		6.04718E-06	g/seatbelt
nickel	0.0004	g/1000g steel		0.000070316	g/seatbelt
nickel	0.0000815	g/1000g steel		1.43269E-05	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.005590122	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.2619271	g/seatbelt
Phosphorus	0.000372	g/1000g steel		6.53939E-05	g/seatbelt
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		2.58411E-05	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.2672008	g/seatbelt
zinc	0.00368	g/1000g steel		0.000646907	g/seatbelt
zinc	0.000997	g/1000g steel		0.000175263	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.2847798	g/seatbelt
Industrial waste	96.4	g/1000g steel		16.946156	g/seatbelt
mineral waste	1100	g/1000g steel		193.369	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.2 Transportation from metal producer no.1 to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2160	MJ/1000g of steel	175.7900	0.03797064	MJ/seatbelt
OUTFLOWS					
CO2	15.6000	g/1000g of steel		2.742324	g/seatbelt

NOx	0.0990	g/1000g of steel		0.01740321	g/seatbelt
HC	0.0141	g/1000g of steel		0.002478639	g/seatbelt
Particulate matter	0.0017	g/1000g of steel		0.000300601	g/seatbelt
CO	0.0138	g/1000g of steel		0.002425902	g/seatbelt
SO2	0.0039	g/1000g of steel		0.000685581	g/seatbelt
Remark:					
Distance between metal producer no.1 (Langenberg, Germany) and STA (Norderstedt, Germany) in km		**300**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.3 Production of zinc for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g zinc	2.2000	29.7	g/seatbelt
baryte	1.5574821	g/1000g zinc		0.003426461	g/seatbelt
basalt	34.801523	g/1000g zinc		0.076563351	g/seatbelt
bauxite	21.142572	g/1000g zinc		0.046513659	g/seatbelt
bentonite	0.648349	g/1000g zinc		0.001426368	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		4.71812E-07	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		0.009583842	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		0.187976052	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		1.21587E-11	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g zinc		0.138518762	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		5.19687E-06	g/seatbelt
clay	0.2616171	g/1000g zinc		0.000575558	g/seatbelt
colemanite	0.9853674	g/1000g zinc		0.002167808	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-0.068433202	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		0.009164815	MJ/seatbelt
fluorspar	0.1583729	g/1000g zinc		0.00034842	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-5.89215E-06	g/seatbelt
ground water	3624.1777	g/1000g zinc		7.97319084	g/seatbelt
gypsum	0.1523604	g/1000g zinc		0.000335193	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.030122296	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		103.9353173	g/seatbelt
iron (in)	4.1413625	g/1000g zinc		0.009110998	g/seatbelt
kaolin	0.0019158	g/1000g zinc		4.21485E-06	g/seatbelt
lead (in)	120.22987	g/1000g zinc		0.26450572	g/seatbelt
magnesite	0.0012403	g/1000g zinc		2.72875E-06	g/seatbelt
manganese	-11.317555	g/1000g zinc		-0.02489862	g/seatbelt
mercury (in)	4.417E-06	g/1000g zinc		9.71818E-09	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		2.09293E-07	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		0.057709136	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		0.018086136	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		9.27497E-06	g/seatbelt

olivine	1.735E-06	g/1000g zinc		3.818E-09	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-0.093382719	g/seatbelt
palladium	3.273E-09	g/1000g zinc		7.19995E-12	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		0.000335857	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		1.22461E-07	g/seatbelt
platinum	3.931E-08	g/1000g zinc		8.64929E-11	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		2.06021E-06	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		5.05864E-05	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		0.014357882	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		0.00127436	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		8.64156E-09	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		0.000790254	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-0.028278479	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		3.64393E-07	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		2.40778E-13	g/seatbelt
river water	6.1598962	l/1000g zinc		0.013551772	l/seatbelt
sand	0.0001874	g/1000g zinc		4.12204E-07	g/seatbelt
sea water	-0.000147	l/1000g zinc		-3.23461E-07	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		2.67965E-07	g/seatbelt
silver (in)	-0.0161287	g/1000g zinc		-3.54831E-05	g/seatbelt
slate	1.32E-08	g/1000g zinc		2.90349E-11	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-0.030801642	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-1.64097E-06	g/seatbelt
soil	13.199188	g/1000g zinc		0.029038213	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		7.30167E-06	g/seatbelt
surface water	27.074991	l/1000g zinc		0.059564979	l/seatbelt
talc	0.0005357	g/1000g zinc		1.17857E-06	g/seatbelt
titanium	0.0025897	g/1000g zinc		5.69723E-06	g/seatbelt
uranium	11208.633	g/1000g zinc		24.65899225	g/seatbelt
water	372.88334	l/1000g zinc		0.820343353	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		9.41006E-07	MJ/seatbelt
zinc (in)	819.6244	g/1000g zinc		1.803173681	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.020344213	g/seatbelt
zinc dross	31.9	g/1000g zinc		0.07018	g/seatbelt
zinc dust	3.2163809	g/1000g zinc		0.007076038	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.055759	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		0.000181408	g/seatbelt
ammonia	0.0101456	g/1000g zinc		2.23203E-05	g/seatbelt
ammonia	0.0944373	g/1000g zinc		0.000207762	g/seatbelt
ammonia	0.0048189	g/1000g zinc		1.06016E-05	g/seatbelt
ammonium	0.0001497	g/1000g zinc		3.29424E-07	g/seatbelt
ammonium	0.0018023	g/1000g zinc		3.965E-06	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		2.91452E-06	g/seatbelt
arsenic	0.0058028	g/1000g zinc		1.27661E-05	g/seatbelt
arsenic	5.36E-06	g/1000g zinc		1.179E-08	g/seatbelt
arsenic	0.0310056	g/1000g zinc		6.82124E-05	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		1.26593E-07	g/seatbelt
benzene	0.0011388	g/1000g zinc		2.50526E-06	g/seatbelt
benzene	5.18E-05	g/1000g zinc		1.13898E-07	g/seatbelt

benzene	0.000199	g/1000g zinc		4.37836E-07	g/seatbelt
cadmium	0.0089817	g/1000g zinc		1.97596E-05	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		4.27525E-08	g/seatbelt
cadmium	0.0002277	g/1000g zinc		5.0089E-07	g/seatbelt
cadmium	0.0015242	g/1000g zinc		3.3532E-06	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		6.6891	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		3.22116E-07	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		3.29878E-07	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		6.9255E-08	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		4.34857E-08	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		0.002153012	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		4.67196E-05	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-5.98576E-10	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		2.49103E-09	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		1.1074E-07	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		3.85292E-08	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-9.49684E-09	g/seatbelt
cobalt	0.0018228	g/1000g zinc		4.01008E-06	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		6.53915E-10	g/seatbelt
cobalt	3.29E-07	g/1000g zinc		7.24124E-10	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		2.41476E-08	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		9.09474E-08	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		2.03067E-05	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		2.30618E-06	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		0.011384618	g/seatbelt
copper	0.1356498	g/1000g zinc		0.00029843	g/seatbelt
copper	0.0049752	g/1000g zinc		1.09453E-05	g/seatbelt
copper	0.0001369	g/1000g zinc		3.01256E-07	g/seatbelt
copper	0.0110447	g/1000g zinc		2.42983E-05	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		2.71554E-08	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		0.000392044	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g zinc		1.58846E-09	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		8.94845E-05	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		1.10955E-10	g/seatbelt
lead	0.1242728	g/1000g zinc		0.0002734	g/seatbelt
lead	4.66E-05	g/1000g zinc		1.0248E-07	g/seatbelt
lead	0.0008935	g/1000g zinc		1.9658E-06	g/seatbelt
lead	0.0044786	g/1000g zinc		9.85286E-06	g/seatbelt
mercury	0.0001779	g/1000g zinc		3.91478E-07	g/seatbelt
mercury	7.93E-07	g/1000g zinc		1.74374E-09	g/seatbelt
mercury	0.0001995	g/1000g zinc		4.38862E-07	g/seatbelt
mercury	5.12E-06	g/1000g zinc		1.12644E-08	g/seatbelt
methane	3.9556308	g/1000g zinc		0.008702388	g/seatbelt
nickel	0.0010629	g/1000g zinc		2.33843E-06	g/seatbelt
nickel	4.75E-05	g/1000g zinc		1.04525E-07	g/seatbelt
nickel	0.0001204	g/1000g zinc		2.64899E-07	g/seatbelt
nickel	3.02E-05	g/1000g zinc		6.65256E-08	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		7.94002E-08	g/seatbelt
nitrate	0.0008705	g/1000g zinc		1.91506E-06	g/seatbelt
nitrate	0.2355114	g/1000g zinc		0.000518125	g/seatbelt

nitrogen	3.0664234	g/1000g zinc		0.006746132	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		8.20669E-06	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		8.5484E-05	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		7.29007E-05	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		0.037518714	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		4.34646E-08	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		0.000254945	g/seatbelt
phosphate	0.0051168	g/1000g zinc		1.12569E-05	g/seatbelt
phosphate	0.0030974	g/1000g zinc		6.81435E-06	g/seatbelt
toluene	0.0001184	g/1000g zinc		2.60507E-07	g/seatbelt
toluene	3.15E-05	g/1000g zinc		6.9396E-08	g/seatbelt
vanadium	0.0027262	g/1000g zinc		5.99768E-06	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		1.60549E-08	g/seatbelt
vanadium	0.0001296	g/1000g zinc		2.85063E-07	g/seatbelt
zinc	0.1760723	g/1000g zinc		0.000387359	g/seatbelt
zinc	0.0085203	g/1000g zinc		1.87446E-05	g/seatbelt
zinc	0.0090181	g/1000g zinc		1.98399E-05	g/seatbelt
zinc	0.1440723	g/1000g zinc		0.000316959	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		5.00709E-06	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g zinc		0.014316626	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		0.060765279	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		1.49424E-05	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		0.39072682	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		0.041617583	g/seatbelt
jarosite	123.75866	g/1000g zinc		0.272269053	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		1.77343E-05	g/seatbelt
mineral waste	6.121768	g/1000g zinc		0.01346789	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		97.86176503	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		0.008771131	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		0.022474694	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		3.31606E-05	g/seatbelt
spoil (unspecified)	14.286476	g/1000g zinc		0.031430247	g/seatbelt
sludge	12.2	g/1000g zinc		0.02684	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		0.002412791	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g zinc		11.09910221	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		2.9733E-05	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g zinc		3.43045E-05	g/seatbelt
used oil	220.9923	g/1000g zinc		0.486183057	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		0.001922271	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		0.035571318	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.4 Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1496	MJ/1000g of product	2.2000	0.00032912	MJ/seatbelt

OUTFLOWS					
CO2	10.8800	g/1000g of product		0.023936	g/seatbelt
NOx	0.0720	g/1000g of product		0.0001584	g/seatbelt
HC	0.0096	g/1000g of product		0.00002112	g/seatbelt
Particulate matter	0.0012	g/1000g of product		0.00000264	g/seatbelt
CO	0.0096	g/1000g of product		0.00002112	g/seatbelt
SO2	0.0027	g/1000g of product		0.000005984	g/seatbelt
Remark:					
Distance between metal producer no.2 (Lüneburg, Germany) and STA (Norderstedt, Germany) in km		**80**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
Distance estimated from the map					
3.5 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.3000	4.74E-06	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		9.42E-06	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		2.14E-07	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		2.63E-04	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		6.24E-02	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		4.62E-03	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		1.37E-03	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		1.44E-02	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		4.54E-03	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		6.70E-02	g/seatbelt
iron (in)	215.94651	g/1000g alloy		6.48E-02	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		6.62E-04	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		4.83E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		1.91E-03	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		7.80E-05	g/seatbelt
water	18.985568	l/1000g alloy		5.70E-03	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		3.00E-01	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		6.72E-13	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		1.80E-05	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		3.54E-06	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		1.82E-05	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		6.54E-09	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		1.01E+00	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		2.96E-03	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		1.35E-04	g/seatbelt
chloride	3.56E+00	g/1000g alloy		1.07E-03	g/seatbelt
chromium	1.14E-01	g/1000g alloy		3.41E-05	g/seatbelt

chromium	9.22E-04	g/1000g alloy		2.77E-07	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		1.78E-08	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		6.87E-08	g/seatbelt
copper	1.22E-04	g/1000g alloy		3.66E-08	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		2.08E-05	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		6.54E-06	g/seatbelt
iron	1.31E-01	g/1000g alloy		3.94E-05	g/seatbelt
lead	5.17E-04	g/1000g alloy		1.55E-07	g/seatbelt
manganese	2.83E-03	g/1000g alloy		8.49E-07	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		1.87E-06	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		4.98E-07	g/seatbelt
nickel	2.97E-02	g/1000g alloy		8.91E-06	g/seatbelt
nickel	3.38E-03	g/1000g alloy		1.01E-06	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		6.01E-05	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		3.06E-05	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		2.26E-03	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		7.04E-05	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		1.33E-03	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		8.87E-07	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		2.76E-04	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		3.72E-03	g/seatbelt
tin	1.61E-04	g/1000g alloy		4.83E-08	g/seatbelt
zinc	1.11E-03	g/1000g alloy		3.33E-07	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		7.28E-02	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		3.90E-01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.6 Transportation from metal producer no.2 to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1496	MJ/1000g of product	0.3000	0.00004488	MJ/seatbelt
OUTFLOWS					
CO2	10.8800	g/1000g of product		0.003264	g/seatbelt
NOx	0.0720	g/1000g of product		0.0000216	g/seatbelt
HC	0.0096	g/1000g of product		0.00000288	g/seatbelt
Particulate matter	0.0012	g/1000g of product		0.00000036	g/seatbelt
CO	0.0096	g/1000g of product		0.00000288	g/seatbelt
SO2	0.0027	g/1000g of product		0.000000816	g/seatbelt
Remark:					
Distance between metal producer no.2 (Lüneburg, Germany) and STA (Norderstedt, Germany) in km		**80**			

Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
Distance estimated from the map					
3.7 Production of frame, pretensioner	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
oil Norderstedt	0.1308158	MJ/1000g product	169.5000	0.022173279	MJ/seatbelt
gas Hall 14	0.0845028	MJ/1000g product		0.014323227	MJ/seatbelt
electricity	3.3747613	MJ/1000g product		0.572022042	MJ/seatbelt
steel DC01	1037.1091	g/1000g product		175.79	g/seatbelt
zinc for coating	12.979351	g/1000g product		2.2	g/seatbelt
alloy for passivation layer	1.7699115	g/1000g product		0.3	g/seatbelt
OUTFLOWS				0	
frame, pretensioner				169.5	g/seatbelt
chromium III	0.0044461	g/1000g product		0.000753609	g/seatbelt
copper	0.0044461	g/1000g product		0.000753609	g/seatbelt
cyanide	0.0002047	g/1000g product		3.46917E-05	g/seatbelt
nickel	0.0044461	g/1000g product		0.000753609	g/seatbelt
zinc	0.0044461	g/1000g product		0.000753609	g/seatbelt
oil	0.0031484	g/1000g product		0.000533661	g/seatbelt
used oil	0.003472	g/1000g product		0.000588496	g/seatbelt
scrap	49.262537	g/1000g product		8.35	g/seatbelt
Remark:				0	
Data given for 1 year				0	
Total value of production/year		€ 34,580,022.00		0	##########
Value of the product		€ 0.78		0	€ 0.78
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.8 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.7783	MJ/1000g of product	169.5000	0.13192524	MJ/seatbelt
OUTFLOWS					
CO2	56.2120	g/1000g of product		9.527934	g/seatbelt
NOx	0.3567	g/1000g of product		0.060465735	g/seatbelt
HC	0.0508	g/1000g of product		0.008611787	g/seatbelt
Particulate matter	0.0062	g/1000g of product		0.001044408	g/seatbelt
CO	0.0497	g/1000g of product		0.008428557	g/seatbelt
SO2	0.0141	g/1000g of product		0.002381984	g/seatbelt
Remark:					

Distance between STA (Norderstedt, Germany) and ALH (Sopronkövesd, Hungary) in km		**1081**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.9 Production of steel DC04 in metal producer no.3	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	26.8600	1.35643	g/seatbelt
Chemicals	4.99	g/1000g steel		0.1340314	g/seatbelt
Coal	0.223	MJ/1000g steel		0.00598978	MJ/seatbelt
Coal	517	g/1000g steel		0.59712466	MJ/seatbelt
Diesel	0.195	MJ/1000g steel		0.0052377	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.0883694	MJ/seatbelt
Explosives	1.02	g/1000g steel		0.0273972	g/seatbelt
Gas	4.81	MJ/1000g steel		0.1291966	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.0773568	MJ/seatbelt
Iron ore	2170	g/1000g steel		58.2862	g/seatbelt
Limestone	162	g/1000g steel		4.35132	g/seatbelt
Oil	0.00106	MJ/1000g steel		2.84716E-05	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		1.402092	g/seatbelt
OUTFLOWS					
ammonia	0.000517	g/1000g steel		1.38866E-05	g/seatbelt
arsenic	2.08E-06	g/1000g steel		5.58688E-08	g/seatbelt
cadmium	0.0000118	g/1000g steel		3.16948E-07	g/seatbelt
cadmium	4.46E-08	g/1000g steel		1.19796E-09	g/seatbelt
CH4	4.04	g/1000g steel		0.1085144	g/seatbelt
carbon dioxide	1180	g/1000g steel		31.6948	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		0.000687616	g/seatbelt
chromium	0.00036	g/1000g steel		9.6696E-06	g/seatbelt
chromium	0.0000488	g/1000g steel		1.31077E-06	g/seatbelt
cobalt	0.0000072	g/1000g steel		1.93392E-07	g/seatbelt
cobalt	3.21E-06	g/1000g steel		8.62206E-08	g/seatbelt
copper	0.000175	g/1000g steel		4.7005E-06	g/seatbelt
copper	0.000101	g/1000g steel		2.71286E-06	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		0.001122748	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.001509532	g/seatbelt
lead	0.000529	g/1000g steel		1.42089E-05	g/seatbelt
lead	0.000402	g/1000g steel		1.07977E-05	g/seatbelt
mercury	0.0000344	g/1000g steel		9.23984E-07	g/seatbelt
nickel	0.0004	g/1000g steel		0.000010744	g/seatbelt
nickel	0.0000815	g/1000g steel		2.18909E-06	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.000854148	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.0400214	g/seatbelt
Phosphorus	0.000372	g/1000g steel		9.99192E-06	g/seatbelt
polycyclic aromatic hydrocarb	0.000147	g/1000g steel		3.94842E-06	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.0408272	g/seatbelt

zinc	0.00368	g/1000g steel		9.88448E-05	g/seatbelt
zinc	0.000997	g/1000g steel		2.67794E-05	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.0435132	g/seatbelt
Industrial waste	96.4	g/1000g steel		2.589304	g/seatbelt
mineral waste	1100	g/1000g steel		29.546	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.10 Transportation from metal producer no.3 to Collector Manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6480	MJ/1000g of steel	26.8600	0.01740528	MJ/seatbelt
OUTFLOWS					
CO2	46.8000	g/1000g of steel		1.257048	g/seatbelt
NOx	0.2970	g/1000g of steel		0.00797742	g/seatbelt
HC	0.0423	g/1000g of steel		0.001136178	g/seatbelt
Particulate matter	0.0051	g/1000g of steel		0.000137792	g/seatbelt
CO	0.0414	g/1000g of steel		0.001112004	g/seatbelt
SO2	0.0117	g/1000g of steel		0.000314262	g/seatbelt
Remark:					
Distance between metal producer no.3 (Hagen, Germany) and Collector Manufacturer (Krnov, Czech Republic) in km		**900**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.11 Production of zinc for coating	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g zinc	0.4710	6.3585	g/seatbelt
baryte	1.5574821	g/1000g zinc		0.000733574	g/seatbelt
basalt	34.801523	g/1000g zinc		0.016391517	g/seatbelt
bauxite	21.142572	g/1000g zinc		0.009958152	g/seatbelt
bentonite	0.648349	g/1000g zinc		0.000305372	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		1.01011E-07	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		0.002051813	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		0.040243964	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		2.60308E-12	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g zinc		0.029655608	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		1.1126E-06	g/seatbelt
clay	0.2616171	g/1000g zinc		0.000123222	g/seatbelt

colemanite	0.9853674	g/1000g zinc		0.000464108	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-0.014650926	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		0.001962104	MJ/seatbelt
fluorspar	0.1583729	g/1000g zinc		7.45936E-05	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-1.26146E-06	g/seatbelt
ground water	3624.1777	g/1000g zinc		1.706987675	g/seatbelt
gypsum	0.1523604	g/1000g zinc		7.17617E-05	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.00644891	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		22.25160658	g/seatbelt
iron (in)	4.1413625	g/1000g zinc		0.001950582	g/seatbelt
kaolin	0.0019158	g/1000g zinc		9.02361E-07	g/seatbelt
lead (in)	120.22987	g/1000g zinc		0.05662827	g/seatbelt
magnesite	0.0012403	g/1000g zinc		5.84201E-07	g/seatbelt
manganese	-11.317555	g/1000g zinc		-0.005330568	g/seatbelt
mercury (in)	4.417E-06	g/1000g zinc		2.08057E-09	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		4.48078E-08	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		0.012355001	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		0.003872077	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		1.98569E-06	g/seatbelt
olivine	1.735E-06	g/1000g zinc		8.17399E-10	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-0.019992391	g/seatbelt
palladium	3.273E-09	g/1000g zinc		1.54144E-12	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		7.19038E-05	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		2.62178E-08	g/seatbelt
platinum	3.931E-08	g/1000g zinc		1.85174E-11	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		4.41073E-07	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		1.08301E-05	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		0.003073892	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		0.000272829	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		1.85008E-09	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		0.000169186	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-0.006054165	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		7.80132E-08	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		5.15483E-14	g/seatbelt
river water	6.1598962	l/1000g zinc		0.002901311	l/seatbelt
sand	0.0001874	g/1000g zinc		8.82491E-08	g/seatbelt
sea water	-0.000147	l/1000g zinc		-6.92501E-08	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		5.73689E-08	g/seatbelt
silver (in)	-0.0161287	g/1000g zinc		-7.5966E-06	g/seatbelt
slate	1.32E-08	g/1000g zinc		6.21611E-12	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-0.006594352	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-3.51317E-07	g/seatbelt
soil	13.199188	g/1000g zinc		0.006216817	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		1.56322E-06	g/seatbelt
surface water	27.074991	l/1000g zinc		0.012752321	l/seatbelt
talc	0.0005357	g/1000g zinc		2.52322E-07	g/seatbelt
titanium	0.0025897	g/1000g zinc		1.21973E-06	g/seatbelt
uranium	11208.633	g/1000g zinc		5.279266069	g/seatbelt
water	372.88334	l/1000g zinc		0.175628054	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		2.01461E-07	MJ/seatbelt

zinc (in)	819.6244	g/1000g zinc		0.386043093	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.004355511	g/seatbelt
zinc dross	31.9	g/1000g zinc		0.0150249	g/seatbelt
zinc dust	3.2163809	g/1000g zinc		0.001514915	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.011937495	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		3.88377E-05	g/seatbelt
ammonia	0.0101456	g/1000g zinc		4.77857E-06	g/seatbelt
ammonia	0.0944373	g/1000g zinc		4.448E-05	g/seatbelt
ammonia	0.0048189	g/1000g zinc		2.26972E-06	g/seatbelt
ammonium	0.0001497	g/1000g zinc		7.05267E-08	g/seatbelt
ammonium	0.0018023	g/1000g zinc		8.48871E-07	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		6.23973E-07	g/seatbelt
arsenic	0.0058028	g/1000g zinc		2.7331E-06	g/seatbelt
arsenic	5.36E-06	g/1000g zinc		2.52413E-09	g/seatbelt
arsenic	0.0310056	g/1000g zinc		1.46037E-05	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		2.71023E-08	g/seatbelt
benzene	0.0011388	g/1000g zinc		5.36353E-07	g/seatbelt
benzene	5.18E-05	g/1000g zinc		2.43845E-08	g/seatbelt
benzene	0.000199	g/1000g zinc		9.37367E-08	g/seatbelt
cadmium	0.0089817	g/1000g zinc		4.23036E-06	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		9.15293E-09	g/seatbelt
cadmium	0.0002277	g/1000g zinc		1.07236E-07	g/seatbelt
cadmium	0.0015242	g/1000g zinc		7.1789E-07	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		1.4320755	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		6.89622E-08	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		7.06239E-08	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		1.48269E-08	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		9.3099E-09	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		0.00046094	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		1.00022E-05	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-1.2815E-10	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		5.33307E-10	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		2.37085E-08	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		8.24876E-09	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-2.03319E-09	g/seatbelt
cobalt	0.0018228	g/1000g zinc		8.58521E-07	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		1.39997E-10	g/seatbelt
cobalt	3.29E-07	g/1000g zinc		1.55028E-10	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		5.16978E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		1.9471E-08	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		4.34749E-06	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		4.93732E-07	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		0.002437343	g/seatbelt
copper	0.1356498	g/1000g zinc		6.38911E-05	g/seatbelt
copper	0.0049752	g/1000g zinc		2.3433E-06	g/seatbelt
copper	0.0001369	g/1000g zinc		6.44962E-08	g/seatbelt
copper	0.0110447	g/1000g zinc		5.20204E-06	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		5.81372E-09	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		8.3933E-05	g/seatbelt

hydrogen chloride	7.22E-07	g/1000g zinc		3.40074E-10	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		1.91578E-05	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		2.37545E-11	g/seatbelt
lead	0.1242728	g/1000g zinc		5.85325E-05	g/seatbelt
lead	4.66E-05	g/1000g zinc		2.19401E-08	g/seatbelt
lead	0.0008935	g/1000g zinc		4.2086E-07	g/seatbelt
lead	0.0044786	g/1000g zinc		2.10941E-06	g/seatbelt
mercury	0.0001779	g/1000g zinc		8.38118E-08	g/seatbelt
mercury	7.93E-07	g/1000g zinc		3.73318E-10	g/seatbelt
mercury	0.0001995	g/1000g zinc		9.39564E-08	g/seatbelt
mercury	5.12E-06	g/1000g zinc		2.4116E-09	g/seatbelt
methane	3.9556308	g/1000g zinc		0.001863102	g/seatbelt
nickel	0.0010629	g/1000g zinc		5.00637E-07	g/seatbelt
nickel	4.75E-05	g/1000g zinc		2.23778E-08	g/seatbelt
nickel	0.0001204	g/1000g zinc		5.67124E-08	g/seatbelt
nickel	3.02E-05	g/1000g zinc		1.42425E-08	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		1.69989E-08	g/seatbelt
nitrate	0.0008705	g/1000g zinc		4.09997E-07	g/seatbelt
nitrate	0.2355114	g/1000g zinc		0.000110926	g/seatbelt
nitrogen	3.0664234	g/1000g zinc		0.001444285	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		1.75698E-06	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		1.83013E-05	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		1.56074E-05	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		0.008032416	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		9.30538E-09	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		5.45814E-05	g/seatbelt
phosphate	0.0051168	g/1000g zinc		2.41E-06	g/seatbelt
phosphate	0.0030974	g/1000g zinc		1.45889E-06	g/seatbelt
toluene	0.0001184	g/1000g zinc		5.57723E-08	g/seatbelt
toluene	3.15E-05	g/1000g zinc		1.48571E-08	g/seatbelt
vanadium	0.0027262	g/1000g zinc		1.28405E-06	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		3.43721E-09	g/seatbelt
vanadium	0.0001296	g/1000g zinc		6.10294E-08	g/seatbelt
zinc	0.1760723	g/1000g zinc		8.293E-05	g/seatbelt
zinc	0.0085203	g/1000g zinc		4.01305E-06	g/seatbelt
zinc	0.0090181	g/1000g zinc		4.24754E-06	g/seatbelt
zinc	0.1440723	g/1000g zinc		6.7858E-05	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		1.07197E-06	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g zinc		0.003065059	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		0.013009294	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		3.19903E-06	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		0.08365106	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		0.008909946	g/seatbelt
jarosite	123.75866	g/1000g zinc		0.058290329	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		3.79676E-06	g/seatbelt
mineral waste	6.121768	g/1000g zinc		0.002883353	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		20.95131424	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		0.001877819	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		0.004811628	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		7.09937E-06	g/seatbelt

spoil (unspecified)	14.286476	g/1000g zinc		0.00672893	g/seatbelt
sludge	12.2	g/1000g zinc		0.0057462	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		0.000516557	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g zinc		2.376216883	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		6.36555E-06	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g zinc		7.34428E-06	g/seatbelt
used oil	220.9923	g/1000g zinc		0.104087373	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		0.000411541	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		0.007615496	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.12 Transportation to Collector Manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	10.8800	MJ/1000g of product	0.4710	0.00512448	MJ/seatbelt
				0	
OUTFLOWS				0	
CO2	10.8800	g/1000g of product		0.00512448	g/seatbelt
NOx	0.0720	g/1000g of product		0.000033912	g/seatbelt
HC	0.0096	g/1000g of product		4.5216E-06	g/seatbelt
Particulate matter	0.0012	g/1000g of product		5.652E-07	g/seatbelt
CO	0.0096	g/1000g of product		4.5216E-06	g/seatbelt
SO2	0.0027	g/1000g of product		1.28112E-06	g/seatbelt
Remark:					
Distance between metal producer no.4 (Ostrava, Czech Republic) and Collector Manufacturer (Krnov, Czech Republic) in km		**80**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
Distance estimated from the map					
3.13 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0075	1.18E-07	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		2.35E-07	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		5.32E-09	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		6.56E-06	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		1.55E-03	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		1.15E-04	g/seatbelt

crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		3.40E-05	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		3.59E-04	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		1.13E-04	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		1.67E-03	g/seatbelt
iron (in)	215.94651	g/1000g alloy		1.61E-03	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		1.65E-05	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		1.20E-08	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		4.77E-05	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		1.94E-06	g/seatbelt
water	18.985568	l/1000g alloy		1.42E-04	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		7.47E-03	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		1.67E-14	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		4.49E-07	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		8.81E-08	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		4.52E-07	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		1.63E-10	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		2.52E-02	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		7.36E-05	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		3.37E-06	g/seatbelt
chloride	3.56E+00	g/1000g alloy		2.66E-05	g/seatbelt
chromium	1.14E-01	g/1000g alloy		8.49E-07	g/seatbelt
chromium	9.22E-04	g/1000g alloy		6.89E-09	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		4.44E-10	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		1.71E-09	g/seatbelt
copper	1.22E-04	g/1000g alloy		9.11E-10	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		5.17E-07	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		1.63E-07	g/seatbelt
iron	1.31E-01	g/1000g alloy		9.81E-07	g/seatbelt
lead	5.17E-04	g/1000g alloy		3.86E-09	g/seatbelt
manganese	2.83E-03	g/1000g alloy		2.11E-08	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		4.66E-08	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		1.24E-08	g/seatbelt
nickel	2.97E-02	g/1000g alloy		2.22E-07	g/seatbelt
nickel	3.38E-03	g/1000g alloy		2.52E-08	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		1.50E-06	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		7.63E-07	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		5.62E-05	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		1.75E-06	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		3.32E-05	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		2.21E-08	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		6.88E-06	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		9.25E-05	g/seatbelt
tin	1.61E-04	g/1000g alloy		1.20E-09	g/seatbelt
zinc	1.11E-03	g/1000g alloy		8.29E-09	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		1.81E-03	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		9.71E-03	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					

3.14 Transportation to Collector Manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.15 Production of collector	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
oil Norderstedt	0.0888877	MJ/1000g product	27.3385	0.002430053	MJ/seatbelt
gas Hall 14	0.0574186	MJ/1000g product		0.001569736	MJ/seatbelt
electricity	2.293107	MJ/1000g product		0.062690038	MJ/seatbelt
steel DC04	982.49829	g/1000g product		26.86	g/seatbelt
zinc for coating	17.22847	g/1000g product		0.471	g/seatbelt
alloy for passivation layer	0.2732413	g/1000g product		0.00747	g/seatbelt
OUTFLOWS				0	
collector				27.33847	g/seatbelt
chromium III	0.003021	g/1000g product		8.25908E-05	g/seatbelt
copper	0.003021	g/1000g product		8.25908E-05	g/seatbelt
cyanide	0.0001391	g/1000g product		3.80199E-06	g/seatbelt
nickel	0.003021	g/1000g product		8.25908E-05	g/seatbelt
zinc	0.003021	g/1000g product		8.25908E-05	g/seatbelt
oil	0.0021393	g/1000g product		5.84859E-05	g/seatbelt
used oil	0.0023591	g/1000g product		6.44955E-05	g/seatbelt
scrap	49.124914	g/1000g product		1.343	g/seatbelt
Remark:				0	
Data given for 1 year				0	
Total value of production/year		€ 34,580,022.00		0	##########
Value of the product		€ 0.08		0	€ 0.08
Remark:					
Data adapted from production of frame pretensioner. Due to the differences in weight, value of the product was calculated in propotion to the weight.					
Electricity data for Czech Republic					
3.16 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2664	MJ/1000g of product	27.3385	0.007282968	MJ/seatbelt
OUTFLOWS					
CO2	19.2400	g/1000g of product		0.525992163	g/seatbelt
NOx	0.1221	g/1000g of product		0.003338027	g/seatbelt
HC	0.0174	g/1000g of product		0.000475416	g/seatbelt

Particulate matter	0.0021	g/1000g of product		5.76568E-05	g/seatbelt
CO	0.0170	g/1000g of product		0.000465301	g/seatbelt
SO2	0.0048	g/1000g of product		0.000131498	g/seatbelt
Remark:					
Distance between Collector Manufacturer (Krnov, Czech Republic) and ALH (Sopronkövesd, Hungary) in km		**370**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.17 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.76E-06	g/1000g POM	6.5000	1.14E-08	g/seatbelt
energy (recovered)	-1.91E+03	g/1000g POM		-1.24E+01	g/seatbelt
hydrogen; gaseous	9.80E-04	g/1000g POM		6.37E-06	g/seatbelt
waste	4.88E+00	g/1000g POM		3.17E-02	g/seatbelt
air	2.97E+02	g/1000g POM		1.93E+00	g/seatbelt
baryte	3.53E-05	g/1000g POM		2.30E-07	g/seatbelt
bauxite	2.15E-03	g/1000g POM		1.40E-05	g/seatbelt
bentonite	3.81E-02	g/1000g POM		2.48E-04	g/seatbelt
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		4.90E-04	MJ/seatbelt
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		9.90E-07	MJ/seatbelt
calcium carbonate (in)	1.44E-01	g/1000g POM		9.39E-04	g/seatbelt
chromium (in)	6.46E-10	g/1000g POM		4.20E-12	g/seatbelt
clay	2.04E-07	g/1000g POM		1.33E-09	g/seatbelt
copper (in)	1.29E-05	g/1000g POM		8.39E-08	g/seatbelt
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		2.78E-01	MJ/seatbelt
dolomite	2.02E-03	g/1000g POM		1.31E-05	g/seatbelt
feldspar	7.82E-14	g/1000g POM		5.08E-16	g/seatbelt
fluorspar	3.75E-04	g/1000g POM		2.44E-06	g/seatbelt
granite	2.86E-12	g/1000g POM		1.86E-14	g/seatbelt
ground water	5.52E-02	l/1000g POM		3.59E-04	l/seatbelt
gypsum	3.84E-03	g/1000g POM		2.49E-05	g/seatbelt
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		1.48E-02	MJ/seatbelt
inert rock	1.39E-03	g/1000g POM		9.01E-06	g/seatbelt
iron (in)	1.65E-01	g/1000g POM		1.07E-03	g/seatbelt
lead (in)	3.32E-04	g/1000g POM		2.16E-06	g/seatbelt
magnesium (in)	5.86E-07	g/1000g POM		3.81E-09	g/seatbelt
manganese (in)	1.24E-04	g/1000g POM		8.08E-07	g/seatbelt
mercury (in)	4.86E-07	g/1000g POM		3.16E-09	g/seatbelt
natural aggregate	6.07E-04	g/1000g POM		3.94E-06	g/seatbelt
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		1.40E-01	MJ/seatbelt
nickel	1.17E-06	g/1000g POM		7.62E-09	g/seatbelt
nitrogen (in)	9.44E+01	g/1000g POM		6.14E-01	g/seatbelt
olivine	1.54E-03	g/1000g POM		1.00E-05	g/seatbelt

oxygen	4.87E-03	g/1000g POM		3.16E-05	g/seatbelt
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		5.35E-05	MJ/seatbelt
phosphorus (in)	8.77E-10	g/1000g POM		5.70E-12	g/seatbelt
potassium chloride	9.70E-06	g/1000g POM		6.30E-08	g/seatbelt
primary energy from geother	2.38E-02	MJ/1000g POM		1.55E-04	MJ/seatbelt
primary energy from hydro p	2.95E-01	MJ/1000g POM		1.91E-03	MJ/seatbelt
primary energy from solar en	8.77E-05	MJ/1000g POM		5.70E-07	MJ/seatbelt
primary energy from waves	4.89E-04	MJ/1000g POM		3.18E-06	MJ/seatbelt
primary energy from wind po	1.13E-02	MJ/1000g POM		7.33E-05	MJ/seatbelt
quartz sand	5.31E-33	g/1000g POM		3.45E-35	g/seatbelt
river water	3.20E+03	g/1000g POM		2.08E+01	g/seatbelt
sand	9.51E-02	g/1000g POM		6.18E-04	g/seatbelt
sea water	6.03E+00	1l/1000g POM		3.92E-02	1l/seatbelt
slate	1.09E-02	g/1000g POM		7.06E-05	g/seatbelt
sodium chloride	2.67E-01	g/1000g POM		1.74E-03	g/seatbelt
sodium nitrate	1.76E-06	g/1000g POM		1.14E-08	g/seatbelt
sulfur (in)	3.33E-02	g/1000g POM		2.17E-04	g/seatbelt
talc	7.94E-24	g/1000g POM		5.16E-26	g/seatbelt
titanium	1.82E-03	g/1000g POM		1.19E-05	g/seatbelt
uranium	2.74E+03	g/1000g POM		1.78E+01	g/seatbelt
water	3.11E+01	1l/1000g POM		2.02E-01	1l/seatbelt
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		7.99E-08	1MJ/seatbelt
zinc (in)	6.14E-02	g/1000g POM		3.99E-04	g/seatbelt
OUTFLOWS				0.00E+00	
Polypropylene granulate (PP)	1000	g		6.50E+00	g
1,2-dichloroethane	1.39E-08	g/1000g POM		9.02E-11	g/seatbelt
1,2-dichloroethane	3.16E-10	g/1000g POM		2.06E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g POM		2.44E-31	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g POM		7.95E-16	g/seatbelt
acid (as H+)	4.33E-14	g/1000g POM		2.81E-16	g/seatbelt
acid (as H+)	2.01E-03	g/1000g POM		1.31E-05	g/seatbelt
adsorbable organic halogen c	6.94E-10	g/1000g POM		4.51E-12	g/seatbelt
aluminium	4.06E-04	g/1000g POM		2.64E-06	g/seatbelt
ammonia	1.58E-07	g/1000g POM		1.03E-09	g/seatbelt
ammonia	3.39E-03	g/1000g POM		2.20E-05	g/seatbelt
antimony	7.96E-08	g/1000g POM		5.17E-10	g/seatbelt
arsenic	8.41E-08	g/1000g POM		5.46E-10	g/seatbelt
arsenic	1.85E-07	g/1000g POM		1.20E-09	g/seatbelt
benzene	3.35E-15	g/1000g POM		2.18E-17	g/seatbelt
benzene	6.58E-19	g/1000g POM		4.28E-21	g/seatbelt
biological oxygen demand	2.88E-02	g/1000g POM		1.87E-04	g/seatbelt
bromate	4.13E-07	g/1000g POM		2.69E-09	g/seatbelt
cadmium	8.62E-08	g/1000g POM		5.60E-10	g/seatbelt
cadmium	4.36E-08	g/1000g POM		2.83E-10	g/seatbelt
calcium	3.65E-05	g/1000g POM		2.37E-07	g/seatbelt
carbon dioxide	1.67E+03	g/1000g POM		1.09E+01	g/seatbelt
carbon disulfide	1.98E-08	g/1000g POM		1.29E-10	g/seatbelt
carbon monoxide	6.10E+00	g/1000g POM		3.97E-02	g/seatbelt
carbonate	2.83E-02	g/1000g POM		1.84E-04	g/seatbelt
chemical oxygen demand	2.40E-01	g/1000g POM		1.56E-03	g/seatbelt

chlorate	6.77E-05	g/1000g POM		4.40E-07	g/seatbelt
chloride	1.53E-01	g/1000g POM		9.93E-04	g/seatbelt
chlorine	3.71E-07	g/1000g POM		2.41E-09	g/seatbelt
chlorine	8.03E-07	g/1000g POM		5.22E-09	g/seatbelt
chromium	3.83E-07	g/1000g POM		2.49E-09	g/seatbelt
chromium	4.93E-09	g/1000g POM		3.20E-11	g/seatbelt
copper	8.90E-09	g/1000g POM		5.78E-11	g/seatbelt
copper	1.03E-05	g/1000g POM		6.69E-08	g/seatbelt
cyanide	1.56E-08	g/1000g POM		1.01E-10	g/seatbelt
decane	1.39E-02	g/1000g POM		9.03E-05	g/seatbelt
dichloromethane	9.24E-10	g/1000g POM		6.01E-12	g/seatbelt
ethyl benzene	1.97E-16	g/1000g POM		1.28E-18	g/seatbelt
ethylene	1.66E-03	g/1000g POM		1.08E-05	g/seatbelt
fluoride	3.59E-06	g/1000g POM		2.34E-08	g/seatbelt
fluorine	3.23E-08	g/1000g POM		2.10E-10	g/seatbelt
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		3.32E-05	g/seatbelt
hydrocyanic acid	6.21E-16	g/1000g POM		4.04E-18	g/seatbelt
hydrogen	3.02E-02	g/1000g POM		1.96E-04	g/seatbelt
hydrogen chloride	5.13E-02	g/1000g POM		3.34E-04	g/seatbelt
hydrogen fluoride	1.49E-03	g/1000g POM		9.71E-06	g/seatbelt
hydrogen sulfide	5.52E-06	g/1000g POM		3.59E-08	g/seatbelt
iron	1.81E-05	g/1000g POM		1.17E-07	g/seatbelt
lead	1.99E-06	g/1000g POM		1.29E-08	g/seatbelt
lead	3.83E-07	g/1000g POM		2.49E-09	g/seatbelt
manganese	6.28E-07	g/1000g POM		4.08E-09	g/seatbelt
mercury	1.80E-06	g/1000g POM		1.17E-08	g/seatbelt
mercury	1.70E-07	g/1000g POM		1.10E-09	g/seatbelt
methane	1.18E+01	g/1000g POM		7.69E-02	g/seatbelt
nickel	8.73E-11	g/1000g POM		5.67E-13	g/seatbelt
nickel	2.58E-07	g/1000g POM		1.67E-09	g/seatbelt
nitrate	1.20E-01	g/1000g POM		7.79E-04	g/seatbelt
nitrogen	8.77E-04	g/1000g POM		5.70E-06	g/seatbelt
nitrogen dioxide	3.29E+00	g/1000g POM		2.14E-02	g/seatbelt
nitrous oxide	4.82E-10	g/1000g POM		3.14E-12	g/seatbelt
non-methane volatile organic	3.51E+00	g/1000g POM		2.28E-02	g/seatbelt
oxygen	7.98E-21	g/1000g POM		5.19E-23	g/seatbelt
particles (> PM10)	8.64E-02	g/1000g POM		5.62E-04	g/seatbelt
particles (PM10)	5.95E-01	g/1000g POM		3.87E-03	g/seatbelt
particles (PM10)	8.75E-03	g/1000g POM		5.69E-05	g/seatbelt
particles (PM2.5)	3.90E-12	g/1000g POM		2.53E-14	g/seatbelt
phenol	1.99E-03	g/1000g POM		1.29E-05	g/seatbelt
phosphate	5.37E-01	g/1000g POM		3.49E-03	g/seatbelt
polycyclic aromatic hydrocarb	1.36E-15	g/1000g POM		8.81E-18	g/seatbelt
potassium	1.18E-06	g/1000g POM		7.64E-09	g/seatbelt
propene	1.23E-03	g/1000g POM		7.98E-06	g/seatbelt
selenium	1.01E-22	g/1000g POM		6.53E-25	g/seatbelt
silver	2.90E-21	g/1000g POM		1.89E-23	g/seatbelt
sodium	8.11E-02	g/1000g POM		5.27E-04	g/seatbelt
strontium	7.15E-09	g/1000g POM		4.65E-11	g/seatbelt
styrene	2.76E-17	g/1000g POM		1.80E-19	g/seatbelt

sulfate	9.30E-01	g/1000g POM		6.05E-03	g/seatbelt
sulfur	3.49E-10	g/1000g POM		2.27E-12	g/seatbelt
sulfur dioxide	3.78E+00	g/1000g POM		2.46E-02	g/seatbelt
tin	1.53E-13	g/1000g POM		9.93E-16	g/seatbelt
toluene	5.61E-16	g/1000g POM		3.65E-18	g/seatbelt
total organic carbon	8.94E-03	g/1000g POM		5.81E-05	g/seatbelt
vinyl chloride	3.11E-07	g/1000g POM		2.02E-09	g/seatbelt
vinyl chloride	5.78E-09	g/1000g POM		3.75E-11	g/seatbelt
volatile organic compound	1.79E-01	g/1000g POM		1.16E-03	g/seatbelt
volatile organic compound	1.06E-02	g/1000g POM		6.89E-05	g/seatbelt
xylene (all isomers)	2.59E-16	g/1000g POM		1.68E-18	g/seatbelt
zinc	4.86E-06	g/1000g POM		3.16E-08	g/seatbelt
zinc	9.69E-05	g/1000g POM		6.30E-07	g/seatbelt
chemical waste	1.91E+00	g/1000g POM		1.24E-02	g/seatbelt
chemical waste, inert	8.15E-01	g/1000g POM		5.29E-03	g/seatbelt
chemical waste, toxic	1.70E+00	g/1000g POM		1.11E-02	g/seatbelt
demolition waste	2.20E-03	g/1000g POM		1.43E-05	g/seatbelt
industrial waste	1.13E+00	g/1000g POM		7.36E-03	g/seatbelt
mineral waste	2.05E-01	g/1000g POM		1.34E-03	g/seatbelt
municipal waste	-4.61E+00	g/1000g POM		-2.99E-02	g/seatbelt
organic waste	1.69E-03	g/1000g POM		1.10E-05	g/seatbelt
overburden	1.63E+01	g/1000g POM		1.06E-01	g/seatbelt
packaging waste (metal)	3.17E-05	g/1000g POM		2.06E-07	g/seatbelt
packaging waste (plastic)	6.63E-10	g/1000g POM		4.31E-12	g/seatbelt
plastic	3.40E-01	g/1000g POM		2.21E-03	g/seatbelt
tailings	2.46E-01	g/1000g POM		1.60E-03	g/seatbelt
waste	9.32E-01	g/1000g POM		6.06E-03	g/seatbelt
waste paper	2.35E-06	g/1000g POM		1.53E-08	g/seatbelt
wood	2.98E-05	g/1000g POM		1.94E-07	g/seatbelt
wooden pallet	5.89E-07	g/1000g POM		3.83E-09	g/seatbelt
Remark:					
Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD database, 1999)					
3.18 Transportation to Plastic parts manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.3636	MJ/1000g of product	6.5000	0.0023634	MJ/seatbelt
OUTFLOWS					
CO2	26.2600	g/1000g of product		0.17069	g/seatbelt
NOx	0.1667	g/1000g of product		0.001083225	g/seatbelt
HC	0.0237	g/1000g of product		0.000154278	g/seatbelt
Particulate matter	0.0029	g/1000g of product		1.87103E-05	g/seatbelt
CO	0.0232	g/1000g of product		0.000150995	g/seatbelt
SO2	0.0066	g/1000g of product		4.26725E-05	g/seatbelt

Remark:					
Distance between Plastics producer no.1 (de Nemours Belgium NV) and Plastic parts manufacturer no.1 (Hodenhagen, Germany) in km		**505**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.19 Production of ball guide	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
POM	1000.0000	g/1000g product	6.5000	6.5	g/seatbelt
electricity	9.6000	MJ/1000g product		0.0624	MJ/seatbelt
OUTFLOWS					
ball, guide				6.5000	g/seatbelt
Remark					
Electricity data for Germany					
Production data adapted from production data of sleeve, data carrier by Plastic parts manufacturer no.2					
3.20 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6962	MJ/1000g of product	6.5000	0.00452556	MJ/seatbelt
OUTFLOWS					
CO2	50.2840	g/1000g of product		0.326846	g/seatbelt
NOx	0.3191	g/1000g of product		0.002074215	g/seatbelt
HC	0.0454	g/1000g of product		0.000295419	g/seatbelt
Particulate matter	0.0055	g/1000g of product		3.58274E-05	g/seatbelt
CO	0.0445	g/1000g of product		0.000289133	g/seatbelt
SO2	0.0126	g/1000g of product		8.17115E-05	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.1 (Hodenhagen, Germany) and ALH (Sopronkövesd,		**967**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.21 Production of steel C10C	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					

Alloy materials	50.5	g/1000g steel	2.3790	0.1201395	g/seatbelt
Chemicals	4.99	g/1000g steel		0.01187121	g/seatbelt
Coal	0.223	MJ/1000g steel		0.000530517	MJ/seatbelt
Coal	517	g/1000g steel		0.052887549	g/seatbelt
Diesel	0.195	MJ/1000g steel		0.000463905	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.00782691	MJ/seatbelt
Explosives	1.02	g/1000g steel		0.00242658	g/seatbelt
Gas	4.81	MJ/1000g steel		0.01144299	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.00685152	MJ/seatbelt
Iron ore	2170	g/1000g steel		5.16243	g/seatbelt
Limestone	162	g/1000g steel		0.385398	g/seatbelt
Oil	0.00106	MJ/1000g steel		2.52174E-06	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		0.1241838	g/seatbelt
OUTFLOWS				0	g/seatbelt
ammonia	0.000517	g/1000g steel		1.22994E-06	g/seatbelt
arsenic	2.08E-06	g/1000g steel		4.94832E-09	g/seatbelt
cadmium	0.0000118	g/1000g steel		2.80722E-08	g/seatbelt
cadmium	4.46E-08	g/1000g steel		1.06103E-10	g/seatbelt
CH4	4.04	g/1000g steel		0.00961116	g/seatbelt
carbon dioxide	1180	g/1000g steel		2.80722	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		6.09024E-05	g/seatbelt
chromium	0.00036	g/1000g steel		8.5644E-07	g/seatbelt
chromium	0.0000488	g/1000g steel		1.16095E-07	g/seatbelt
cobalt	0.0000072	g/1000g steel		1.71288E-08	g/seatbelt
cobalt	3.21E-06	g/1000g steel		7.63659E-09	g/seatbelt
copper	0.000175	g/1000g steel		4.16325E-07	g/seatbelt
copper	0.000101	g/1000g steel		2.40279E-07	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		9.94422E-05	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.0001337	g/seatbelt
lead	0.000529	g/1000g steel		1.25849E-06	g/seatbelt
lead	0.000402	g/1000g steel		9.56358E-07	g/seatbelt
mercury	0.0000344	g/1000g steel		8.18376E-08	g/seatbelt
nickel	0.0004	g/1000g steel		9.516E-07	g/seatbelt
nickel	0.0000815	g/1000g steel		1.93889E-07	g/seatbelt
nitrogen	0.0318	g/1000g steel		7.56522E-05	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.00354471	g/seatbelt
Phosphorus	0.000372	g/1000g steel		8.84988E-07	g/seatbelt
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		3.49713E-07	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.00361608	g/seatbelt
zinc	0.00368	g/1000g steel		8.75472E-06	g/seatbelt
zinc	0.000997	g/1000g steel		2.37186E-06	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.00385398	g/seatbelt
Industrial waste	96.4	g/1000g steel		0.2293356	g/seatbelt
mineral waste	1100	g/1000g steel		2.6169	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Austria (assumption the supplier is also in Austria as Rivet blindniet manufacturer)					

3.22 Transportation to Rivet blindniet manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.23 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0020	3.16E-08	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		6.28E-08	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		1.42E-09	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		1.76E-06	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		4.16E-04	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		3.08E-05	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		9.10E-06	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		9.62E-05	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		3.03E-05	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		4.47E-04	g/seatbelt
iron (in)	215.94651	g/1000g alloy		4.32E-04	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		4.41E-06	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		3.22E-09	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		1.28E-05	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		5.20E-07	g/seatbelt
water	18.985568	l/1000g alloy		3.80E-05	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		2.00E-03	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		4.48E-15	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		1.20E-07	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		2.36E-08	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		1.21E-07	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		4.36E-11	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		6.76E-03	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		1.97E-05	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		9.03E-07	g/seatbelt
chloride	3.56E+00	g/1000g alloy		7.11E-06	g/seatbelt
chromium	1.14E-01	g/1000g alloy		2.27E-07	g/seatbelt
chromium	9.22E-04	g/1000g alloy		1.84E-09	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		1.19E-10	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		4.58E-10	g/seatbelt
copper	1.22E-04	g/1000g alloy		2.44E-10	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		1.38E-07	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		4.36E-08	g/seatbelt
iron	1.31E-01	g/1000g alloy		2.63E-07	g/seatbelt
lead	5.17E-04	g/1000g alloy		1.03E-09	g/seatbelt
manganese	2.83E-03	g/1000g alloy		5.66E-09	g/seatbelt

molybdenum	6.24E-03	g/1000g alloy		1.25E-08	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		3.32E-09	g/seatbelt
nickel	2.97E-02	g/1000g alloy		5.94E-08	g/seatbelt
nickel	3.38E-03	g/1000g alloy		6.76E-09	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		4.01E-07	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		2.04E-07	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		1.50E-05	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		4.70E-07	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		8.89E-06	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		5.92E-09	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		1.84E-06	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		2.48E-05	g/seatbelt
tin	1.61E-04	g/1000g alloy		3.22E-10	g/seatbelt
zinc	1.11E-03	g/1000g alloy		2.22E-09	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		4.86E-04	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		2.60E-03	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.24 Transportation to Rivet blindniet manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.25 Production of zinc for coating	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g zinc	0.0020	0.027	g/seatbelt
baryte	1.5574821	g/1000g zinc		3.11496E-06	g/seatbelt
basalt	34.801523	g/1000g zinc		6.9603E-05	g/seatbelt
bauxite	21.142572	g/1000g zinc		4.22851E-05	g/seatbelt
bentonite	0.648349	g/1000g zinc		1.2967E-06	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		4.2892E-10	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		8.71258E-06	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		0.000170887	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		1.10534E-14	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g zinc		0.000125926	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		4.72442E-09	g/seatbelt
clay	0.2616171	g/1000g zinc		5.23234E-07	g/seatbelt
colemanite	0.9853674	g/1000g zinc		1.97073E-06	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-6.2212E-05	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		8.33165E-06	MJ/seatbelt
fluorspar	0.1583729	g/1000g zinc		3.16746E-07	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-5.3565E-09	g/seatbelt

ground water	3624.1777	g/1000g zinc		0.007248355	g/seatbelt
gypsum	0.1523604	g/1000g zinc		3.04721E-07	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		2.73839E-05	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		0.094486652	g/seatbelt
iron (in)	4.1413625	g/1000g zinc		8.28273E-06	g/seatbelt
kaolin	0.0019158	g/1000g zinc		3.83168E-09	g/seatbelt
lead (in)	120.22987	g/1000g zinc		0.00024046	g/seatbelt
magnesite	0.0012403	g/1000g zinc		2.48068E-09	g/seatbelt
manganese	-11.317555	g/1000g zinc		-2.26351E-05	g/seatbelt
mercury (in)	4.417E-06	g/1000g zinc		8.83471E-12	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		1.90267E-10	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		5.24629E-05	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		1.64419E-05	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		8.43179E-09	g/seatbelt
olivine	1.735E-06	g/1000g zinc		3.47091E-12	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-8.48934E-05	g/seatbelt
palladium	3.273E-09	g/1000g zinc		6.54541E-15	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		3.05324E-07	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		1.11328E-10	g/seatbelt
platinum	3.931E-08	g/1000g zinc		7.86299E-14	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		1.87292E-09	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		4.59877E-08	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		1.30526E-05	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		1.15851E-06	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		7.85596E-12	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		7.18412E-07	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-2.57077E-05	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		3.31266E-10	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		2.18889E-16	g/seatbelt
river water	6.1598962	l/1000g zinc		1.23198E-05	l/seatbelt
sand	0.0001874	g/1000g zinc		3.74731E-10	g/seatbelt
sea water	-0.000147	l/1000g zinc		-2.94056E-10	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		2.43605E-10	g/seatbelt
silver (in)	-0.0161287	g/1000g zinc		-3.22573E-08	g/seatbelt
slate	1.32E-08	g/1000g zinc		2.63954E-14	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-2.80015E-05	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-1.49179E-09	g/seatbelt
soil	13.199188	g/1000g zinc		2.63984E-05	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		6.63789E-09	g/seatbelt
surface water	27.074991	l/1000g zinc		5.415E-05	l/seatbelt
talc	0.0005357	g/1000g zinc		1.07143E-09	g/seatbelt
titanium	0.0025897	g/1000g zinc		5.1793E-09	g/seatbelt
uranium	11208.633	g/1000g zinc		0.022417266	g/seatbelt
water	372.88334	l/1000g zinc		0.000745767	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		8.5546E-10	MJ/seatbelt
zinc (in)	819.6244	g/1000g zinc		0.001639249	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		1.84947E-05	g/seatbelt
zinc dross	31.9	g/1000g zinc		0.0000638	g/seatbelt
zinc dust	3.2163809	g/1000g zinc		6.43276E-06	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.00005069	g/seatbelt

OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		1.64916E-07	g/seatbelt
ammonia	0.0101456	g/1000g zinc		2.02912E-08	g/seatbelt
ammonia	0.0944373	g/1000g zinc		1.88875E-07	g/seatbelt
ammonia	0.0048189	g/1000g zinc		9.63786E-09	g/seatbelt
ammonium	0.0001497	g/1000g zinc		2.99476E-10	g/seatbelt
ammonium	0.0018023	g/1000g zinc		3.60455E-09	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		2.64957E-09	g/seatbelt
arsenic	0.0058028	g/1000g zinc		1.16055E-08	g/seatbelt
arsenic	5.36E-06	g/1000g zinc		1.07182E-11	g/seatbelt
arsenic	0.0310056	g/1000g zinc		6.20113E-08	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		1.15084E-10	g/seatbelt
benzene	0.0011388	g/1000g zinc		2.27751E-09	g/seatbelt
benzene	5.18E-05	g/1000g zinc		1.03543E-10	g/seatbelt
benzene	0.000199	g/1000g zinc		3.98033E-10	g/seatbelt
cadmium	0.0089817	g/1000g zinc		1.79633E-08	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		3.8866E-11	g/seatbelt
cadmium	0.0002277	g/1000g zinc		4.55355E-10	g/seatbelt
cadmium	0.0015242	g/1000g zinc		3.04837E-09	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		0.006081	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		2.92833E-10	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		2.99889E-10	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		6.29591E-11	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		3.95325E-11	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		1.95728E-06	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		4.24724E-08	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-5.4416E-13	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		2.26457E-12	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		1.00673E-10	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		3.50266E-11	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-8.63349E-12	g/seatbelt
cobalt	0.0018228	g/1000g zinc		3.64552E-09	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		5.94468E-13	g/seatbelt
cobalt	3.29E-07	g/1000g zinc		6.58295E-13	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		2.19523E-11	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		8.26795E-11	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		1.84607E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		2.09652E-09	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		1.03497E-05	g/seatbelt
copper	0.1356498	g/1000g zinc		2.713E-07	g/seatbelt
copper	0.0049752	g/1000g zinc		9.95031E-09	g/seatbelt
copper	0.0001369	g/1000g zinc		2.73869E-10	g/seatbelt
copper	0.0110447	g/1000g zinc		2.20894E-08	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		2.46867E-11	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		3.56403E-07	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g zinc		1.44405E-12	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		8.13496E-08	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		1.00868E-13	g/seatbelt
lead	0.1242728	g/1000g zinc		2.48546E-07	g/seatbelt
lead	4.66E-05	g/1000g zinc		9.31641E-11	g/seatbelt

lead	0.0008935	g/1000g zinc		1.78709E-09	g/seatbelt
lead	0.0044786	g/1000g zinc		8.95714E-09	g/seatbelt
mercury	0.0001779	g/1000g zinc		3.55889E-10	g/seatbelt
mercury	7.93E-07	g/1000g zinc		1.58521E-12	g/seatbelt
mercury	0.0001995	g/1000g zinc		3.98966E-10	g/seatbelt
mercury	5.12E-06	g/1000g zinc		1.02403E-11	g/seatbelt
methane	3.9556308	g/1000g zinc		7.91126E-06	g/seatbelt
nickel	0.0010629	g/1000g zinc		2.12585E-09	g/seatbelt
nickel	4.75E-05	g/1000g zinc		9.50227E-11	g/seatbelt
nickel	0.0001204	g/1000g zinc		2.40817E-10	g/seatbelt
nickel	3.02E-05	g/1000g zinc		6.04778E-11	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		7.2182E-11	g/seatbelt
nitrate	0.0008705	g/1000g zinc		1.74097E-09	g/seatbelt
nitrate	0.2355114	g/1000g zinc		4.71023E-07	g/seatbelt
nitrogen	3.0664234	g/1000g zinc		6.13285E-06	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		7.46063E-09	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		7.77127E-08	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		6.62733E-08	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		3.41079E-05	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		3.95133E-11	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		2.31768E-07	g/seatbelt
phosphate	0.0051168	g/1000g zinc		1.02335E-08	g/seatbelt
phosphate	0.0030974	g/1000g zinc		6.19486E-09	g/seatbelt
toluene	0.0001184	g/1000g zinc		2.36825E-10	g/seatbelt
toluene	3.15E-05	g/1000g zinc		6.30873E-11	g/seatbelt
vanadium	0.0027262	g/1000g zinc		5.45244E-09	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		1.45954E-11	g/seatbelt
vanadium	0.0001296	g/1000g zinc		2.59148E-10	g/seatbelt
zinc	0.1760723	g/1000g zinc		3.52145E-07	g/seatbelt
zinc	0.0085203	g/1000g zinc		1.70406E-08	g/seatbelt
zinc	0.0090181	g/1000g zinc		1.80363E-08	g/seatbelt
zinc	0.1440723	g/1000g zinc		2.88145E-07	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		4.5519E-09	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g zinc		1.30151E-05	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		5.52412E-05	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		1.3584E-08	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		0.000355206	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		3.78342E-05	g/seatbelt
jarosite	123.75866	g/1000g zinc		0.000247517	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		1.61221E-08	g/seatbelt
mineral waste	6.121768	g/1000g zinc		1.22435E-05	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		0.088965241	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		7.97376E-06	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		2.04315E-05	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		3.0146E-08	g/seatbelt
spoil (unspecified)	14.286476	g/1000g zinc		2.8573E-05	g/seatbelt
sludge	12.2	g/1000g zinc		0.0000244	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		2.19345E-06	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g zinc		0.010090093	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		2.703E-08	g/seatbelt

uranium depleted; reactor fu	0.0155929	g/1000g zinc		3.11859E-08	g/seatbelt
used oil	220.9923	g/1000g zinc		0.000441985	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		1.74752E-06	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		3.23376E-05	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.26 Transportation to Rivet blindniet manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.27 Production of iron steel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	0.9821	0.04959605	g/seatbelt
Chemicals	4.99	g/1000g steel		0.004900679	g/seatbelt
Coal	0.223	MJ/1000g steel		0.000219008	MJ/seatbelt
Coal	517	g/1000g steel		0.021833065	g/seatbelt
Diesel	0.195	MJ/1000g steel		0.00019151	g/seatbelt
Electricity	3.29	MJ/1000g steel		0.003231109	g/seatbelt
Explosives	1.02	g/1000g steel		0.001001742	g/seatbelt
Gas	4.81	MJ/1000g steel		0.004723901	g/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.002828448	g/seatbelt
Iron ore	2170	g/1000g steel		2.131157	g/seatbelt
Limestone	162	g/1000g steel		0.1591002	g/seatbelt
Oil	0.00106	MJ/1000g steel		1.04103E-06	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		0.05126562	MJ/seatbelt
OUTFLOWS				0	g/seatbelt
ammonia	0.000517	g/1000g steel		5.07746E-07	MJ/seatbelt
arsenic	2.08E-06	g/1000g steel		2.04277E-09	MJ/seatbelt
cadmium	0.0000118	g/1000g steel		1.15888E-08	g/seatbelt
cadmium	4.46E-08	g/1000g steel		4.38017E-11	g/seatbelt
CH4	4.04	g/1000g steel		0.003967684	MJ/seatbelt
carbon dioxide	1180	g/1000g steel		1.158878	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		2.51418E-05	
chromium	0.00036	g/1000g steel		3.53556E-07	g/seatbelt
chromium	0.0000488	g/1000g steel		4.79265E-08	g/seatbelt
cobalt	0.0000072	g/1000g steel		7.07112E-09	g/seatbelt
cobalt	3.21E-06	g/1000g steel		3.15254E-09	g/seatbelt
copper	0.000175	g/1000g steel		1.71868E-07	g/seatbelt
copper	0.000101	g/1000g steel		9.91921E-08	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		4.10518E-05	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		5.5194E-05	g/seatbelt

lead	0.000529	g/1000g steel		5.19531E-07	g/seatbelt
lead	0.000402	g/1000g steel		3.94804E-07	g/seatbelt
mercury	0.0000344	g/1000g steel		3.37842E-08	g/seatbelt
nickel	0.0004	g/1000g steel		3.9284E-07	g/seatbelt
nickel	0.0000815	g/1000g steel		8.00412E-08	g/seatbelt
nitrogen	0.0318	g/1000g steel		3.12308E-05	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.001463329	g/seatbelt
Phosphorus	0.000372	g/1000g steel		3.65341E-07	g/seatbelt
polycyclic aromatic hydrocarb	0.000147	g/1000g steel		1.44369E-07	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.001492792	g/seatbelt
zinc	0.00368	g/1000g steel		3.61413E-06	g/seatbelt
zinc	0.000997	g/1000g steel		9.79154E-07	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.001591002	g/seatbelt
Industrial waste	96.4	g/1000g steel		0.09467444	g/seatbelt
mineral waste	1100	g/1000g steel		1.08031	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany (assumption that supplier of Rivet blindniet manufacturer is also in Austria)					
3.28 Transportation to Rivet blindniet manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack fo data					
3.29 Production of Rivet blindniet	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
oil Norderstedt	0.0751444	MJ/1000g product	3.1970	0.000240237	MJ/seatbelt
gas Hall 14	0.0485409	MJ/1000g product		0.000155185	MJ/seatbelt
electricity	1.9385618	MJ/1000g product		0.006197582	MJ/seatbelt
steel C10C	744.13513	g/1000g product		2.379	g/seatbelt
alloy for passivation layer	0.6255865	g/1000g product		0.002	g/seatbelt
zinc fo coating	0.6255865	g/1000g product		0.002	g/seatbelt
iron steel	307.19424	g/1000g product		0.9821	g/seatbelt
OUTFLOWS					
rivet blindniet				3.197	g/seatbelt
chromium III	0.002554	g/1000g product		8.16498E-06	g/seatbelt
copper	0.002554	g/1000g product		8.16498E-06	g/seatbelt
cyanide	0.0001176	g/1000g product		3.75868E-07	g/seatbelt
nickel	0.002554	g/1000g product		8.16498E-06	g/seatbelt
zinc	0.002554	g/1000g product		8.16498E-06	g/seatbelt
oil	0.0018086	g/1000g product		5.78196E-06	g/seatbelt
used oil	0.0019944	g/1000g product		6.37607E-06	g/seatbelt
scrap	49.937441	g/1000g product		0.15965	g/seatbelt
Remark:				0	g/seatbelt

Data given for 1 year				0	g/seatbelt
Total value of production/year		€ 34,580,022.00		0	g/seatbelt
Value of the product		€ 0.01		0	g/seatbelt
Data adapted from production of frame pretensioner. Due to the differences in weight, value of the product was calculated in propotion to the weight.					
Electricity data for Austria					
3.30 Transportation from Rivet blindniet manufacturer to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	2.0215	MJ/1000g of product	3.1970	0.00646264	MJ/seatbelt
OUTFLOWS					
CO2	147.0160	g/1000g of product		0.470010152	g/seatbelt
NOx	0.9729	g/1000g of product		0.003110361	g/seatbelt
HC	0.1297	g/1000g of product		0.000414715	g/seatbelt
Particulate matter	0.0162	g/1000g of product		5.18394E-05	g/seatbelt
CO	0.1297	g/1000g of product		0.000414715	g/seatbelt
SO2	0.0368	g/1000g of product		0.000117503	g/seatbelt
Remark:					
Distance between Rivet blindniet manufacturer (Wien, Austria) and ALH (Sopronkövesd, Hungary) in km		**95**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.31.1 Production of ZnAl4Cu3	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	6.5000	1.03E-04	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		2.04E-04	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		4.63E-06	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		5.71E-03	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		1.35E+00	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		1.00E-01	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		2.96E-02	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		3.13E-01	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		9.83E-02	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		1.45E+00	g/seatbelt
iron (in)	215.94651	g/1000g alloy		1.40E+00	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		1.43E-02	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		1.05E-05	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		4.15E-02	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		1.69E-03	g/seatbelt

water	18.985568	l/1000g alloy		1.23E-01	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		6.50E+00	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		1.46E-11	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		3.91E-04	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		7.67E-05	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		3.93E-04	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		1.42E-07	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		2.20E+01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		6.40E-02	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		2.93E-03	g/seatbelt
chloride	3.56E+00	g/1000g alloy		2.31E-02	g/seatbelt
chromium	1.14E-01	g/1000g alloy		7.39E-04	g/seatbelt
chromium	9.22E-04	g/1000g alloy		5.99E-06	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		3.86E-07	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		1.49E-06	g/seatbelt
copper	1.22E-04	g/1000g alloy		7.93E-07	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		4.50E-04	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		1.42E-04	g/seatbelt
iron	1.31E-01	g/1000g alloy		8.54E-04	g/seatbelt
lead	5.17E-04	g/1000g alloy		3.36E-06	g/seatbelt
manganese	2.83E-03	g/1000g alloy		1.84E-05	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		4.06E-05	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		1.08E-05	g/seatbelt
nickel	2.97E-02	g/1000g alloy		1.93E-04	g/seatbelt
nickel	3.38E-03	g/1000g alloy		2.20E-05	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		1.30E-03	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		6.64E-04	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		4.89E-02	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		1.53E-03	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		2.89E-02	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		1.92E-05	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		5.99E-03	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		8.05E-02	g/seatbelt
tin	1.61E-04	g/1000g alloy		1.05E-06	g/seatbelt
zinc	1.11E-03	g/1000g alloy		7.22E-06	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		1.58E+00	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		8.45E+00	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.31.2 Transportation from Metal producer no.5 to Synchronization ball manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2244	MJ/1000g of product	6.5000	0.0014586	MJ/seatbelt

OUTFLOWS					
CO2	16.3200	g/1000g of product		0.10608	g/seatbelt
NOx	0.1080	g/1000g of product		0.000702	g/seatbelt
HC	0.0144	g/1000g of product		0.0000936	g/seatbelt
Particulate matter	0.0018	g/1000g of product		0.0000117	g/seatbelt
CO	0.0144	g/1000g of product		0.0000936	g/seatbelt
SO2	0.0041	g/1000g of product		0.00002652	g/seatbelt
Remark:					
Distance between Metal producer no.5 and Synchronization ball manufacturer (Bursa, Turkey) in km		**120**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.31.3 Production of lubricant (I)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INPUTS					
air	267.3181	g/1000g oil	0.3000	0.080195426	g/seatbelt
barium sulfate	0.0000	g/1000g oil		8.77809E-16	g/seatbelt
baryte	2.5003	g/1000g oil		0.000750087	g/seatbelt
basalt	0.0209	g/1000g oil		6.27109E-06	g/seatbelt
bauxite	0.0015	g/1000g oil		4.59721E-07	g/seatbelt
bentonite	1.0336	g/1000g oil		0.000310092	g/seatbelt
brown coal; 11.9 MJ/kg	0.0475	MJ/1000g oil		1.42376E-05	MJ/seatbelt
calcium carbonate	2.1090	g/1000g oil		0.000632708	g/seatbelt
calcium chloride	0.0000	g/1000g oil		8.98744E-14	g/seatbelt
carbon dioxide (in)	0.4977	g/1000g oil		0.000149297	g/seatbelt
chromium (in)	0.0000	g/1000g oil		1.46789E-08	g/seatbelt
clay	0.2763	g/1000g oil		8.28751E-05	g/seatbelt
colemanite	0.0000	g/1000g oil		4.33932E-09	g/seatbelt
copper (in)	0.0012	g/1000g oil		3.5389E-07	g/seatbelt
crude oil; 42.3 MJ/kg	47.1274	MJ/1000g oil		0.014138231	MJ/seatbelt
dolomite	0.0000	g/1000g oil		1.48233E-09	g/seatbelt
fluorspar	0.0000	g/1000g oil		8.22292E-10	g/seatbelt
ground water	0.0318	l/1000g oil		9.54631E-06	l/seatbelt
gypsum	0.0384	g/1000g oil		1.15242E-05	g/seatbelt
hard coal; 26.3 MJ/kg	0.1285	MJ/1000g oil		3.85644E-05	MJ/seatbelt
inert rock	130.5738	g/1000g oil		0.039172142	g/seatbelt
iron (in)	0.4591	g/1000g oil		0.00013774	g/seatbelt
kaolin	0.0000	g/1000g oil		7.71189E-09	g/seatbelt
lead (in)	0.0217	g/1000g oil		6.52056E-06	g/seatbelt
magnesite	0.0000	g/1000g oil		2.24538E-10	g/seatbelt
magnesium chloride	0.0650	g/1000g oil		1.9509E-05	g/seatbelt
manganese	0.0035	g/1000g oil		1.06106E-06	g/seatbelt
molybdenum (in)	0.0000	g/1000g oil		8.2815E-13	g/seatbelt
natural aggregate	0.7544	g/1000g oil		0.000226324	g/seatbelt

natural gas; 44.1 MJ/kg	2.6949	MJ/1000g oil		0.000808462	MJ/seatbelt
nickel (in)	0.0004	g/1000g oil		1.32674E-07	g/seatbelt
nitrogen	0.0000	g/1000g oil		1.10493E-11	g/seatbelt
olivine	0.0000	g/1000g oil		4.71019E-17	g/seatbelt
oxygen	0.0000	g/1000g oil		5.57432E-12	g/seatbelt
palladium	0.0000	g/1000g oil		1.12594E-14	g/seatbelt
peat; 8.4 MJ/kg	0.0010	MJ/1000g oil		3.07309E-07	MJ/seatbelt
phosphorus (in)	0.0000	g/1000g oil		1.00239E-10	g/seatbelt
platinum	0.0000	g/1000g oil		1.35259E-13	g/seatbelt
potassium chloride	0.0000	g/1000g oil		1.21117E-10	g/seatbelt
primary energy from geother	0.0012	MJ/1000g oil		3.70733E-07	MJ/seatbelt
primary energy from hydro p	0.0557	MJ/1000g oil		1.67026E-05	MJ/seatbelt
primary energy from solar en	0.0048	MJ/1000g oil		1.43836E-06	MJ/seatbelt
primary energy from wind po	0.0054	MJ/1000g oil		1.62623E-06	MJ/seatbelt
quartz sand	0.3354	g/1000g oil		0.000100634	g/seatbelt
raw pumice	0.0000	g/1000g oil		7.49091E-10	g/seatbelt
rhodium	0.0000	g/1000g oil		3.76532E-16	g/seatbelt
river water	-0.5639	l/1000g oil		-0.000169168	l/seatbelt
sea water	0.0523	l/1000g oil		1.56772E-05	l/seatbelt
slate	0.0000	g/1000g oil		7.92169E-17	g/seatbelt
sodium chloride	0.0010	g/1000g oil		3.06958E-07	g/seatbelt
sodium sulfate	0.0000	g/1000g oil		3.8522E-13	g/seatbelt
soil	0.2782	g/1000g oil		8.34708E-05	g/seatbelt
sulfur (in)	0.0000	g/1000g oil		1.14849E-11	g/seatbelt
surface water	0.8502	l/1000g oil		0.000255058	l/seatbelt
talc	0.0000	g/1000g oil		2.21134E-10	g/seatbelt
tin (in)	0.0000	g/1000g oil		7.6125E-20	g/seatbelt
titanium	0.0008	g/1000g oil		2.41705E-07	g/seatbelt
uranium	0.2531	MJ/1000g oil		7.59288E-05	MJ/seatbelt
wood; 14.7 MJ/kg	0.0000	MJ/1000g oil		3.74114E-09	MJ/seatbelt
zinc (in)	0.0043	g/1000g oil		1.28872E-06	g/seatbelt
OUTPUTS					
light fuel oil; from crude oil; c	1000.0000	g		0.3	g
1,2-dibromoethane	0.0000	g/1000g oil		8.42055E-16	g/seatbelt
1,2-dichloropropane	0.0000	g/1000g oil		4.84376E-18	g/seatbelt
1,3,5-trimethylbenzene	0.0000	g/1000g oil		6.30807E-15	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	0.0000	g/1000g oil		1.22906E-15	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	0.0000	g/1000g oil		8.32905E-23	g/seatbelt
acenaphthene	0.0000	g/1000g oil		3.29234E-09	g/seatbelt
acenaphthene	0.0000	g/1000g oil		5.53947E-11	g/seatbelt
acenaphthylene	0.0000	g/1000g oil		1.25411E-09	g/seatbelt
acenaphthylene	0.0000	g/1000g oil		2.34221E-11	g/seatbelt
acetaldehyde	0.0001	g/1000g oil		2.53001E-08	g/seatbelt
acetic acid	0.0001	g/1000g oil		2.33704E-08	g/seatbelt
acetic acid	0.0000	g/1000g oil		1.03666E-08	g/seatbelt
acetic acid	0.0005	g/1000g oil		1.58545E-07	g/seatbelt
acetone	0.0001	g/1000g oil		2.26239E-08	g/seatbelt
acid (as H+)	0.0000	g/1000g oil		2.78666E-11	g/seatbelt
acid (as H+)	0.0000	g/1000g oil		1.41026E-09	g/seatbelt
acrolein	0.0000	g/1000g oil		1.56284E-10	g/seatbelt

acryolonitrile	0.0000	g/1000g oil		3.54225E-13	g/seatbelt
adsorbable organic halogen c	0.0000	g/1000g oil		1.38531E-13	g/seatbelt
adsorbable organic halogen c	0.0008	g/1000g oil		2.50039E-07	g/seatbelt
aluminium	0.0001	g/1000g oil		3.64404E-08	g/seatbelt
aluminium	0.0000	g/1000g oil		1.63933E-12	g/seatbelt
aluminium	0.0003	g/1000g oil		8.99864E-08	g/seatbelt
americium-241	0.0005	Bq/1000g oil		1.59952E-07	Bq/seatbelt
ammonia	0.0033	g/1000g oil		9.79614E-07	g/seatbelt
ammonia	0.0557	g/1000g oil		1.67167E-05	g/seatbelt
ammonia	0.0000	g/1000g oil		4.87149E-11	g/seatbelt
ammonia	0.0028	g/1000g oil		8.29272E-07	g/seatbelt
ammonium	0.0000	g/1000g oil		1.19901E-13	g/seatbelt
anthracene	0.0000	g/1000g oil		2.2148E-11	g/seatbelt
anthracene	0.0000	g/1000g oil		8.49689E-10	g/seatbelt
anthracene	0.0000	g/1000g oil		9.2238E-11	g/seatbelt
antimony	0.0000	g/1000g oil		1.29239E-10	g/seatbelt
antimony	0.0000	g/1000g oil		1.23015E-15	g/seatbelt
antimony-124	0.0000	Bq/1000g oil		5.6107E-11	Bq/seatbelt
antimony-124	0.0000	Bq/1000g oil		1.66331E-09	Bq/seatbelt
antimony-125	0.0000	Bq/1000g oil		1.13332E-09	Bq/seatbelt
argon-41	1.1793	Bq/1000g oil		0.000353792	Bq/seatbelt
arsenic	0.0000	g/1000g oil		3.18287E-09	g/seatbelt
arsenic	0.0000	g/1000g oil		1.29378E-11	g/seatbelt
arsenic	0.0002	g/1000g oil		5.6695E-08	g/seatbelt
arsenic	0.0002	g/1000g oil		4.60043E-08	g/seatbelt
arsenic trioxide	0.0000	g/1000g oil		4.17271E-14	g/seatbelt
barium	0.0016	g/1000g oil		4.75984E-07	g/seatbelt
barium	0.0106	g/1000g oil		3.18311E-06	g/seatbelt
barium	0.0010	g/1000g oil		3.14139E-07	g/seatbelt
benzene	0.0013	g/1000g oil		3.95749E-07	g/seatbelt
benzene	0.0004	g/1000g oil		1.15379E-07	g/seatbelt
benzene	0.0021	g/1000g oil		6.36418E-07	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		1.11433E-11	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		7.10343E-12	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		7.3916E-10	g/seatbelt
benzo[a]pyrene	0.0000	g/1000g oil		6.04792E-12	g/seatbelt
benzo[g,h,i]perylene	0.0000	g/1000g oil		9.94116E-12	g/seatbelt
benzo[k]fluoranthene	0.0000	g/1000g oil		1.98823E-11	g/seatbelt
benzo[k]fluoranthene	0.0000	g/1000g oil		2.43415E-12	g/seatbelt
benzo[k]fluoranthene	0.0000	g/1000g oil		8.21476E-10	g/seatbelt
beryllium	0.0000	g/1000g oil		3.87033E-11	g/seatbelt
beryllium	0.0000	g/1000g oil		4.6063E-09	g/seatbelt
beryllium	0.0000	g/1000g oil		3.49454E-12	g/seatbelt
biological oxygen demand	0.0039	g/1000g oil		1.16613E-06	g/seatbelt
biological oxygen demand	0.0005	g/1000g oil		1.52813E-07	g/seatbelt
boron	0.0001	g/1000g oil		2.37552E-08	g/seatbelt
boron	0.0000	g/1000g oil		3.61955E-09	g/seatbelt
boron	0.0000	g/1000g oil		2.65083E-11	g/seatbelt
bromide	0.0000	g/1000g oil		4.95597E-09	g/seatbelt
bromine	0.0000	g/1000g oil		6.59858E-09	g/seatbelt

bromine	0.0000	g/1000g oil		6.05278E-11	g/seatbelt
butadiene	0.0000	g/1000g oil		1.0259E-13	g/seatbelt
cadmium	0.0000	g/1000g oil		1.0363E-09	g/seatbelt
cadmium	0.0000	g/1000g oil		1.17137E-10	g/seatbelt
cadmium	0.0001	g/1000g oil		2.57367E-08	g/seatbelt
cadmium	0.0001	g/1000g oil		2.91665E-08	g/seatbelt
calcium	0.0000	g/1000g oil		7.75956E-09	g/seatbelt
calcium	0.0023	g/1000g oil		7.019E-07	g/seatbelt
calcium	0.0000	g/1000g oil		2.89499E-09	g/seatbelt
carbon dioxide	301.3377	g/1000g oil		0.090401301	g/seatbelt
carbon disulfide	0.0000	g/1000g oil		1.56382E-13	g/seatbelt
carbon monoxide	0.4146	g/1000g oil		0.000124378	g/seatbelt
carbon-14	0.5411	Bq/1000g oil		0.000162326	Bq/seatbelt
carbon-14	0.0270	Bq/1000g oil		8.09663E-06	Bq/seatbelt
carbonate	0.0658	g/1000g oil		1.97498E-05	g/seatbelt
carbonate	0.6675	g/1000g oil		0.000200235	g/seatbelt
cesium-134	0.0001	Bq/1000g oil		4.44323E-08	Bq/seatbelt
cesium-134	0.0271	Bq/1000g oil		8.1317E-06	Bq/seatbelt
cesium-137	0.0003	Bq/1000g oil		9.07754E-08	Bq/seatbelt
cesium-137	0.2506	Bq/1000g oil		7.51794E-05	Bq/seatbelt
CFC-11	0.0000	g/1000g oil		9.89659E-10	g/seatbelt
CFC-114	0.0000	g/1000g oil		1.01351E-09	g/seatbelt
CFC-12	0.0000	g/1000g oil		2.12777E-10	g/seatbelt
CFC-13	0.0000	g/1000g oil		1.33604E-10	g/seatbelt
chemical oxygen demand	0.0563	g/1000g oil		1.68996E-05	g/seatbelt
chemical oxygen demand	0.0799	g/1000g oil		2.39633E-05	g/seatbelt
chloride	0.0020	g/1000g oil		5.89754E-07	g/seatbelt
chloride	0.0193	g/1000g oil		5.78241E-06	g/seatbelt
chloride	5.8035	g/1000g oil		0.001741062	g/seatbelt
chloride	52.7046	g/1000g oil		0.015811375	g/seatbelt
chlorine	0.0000	g/1000g oil		4.3596E-13	g/seatbelt
chlorine	0.0004	g/1000g oil		1.28162E-07	g/seatbelt
chromium	0.0000	g/1000g oil		9.38321E-09	g/seatbelt
chromium	0.0001	g/1000g oil		3.24077E-08	g/seatbelt
chromium	0.0003	g/1000g oil		9.02844E-08	g/seatbelt
chromium	0.0002	g/1000g oil		7.29349E-08	g/seatbelt
chromium III	0.0000	g/1000g oil		8.96183E-12	g/seatbelt
chromium III	0.0000	g/1000g oil		8.3111E-14	g/seatbelt
chromium III	0.0000	g/1000g oil		2.88966E-10	g/seatbelt
chromium VI	0.0000	g/1000g oil		4.87594E-18	g/seatbelt
chrysene	0.0000	g/1000g oil		2.73729E-11	g/seatbelt
chrysene	0.0000	g/1000g oil		2.9166E-11	g/seatbelt
chrysene	0.0000	g/1000g oil		4.1767E-09	g/seatbelt
cobalt	0.0000	g/1000g oil		4.73684E-09	g/seatbelt
cobalt	0.0000	g/1000g oil		5.78278E-10	g/seatbelt
cobalt	0.0003	g/1000g oil		8.06104E-08	g/seatbelt
cobalt	0.0000	g/1000g oil		3.54907E-11	g/seatbelt
cobalt-58	0.0000	Bq/1000g oil		2.78387E-10	Bq/seatbelt
cobalt-58	0.0002	Bq/1000g oil		6.21766E-08	Bq/seatbelt
cobalt-60	0.0000	Bq/1000g oil		7.05999E-09	Bq/seatbelt

cobalt-60	0.1162	Bq/1000g oil		3.48561E-05	Bq/seatbelt
copper	0.0000	g/1000g oil		6.49545E-09	g/seatbelt
copper	0.0000	g/1000g oil		3.31529E-10	g/seatbelt
copper	0.0003	g/1000g oil		9.94504E-08	g/seatbelt
copper	0.0003	g/1000g oil		9.02892E-08	g/seatbelt
cresol	0.0000	g/1000g oil		4.77917E-13	g/seatbelt
cresol	0.0000	g/1000g oil		3.67396E-13	g/seatbelt
curium	0.0007	Bq/1000g oil		2.11985E-07	Bq/seatbelt
cyanide	0.0000	g/1000g oil		1.19383E-08	g/seatbelt
cyanide	0.0000	g/1000g oil		3.53072E-09	g/seatbelt
cyclohexane	0.0000	g/1000g oil		3.58475E-12	g/seatbelt
decane	0.0000	g/1000g oil		8.56232E-09	g/seatbelt
decane	0.0200	g/1000g oil		6.01199E-06	g/seatbelt
decane	0.0020	g/1000g oil		5.952E-07	g/seatbelt
dibenz[a,h]anthracene	0.0000	g/1000g oil		6.19589E-12	g/seatbelt
dichloromethane	0.0000	g/1000g oil		3.47564E-17	g/seatbelt
diethylamine	0.0000	g/1000g oil		2.78473E-18	g/seatbelt
ethane	0.1818	g/1000g oil		5.45512E-05	g/seatbelt
ethanol	0.0000	g/1000g oil		7.93975E-09	g/seatbelt
ethyl benzene	0.0001	g/1000g oil		2.54006E-08	g/seatbelt
ethyl benzene	0.0003	g/1000g oil		7.76267E-08	g/seatbelt
ethyl benzene	0.0000	g/1000g oil		6.44239E-09	g/seatbelt
ethylene	0.0000	g/1000g oil		6.01479E-09	g/seatbelt
FC-14	0.0000	g/1000g oil		7.01169E-12	g/seatbelt
fluoranthene	0.0000	g/1000g oil		7.21312E-11	g/seatbelt
fluoranthene	0.0000	g/1000g oil		8.61483E-10	g/seatbelt
fluoranthene	0.0000	g/1000g oil		8.2745E-12	g/seatbelt
fluorene	0.0000	g/1000g oil		2.28878E-10	g/seatbelt
fluoride	0.0010	g/1000g oil		2.97322E-07	g/seatbelt
fluoride	0.0006	g/1000g oil		1.65202E-07	g/seatbelt
fluoride	0.0059	g/1000g oil		1.78189E-06	g/seatbelt
fluorine	0.0000	g/1000g oil		7.53962E-13	g/seatbelt
fluorine	0.0000	g/1000g oil		4.67457E-10	g/seatbelt
formaldehyde	0.0003	g/1000g oil		7.98522E-08	g/seatbelt
HCFC-22	0.0000	g/1000g oil		2.3257E-10	g/seatbelt
helium	0.0000	g/1000g oil		6.98262E-10	g/seatbelt
heptane	0.0024	g/1000g oil		7.15562E-07	g/seatbelt
hexamethylene diamine	0.0000	g/1000g oil		6.03468E-15	g/seatbelt
hexane	0.0035	g/1000g oil		1.06174E-06	g/seatbelt
hexane	0.0000	g/1000g oil		4.01113E-14	g/seatbelt
hexane	0.0000	g/1000g oil		5.26427E-14	g/seatbelt
hydrocarbons (unspecified)	0.0000	g/1000g oil		1.16264E-09	g/seatbelt
hydrocyanic acid	0.0000	g/1000g oil		5.20696E-12	g/seatbelt
hydrogen	0.0009	g/1000g oil		2.60592E-07	g/seatbelt
hydrogen arsenide	0.0000	g/1000g oil		3.46335E-12	g/seatbelt
hydrogen bromide	0.0000	g/1000g oil		2.94673E-11	g/seatbelt
hydrogen chloride	0.0045	g/1000g oil		1.33574E-06	g/seatbelt
hydrogen chloride	0.0000	g/1000g oil		9.06449E-12	g/seatbelt
hydrogen fluoride	0.0003	g/1000g oil		1.02771E-07	g/seatbelt
hydrogen fluoride	0.0000	g/1000g oil		7.48647E-11	g/seatbelt

hydrogen iodide	0.0000	g/1000g oil		2.62173E-14	g/seatbelt
hydrogen sulfide	0.0051	g/1000g oil		1.54358E-06	g/seatbelt
hydrogen-3	2.2979	Bq/1000g oil		0.000689383	Bq/seatbelt
hydrogen-3	787.5491	Bq/1000g oil		0.236264732	Bq/seatbelt
hydroxide	0.0000	g/1000g oil		2.35485E-10	g/seatbelt
indeno(1,2,3-cd)pyrene	0.0000	g/1000g oil		7.39807E-12	g/seatbelt
iodine-129	0.0012	Bq/1000g oil		3.46884E-07	Bq/seatbelt
iodine-129	0.0771	Bq/1000g oil		2.31334E-05	Bq/seatbelt
iodine-131	0.0002	Bq/1000g oil		5.21308E-08	Bq/seatbelt
iodine-131	0.0000	Bq/1000g oil		1.18671E-09	Bq/seatbelt
iron	0.0001	g/1000g oil		3.06559E-08	g/seatbelt
iron	0.0002	g/1000g oil		4.73552E-08	g/seatbelt
iron	0.0033	g/1000g oil		9.90374E-07	g/seatbelt
iron	0.0088	g/1000g oil		2.64543E-06	g/seatbelt
krypton-85	19921.0578	Bq/1000g oil		5.976317354	Bq/seatbelt
lead	0.0001	g/1000g oil		1.59975E-08	g/seatbelt
lead	0.0000	g/1000g oil		8.71884E-12	g/seatbelt
lead	0.0001	g/1000g oil		2.67085E-08	g/seatbelt
lead	0.0001	g/1000g oil		1.79517E-08	g/seatbelt
lead dioxide	0.0000	g/1000g oil		7.44223E-15	g/seatbelt
magnesium	0.0000	g/1000g oil		1.12577E-09	g/seatbelt
magnesium	0.0000	g/1000g oil		1.72548E-13	g/seatbelt
magnesium	0.0001	g/1000g oil		2.73732E-08	g/seatbelt
manganese	0.0000	g/1000g oil		1.42638E-09	g/seatbelt
manganese	0.0000	g/1000g oil		6.77142E-09	g/seatbelt
manganese	0.0003	g/1000g oil		1.03644E-07	g/seatbelt
manganese	0.0000	g/1000g oil		1.13169E-08	g/seatbelt
manganese-54	0.0180	Bq/1000g oil		5.40376E-06	Bq/seatbelt
mercury	0.0000	g/1000g oil		9.9096E-10	g/seatbelt
mercury	0.0000	g/1000g oil		6.55718E-13	g/seatbelt
mercury	0.0000	g/1000g oil		4.07281E-10	g/seatbelt
mercury	0.0000	g/1000g oil		6.01903E-10	g/seatbelt
methane	3.3478	g/1000g oil		0.001004346	g/seatbelt
methanol	0.0000	g/1000g oil		7.30182E-09	g/seatbelt
methanol	0.0001	g/1000g oil		1.61209E-08	g/seatbelt
molybdenum	0.0000	g/1000g oil		2.38876E-09	g/seatbelt
molybdenum	0.0000	g/1000g oil		1.4068E-13	g/seatbelt
molybdenum	0.0000	g/1000g oil		6.18956E-09	g/seatbelt
naphthalene	0.0000	g/1000g oil		2.32577E-09	g/seatbelt
naphthalene	0.0000	g/1000g oil		3.59564E-09	g/seatbelt
naphthalene	0.0004	g/1000g oil		1.07994E-07	g/seatbelt
n-butane	0.0682	g/1000g oil		2.0462E-05	g/seatbelt
nickel	0.0002	g/1000g oil		5.85471E-08	g/seatbelt
nickel	0.0000	g/1000g oil		9.36419E-09	g/seatbelt
nickel	0.0002	g/1000g oil		6.46587E-08	g/seatbelt
nickel	0.0001	g/1000g oil		3.34922E-08	g/seatbelt
nitrate	0.0004	g/1000g oil		1.13595E-07	g/seatbelt
nitrate	0.0009	g/1000g oil		2.59546E-07	g/seatbelt
nitrogen	0.0563	g/1000g oil		1.69003E-05	g/seatbelt
nitrogen	0.0128	g/1000g oil		3.83654E-06	g/seatbelt

nitrogen dioxide	0.8756	g/1000g oil		0.000262673	g/seatbelt
nitrogen monoxide	0.0000	g/1000g oil		2.25882E-12	g/seatbelt
nitrous oxide	0.0070	g/1000g oil		2.08739E-06	g/seatbelt
non-methane volatile organic	0.2594	g/1000g oil		7.78195E-05	g/seatbelt
octane	0.0013	g/1000g oil		3.93648E-07	g/seatbelt
oxygen	0.3719	g/1000g oil		0.000111556	g/seatbelt
palladium	0.0000	g/1000g oil		2.48766E-18	g/seatbelt
particles (> PM10)	0.0000	g/1000g oil		2.3901E-13	g/seatbelt
particles (> PM10)	0.4054	g/1000g oil		0.000121617	g/seatbelt
particles (> PM10)	2.1204	g/1000g oil		0.000636131	g/seatbelt
particles (PM10)	0.0197	g/1000g oil		5.896E-06	g/seatbelt
particles (PM10)	0.0000	g/1000g oil		6.27824E-13	g/seatbelt
particles (PM2.5 - PM10)	0.0141	g/1000g oil		4.22791E-06	g/seatbelt
particles (PM2.5)	0.0129	g/1000g oil		3.86998E-06	g/seatbelt
pentane	0.0232	g/1000g oil		6.95555E-06	g/seatbelt
phenanthrene	0.0000	g/1000g oil		7.3056E-10	g/seatbelt
phenol	0.0000	g/1000g oil		3.06805E-13	g/seatbelt
phenol	0.0047	g/1000g oil		1.40077E-06	g/seatbelt
phenol	0.0006	g/1000g oil		1.67443E-07	g/seatbelt
phosphate	0.0319	g/1000g oil		9.56019E-06	g/seatbelt
phosphate	0.0026	g/1000g oil		7.65918E-07	g/seatbelt
phosphine	0.0000	g/1000g oil		8.30246E-15	g/seatbelt
plutonium	0.0000	Bq/1000g oil		1.04145E-11	Bq/seatbelt
plutonium	0.0021	Bq/1000g oil		6.3667E-07	Bq/seatbelt
polychlorinated biphenyls	0.0000	g/1000g oil		7.59051E-12	g/seatbelt
polycyclic aromatic hydrocarb	0.0002	g/1000g oil		7.41065E-08	g/seatbelt
polycyclic aromatic hydrocarb	0.0000	g/1000g oil		2.6366E-09	g/seatbelt
potassium	0.0139	g/1000g oil		4.18233E-06	g/seatbelt
potassium	0.0001	g/1000g oil		2.62285E-08	g/seatbelt
propane	0.3289	g/1000g oil		9.86608E-05	g/seatbelt
propene	0.0000	g/1000g oil		1.99083E-09	g/seatbelt
propionic acid	0.0000	g/1000g oil		2.98846E-12	g/seatbelt
R-40	0.0000	g/1000g oil		2.51115E-11	g/seatbelt
radium-226	8.7850	Bq/1000g oil		0.002635508	Bq/seatbelt
radon-222	290.3514	Bq/1000g oil		0.087105421	Bq/seatbelt
rhodium	0.0000	g/1000g oil		2.40142E-18	g/seatbelt
ruthenium-106	0.0005	Bq/1000g oil		1.59952E-07	Bq/seatbelt
scandium	0.0000	g/1000g oil		1.45493E-14	g/seatbelt
selenium	0.0000	g/1000g oil		4.18865E-09	g/seatbelt
selenium	0.0000	g/1000g oil		4.01908E-09	g/seatbelt
silver	0.0000	g/1000g oil		7.12738E-19	g/seatbelt
silver	0.0000	g/1000g oil		3.83508E-12	g/seatbelt
silver	0.0000	g/1000g oil		4.1739E-13	g/seatbelt
silver-110	0.0000	Bq/1000g oil		2.43085E-10	Bq/seatbelt
sodium	0.0000	g/1000g oil		6.69695E-10	g/seatbelt
sodium	0.0102	g/1000g oil		3.05173E-06	g/seatbelt
sodium	0.0640	g/1000g oil		1.91895E-05	g/seatbelt
strontium	0.0000	g/1000g oil		5.60254E-13	g/seatbelt
strontium	0.0352	g/1000g oil		1.05534E-05	g/seatbelt
strontium	0.0024	g/1000g oil		7.16291E-07	g/seatbelt

strontium	0.0001	g/1000g oil		2.8132E-08	g/seatbelt
strontium-90	0.0257	Bq/1000g oil		7.72401E-06	Bq/seatbelt
styrene	0.0000	g/1000g oil		3.96969E-15	g/seatbelt
sulfate	0.0000	g/1000g oil		5.18092E-11	g/seatbelt
sulfate	0.0018	g/1000g oil		5.28451E-07	g/seatbelt
sulfate	0.3042	g/1000g oil		9.12703E-05	g/seatbelt
sulfate	0.2812	g/1000g oil		8.43481E-05	g/seatbelt
sulfide	0.0106	g/1000g oil		3.1707E-06	g/seatbelt
sulfide	0.0125	g/1000g oil		3.75729E-06	g/seatbelt
sulfide	0.1215	g/1000g oil		3.64547E-05	g/seatbelt
sulfite	0.0000	g/1000g oil		1.08964E-09	g/seatbelt
sulfur	0.0000	g/1000g oil		1.41843E-11	g/seatbelt
sulfur	0.0000	g/1000g oil		1.84512E-11	g/seatbelt
sulfur dioxide	1.7519	g/1000g oil		0.000525581	g/seatbelt
sulfur hexafluoride	0.0000	g/1000g oil		5.12369E-13	g/seatbelt
tellurium	0.0000	g/1000g oil		1.1949E-12	g/seatbelt
thallium	0.0000	g/1000g oil		8.77217E-12	g/seatbelt
thallium	0.0000	g/1000g oil		1.46283E-12	g/seatbelt
tin	0.0000	g/1000g oil		1.89221E-09	g/seatbelt
tin	0.0000	g/1000g oil		4.99938E-13	g/seatbelt
tin	0.0000	g/1000g oil		7.45058E-13	g/seatbelt
tin oxide	0.0000	g/1000g oil		6.47577E-16	g/seatbelt
titanium	0.0000	g/1000g oil		1.69499E-12	g/seatbelt
titanium	0.0000	g/1000g oil		5.09239E-14	g/seatbelt
titanium	0.0000	g/1000g oil		3.18625E-10	g/seatbelt
toluene	0.0001	g/1000g oil		2.00547E-08	g/seatbelt
toluene	0.0012	g/1000g oil		3.48519E-07	g/seatbelt
toluene	0.0002	g/1000g oil		6.92025E-08	g/seatbelt
total organic carbon	0.0201	g/1000g oil		6.01849E-06	g/seatbelt
total organic carbon	0.0005	g/1000g oil		1.52813E-07	g/seatbelt
uranium-234	0.0013	Bq/1000g oil		3.78678E-07	Bq/seatbelt
uranium-235	0.0049	Bq/1000g oil		1.45955E-06	Bq/seatbelt
uranium-238	0.0071	Bq/1000g oil		2.14366E-06	Bq/seatbelt
uranium-238	0.1540	Bq/1000g oil		4.6212E-05	Bq/seatbelt
used air	183.1600	g/1000g oil		0.054947989	g/seatbelt
vanadium	0.0013	g/1000g oil		3.78639E-07	g/seatbelt
vanadium	0.0002	g/1000g oil		5.52757E-08	g/seatbelt
vanadium	0.0000	g/1000g oil		4.44283E-09	g/seatbelt
vinyl chloride	0.0000	g/1000g oil		1.83266E-09	g/seatbelt
volatile organic compound	0.0007	g/1000g oil		1.98794E-07	g/seatbelt
volatile organic compound	0.0000	g/1000g oil		1.52813E-09	g/seatbelt
volatile organic compound	0.0001	g/1000g oil		2.20013E-08	g/seatbelt
waste heat	1290.1994	g/1000g oil		0.387059821	g/seatbelt
waste heat	55.6773	g/1000g oil		0.016703197	g/seatbelt
water vapour	105.8821	g/1000g oil		0.031764624	g/seatbelt
xenon-131	0.0163	Bq/1000g oil		4.88291E-06	Bq/seatbelt
xenon-133	2.6639	Bq/1000g oil		0.00079918	Bq/seatbelt
xenon-135	0.8807	Bq/1000g oil		0.000264222	Bq/seatbelt
xenon-137	0.0002	Bq/1000g oil		6.92586E-08	Bq/seatbelt
xenon-138	0.0297	Bq/1000g oil		8.92193E-06	Bq/seatbelt

xylene (all isomers)	0.0003	g/1000g oil		9.95635E-08	g/seatbelt
xylene (all isomers)	0.0001	g/1000g oil		3.0788E-08	g/seatbelt
xylene (all isomers)	0.0015	g/1000g oil		4.35119E-07	g/seatbelt
zinc	0.0001	g/1000g oil		1.7615E-08	g/seatbelt
zinc	0.0000	g/1000g oil		3.59756E-09	g/seatbelt
zinc	0.0054	g/1000g oil		1.6138E-06	g/seatbelt
zinc	0.0001	g/1000g oil		1.75635E-08	g/seatbelt
zinc oxide	0.0000	g/1000g oil		1.29515E-15	g/seatbelt
calcium fluoride; reactor fuel	0.0001	g/1000g oil		1.52176E-08	g/seatbelt
demolition waste (unspecifie	0.1039	g/1000g oil		3.11552E-05	g/seatbelt
highly radioactive waste; rea	0.0002	g/1000g oil		4.54131E-08	g/seatbelt
medium and low radioactive	0.0002	g/1000g oil		5.38954E-08	g/seatbelt
overburden (unspecified)	124.5947	g/1000g oil		0.037378413	g/seatbelt
plutonium as residual produc	0.0000	g/1000g oil		9.03545E-11	g/seatbelt
radioactive tailings; reactor fu	0.0889	g/1000g oil		2.66573E-05	g/seatbelt
slag (unspecified)	0.0044	g/1000g oil		1.32903E-06	g/seatbelt
slag (uranium conversion); re	0.0003	g/1000g oil		1.00782E-07	g/seatbelt
spoil (unspecified)	1.8927	g/1000g oil		0.00056782	g/seatbelt
unspecified radioactive waste	0.0003	g/1000g oil		9.03648E-08	g/seatbelt
uranium depleted; reactor fu	0.0003	g/1000g oil		1.04259E-07	g/seatbelt
Remark					
Data adapted from Light fuel oil; from crude oil; consumption mix, at refinery (ELCD, 2003)					
3.31.3 Transforming oil to lubrication oil (II)	Normalised per activity	Unit			
INFLOWS					
Additives	123.8870	g/1000g lubrication oil		0.0371661	g/seatbelt
oil (in)	867.1170	g/1000g lubrication oil		0.2601351	g/seatbelt
paraffin	9.0090	g/1000g lubrication oil		0.002702703	g/seatbelt
OUTFLOWS				0	
lubrication oil	1000.0000	g		0.3	g
hazardous waste	12.9270	g/1000g lubrication oil		0.0038781	g/seatbelt
Remark:					
Data for production of lubricating oil gate-to-gate (CPM, 1997)					
3.31.4 Transportation from Lubricant producer to Synchronization ball manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2592	MJ/1000g of product	0.3000	0.00007776	MJ/seatbelt
OUTFLOWS					
CO2	18.7200	g/1000g of product		0.005616	g/seatbelt
NOx	0.1188	g/1000g of product		0.00003564	g/seatbelt
HC	0.0169	g/1000g of product		0.000005076	g/seatbelt
Particulate matter	0.0021	g/1000g of product		6.156E-07	g/seatbelt

CO	0.0166	g/1000g of product		0.000004968	g/seatbelt
SO2	0.0047	g/1000g of product		0.000001404	g/seatbelt
Remark:					
Distance between Lubricant producer and Synchronization ball manufacturer (Bursa, Turkey) in km		**360**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.31 Production of ball, synchronization	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	4.0656151	MJ/1000g product	6.3400	0.025776	MJ/seatbelt
alloy	1025.2366	g/1000g product		6.5	g/seatbelt
lubricant	47.318612	g/1000g product		0.3	g/seatbelt
OUTFLOWS					
ball, synchronization				6.34	g/seatbelt
scrap	63.091483	g/1000g product		0.4	g/seatbelt
Remark:					
Electricity data for Turkey					
3.32 Transportation from Synchronization ball manufacturer and Synchronization ball manufacturer no.2 to ALH (truck)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.9997	MJ/1000g of produc	6.3400	0.006338225	MJ/seatbelt
OUTFLOWS					
CO2	72.2020	g/1000g of product		0.45776068	g/seatbelt
NOx	0.4582	g/1000g of product		0.00290502	g/seatbelt
HC	0.0653	g/1000g of product		0.000413745	g/seatbelt
Particulate matter	0.0079	g/1000g of product		5.01776E-05	g/seatbelt
CO	0.0639	g/1000g of product		0.000404942	g/seatbelt
SO2	0.0181	g/1000g of product		0.00011444	g/seatbelt
Remark:					
Distance between Synchronization ball manufacturer (Bursa, Turkey) and ALH (Sopronkövesd, Hungary) in km		**1777**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Distance between Synchronization ball manufacturer no.2 (Lake Forest-CA-US) and ALH (Sopronkövesd, Hunga					

		15000	ship		
		1000	truck		
3.32 Transportation from Synchronization ball manufacturer no.2 to ALH (ship)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	1.6200	MJ/1000g of product	6.3400	0.0102708	MJ/seatbelt
OUTFLOWS					
CO2	115.5000	g/1000g of product		0.73227	g/seatbelt
NOx	3.2175	g/1000g of product		0.02039895	g/seatbelt
HC	0.1500	g/1000g of product		0.000951	g/seatbelt
Particulate matter	0.1530	g/1000g of product		0.00097002	g/seatbelt
CO	0.0653	g/1000g of product		0.000413685	g/seatbelt
SO2	1.9650	g/1000g of product		0.0124581	g/seatbelt
3.33.1. Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.76E-06	g/1000g POM	0.2000	3.52E-10	g/seatbelt
energy (recovered)	-1.91E+03	g/1000g POM		-3.81E-01	g/seatbelt
hydrogen; gaseous	9.80E-04	g/1000g POM		1.96E-07	g/seatbelt
waste	4.88E+00	g/1000g POM		9.76E-04	g/seatbelt
air	2.97E+02	g/1000g POM		5.93E-02	g/seatbelt
baryte	3.53E-05	g/1000g POM		7.07E-09	g/seatbelt
bauxite	2.15E-03	g/1000g POM		4.30E-07	g/seatbelt
bentonite	3.81E-02	g/1000g POM		7.63E-06	g/seatbelt
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		1.51E-05	MJ/seatbelt
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		3.05E-08	MJ/seatbelt
calcium carbonate (in)	1.44E-01	g/1000g POM		2.89E-05	g/seatbelt
chromium (in)	6.46E-10	g/1000g POM		1.29E-13	g/seatbelt
clay	2.04E-07	g/1000g POM		4.09E-11	g/seatbelt
copper (in)	1.29E-05	g/1000g POM		2.58E-09	g/seatbelt
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		8.57E-03	MJ/seatbelt
dolomite	2.02E-03	g/1000g POM		4.03E-07	g/seatbelt
feldspar	7.82E-14	g/1000g POM		1.56E-17	g/seatbelt
fluorspar	3.75E-04	g/1000g POM		7.49E-08	g/seatbelt
granite	2.86E-12	g/1000g POM		5.71E-16	g/seatbelt
ground water	5.52E-02	l/1000g POM		1.10E-05	l/seatbelt
gypsum	3.84E-03	g/1000g POM		7.67E-07	g/seatbelt
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		4.56E-04	MJ/seatbelt
inert rock	1.39E-03	g/1000g POM		2.77E-07	g/seatbelt
iron (in)	1.65E-01	g/1000g POM		3.29E-05	g/seatbelt

lead (in)	3.32E-04	g/1000g POM		6.65E-08	g/seatbelt
magnesium (in)	5.86E-07	g/1000g POM		1.17E-10	g/seatbelt
manganese (in)	1.24E-04	g/1000g POM		2.48E-08	g/seatbelt
mercury (in)	4.86E-07	g/1000g POM		9.73E-11	g/seatbelt
natural aggregate	6.07E-04	g/1000g POM		1.21E-07	g/seatbelt
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		4.30E-03	MJ/seatbelt
nickel	1.17E-06	g/1000g POM		2.34E-10	g/seatbelt
nitrogen (in)	9.44E+01	g/1000g POM		1.89E-02	g/seatbelt
olivine	1.54E-03	g/1000g POM		3.09E-07	g/seatbelt
oxygen	4.87E-03	g/1000g POM		9.73E-07	g/seatbelt
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		1.64E-06	MJ/seatbelt
phosphorus (in)	8.77E-10	g/1000g POM		1.75E-13	g/seatbelt
potassium chloride	9.70E-06	g/1000g POM		1.94E-09	g/seatbelt
primary energy from geother	2.38E-02	MJ/1000g POM		4.77E-06	MJ/seatbelt
primary energy from hydro p	2.95E-01	MJ/1000g POM		5.89E-05	MJ/seatbelt
primary energy from solar en	8.77E-05	MJ/1000g POM		1.75E-08	MJ/seatbelt
primary energy from waves	4.89E-04	MJ/1000g POM		9.78E-08	MJ/seatbelt
primary energy from wind po	1.13E-02	MJ/1000g POM		2.26E-06	MJ/seatbelt
quartz sand	5.31E-33	g/1000g POM		1.06E-36	g/seatbelt
river water	3.20E+03	g/1000g POM		6.41E-01	g/seatbelt
sand	9.51E-02	g/1000g POM		1.90E-05	g/seatbelt
sea water	6.03E+00	1l/1000g POM		1.21E-03	1l/seatbelt
slate	1.09E-02	g/1000g POM		2.17E-06	g/seatbelt
sodium chloride	2.67E-01	g/1000g POM		5.34E-05	g/seatbelt
sodium nitrate	1.76E-06	g/1000g POM		3.52E-10	g/seatbelt
sulfur (in)	3.33E-02	g/1000g POM		6.66E-06	g/seatbelt
talc	7.94E-24	g/1000g POM		1.59E-27	g/seatbelt
titanium	1.82E-03	g/1000g POM		3.65E-07	g/seatbelt
uranium	2.74E+03	g/1000g POM		5.49E-01	g/seatbelt
water	3.11E+01	1l/1000g POM		6.22E-03	1l/seatbelt
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		2.46E-09	1MJ/seatbelt
zinc (in)	6.14E-02	g/1000g POM		1.23E-05	g/seatbelt
OUTFLOWS				0.00E+00	
Polypropylene granulate (PP); production mix, at plant				0.00E+00	
1,2-dichloroethane	1.39E-08	g/1000g POM		2.78E-12	g/seatbelt
1,2-dichloroethane	3.16E-10	g/1000g POM		6.32E-14	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g POM		7.50E-33	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g POM		2.45E-17	g/seatbelt
acid (as H+)	4.33E-14	g/1000g POM		8.65E-18	g/seatbelt
acid (as H+)	2.01E-03	g/1000g POM		4.03E-07	g/seatbelt
adsorbable organic halogen c	6.94E-10	g/1000g POM		1.39E-13	g/seatbelt
aluminium	4.06E-04	g/1000g POM		8.12E-08	g/seatbelt
ammonia	1.58E-07	g/1000g POM		3.16E-11	g/seatbelt
ammonia	3.39E-03	g/1000g POM		6.77E-07	g/seatbelt
antimony	7.96E-08	g/1000g POM		1.59E-11	g/seatbelt
arsenic	8.41E-08	g/1000g POM		1.68E-11	g/seatbelt
arsenic	1.85E-07	g/1000g POM		3.69E-11	g/seatbelt
benzene	3.35E-15	g/1000g POM		6.70E-19	g/seatbelt
benzene	6.58E-19	g/1000g POM		1.32E-22	g/seatbelt
biological oxygen demand	2.88E-02	g/1000g POM		5.75E-06	g/seatbelt

bromate	4.13E-07	g/1000g POM		8.26E-11	g/seatbelt
cadmium	8.62E-08	g/1000g POM		1.72E-11	g/seatbelt
cadmium	4.36E-08	g/1000g POM		8.72E-12	g/seatbelt
calcium	3.65E-05	g/1000g POM		7.30E-09	g/seatbelt
carbon dioxide	1.67E+03	g/1000g POM		3.34E-01	g/seatbelt
carbon disulfide	1.98E-08	g/1000g POM		3.96E-12	g/seatbelt
carbon monoxide	6.10E+00	g/1000g POM		1.22E-03	g/seatbelt
carbonate	2.83E-02	g/1000g POM		5.67E-06	g/seatbelt
chemical oxygen demand	2.40E-01	g/1000g POM		4.81E-05	g/seatbelt
chlorate	6.77E-05	g/1000g POM		1.35E-08	g/seatbelt
chloride	1.53E-01	g/1000g POM		3.06E-05	g/seatbelt
chlorine	3.71E-07	g/1000g POM		7.41E-11	g/seatbelt
chlorine	8.03E-07	g/1000g POM		1.61E-10	g/seatbelt
chromium	3.83E-07	g/1000g POM		7.66E-11	g/seatbelt
chromium	4.93E-09	g/1000g POM		9.86E-13	g/seatbelt
copper	8.90E-09	g/1000g POM		1.78E-12	g/seatbelt
copper	1.03E-05	g/1000g POM		2.06E-09	g/seatbelt
cyanide	1.56E-08	g/1000g POM		3.12E-12	g/seatbelt
decane	1.39E-02	g/1000g POM		2.78E-06	g/seatbelt
dichloromethane	9.24E-10	g/1000g POM		1.85E-13	g/seatbelt
ethyl benzene	1.97E-16	g/1000g POM		3.93E-20	g/seatbelt
ethylene	1.66E-03	g/1000g POM		3.32E-07	g/seatbelt
fluoride	3.59E-06	g/1000g POM		7.19E-10	g/seatbelt
fluorine	3.23E-08	g/1000g POM		6.46E-12	g/seatbelt
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		1.02E-06	g/seatbelt
hydrocyanic acid	6.21E-16	g/1000g POM		1.24E-19	g/seatbelt
hydrogen	3.02E-02	g/1000g POM		6.03E-06	g/seatbelt
hydrogen chloride	5.13E-02	g/1000g POM		1.03E-05	g/seatbelt
hydrogen fluoride	1.49E-03	g/1000g POM		2.99E-07	g/seatbelt
hydrogen sulfide	5.52E-06	g/1000g POM		1.10E-09	g/seatbelt
iron	1.81E-05	g/1000g POM		3.61E-09	g/seatbelt
lead	1.99E-06	g/1000g POM		3.97E-10	g/seatbelt
lead	3.83E-07	g/1000g POM		7.66E-11	g/seatbelt
manganese	6.28E-07	g/1000g POM		1.26E-10	g/seatbelt
mercury	1.80E-06	g/1000g POM		3.60E-10	g/seatbelt
mercury	1.70E-07	g/1000g POM		3.40E-11	g/seatbelt
methane	1.18E+01	g/1000g POM		2.37E-03	g/seatbelt
nickel	8.73E-11	g/1000g POM		1.75E-14	g/seatbelt
nickel	2.58E-07	g/1000g POM		5.15E-11	g/seatbelt
nitrate	1.20E-01	g/1000g POM		2.40E-05	g/seatbelt
nitrogen	8.77E-04	g/1000g POM		1.75E-07	g/seatbelt
nitrogen dioxide	3.29E+00	g/1000g POM		6.57E-04	g/seatbelt
nitrous oxide	4.82E-10	g/1000g POM		9.65E-14	g/seatbelt
non-methane volatile organic	3.51E+00	g/1000g POM		7.03E-04	g/seatbelt
oxygen	7.98E-21	g/1000g POM		1.60E-24	g/seatbelt
particles (> PM10)	8.64E-02	g/1000g POM		1.73E-05	g/seatbelt
particles (PM10)	5.95E-01	g/1000g POM		1.19E-04	g/seatbelt
particles (PM10)	8.75E-03	g/1000g POM		1.75E-06	g/seatbelt
particles (PM2.5)	3.90E-12	g/1000g POM		7.79E-16	g/seatbelt
phenol	1.99E-03	g/1000g POM		3.98E-07	g/seatbelt

phosphate	5.37E-01	g/1000g POM		1.07E-04	g/seatbelt
polycyclic aromatic hydrocarb	1.36E-15	g/1000g POM		2.71E-19	g/seatbelt
potassium	1.18E-06	g/1000g POM		2.35E-10	g/seatbelt
propene	1.23E-03	g/1000g POM		2.46E-07	g/seatbelt
selenium	1.01E-22	g/1000g POM		2.01E-26	g/seatbelt
silver	2.90E-21	g/1000g POM		5.80E-25	g/seatbelt
sodium	8.11E-02	g/1000g POM		1.62E-05	g/seatbelt
strontium	7.15E-09	g/1000g POM		1.43E-12	g/seatbelt
styrene	2.76E-17	g/1000g POM		5.53E-21	g/seatbelt
sulfate	9.30E-01	g/1000g POM		1.86E-04	g/seatbelt
sulfur	3.49E-10	g/1000g POM		6.98E-14	g/seatbelt
sulfur dioxide	3.78E+00	g/1000g POM		7.57E-04	g/seatbelt
tin	1.53E-13	g/1000g POM		3.06E-17	g/seatbelt
toluene	5.61E-16	g/1000g POM		1.12E-19	g/seatbelt
total organic carbon	8.94E-03	g/1000g POM		1.79E-06	g/seatbelt
vinyl chloride	3.11E-07	g/1000g POM		6.23E-11	g/seatbelt
vinyl chloride	5.78E-09	g/1000g POM		1.16E-12	g/seatbelt
volatile organic compound	1.79E-01	g/1000g POM		3.57E-05	g/seatbelt
volatile organic compound	1.06E-02	g/1000g POM		2.12E-06	g/seatbelt
xylene (all isomers)	2.59E-16	g/1000g POM		5.18E-20	g/seatbelt
zinc	4.86E-06	g/1000g POM		9.73E-10	g/seatbelt
zinc	9.69E-05	g/1000g POM		1.94E-08	g/seatbelt
chemical waste	1.91E+00	g/1000g POM		3.83E-04	g/seatbelt
chemical waste, inert	8.15E-01	g/1000g POM		1.63E-04	g/seatbelt
chemical waste, toxic	1.70E+00	g/1000g POM		3.41E-04	g/seatbelt
demolition waste	2.20E-03	g/1000g POM		4.39E-07	g/seatbelt
industrial waste	1.13E+00	g/1000g POM		2.26E-04	g/seatbelt
mineral waste	2.05E-01	g/1000g POM		4.11E-05	g/seatbelt
municipal waste	-4.61E+00	g/1000g POM		-9.21E-04	g/seatbelt
organic waste	1.69E-03	g/1000g POM		3.37E-07	g/seatbelt
overburden	1.63E+01	g/1000g POM		3.26E-03	g/seatbelt
packaging waste (metal)	3.17E-05	g/1000g POM		6.34E-09	g/seatbelt
packaging waste (plastic)	6.63E-10	g/1000g POM		1.33E-13	g/seatbelt
plastic	3.40E-01	g/1000g POM		6.81E-05	g/seatbelt
tailings	2.46E-01	g/1000g POM		4.92E-05	g/seatbelt
waste	9.32E-01	g/1000g POM		1.86E-04	g/seatbelt
waste paper	2.35E-06	g/1000g POM		4.71E-10	g/seatbelt
wood	2.98E-05	g/1000g POM		5.96E-09	g/seatbelt
wooden pallet	5.89E-07	g/1000g POM		1.18E-10	g/seatbelt
Remark:					
Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD					
3.33.2. Transportation to Plastic parts manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5236	MJ/1000g of product	0.2000	0.00010472	MJ/seatbelt

OUTFLOWS					
CO2	38.0800	g/1000g of product		0.007616	g/seatbelt
NOx	0.2520	g/1000g of product		0.0000504	g/seatbelt
HC	0.0336	g/1000g of product		0.00000672	g/seatbelt
Particulate matter	0.0042	g/1000g of product		0.00000084	g/seatbelt
CO	0.0336	g/1000g of product		0.00000672	g/seatbelt
SO2	0.0095	g/1000g of product		0.000001904	g/seatbelt
Remark:					
Distance between Plastics producer no.2 (Bad Rappena, Germany) and Plastic parts manufacturer no.2 (München, Germany) in km		**280**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.33 Production of Snap-in-faster	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
POM	1000	g/1000g product	0.2000	0.2	g/seatbelt
Electricity	34.92	MJ/1000g product		0.006984	MJ/seatbelt
OUTFLOWS					
snap-in-faster				0.2	g/seatbelt
Remark:					
Closed circuit (supplier information)					
Data for electricity taken from data for Germany					
3.34 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.9649	MJ/1000g of product	0.2000	0.000192984	MJ/seatbelt
				0	
OUTFLOWS				0	
CO2	70.1760	g/1000g of product		0.0140352	g/seatbelt
NOx	0.4644	g/1000g of product		0.00009288	g/seatbelt
HC	0.0619	g/1000g of product		0.000012384	g/seatbelt
Particulate matter	0.0077	g/1000g of product		0.000001548	g/seatbelt
CO	0.0619	g/1000g of product		0.000012384	g/seatbelt
SO2	0.0175	g/1000g of product		3.5088E-06	g/seatbelt
Remark:					

Distance between Plastic parts manufacturer no.2 (München, Germany) and ALH (Sopronkövesd, Hungary) in km		**516**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.35.1. Production of acrylic resin	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	3.59E-08	g/1000g acrylic resin	0.0500	1.80E-12	g/seatbelt
energy (recovered)	-1.72E+04	g/1000g acrylic resin		-8.59E-01	g/seatbelt
hydrogen; gaseous	1.48E-01	g/1000g acrylic resin		7.38E-06	g/seatbelt
waste	7.66E+00	g/1000g acrylic resin		3.83E-04	g/seatbelt
air	-1.51E+02	g/1000g acrylic resin		-7.57E-03	g/seatbelt
baryte	7.02E-02	g/1000g acrylic resin		3.51E-06	g/seatbelt
bauxite	5.15E-01	g/1000g acrylic resin		2.57E-05	g/seatbelt
bentonite	4.14E-02	g/1000g acrylic resin		2.07E-06	g/seatbelt
biomass; 14.7 MJ/kg	1.05E-01	MJ/1000g acrylic resin		5.27E-06	MJ/seatbelt
brown coal; 11.9 MJ/kg	6.72E-05	MJ/1000g acrylic resin		3.36E-09	MJ/seatbelt
calcium carbonate (in)	6.76E+00	g/1000g acrylic resin		3.38E-04	g/seatbelt
chromium (in)	1.45E-07	g/1000g acrylic resin		7.24E-12	g/seatbelt
clay	8.01E-06	g/1000g acrylic resin		4.01E-10	g/seatbelt
copper (in)	1.11E-03	g/1000g acrylic resin		5.57E-08	g/seatbelt
crude oil; 42.3 MJ/kg	4.87E+01	MJ/1000g acrylic resin		2.43E-03	MJ/seatbelt
dolomite	7.39E-03	g/1000g acrylic resin		3.70E-07	g/seatbelt
feldspar	7.18E-12	g/1000g acrylic resin		3.59E-16	g/seatbelt
fluorspar	1.17E-02	g/1000g acrylic resin		5.83E-07	g/seatbelt
granite	3.53E-11	g/1000g acrylic resin		1.77E-15	g/seatbelt
ground water	1.95E-01	l/1000g acrylic resin		9.75E-06	l/seatbelt
gypsum	4.09E-03	g/1000g acrylic resin		2.05E-07	g/seatbelt
hard coal; 26.3 MJ/kg	8.00E+00	MJ/1000g acrylic resin		4.00E-04	MJ/seatbelt
inert rock	3.84E-05	g/1000g acrylic resin		1.92E-09	g/seatbelt
iron (in)	6.04E-01	g/1000g acrylic resin		3.02E-05	g/seatbelt
lead (in)	3.63E-03	g/1000g acrylic resin		1.82E-07	g/seatbelt
magnesium (in)	2.60E-13	g/1000g acrylic resin		1.30E-17	g/seatbelt
manganese (in)	4.56E-04	g/1000g acrylic resin		2.28E-08	g/seatbelt
mercury (in)	3.47E-05	g/1000g acrylic resin		1.73E-09	g/seatbelt
natural aggregate	2.23E-03	g/1000g acrylic resin		1.12E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.00E+01	MJ/1000g acrylic resin		3.00E-03	MJ/seatbelt
nickel	1.32E-07	g/1000g acrylic resin		6.60E-12	g/seatbelt
nitrogen (in)	1.09E+02	g/1000g acrylic resin		5.45E-03	g/seatbelt
olivine	5.67E-03	g/1000g acrylic resin		2.84E-07	g/seatbelt
oxygen	1.31E+02	g/1000g acrylic resin		6.55E-03	g/seatbelt
peat; 8.4 MJ/kg	1.18E-03	MJ/1000g acrylic resin		5.88E-08	MJ/seatbelt
phosphorus (in)	8.42E-01	g/1000g acrylic resin		4.21E-05	g/seatbelt
potassium chloride	3.64E-03	g/1000g acrylic resin		1.82E-07	g/seatbelt
primary energy from geother	1.69E-02	MJ/1000g acrylic resin		8.43E-07	MJ/seatbelt
primary energy from hydro p	4.80E-01	MJ/1000g acrylic resin		2.40E-05	MJ/seatbelt

primary energy from solar en	7.23E-04	MJ/1000g acrylic resin	3.61E-08	MJ/seatbelt
primary energy from waves	9.37E-04	MJ/1000g acrylic resin	4.68E-08	MJ/seatbelt
primary energy from wind po	4.61E-02	MJ/1000g acrylic resin	2.31E-06	MJ/seatbelt
quartz sand	1.10E-20	g/1000g acrylic resin	5.52E-25	g/seatbelt
river water	1.37E+04	g/1000g acrylic resin	6.85E-01	g/seatbelt
sand	3.32E+00	g/1000g acrylic resin	1.66E-04	g/seatbelt
sea water	4.91E+00	1l/1000g acrylic resin	2.46E-04	1l/seatbelt
slate	1.16E-02	g/1000g acrylic resin	5.80E-07	g/seatbelt
sodium chloride	3.20E+01	g/1000g acrylic resin	1.60E-03	g/seatbelt
sodium nitrate	7.80E-13	g/1000g acrylic resin	3.90E-17	g/seatbelt
sulfur (in)	4.28E+01	g/1000g acrylic resin	2.14E-03	g/seatbelt
talc	9.96E-24	g/1000g acrylic resin	4.98E-28	g/seatbelt
titanium	6.91E-30	g/1000g acrylic resin	3.46E-34	g/seatbelt
uranium	5.18E+03	g/1000g acrylic resin	2.59E-01	g/seatbelt
water	5.53E+01	1l/1000g acrylic resin	2.76E-03	1l/seatbelt
wood; 14.7 MJ/kg	8.10E-04	1MJ/1000g acrylic resin	4.05E-08	1MJ/seatbelt
zinc (in)	1.33E-04	g/1000g acrylic resin	6.65E-09	g/seatbelt
OUTFLOWS			0.00E+00	
acrylic resin	1000	g	5.00E-02	g
1,2-dichloroethane	2.99E-07	g/1000g acrylic resin	1.49E-11	g/seatbelt
1,2-dichloroethane	5.11E-09	g/1000g acrylic resin	2.55E-13	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.39E-27	g/1000g acrylic resin	6.96E-32	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.23E-10	g/1000g acrylic resin	1.12E-14	g/seatbelt
acid (as H+)	2.09E-07	g/1000g acrylic resin	1.05E-11	g/seatbelt
acid (as H+)	7.77E-02	g/1000g acrylic resin	3.89E-06	g/seatbelt
adsorbable organic halogen c	1.45E-08	g/1000g acrylic resin	7.26E-13	g/seatbelt
aluminium	5.38E-04	g/1000g acrylic resin	2.69E-08	g/seatbelt
ammonia	9.33E-03	g/1000g acrylic resin	4.67E-07	g/seatbelt
ammonia	1.13E+00	g/1000g acrylic resin	5.67E-05	g/seatbelt
antimony	2.37E-09	g/1000g acrylic resin	1.19E-13	g/seatbelt
arsenic	8.97E-08	g/1000g acrylic resin	4.49E-12	g/seatbelt
arsenic	2.63E-07	g/1000g acrylic resin	1.31E-11	g/seatbelt
benzene	5.77E-03	g/1000g acrylic resin	2.89E-07	g/seatbelt
benzene	1.04E-09	g/1000g acrylic resin	5.20E-14	g/seatbelt
biological oxygen demand	5.12E-01	g/1000g acrylic resin	2.56E-05	g/seatbelt
bromate	3.27E-06	g/1000g acrylic resin	1.64E-10	g/seatbelt
cadmium	6.44E-08	g/1000g acrylic resin	3.22E-12	g/seatbelt
cadmium	5.11E-09	g/1000g acrylic resin	2.55E-13	g/seatbelt
calcium	1.13E-01	g/1000g acrylic resin	5.65E-06	g/seatbelt
carbon dioxide	5.86E+03	g/1000g acrylic resin	2.93E-01	g/seatbelt
carbon disulfide	5.29E-08	g/1000g acrylic resin	2.64E-12	g/seatbelt
carbon monoxide	5.53E+00	g/1000g acrylic resin	2.77E-04	g/seatbelt
carbonate	5.52E-02	g/1000g acrylic resin	2.76E-06	g/seatbelt
chemical oxygen demand	1.69E+00	g/1000g acrylic resin	8.45E-05	g/seatbelt
chlorate	4.45E-03	g/1000g acrylic resin	2.23E-07	g/seatbelt
chloride	8.69E+00	g/1000g acrylic resin	4.34E-04	g/seatbelt
chlorine	4.35E-04	g/1000g acrylic resin	2.18E-08	g/seatbelt
chlorine	1.35E-05	g/1000g acrylic resin	6.77E-10	g/seatbelt
chromium	9.52E-04	g/1000g acrylic resin	4.76E-08	g/seatbelt
chromium	3.48E-08	g/1000g acrylic resin	1.74E-12	g/seatbelt

copper	1.83E-06	g/1000g acrylic resin	9.14E-11	g/seatbelt
copper	5.16E-05	g/1000g acrylic resin	2.58E-09	g/seatbelt
cyanide	3.66E-03	g/1000g acrylic resin	1.83E-07	g/seatbelt
decane	1.20E-02	g/1000g acrylic resin	6.01E-07	g/seatbelt
dichloromethane	9.60E-07	g/1000g acrylic resin	4.80E-11	g/seatbelt
ethyl benzene	3.26E-04	g/1000g acrylic resin	1.63E-08	g/seatbelt
ethylene	2.90E-03	g/1000g acrylic resin	1.45E-07	g/seatbelt
fluoride	6.64E-03	g/1000g acrylic resin	3.32E-07	g/seatbelt
fluorine	7.13E-06	g/1000g acrylic resin	3.56E-10	g/seatbelt
hydrocarbons (unspecified)	5.45E-03	g/1000g acrylic resin	2.72E-07	g/seatbelt
hydrocyanic acid	2.80E-03	g/1000g acrylic resin	1.40E-07	g/seatbelt
hydrogen	1.14E-01	g/1000g acrylic resin	5.72E-06	g/seatbelt
hydrogen chloride	1.60E-01	g/1000g acrylic resin	7.99E-06	g/seatbelt
hydrogen fluoride	6.87E-03	g/1000g acrylic resin	3.44E-07	g/seatbelt
hydrogen sulfide	2.02E-05	g/1000g acrylic resin	1.01E-09	g/seatbelt
iron	3.09E-05	g/1000g acrylic resin	1.55E-09	g/seatbelt
lead	2.29E-06	g/1000g acrylic resin	1.15E-10	g/seatbelt
lead	1.83E-03	g/1000g acrylic resin	9.15E-08	g/seatbelt
manganese	2.27E-08	g/1000g acrylic resin	1.14E-12	g/seatbelt
mercury	1.71E-05	g/1000g acrylic resin	8.53E-10	g/seatbelt
mercury	3.25E-06	g/1000g acrylic resin	1.63E-10	g/seatbelt
methane	4.77E+01	g/1000g acrylic resin	2.38E-03	g/seatbelt
nickel	1.73E-03	g/1000g acrylic resin	8.65E-08	g/seatbelt
nickel	3.57E-05	g/1000g acrylic resin	1.79E-09	g/seatbelt
nitrate	9.47E-03	g/1000g acrylic resin	4.74E-07	g/seatbelt
nitrogen	1.68E-03	g/1000g acrylic resin	8.42E-08	g/seatbelt
nitrogen dioxide	1.24E+01	g/1000g acrylic resin	6.18E-04	g/seatbelt
nitrous oxide	7.64E-06	g/1000g acrylic resin	3.82E-10	g/seatbelt
non-methane volatile organic	1.21E+01	g/1000g acrylic resin	6.03E-04	g/seatbelt
oxygen	3.28E-09	g/1000g acrylic resin	1.64E-13	g/seatbelt
particles (> PM10)	1.68E+00	g/1000g acrylic resin	8.42E-05	g/seatbelt
particles (PM10)	2.00E+00	g/1000g acrylic resin	1.00E-04	g/seatbelt
particles (PM10)	5.82E-02	g/1000g acrylic resin	2.91E-06	g/seatbelt
particles (PM2.5)	9.56E-10	g/1000g acrylic resin	4.78E-14	g/seatbelt
phenol	5.12E-04	g/1000g acrylic resin	2.56E-08	g/seatbelt
phosphate	4.92E+00	g/1000g acrylic resin	2.46E-04	g/seatbelt
polycyclic aromatic hydrocarb	1.73E-03	g/1000g acrylic resin	8.65E-08	g/seatbelt
potassium	1.14E-04	g/1000g acrylic resin	5.72E-09	g/seatbelt
propene	2.14E-03	g/1000g acrylic resin	1.07E-07	g/seatbelt
selenium	2.09E-10	g/1000g acrylic resin	1.04E-14	g/seatbelt
silver	6.02E-09	g/1000g acrylic resin	3.01E-13	g/seatbelt
sodium	1.85E+01	g/1000g acrylic resin	9.26E-04	g/seatbelt
strontium	4.89E-07	g/1000g acrylic resin	2.44E-11	g/seatbelt
styrene	5.78E-05	g/1000g acrylic resin	2.89E-09	g/seatbelt
sulfate	2.73E+01	g/1000g acrylic resin	1.36E-03	g/seatbelt
sulfur	1.08E-06	g/1000g acrylic resin	5.40E-11	g/seatbelt
sulfur dioxide	2.89E+01	g/1000g acrylic resin	1.44E-03	g/seatbelt
tin	2.81E-10	g/1000g acrylic resin	1.41E-14	g/seatbelt
toluene	9.78E-04	g/1000g acrylic resin	4.89E-08	g/seatbelt
total organic carbon	1.69E-02	g/1000g acrylic resin	8.46E-07	g/seatbelt

vinyl chloride	3.61E-06	g/1000g acrylic resin		1.80E-10	g/seatbelt
vinyl chloride	6.61E-08	g/1000g acrylic resin		3.31E-12	g/seatbelt
volatile organic compound	2.02E+00	g/1000g acrylic resin		1.01E-04	g/seatbelt
volatile organic compound	1.08E+00	g/1000g acrylic resin		5.39E-05	g/seatbelt
xylene (all isomers)	4.04E-04	g/1000g acrylic resin		2.02E-08	g/seatbelt
zinc	9.90E-07	g/1000g acrylic resin		4.95E-11	g/seatbelt
zinc	8.95E-05	g/1000g acrylic resin		4.47E-09	g/seatbelt
chemical waste	1.56E+01	g/1000g acrylic resin		7.80E-04	g/seatbelt
chemical waste, inert	6.29E+00	g/1000g acrylic resin		3.15E-04	g/seatbelt
chemical waste, toxic	8.95E+00	g/1000g acrylic resin		4.47E-04	g/seatbelt
demolition waste	1.52E-02	g/1000g acrylic resin		7.61E-07	g/seatbelt
industrial waste	1.21E+01	g/1000g acrylic resin		6.07E-04	g/seatbelt
mineral waste	3.22E+00	g/1000g acrylic resin		1.61E-04	g/seatbelt
municipal waste	-7.23E+00	g/1000g acrylic resin		-3.61E-04	g/seatbelt
organic waste	1.06E-04	g/1000g acrylic resin		5.30E-09	g/seatbelt
overburden	5.72E+01	g/1000g acrylic resin		2.86E-03	g/seatbelt
packaging waste (metal)	8.95E-07	g/1000g acrylic resin		4.47E-11	g/seatbelt
packaging waste (plastic)	7.60E-09	g/1000g acrylic resin		3.80E-13	g/seatbelt
plastic	1.86E-02	g/1000g acrylic resin		9.32E-07	g/seatbelt
tailings	6.31E-02	g/1000g acrylic resin		3.15E-06	g/seatbelt
waste	6.71E+00	g/1000g acrylic resin		3.35E-04	g/seatbelt
waste paper	1.08E-07	g/1000g acrylic resin		5.39E-12	g/seatbelt
wood	1.97E-03	g/1000g acrylic resin		9.85E-08	g/seatbelt
wooden pallet	3.72E-08	g/1000g acrylic resin		1.86E-12	g/seatbelt
Remark:					
Data for acrylic resin interpreted from LCI data for Polymethyl methacrylate (PMMA) beads; production mix, at plant (ELCD database, 1999)					
3.35.2 Transportation	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.35.3 Production of paper for labels	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Hardwood	70.0000	g/1000g paper	1.5000	0.105	g/seatbelt
Softwood	1210.0000	g/1000g paper		1.815	g/seatbelt
Al2(SO4)3	6.7000	g/1000g paper		0.01005	g/seatbelt
Bark	6.5000	MJ/1000g paper		0.00975	MJ/seatbelt
biocides	0.0800	g/1000g paper		0.00012	g/seatbelt
Board	0.0500	g/1000g paper		0.000075	g/seatbelt
CaCO3	2.9000	g/1000g paper		0.00435	g/seatbelt
CaO	4.1000	g/1000g paper		0.00615	g/seatbelt

Core and core plug	1.9100	g/1000g paper		0.002865	g/seatbelt
Defoamers	0.9500	g/1000g paper		0.001425	g/seatbelt
Diesel	0.0300	MJ/1000g paper		0.000045	MJ/seatbelt
Electricity	2.2300	MJ/1000g paper		0.003345	MJ/seatbelt
H2SO4	14.7000	g/1000g paper		0.02205	g/seatbelt
Heavy oil	1.6900	MJ/1000g paper		0.002535	MJ/seatbelt
Hydrochloric acid	0.0700	g/1000g paper		0.000105	g/seatbelt
Light fuel oil	0.5400	MJ/1000g paper		0.00081	MJ/seatbelt
Lubricant	0.1800	g/1000g paper		0.00027	g/seatbelt
Na2CO3	1.9000	g/1000g paper		0.00285	g/seatbelt
Na2SO4	1.9000	g/1000g paper		0.00285	g/seatbelt
NaOH	9.3000	g/1000g paper		0.01395	g/seatbelt
Natural gas	1.0400	MJ/1000g paper		0.00156	MJ/seatbelt
Peat	0.0600	MJ/1000g paper		0.00009	MJ/seatbelt
Pitch despergent	0.0200	g/1000g paper		0.00003	g/seatbelt
Retention aids	0.5700	g/1000g paper		0.000855	g/seatbelt
S	0.1700	g/1000g paper		0.000255	g/seatbelt
Sizing agents	1.6000	g/1000g paper		0.0024	g/seatbelt
Starch	4.2000	g/1000g paper		0.0063	g/seatbelt
Steel	0.0500	g/1000g paper		0.000075	g/seatbelt
Waste paper	0.2300	g/1000g paper		0.000345	g/seatbelt
				0	
OUTFLOWS				0	
Electricity	0.0070	MJ/1000g paper		0.0000105	MJ/seatbelt
Tall oil	25.0000	g/1000g paper		0.0375	g/seatbelt
Thermal energy	0.3200	MJ/1000g paper		0.00048	MJ/seatbelt
Turpentine	1.3000	g/1000g paper		0.00195	g/seatbelt
BOD	6.7000	g/1000g paper		0.01005	g/seatbelt
CO2	1580.0000	g/1000g paper		2.37	g/seatbelt
COD	17.3000	g/1000g paper		0.02595	g/seatbelt
Dust	1.6000	g/1000g paper		0.0024	g/seatbelt
H2S	0.1400	g/1000g paper		0.00021	g/seatbelt
NOx	1.2000	g/1000g paper		0.0018	g/seatbelt
SOx	0.8600	g/1000g paper		0.00129	g/seatbelt
Susp solids	2.5000	g/1000g paper		0.00375	g/seatbelt
Kraftliner	1.0000	g/1000g paper		0.0015	g/seatbelt
Ashes	4.3000	g/1000g paper		0.00645	g/seatbelt
Other rest products	19.8000	g/1000g paper		0.0297	g/seatbelt
Remark:					
Data adapted from production of Kraftliner gate-to-gate (CPM, 2000)					
3.35.4 Transportation to Label manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.35 Production of label identification in Label manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	193.78991	MJ/1000g product	0.2000	0.038757982	MJ/seatbelt
water	137.16814	l/1000g product		0.027433628	l/seatbelt
acrylic resin	250	g/1000g product		0.05	g/seatbelt
paper	750	g/1000g product		0.15	g/seatbelt
OUTFLOWS					
label identification				0.2	g/seatbelt
Remark:					
Data adapted from label production in Label manufacturer no.2					
Electricity data for Germany					
3.36 Transportation from Label manufacturer no.1 to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6869	MJ/1000g of product	0.2000	0.000137376	MJ/seatbelt
OUTFLOWS					
CO2	49.6080	g/1000g of product		0.0099216	g/seatbelt
NOx	0.3148	g/1000g of product		0.000062964	g/seatbelt
HC	0.0448	g/1000g of product		8.9676E-06	g/seatbelt
Particulate matter	0.0054	g/1000g of product		1.08756E-06	g/seatbelt
CO	0.0439	g/1000g of product		8.7768E-06	g/seatbelt
SO2	0.0124	g/1000g of product		2.4804E-06	g/seatbelt
Remark:					
Distance between Label manufacturer no.1(Einbeck, Germany) and ALH (Sopronkövesd, Hungary) in km		**954**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.37.1 Production of steel e235	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	102.1000	5.15605	g/seatbelt
Chemicals	4.99	g/1000g steel		0.509479	g/seatbelt
Coal	0.223	MJ/1000g steel		0.0227683	MJ/seatbelt
Coal	517	g/1000g steel		2.2697851	MJ/seatbelt
Diesel	0.195	MJ/1000g steel		0.0199095	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.335909	MJ/seatbelt

Explosives	1.02	g/1000g steel		0.104142	g/seatbelt
Gas	4.81	MJ/1000g steel		0.491101	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.294048	MJ/seatbelt
Iron ore	2170	g/1000g steel		221.557	g/seatbelt
Limestone	162	g/1000g steel		16.5402	g/seatbelt
Oil	0.00106	MJ/1000g steel		0.000108226	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		5.32962	g/seatbelt
OUTFLOWS					
ammonia	0.000517	g/1000g steel		5.27857E-05	g/seatbelt
arsenic	2.08E-06	g/1000g steel		2.12368E-07	g/seatbelt
cadmium	0.0000118	g/1000g steel		1.20478E-06	g/seatbelt
cadmium	4.46E-08	g/1000g steel		4.55366E-09	g/seatbelt
CH4	4.04	g/1000g steel		0.412484	g/seatbelt
carbon dioxide	1180	g/1000g steel		120.478	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		0.00261376	g/seatbelt
chromium	0.00036	g/1000g steel		0.000036756	g/seatbelt
chromium	0.0000488	g/1000g steel		4.98248E-06	g/seatbelt
cobalt	0.0000072	g/1000g steel		7.3512E-07	g/seatbelt
cobalt	3.21E-06	g/1000g steel		3.27741E-07	g/seatbelt
copper	0.000175	g/1000g steel		1.78675E-05	g/seatbelt
copper	0.000101	g/1000g steel		1.03121E-05	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		0.00426778	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.00573802	g/seatbelt
lead	0.000529	g/1000g steel		5.40109E-05	g/seatbelt
lead	0.000402	g/1000g steel		4.10442E-05	g/seatbelt
mercury	0.0000344	g/1000g steel		3.51224E-06	g/seatbelt
nickel	0.0004	g/1000g steel		0.00004084	g/seatbelt
nickel	0.0000815	g/1000g steel		8.32115E-06	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.00324678	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.152129	g/seatbelt
Phosphorus	0.000372	g/1000g steel		3.79812E-05	g/seatbelt
polycyclic aromatic hydrocarb	0.000147	g/1000g steel		1.50087E-05	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.155192	g/seatbelt
zinc	0.00368	g/1000g steel		0.000375728	g/seatbelt
zinc	0.000997	g/1000g steel		0.000101794	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.165402	g/seatbelt
Industrial waste	96.4	g/1000g steel		9.84244	g/seatbelt
mineral waste	1100	g/1000g steel		112.31	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.37.2 Transportation to Tube manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.37.3 Production of tube	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
oil	0.0751444	MJ/1000g product	97.0000	0.00728901	MJ/seatbelt
gas	0.0485409	MJ/1000g product		0.004708467	MJ/seatbelt
electricity	1.9385618	MJ/1000g product		0.188040496	MJ/seatbelt
OUTFLOWS					
raw tube				97	g/seatbelt
chromium III	0.002554	g/1000g product		0.000247733	g/seatbelt
copper	0.002554	g/1000g product		0.000247733	g/seatbelt
cyanide	0.0001176	g/1000g product		1.14042E-05	g/seatbelt
nickel	0.002554	g/1000g product		0.000247733	g/seatbelt
zinc	0.002554	g/1000g product		0.000247733	g/seatbelt
oil	0.0018086	g/1000g product		0.00017543	g/seatbelt
used oil	0.0019944	g/1000g product		0.000193456	g/seatbelt
Remark:					
Data given for 1 year					
Total value of production/year		€ 34,580,022.00			
Value of the product		€ 0.26			
Electricity data for Germany					

3.37.4 Transportation to Tube manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4824	MJ/1000g of product	97.0000	0.0467928	MJ/seatbelt
OUTFLOWS					
CO2	34.8400	g/1000g of product		3.37948	g/seatbelt
NOx	0.2211	g/1000g of product		0.0214467	g/seatbelt
HC	0.0315	g/1000g of product		0.00305453	g/seatbelt
Particulate matter	0.0038	g/1000g of product		0.000370443	g/seatbelt
CO	0.0308	g/1000g of product		0.00298954	g/seatbelt
SO2	0.0087	g/1000g of product		0.00084487	g/seatbelt
Remark:					
Distance between Tube manufacturer no.1 (Düsseldorf, Germany) and Tube manufacturer no.2(Linz, Austria) in km		**670**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.37. 5 Production of HCl	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.50E-09	g/1000g HCl	0.0250	3.74E-14	g/seatbelt
energy (recovered)	-1.72E+02	g/1000g HCl		-4.31E-03	g/seatbelt
hydrogen; gaseous	1.72E+00	g/1000g HCl		4.31E-05	g/seatbelt
waste	5.85E+00	g/1000g HCl		1.46E-04	g/seatbelt
air	9.03E+01	g/1000g HCl		2.26E-03	g/seatbelt
baryte	4.49E-01	g/1000g HCl		1.12E-05	g/seatbelt
bauxite	2.41E-02	g/1000g HCl		6.01E-07	g/seatbelt
bentonite	4.17E-03	g/1000g HCl		1.04E-07	g/seatbelt
biomass; 14.7 MJ/kg	8.75E-02	MJ/1000g HCl		2.19E-06	MJ/seatbelt
brown coal; 11.9 MJ/kg	2.01E-02	MJ/1000g HCl		5.04E-07	MJ/seatbelt
calcium carbonate (in)	9.40E+00	g/1000g HCl		2.35E-04	g/seatbelt
chromium (in)	6.78E-09	g/1000g HCl		1.70E-13	g/seatbelt
clay	5.18E-03	g/1000g HCl		1.29E-07	g/seatbelt
copper (in)	8.72E-06	g/1000g HCl		2.18E-10	g/seatbelt
crude oil; 42.3 MJ/kg	5.41E+00	MJ/1000g HCl		1.35E-04	MJ/seatbelt
dolomite	3.91E-02	g/1000g HCl		9.78E-07	g/seatbelt
feldspar	1.29E-03	g/1000g HCl		3.22E-08	g/seatbelt
fluorspar	1.30E-03	g/1000g HCl		3.25E-08	g/seatbelt
granite	5.10E-12	g/1000g HCl		1.28E-16	g/seatbelt
ground water	3.32E-01	l/1000g HCl		8.29E-06	l/seatbelt
gypsum	4.10E-04	g/1000g HCl		1.02E-08	g/seatbelt
hard coal; 26.3 MJ/kg	4.08E+00	MJ/1000g HCl		1.02E-04	MJ/seatbelt
inert rock	7.19E-06	g/1000g HCl		1.80E-10	g/seatbelt
iron (in)	1.13E-01	g/1000g HCl		2.83E-06	g/seatbelt
lead (in)	5.69E-04	g/1000g HCl		1.42E-08	g/seatbelt
magnesium (in)	2.02E-15	g/1000g HCl		5.06E-20	g/seatbelt
manganese (in)	8.53E-05	g/1000g HCl		2.13E-09	g/seatbelt
mercury (in)	2.25E-03	g/1000g HCl		5.62E-08	g/seatbelt
natural aggregate	4.17E-04	g/1000g HCl		1.04E-08	g/seatbelt
natural gas; 44.1 MJ/kg	1.01E+01	MJ/1000g HCl		2.53E-04	MJ/seatbelt
nickel	1.30E-05	g/1000g HCl		3.25E-10	g/seatbelt
nitrogen (in)	4.87E+01	g/1000g HCl		1.22E-03	g/seatbelt
olivine	1.06E-03	g/1000g HCl		2.65E-08	g/seatbelt
oxygen	3.07E+01	g/1000g HCl		7.68E-04	g/seatbelt
peat; 8.4 MJ/kg	3.63E-04	MJ/1000g HCl		9.07E-09	MJ/seatbelt
phosphorus (in)	1.90E-04	g/1000g HCl		4.76E-09	g/seatbelt
potassium chloride	3.07E+00	g/1000g HCl		7.68E-05	g/seatbelt
primary energy from geother	7.70E-02	MJ/1000g HCl		1.92E-06	MJ/seatbelt
primary energy from hydro p	4.54E-01	MJ/1000g HCl		1.13E-05	MJ/seatbelt
primary energy from solar en	3.18E-04	MJ/1000g HCl		7.96E-09	MJ/seatbelt
primary energy from waves	8.41E-04	MJ/1000g HCl		2.10E-08	MJ/seatbelt
primary energy from wind po	2.66E-02	MJ/1000g HCl		6.66E-07	MJ/seatbelt
quartz sand	8.59E-23	g/1000g HCl		2.15E-27	g/seatbelt
river water	7.62E+03	g/1000g HCl		1.91E-01	g/seatbelt

sand	2.53E-01	g/1000g HCl		6.32E-06	g/seatbelt
sea water	4.43E+01	l/1000g HCl		1.11E-03	l/seatbelt
slate	1.16E-03	g/1000g HCl		2.90E-08	g/seatbelt
sodium chloride	1.10E+03	g/1000g HCl		2.76E-02	g/seatbelt
sodium nitrate	6.08E-15	g/1000g HCl		1.52E-19	g/seatbelt
sulfur (in)	4.54E-01	g/1000g HCl		1.14E-05	g/seatbelt
talc	1.11E-23	g/1000g HCl		2.77E-28	g/seatbelt
titanium	6.98E-31	g/1000g HCl		1.75E-35	g/seatbelt
uranium	4.42E+03	g/1000g HCl		1.10E-01	g/seatbelt
water	1.27E+01	l/1000g HCl		3.17E-04	l/seatbelt
wood; 14.7 MJ/kg	3.54E-03	1MJ/1000g HCl		8.85E-08	1MJ/seatbelt
zinc (in)	3.54E-05	g/1000g HCl		8.86E-10	g/seatbelt
OUTFLOWS					
HCl					
1,2-dichloroethane	1.65E-03	g/1000g HCl		4.12E-08	g/seatbelt
1,2-dichloroethane	1.99E-07	g/1000g HCl		4.98E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.33E-19	g/1000g HCl		3.31E-24	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.12E-11	g/1000g HCl		5.30E-16	g/seatbelt
acid (as H+)	1.05E-05	g/1000g HCl		2.61E-10	g/seatbelt
acid (as H+)	1.24E-02	g/1000g HCl		3.09E-07	g/seatbelt
adsorbable organic halogen c	6.96E-06	g/1000g HCl		1.74E-10	g/seatbelt
aluminium	4.17E-05	g/1000g HCl		1.04E-09	g/seatbelt
ammonia	2.08E-03	g/1000g HCl		5.20E-08	g/seatbelt
ammonia	1.90E-02	g/1000g HCl		4.75E-07	g/seatbelt
antimony	2.25E-10	g/1000g HCl		5.63E-15	g/seatbelt
arsenic	2.48E-09	g/1000g HCl		6.19E-14	g/seatbelt
arsenic	2.53E-08	g/1000g HCl		6.34E-13	g/seatbelt
benzene	5.45E-05	g/1000g HCl		1.36E-09	g/seatbelt
benzene	4.09E-10	g/1000g HCl		1.02E-14	g/seatbelt
biological oxygen demand	2.79E-02	g/1000g HCl		6.97E-07	g/seatbelt
bromate	1.28E-04	g/1000g HCl		3.20E-09	g/seatbelt
cadmium	2.61E-08	g/1000g HCl		6.54E-13	g/seatbelt
cadmium	6.98E-10	g/1000g HCl		1.74E-14	g/seatbelt
calcium	8.45E-01	g/1000g HCl		2.11E-05	g/seatbelt
carbon dioxide	1.18E+03	g/1000g HCl		2.94E-02	g/seatbelt
carbon disulfide	2.61E-09	g/1000g HCl		6.52E-14	g/seatbelt
carbon monoxide	2.76E+00	g/1000g HCl		6.90E-05	g/seatbelt
carbonate	9.86E-02	g/1000g HCl		2.46E-06	g/seatbelt
chemical oxygen demand	2.34E-01	g/1000g HCl		5.85E-06	g/seatbelt
chlorate	1.22E-01	g/1000g HCl		3.05E-06	g/seatbelt
chloride	9.82E+01	g/1000g HCl		2.46E-03	g/seatbelt
chlorine	3.78E-01	g/1000g HCl		9.46E-06	g/seatbelt
chlorine	1.27E-03	g/1000g HCl		3.18E-08	g/seatbelt
chromium	1.21E-05	g/1000g HCl		3.03E-10	g/seatbelt
chromium	2.95E-10	g/1000g HCl		7.37E-15	g/seatbelt
copper	1.47E-08	g/1000g HCl		3.66E-13	g/seatbelt
copper	4.39E-04	g/1000g HCl		1.10E-08	g/seatbelt
cyanide	1.02E-05	g/1000g HCl		2.56E-10	g/seatbelt
decane	4.07E-04	g/1000g HCl		1.02E-08	g/seatbelt
dichloromethane	9.71E-05	g/1000g HCl		2.43E-09	g/seatbelt

ethyl benzene	3.18E-06	g/1000g HCl		7.95E-11	g/seatbelt
ethylene	8.17E-05	g/1000g HCl		2.04E-09	g/seatbelt
fluoride	8.83E-06	g/1000g HCl		2.21E-10	g/seatbelt
fluorine	3.08E-06	g/1000g HCl		7.70E-11	g/seatbelt
hydrocarbons (unspecified)	1.93E-03	g/1000g HCl		4.82E-08	g/seatbelt
hydrocyanic acid	1.02E-05	g/1000g HCl		2.56E-10	g/seatbelt
hydrogen	2.21E+00	g/1000g HCl		5.53E-05	g/seatbelt
hydrogen chloride	8.90E-02	g/1000g HCl		2.22E-06	g/seatbelt
hydrogen fluoride	2.91E-03	g/1000g HCl		7.28E-08	g/seatbelt
hydrogen sulfide	3.79E-06	g/1000g HCl		9.46E-11	g/seatbelt
iron	2.10E-02	g/1000g HCl		5.26E-07	g/seatbelt
lead	1.37E-07	g/1000g HCl		3.41E-12	g/seatbelt
lead	1.66E-05	g/1000g HCl		4.16E-10	g/seatbelt
manganese	2.64E-08	g/1000g HCl		6.60E-13	g/seatbelt
mercury	3.55E-04	g/1000g HCl		8.88E-09	g/seatbelt
mercury	7.43E-05	g/1000g HCl		1.86E-09	g/seatbelt
methane	1.16E+01	g/1000g HCl		2.90E-04	g/seatbelt
nickel	2.20E-05	g/1000g HCl		5.50E-10	g/seatbelt
nickel	1.78E-04	g/1000g HCl		4.46E-09	g/seatbelt
nitrate	1.02E-01	g/1000g HCl		2.56E-06	g/seatbelt
nitrogen	1.44E-02	g/1000g HCl		3.59E-07	g/seatbelt
nitrogen dioxide	3.31E+00	g/1000g HCl		8.28E-05	g/seatbelt
nitrous oxide	6.03E-08	g/1000g HCl		1.51E-12	g/seatbelt
non-methane volatile organic	1.09E+00	g/1000g HCl		2.73E-05	g/seatbelt
oxygen	1.30E-10	g/1000g HCl		3.25E-15	g/seatbelt
particles (> PM10)	2.08E+00	g/1000g HCl		5.21E-05	g/seatbelt
particles (PM10)	6.38E-01	g/1000g HCl		1.59E-05	g/seatbelt
particles (PM10)	1.31E-02	g/1000g HCl		3.28E-07	g/seatbelt
particles (PM2.5)	1.22E-09	g/1000g HCl		3.06E-14	g/seatbelt
phenol	3.79E-05	g/1000g HCl		9.48E-10	g/seatbelt
phosphate	2.80E-03	g/1000g HCl		7.00E-08	g/seatbelt
polycyclic aromatic hydrocarb	2.20E-05	g/1000g HCl		5.50E-10	g/seatbelt
potassium	9.67E-02	g/1000g HCl		2.42E-06	g/seatbelt
propene	6.05E-05	g/1000g HCl		1.51E-09	g/seatbelt
selenium	1.63E-12	g/1000g HCl		4.06E-17	g/seatbelt
silver	4.69E-11	g/1000g HCl		1.17E-15	g/seatbelt
sodium	7.02E+01	g/1000g HCl		1.75E-03	g/seatbelt
strontium	1.38E-06	g/1000g HCl		3.45E-11	g/seatbelt
styrene	4.50E-07	g/1000g HCl		1.13E-11	g/seatbelt
sulfate	3.91E+00	g/1000g HCl		9.79E-05	g/seatbelt
sulfur	8.27E-03	g/1000g HCl		2.07E-07	g/seatbelt
sulfur dioxide	4.75E+00	g/1000g HCl		1.19E-04	g/seatbelt
tin	2.65E-11	g/1000g HCl		6.62E-16	g/seatbelt
toluene	9.11E-06	g/1000g HCl		2.28E-10	g/seatbelt
total organic carbon	2.92E-02	g/1000g HCl		7.30E-07	g/seatbelt
vinyl chloride	9.06E-04	g/1000g HCl		2.27E-08	g/seatbelt
vinyl chloride	1.03E-08	g/1000g HCl		2.57E-13	g/seatbelt
volatile organic compound	1.07E-01	g/1000g HCl		2.68E-06	g/seatbelt
volatile organic compound	1.32E-02	g/1000g HCl		3.31E-07	g/seatbelt
xylene (all isomers)	4.21E-06	g/1000g HCl		1.05E-10	g/seatbelt

zinc	1.45E-07	g/1000g HCl		3.63E-12	g/seatbelt
zinc	1.25E-03	g/1000g HCl		3.13E-08	g/seatbelt
chemical waste	5.03E+00	g/1000g HCl		1.26E-04	g/seatbelt
chemical waste, inert	1.50E+00	g/1000g HCl		3.75E-05	g/seatbelt
chemical waste, toxic	2.82E+00	g/1000g HCl		7.05E-05	g/seatbelt
demolition waste	9.71E-03	g/1000g HCl		2.43E-07	g/seatbelt
industrial waste	1.49E+00	g/1000g HCl		3.73E-05	g/seatbelt
mineral waste	5.12E+00	g/1000g HCl		1.28E-04	g/seatbelt
municipal waste	-5.52E+00	g/1000g HCl		-1.38E-04	g/seatbelt
organic waste	8.19E-05	g/1000g HCl		2.05E-09	g/seatbelt
overburden	2.88E+01	g/1000g HCl		7.19E-04	g/seatbelt
packaging waste (metal)	8.73E-06	g/1000g HCl		2.18E-10	g/seatbelt
packaging waste (plastic)	5.87E-09	g/1000g HCl		1.47E-13	g/seatbelt
plastic	1.33E-01	g/1000g HCl		3.33E-06	g/seatbelt
tailings	1.12E-02	g/1000g HCl		2.80E-07	g/seatbelt
waste	5.65E-01	g/1000g HCl		1.41E-05	g/seatbelt
waste paper	1.11E-03	g/1000g HCl		2.78E-08	g/seatbelt
wood	8.60E-03	g/1000g HCl		2.15E-07	g/seatbelt
wooden pallet	2.87E-08	g/1000g HCl		7.17E-13	g/seatbelt
Remark:					
Data for HCl interpreted from LCI data for Hydrogen chloride gas (HCl); production mix for PVC production, at plant (ELCD database, 1999)					
3.37.6 Transportation from HCl producer to Tube manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2244	MJ/1000g of product	0.0250	0.00000561	MJ/seatbelt
OUTFLOWS					
CO2	16.3200	g/1000g of product		0.000408	g/seatbelt
NOx	0.1080	g/1000g of product		0.0000027	g/seatbelt
HC	0.0144	g/1000g of product		0.00000036	g/seatbelt
Particulate matter	0.0018	g/1000g of product		0.000000045	g/seatbelt
CO	0.0144	g/1000g of product		0.00000036	g/seatbelt
SO2	0.0041	g/1000g of product		0.000000102	g/seatbelt
Remark:					
Distance between HCl producer (Wien, Austria) and Tube manufacturer no.2 (Linz, Austria) in km		**120**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					

3.37.7 Production of lacquer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.37.8 Transportation from HCl producer to Tube manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.37 Production of tube in Tube manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INPUTS					
electricity	0.1943	MJ/1000g product	97.5000	0.018945632	MJ/seatbelt
natural gas	0.1073	MJ/1000g product		0.010462937	MJ/seatbelt
HCl	0.0260	g/1000g product		0.002532485	g/seatbelt
water	0.1466	l/1000g product		0.014295268	l/seatbelt
tube	994.8718	g/1000g product		97	g/seatbelt
laquer	5.1282	g/1000g product		0.5	g/seatbelt
OUTPUTS					
tube				97.5	g/seatbelt
carbon monoxide	0.0129	g/1000g product		0.00125964	g/seatbelt
nitrogen oxide	0.0859	g/1000g product		0.008374507	g/seatbelt
HCl	0.0516	g/1000g product		0.005032204	g/seatbelt
NaOH	0.0032	g/1000g product		0.000314298	g/seatbelt
PM 10	0.0064	g/1000g product		0.00062213	g/seatbelt
CSB	0.0429	g/1000g product		0.004183759	g/seatbelt
ammonium	0.0047	g/1000g product		0.000455853	g/seatbelt
nitrogen	0.0039	g/1000g product		0.000381972	g/seatbelt
Remark:					
Electricity data for Austria					
Total annual production					
Weight of single product					
3.38 Transportation from Tube manufacturer no.2 to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1908	MJ/1000g of product	97.5000	0.018603	MJ/seatbelt
OUTFLOWS					

CO_2	13.7800	g/1000g of product		1.34355	g/seatbelt
NO_x	0.0875	g/1000g of product		0.008526375	g/seatbelt
HC	0.0125	g/1000g of product		0.001214363	g/seatbelt
Particulate matter	0.0015	g/1000g of product		0.000147274	g/seatbelt
CO	0.0122	g/1000g of product		0.001188525	g/seatbelt
SO_2	0.0034	g/1000g of product		0.000335888	g/seatbelt
Remark:					
Distance between Tube manufacturer no.2(Linz, Austria) and ALH (Sopronkövesd, Hungary) in km		**265**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.39.1 Production of stainless steel X10CrNi18-8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g stainless ste	0.4000	6.32E-06	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g stainless steel		1.26E-05	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g stainless steel		2.85E-07	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g stainless steel		3.51E-04	MJ/seatbelt
calcium carbonate	208.11557	g/1000g stainless steel		8.32E-02	g/seatbelt
chromium (in)	15.404443	g/1000g stainless steel		6.16E-03	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g stainless steel		1.82E-03	MJ/seatbelt
dolomite	48.094091	g/1000g stainless steel		1.92E-02	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g stainless steel		6.05E-03	MJ/seatbelt
inert rock	223.40818	g/1000g stainless steel		8.94E-02	g/seatbelt
iron (in)	215.94651	g/1000g stainless steel		8.64E-02	g/seatbelt
manganese (in)	2.2067601	g/1000g stainless steel		8.83E-04	g/seatbelt
molybdenum (in)	0.0016111	g/1000g stainless steel		6.44E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g stainless steel		2.55E-03	MJ/seatbelt
nickel (in)	0.2600702	g/1000g stainless steel		1.04E-04	g/seatbelt
water	18.985568	l/1000g stainless steel		7.59E-03	l/seatbelt
OUTFLOWS					
stainless steel hot rolled coil,	1000	g		4.00E-01	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g stainless steel		8.96E-13	g/seatbelt
acid (as H+)	6.01E-02	g/1000g stainless steel		2.40E-05	g/seatbelt
aluminium	1.18E-02	g/1000g stainless steel		4.72E-06	g/seatbelt
ammonia	6.05E-02	g/1000g stainless steel		2.42E-05	g/seatbelt
cadmium	2.18E-05	g/1000g stainless steel		8.72E-09	g/seatbelt
carbon dioxide	3.38E+03	g/1000g stainless steel		1.35E+00	g/seatbelt
carbon monoxide	9.85E+00	g/1000g stainless steel		3.94E-03	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g stainless steel		1.81E-04	g/seatbelt
chloride	3.56E+00	g/1000g stainless steel		1.42E-03	g/seatbelt
chromium	1.14E-01	g/1000g stainless steel		4.55E-05	g/seatbelt
chromium	9.22E-04	g/1000g stainless steel		3.69E-07	g/seatbelt
chromium VI	5.94E-05	g/1000g stainless steel		2.38E-08	g/seatbelt

chromium VI	2.29E-04	g/1000g stainless steel		9.16E-08	g/seatbelt
copper	1.22E-04	g/1000g stainless steel		4.88E-08	g/seatbelt
fluoride	6.92E-02	g/1000g stainless steel		2.77E-05	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g stainless steel		8.72E-06	g/seatbelt
iron	1.31E-01	g/1000g stainless steel		5.25E-05	g/seatbelt
lead	5.17E-04	g/1000g stainless steel		2.07E-07	g/seatbelt
manganese	2.83E-03	g/1000g stainless steel		1.13E-06	g/seatbelt
molybdenum	6.24E-03	g/1000g stainless steel		2.50E-06	g/seatbelt
molybdenum	1.66E-03	g/1000g stainless steel		6.64E-07	g/seatbelt
nickel	2.97E-02	g/1000g stainless steel		1.19E-05	g/seatbelt
nickel	3.38E-03	g/1000g stainless steel		1.35E-06	g/seatbelt
nitrate	2.00E-01	g/1000g stainless steel		8.02E-05	g/seatbelt
nitrogen	1.02E-01	g/1000g stainless steel		4.08E-05	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g stainless steel		3.01E-03	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g stainless steel		9.39E-05	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g stainless steel		1.78E-03	g/seatbelt
phosphate	2.96E-03	g/1000g stainless steel		1.18E-06	g/seatbelt
sulfur	9.21E-01	g/1000g stainless steel		3.68E-04	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g stainless steel		4.95E-03	g/seatbelt
tin	1.61E-04	g/1000g stainless steel		6.44E-08	g/seatbelt
zinc	1.11E-03	g/1000g stainless steel		4.44E-07	g/seatbelt
waste from steel production	2.43E+02	g/1000g stainless steel		9.71E-02	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g stainless steel		5.20E-01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.39.2 Transportation South Korea to Metal parts producer no.2 (truck)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4464	MJ/1000g of product	0.4000	0.00017856	MJ/seatbelt
OUTFLOWS					
CO_2	32.2400	g/1000g of product		0.012896	g/seatbelt
NO_x	0.2046	g/1000g of product		0.00008184	g/seatbelt
HC	0.0291	g/1000g of product		0.000011656	g/seatbelt
Particulate matter	0.0035	g/1000g of product		1.4136E-06	g/seatbelt
CO	0.0285	g/1000g of product		0.000011408	g/seatbelt
SO_2	0.0081	g/1000g of product		0.000003224	g/seatbelt
Remark:					
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Distance between plant (Seul, South Korea) and Metal parts producer no.2 (Weinstadt-Beutelsbach, Germany)					
		8000	airplane		
Data estimated from Google Map		**620**	truck		

3.39.2 Transportation South Korea to Metal parts producer no.2 (airplane)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (MJ/tkm)					
Energy	360.0000	MJ/1000g of product	0.4000	0.144	MJ/seatbelt
OUTFLOWS					
Emissions (g/tkm)					
CO2	25232.0000	g/1000g of product		10.0928	g/seatbelt
NO2	128.0000	g/1000g of product		0.0512	g/seatbelt
PM 2.5	1.6000	g/1000g of product		0.00064	g/seatbelt
CO	8.1600	g/1000g of product		0.003264	g/seatbelt
SO2	0.4000	g/1000g of product		0.00016	g/seatbelt
methane	0.0227	g/1000g of product		9.0752E-06	g/seatbelt
N2O	8.0000	g/1000g of product		0.0032	g/seatbelt
3.39 Production of spring, compression	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	22.3784	MJ/1000g product	0.3700	0.00828	MJ/seatbelt
stainless steal	1081.0811	g/1000g product		0.4	g/seatbelt
OUTFLOWS					
spring, compression				0.3700	g/seatbelt
Remark:					
Electricity data for Germany					
3.41.1 Production of alloy AlCu4MgSi	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	1.6500	2.61E-05	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		5.18E-05	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		1.17E-06	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		1.45E-03	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		3.43E-01	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		2.54E-02	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		7.51E-03	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		7.94E-02	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		2.50E-02	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		3.69E-01	g/seatbelt
iron (in)	215.94651	g/1000g alloy		3.56E-01	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		3.64E-03	g/seatbelt

molybdenum (in)	0.0016111	g/1000g alloy		2.66E-06	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		1.05E-02	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		4.29E-04	g/seatbelt
water	18.985568	l/1000g alloy		3.13E-02	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		1.65E+00	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		3.70E-12	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		9.92E-05	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		1.95E-05	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		9.98E-05	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		3.60E-08	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		5.58E+00	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		1.63E-02	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		7.45E-04	g/seatbelt
chloride	3.56E+00	g/1000g alloy		5.87E-03	g/seatbelt
chromium	1.14E-01	g/1000g alloy		1.88E-04	g/seatbelt
chromium	9.22E-04	g/1000g alloy		1.52E-06	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		9.80E-08	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		3.78E-07	g/seatbelt
copper	1.22E-04	g/1000g alloy		2.01E-07	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		1.14E-04	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		3.60E-05	g/seatbelt
iron	1.31E-01	g/1000g alloy		2.17E-04	g/seatbelt
lead	5.17E-04	g/1000g alloy		8.53E-07	g/seatbelt
manganese	2.83E-03	g/1000g alloy		4.67E-06	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		1.03E-05	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		2.74E-06	g/seatbelt
nickel	2.97E-02	g/1000g alloy		4.90E-05	g/seatbelt
nickel	3.38E-03	g/1000g alloy		5.58E-06	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		3.31E-04	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		1.68E-04	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		1.24E-02	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		3.87E-04	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		7.33E-03	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		4.88E-06	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		1.52E-03	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		2.04E-02	g/seatbelt
tin	1.61E-04	g/1000g alloy		2.66E-07	g/seatbelt
zinc	1.11E-03	g/1000g alloy		1.83E-06	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		4.01E-01	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		2.14E+00	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.41.2 Transportation from USA and France to Metal parts producer no.3 (ship)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.

INFLOWS					
Energy (fuel)	950.4000	MJ/1000g of product	1.6500	1.56816	MJ/seatbelt
OUTFLOWS					
CO2	67760.0000	g/1000g of product		111.804	g/seatbelt
NOx	1887.6000	g/1000g of product		3.11454	g/seatbelt
HC	88.0000	g/1000g of product		0.1452	g/seatbelt
Particulate matter	89.7600	g/1000g of product		0.148104	g/seatbelt
CO	38.2800	g/1000g of product		0.063162	g/seatbelt
SO2	1152.8000	g/1000g of product		1.90212	g/seatbelt
Remark					
Distance from USA to Metal parts producer no.3 (data given by supplier) in km	7000.0000	**4,400.00**			
Distance from France to Metal parts producer no.3 (data given by supplier) in km	1800.0000				
Data for large ship					
3.41.4 Transportation from plant in France to Metal parts producer no.3	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	324.0000	MJ/1000g of product	1.6500	0.5346	MJ/seatbelt
OUTFLOWS					
CO2	23100.0000	g/1000g of product		38.115	g/seatbelt
NOx	643.5000	g/1000g of product		1.061775	g/seatbelt
HC	30.0000	g/1000g of product		0.0495	g/seatbelt
Particulate matter	30.6000	g/1000g of product		0.05049	g/seatbelt
CO	13.0500	g/1000g of product		0.0215325	g/seatbelt
SO2	393.0000	g/1000g of product		0.64845	g/seatbelt
Remark					
Distance from plant in France to Metal parts producer no.3 (data given by supplier) in km		1500.0000			
Data for large ship					
3.41 Production of ball, car sense in Metal parts producer no.4 and Metal parts producer no.3	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INPUTS					

oil	0.0021	l/1000g product	19.8000	0.000042	l/seatbelt
electricity	0.0350	MJ/1000g product		0.000692308	MJ/seatbelt
alloy	1000.0000	g/1000g product		19.8	g/seatbelt
OUTPUTS					
ball, car sense					
alu sludge	242.4242	g/1000g product		4.8	g/seatbelt
waste oil	0.0048	g/1000g product		0.000096	g/seatbelt
waste water	18.7879	g/1000g product		0.372	g/seatbelt
Remark					
Value of 1 product					
Value of total production					
No. In seatbelt					
Remark:					
Electricity data for Tunisia					
3.42 Transportation from Metal parts producer no.3 and Metal parts producer no.4 to ALH (truck)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	1.1455	MJ/1000g of product	1.6500	0.001890108	MJ/seatbelt
OUTFLOWS					
CO2	82.7320	g/1000g of product		0.1365078	g/seatbelt
NOx	0.5250	g/1000g of product		0.0008663	g/seatbelt
HC	0.0748	g/1000g of product		0.000123382	g/seatbelt
Particulate matter	0.0091	g/1000g of product		1.49634E-05	g/seatbelt
CO	0.0732	g/1000g of product		0.000120757	g/seatbelt
SO2	0.0207	g/1000g of product		3.4127E-05	g/seatbelt
Remark:					
Distance between Metal parts producer no.4 (Fulda, Germany) and ALH (Sopronkövesd, Hungary) in km		**782**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Distance between Metal parts producer no.3 (Bouficha, Tunisia) and ALH (Sopronkövesd, Hungary) in km					
		1000	ship		
		2400	truck		
3.42 Transportation from Metal parts producer no.3 to ALH (ship)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1080	MJ/1000g of product	1.6500	0.0001782	MJ/seatbelt

OUTFLOWS					
CO2	7.7000	g/1000g of product		0.012705	g/seatbelt
NOx	0.2145	g/1000g of product		0.000353925	g/seatbelt
HC	0.0100	g/1000g of product		0.0000165	g/seatbelt
Particulate matter	0.0102	g/1000g of product		0.00001683	g/seatbelt
CO	0.0044	g/1000g of product		7.1775E-06	g/seatbelt
SO2	0.1310	g/1000g of product		0.00021615	g/seatbelt
3.43.1 Production of elastomer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Coal	5.60E+00	MJ/1000g elastomer	0.8400	4.70E-03	MJ/seatbelt
Crude oil	2.10E+01	MJ/1000g elastomer		1.76E-02	MJ/seatbelt
Electricity	5.00E+00	MJ/1000g elastomer		4.20E-03	MJ/seatbelt
OUTFLOWS					
elastomer					
CO	0.2081156	g/1000g elastomer		1.75E-04	g/seatbelt
CO2	0.0154044	g/1000g elastomer		1.29E-05	g/seatbelt
COD	4.5500839	g/1000g elastomer		3.82E-03	g/seatbelt
methane	0.0480941	g/1000g elastomer		4.04E-05	g/seatbelt
N total	15.128484	g/1000g elastomer		1.27E-02	g/seatbelt
N2O	0.2234082	g/1000g elastomer		1.88E-04	g/seatbelt
NMVOC	0.2159465	g/1000g elastomer		1.81E-04	g/seatbelt
NOx	0.0022068	g/1000g elastomer		1.85E-06	g/seatbelt
PAH	1.611E-06	g/1000g elastomer		1.35E-09	g/seatbelt
Particles	6.3815832	g/1000g elastomer		5.36E-03	g/seatbelt
SO2	0.0002601	g/1000g elastomer		2.18E-07	g/seatbelt
Remark					
Electricity data for Germany					
Data adapted from production of EPDM (CPM, 2001)					
3.43.2 Transportation to Plastic parts producer no.3	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.43 Production of piston	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
elastomer	1000.0000	g/1000g product	0.8400	0.8400	g/seatbelt

OUTFLOWS					
piston				0.8400	g/seatbelt
Lack of data					
3.44 Transportation from Plastic parts producer no.3 to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5782	MJ/1000g of product	0.8400	0.4856544	MJ/seatbelt
OUTFLOWS					
CO2	41.7560	g/1000g of product		35.07504	g/seatbelt
NOx	0.2650	g/1000g of product		0.2225916	g/seatbelt
HC	0.0377	g/1000g of product		0.03170244	g/seatbelt
Particulate matter	0.0046	g/1000g of product		0.003844764	g/seatbelt
CO	0.0369	g/1000g of product		0.03102792	g/seatbelt
SO2	0.0104	g/1000g of product		0.00876876	g/seatbelt
Remark:					
Distance between Plastic parts producer no.3 (Baden, Germany) and ALH (Sopronkövesd, Hungary) in km		**803**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.45.1 Production of stainless steel X10CrNi18-8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g stainless ste	0.2800	4.42E-06	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g stainless steel		8.79E-06	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g stainless steel		1.99E-07	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g stainless steel		2.46E-04	MJ/seatbelt
calcium carbonate	208.11557	g/1000g stainless steel		5.83E-02	g/seatbelt
chromium (in)	15.404443	g/1000g stainless steel		4.31E-03	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g stainless steel		1.27E-03	MJ/seatbelt
dolomite	48.094091	g/1000g stainless steel		1.35E-02	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g stainless steel		4.24E-03	MJ/seatbelt
inert rock	223.40818	g/1000g stainless steel		6.26E-02	g/seatbelt
iron (in)	215.94651	g/1000g stainless steel		6.05E-02	g/seatbelt
manganese (in)	2.2067601	g/1000g stainless steel		6.18E-04	g/seatbelt
molybdenum (in)	0.0016111	g/1000g stainless steel		4.51E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g stainless steel		1.79E-03	MJ/seatbelt
nickel (in)	0.2600702	g/1000g stainless steel		7.28E-05	g/seatbelt
water	18.985568	l/1000g stainless steel		5.32E-03	l/seatbelt
OUTFLOWS				0.00E+00	

stainless steel hot rolled coil,	1000	g		2.80E-01	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g stainless steel		6.27E-13	g/seatbelt
acid (as H+)	6.01E-02	g/1000g stainless steel		1.68E-05	g/seatbelt
aluminium	1.18E-02	g/1000g stainless steel		3.30E-06	g/seatbelt
ammonia	6.05E-02	g/1000g stainless steel		1.69E-05	g/seatbelt
cadmium	2.18E-05	g/1000g stainless steel		6.10E-09	g/seatbelt
carbon dioxide	3.38E+03	g/1000g stainless steel		9.46E-01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g stainless steel		2.76E-03	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g stainless steel		1.26E-04	g/seatbelt
chloride	3.56E+00	g/1000g stainless steel		9.96E-04	g/seatbelt
chromium	1.14E-01	g/1000g stainless steel		3.18E-05	g/seatbelt
chromium	9.22E-04	g/1000g stainless steel		2.58E-07	g/seatbelt
chromium VI	5.94E-05	g/1000g stainless steel		1.66E-08	g/seatbelt
chromium VI	2.29E-04	g/1000g stainless steel		6.41E-08	g/seatbelt
copper	1.22E-04	g/1000g stainless steel		3.42E-08	g/seatbelt
fluoride	6.92E-02	g/1000g stainless steel		1.94E-05	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g stainless steel		6.10E-06	g/seatbelt
iron	1.31E-01	g/1000g stainless steel		3.68E-05	g/seatbelt
lead	5.17E-04	g/1000g stainless steel		1.45E-07	g/seatbelt
manganese	2.83E-03	g/1000g stainless steel		7.92E-07	g/seatbelt
molybdenum	6.24E-03	g/1000g stainless steel		1.75E-06	g/seatbelt
molybdenum	1.66E-03	g/1000g stainless steel		4.65E-07	g/seatbelt
nickel	2.97E-02	g/1000g stainless steel		8.32E-06	g/seatbelt
nickel	3.38E-03	g/1000g stainless steel		9.46E-07	g/seatbelt
nitrate	2.00E-01	g/1000g stainless steel		5.61E-05	g/seatbelt
nitrogen	1.02E-01	g/1000g stainless steel		2.86E-05	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g stainless steel		2.11E-03	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g stainless steel		6.57E-05	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g stainless steel		1.24E-03	g/seatbelt
phosphate	2.96E-03	g/1000g stainless steel		8.28E-07	g/seatbelt
sulfur	9.21E-01	g/1000g stainless steel		2.58E-04	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g stainless steel		3.47E-03	g/seatbelt
tin	1.61E-04	g/1000g stainless steel		4.51E-08	g/seatbelt
zinc	1.11E-03	g/1000g stainless steel		3.11E-07	g/seatbelt
waste from steel production	2.43E+02	g/1000g stainless steel		6.80E-02	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g stainless steel		3.64E-01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.45.2 Transportation to Metal parts manufacturer no.8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.45 Production of spring, leaf, anti retour	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	22.3784	MJ/1000g product	0.2800	6.27E-03	MJ/seatbelt
stainless steel	1052.6429	g/1000g product		2.95E-01	g/seatbelt
OUTFLOWS					
spring, leaf, anti retour	1000.0000			2.80E-01	g/seatbelt
Remark					
Electricity data for Germany					
Data adapted from production of spring compression by Metal parts producer no.2					
3.46 Transportation from Metal parts manufacturer no.8 to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5393	MJ/1000g of product	0.2800	0.000150998	MJ/seatbelt
OUTFLOWS					
CO2	38.9480	g/1000g of product		0.01090544	g/seatbelt
NOx	0.2472	g/1000g of product		6.92076E-05	g/seatbelt
HC	0.0352	g/1000g of product		9.85684E-06	g/seatbelt
Particulate matter	0.0043	g/1000g of product		1.1954E-06	g/seatbelt
CO	0.0345	g/1000g of product		9.64712E-06	g/seatbelt
SO2	0.0097	g/1000g of product		2.72636E-06	g/seatbelt
Remark:					
Distance between Metal parts producer no.2 (Baden, Germany) and ALH (Sopronkövesd, Hungary) in km		**749**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.1 Production of alloy AlCu4MgSi	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	3.1190	4.93E-05	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		9.79E-05	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		2.22E-06	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		2.74E-03	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		6.49E-01	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		4.80E-02	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		1.42E-02	MJ/seatbelt

dolomite	48.094091	g/1000g alloy		1.50E-01	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		4.72E-02	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		6.97E-01	g/seatbelt
iron (in)	215.94651	g/1000g alloy		6.74E-01	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		6.88E-03	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		5.02E-06	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		1.99E-02	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		8.11E-04	g/seatbelt
water	18.985568	l/1000g alloy		5.92E-02	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		3.12E+00	g
2,3,7,8-tetrachlorodibenzo-p	2.24E-09	g/1000g alloy		6.99E-12	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		1.87E-04	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		3.68E-05	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		1.89E-04	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		6.80E-08	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		1.05E+01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		3.07E-02	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		1.41E-03	g/seatbelt
chloride	3.56E+00	g/1000g alloy		1.11E-02	g/seatbelt
chromium	1.14E-01	g/1000g alloy		3.54E-04	g/seatbelt
chromium	9.22E-04	g/1000g alloy		2.88E-06	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		1.85E-07	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		7.14E-07	g/seatbelt
copper	1.22E-04	g/1000g alloy		3.81E-07	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		2.16E-04	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		6.80E-05	g/seatbelt
iron	1.31E-01	g/1000g alloy		4.10E-04	g/seatbelt
lead	5.17E-04	g/1000g alloy		1.61E-06	g/seatbelt
manganese	2.83E-03	g/1000g alloy		8.83E-06	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		1.95E-05	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		5.18E-06	g/seatbelt
nickel	2.97E-02	g/1000g alloy		9.26E-05	g/seatbelt
nickel	3.38E-03	g/1000g alloy		1.05E-05	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		6.25E-04	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		3.19E-04	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		2.35E-02	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		7.32E-04	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		1.39E-02	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		9.22E-06	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		2.87E-03	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		3.86E-02	g/seatbelt
tin	1.61E-04	g/1000g alloy		5.02E-07	g/seatbelt
zinc	1.11E-03	g/1000g alloy		3.46E-06	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		7.57E-01	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		4.05E+00	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					

3.47.2 Transportation	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6120	MJ/1000g of product	3.1190	0.001908828	MJ/seatbelt
OUTFLOWS					
CO2	44.2000	g/1000g of product		0.1378598	g/seatbelt
NOx	0.2805	g/1000g of product		0.00087488	g/seatbelt
HC	0.0400	g/1000g of product		0.000124604	g/seatbelt
Particulate matter	0.0048	g/1000g of product		1.51116E-05	g/seatbelt
CO	0.0391	g/1000g of product		0.000121953	g/seatbelt
SO2	0.0111	g/1000g of product		3.4465E-05	g/seatbelt
Remark:					
Distance between Metal producer no.6 (Paris, France) and Metal parts manufacturer no.5 (Marignier, France) in km		**850**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.3 Production of holder	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
alloy	1000.0000	g/1000g product	3.1190	3.119	g/seatbelt
oil	0.1308	MJ/1000g product		0.000408014	MJ/seatbelt
gas	0.0845	MJ/1000g product		0.000263564	MJ/seatbelt
electricity	3.3748	MJ/1000g product		0.010525881	MJ/seatbelt
OUTFLOWS					
holder				3.1190	g/seatbelt
chromium	0.0044	g/1000g product		1.38673E-05	g/seatbelt
cobalt	0.0044	g/1000g product		1.38673E-05	g/seatbelt
cyanide	0.0002	g/1000g product		6.38368E-07	g/seatbelt
nickel	0.0044	g/1000g product		1.38673E-05	g/seatbelt
zinc	0.0044	g/1000g product		1.38673E-05	g/seatbelt
used oil	0.0035	g/1000g product		1.0829E-05	g/seatbelt
Remark					
Electricity data for France					
Data adapted from production of frame pretensioner by STA					

3.47.4 Transportation from Metal parts manufacturer no.5 to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4320	MJ/1000g of product	3.1190	0.001347408	MJ/seatbelt
OUTFLOWS					
CO2	31.2000	g/1000g of product		0.0973128	g/seatbelt
NOx	0.1980	g/1000g of product		0.000617562	g/seatbelt
HC	0.0282	g/1000g of product		8.79558E-05	g/seatbelt
Particulate matter	0.0034	g/1000g of product		1.0667E-05	g/seatbelt
CO	0.0276	g/1000g of product		8.60844E-05	g/seatbelt
SO2	0.0078	g/1000g of product		2.43282E-05	g/seatbelt
Remark:					
Distance between Metal parts manufacturer no.5 (Paris, France) and NCS (Survilliers, France) in km		**600**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.5 Production of Production of Ep-Fe/Au	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g Fe/Au	0.0001	1.79E-09	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g Fe/Au		3.55E-09	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g Fe/Au		8.04E-11	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g Fe/Au		9.92E-08	MJ/seatbelt
calcium carbonate	208.11557	g/1000g Fe/Au		2.35E-05	g/seatbelt
chromium (in)	15.404443	g/1000g Fe/Au		1.74E-06	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g Fe/Au		5.14E-07	MJ/seatbelt
dolomite	48.094091	g/1000g Fe/Au		5.43E-06	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g Fe/Au		1.71E-06	MJ/seatbelt
inert rock	223.40818	g/1000g Fe/Au		2.52E-05	g/seatbelt
iron (in)	215.94651	g/1000g Fe/Au		2.44E-05	g/seatbelt
manganese (in)	2.2067601	g/1000g Fe/Au		2.49E-07	g/seatbelt
molybdenum (in)	0.0016111	g/1000g Fe/Au		1.82E-10	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g Fe/Au		7.21E-07	MJ/seatbelt
nickel (in)	0.2600702	g/1000g Fe/Au		2.94E-08	g/seatbelt
water	18.985568	l/1000g Fe/Au		2.15E-06	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		1.13E-04	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g Fe/Au		2.53E-16	g/seatbelt
acid (as H+)	6.01E-02	g/1000g Fe/Au		6.79E-09	g/seatbelt
aluminium	1.18E-02	g/1000g Fe/Au		1.33E-09	g/seatbelt

ammonia	6.05E-02	g/1000g Fe/Au		6.84E-09	g/seatbelt
cadmium	2.18E-05	g/1000g Fe/Au		2.46E-12	g/seatbelt
carbon dioxide	3.38E+03	g/1000g Fe/Au		3.82E-04	g/seatbelt
carbon monoxide	9.85E+00	g/1000g Fe/Au		1.11E-06	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g Fe/Au		5.10E-08	g/seatbelt
chloride	3.56E+00	g/1000g Fe/Au		4.02E-07	g/seatbelt
chromium	1.14E-01	g/1000g Fe/Au		1.28E-08	g/seatbelt
chromium	9.22E-04	g/1000g Fe/Au		1.04E-10	g/seatbelt
chromium VI	5.94E-05	g/1000g Fe/Au		6.71E-12	g/seatbelt
chromium VI	2.29E-04	g/1000g Fe/Au		2.59E-11	g/seatbelt
copper	1.22E-04	g/1000g Fe/Au		1.38E-11	g/seatbelt
fluoride	6.92E-02	g/1000g Fe/Au		7.82E-09	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g Fe/Au		2.46E-09	g/seatbelt
iron	1.31E-01	g/1000g Fe/Au		1.48E-08	g/seatbelt
lead	5.17E-04	g/1000g Fe/Au		5.84E-11	g/seatbelt
manganese	2.83E-03	g/1000g Fe/Au		3.20E-10	g/seatbelt
molybdenum	6.24E-03	g/1000g Fe/Au		7.05E-10	g/seatbelt
molybdenum	1.66E-03	g/1000g Fe/Au		1.88E-10	g/seatbelt
nickel	2.97E-02	g/1000g Fe/Au		3.36E-09	g/seatbelt
nickel	3.38E-03	g/1000g Fe/Au		3.82E-10	g/seatbelt
nitrate	2.00E-01	g/1000g Fe/Au		2.27E-08	g/seatbelt
nitrogen	1.02E-01	g/1000g Fe/Au		1.15E-08	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g Fe/Au		8.50E-07	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g Fe/Au		2.65E-08	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g Fe/Au		5.02E-07	g/seatbelt
phosphate	2.96E-03	g/1000g Fe/Au		3.34E-10	g/seatbelt
sulfur	9.21E-01	g/1000g Fe/Au		1.04E-07	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g Fe/Au		1.40E-06	g/seatbelt
tin	1.61E-04	g/1000g Fe/Au		1.82E-11	g/seatbelt
zinc	1.11E-03	g/1000g Fe/Au		1.25E-10	g/seatbelt
waste from steel production	2.43E+02	g/1000g Fe/Au		2.74E-05	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g Fe/Au		1.47E-04	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.47.6 Transportation to Shunt-ring manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.7 Production of Ep-Fe/Ni	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
alloy scrap (316, from externa	1.58E-02	g/seatbelt	0.0042	6.64E-08	g/seatbelt

alloy scrap (430, from externa	3.14E-02	g/seatbelt		1.32E-07	g/seatbelt
steel scrap	7.12E-04	g/seatbelt		2.99E-09	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/seatbelt		3.69E-06	MJ/seatbelt
calcium carbonate	208.11557	g/seatbelt		8.75E-04	g/seatbelt
chromium	15.404443	g/seatbelt		6.47E-05	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/seatbelt		1.91E-05	MJ/seatbelt
dolomite	48.094091	g/seatbelt		2.02E-04	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/seatbelt		6.36E-05	MJ/seatbelt
inert rock	223.40818	g/seatbelt		9.39E-04	g/seatbelt
iron	215.94651	g/seatbelt		9.08E-04	g/seatbelt
manganese	2.2067601	g/seatbelt		9.28E-06	g/seatbelt
molybdenum	0.0016111	g/seatbelt		6.77E-09	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/seatbelt		2.68E-05	MJ/seatbelt
nickel	0.2600702	g/seatbelt		1.09E-06	g/seatbelt
water	18.985568	l/seatbelt		7.98E-05	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		4.20E-03	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/seatbelt		9.41E-15	g/seatbelt
acid (as H+)	6.01E-02	g/seatbelt		2.53E-07	g/seatbelt
aluminium	1.18E-02	g/seatbelt		4.96E-08	g/seatbelt
ammonia	6.05E-02	g/seatbelt		2.54E-07	g/seatbelt
cadmium	2.18E-05	g/seatbelt		9.16E-11	g/seatbelt
carbon dioxide	3.38E+03	g/seatbelt		1.42E-02	g/seatbelt
carbon monoxide	9.85E+00	g/seatbelt		4.14E-05	g/seatbelt
chemical oxygen demand	4.51E-01	g/seatbelt		1.90E-06	g/seatbelt
chloride	3.56E+00	g/seatbelt		1.49E-05	g/seatbelt
chromium	1.14E-01	g/seatbelt		4.78E-07	g/seatbelt
chromium	9.22E-04	g/seatbelt		3.88E-09	g/seatbelt
chromium VI	5.94E-05	g/seatbelt		2.50E-10	g/seatbelt
chromium VI	2.29E-04	g/seatbelt		9.62E-10	g/seatbelt
copper	1.22E-04	g/seatbelt		5.13E-10	g/seatbelt
fluoride	6.92E-02	g/seatbelt		2.91E-07	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/seatbelt		9.16E-08	g/seatbelt
iron	1.31E-01	g/seatbelt		5.52E-07	g/seatbelt
lead	5.17E-04	g/seatbelt		2.17E-09	g/seatbelt
manganese	2.83E-03	g/seatbelt		1.19E-08	g/seatbelt
molybdenum	6.24E-03	g/seatbelt		2.62E-08	g/seatbelt
molybdenum	1.66E-03	g/seatbelt		6.98E-09	g/seatbelt
nickel	2.97E-02	g/seatbelt		1.25E-07	g/seatbelt
nickel	3.38E-03	g/seatbelt		1.42E-08	g/seatbelt
nitrate	2.00E-01	g/seatbelt		8.43E-07	g/seatbelt
nitrogen	1.02E-01	g/seatbelt		4.29E-07	g/seatbelt
nitrogen dioxide	7.52E+00	g/seatbelt		3.16E-05	g/seatbelt
particles (> PM10)	2.35E-01	g/seatbelt		9.87E-07	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/seatbelt		1.87E-05	g/seatbelt
phosphate	2.96E-03	g/seatbelt		1.24E-08	g/seatbelt
sulfur	9.21E-01	g/seatbelt		3.87E-06	g/seatbelt
sulfur dioxide	1.24E+01	g/seatbelt		5.21E-05	g/seatbelt
tin	1.61E-04	g/seatbelt		6.77E-10	g/seatbelt
zinc	1.11E-03	g/seatbelt		4.67E-09	g/seatbelt

waste from steel production	2.43E+02	g/seatbelt		1.02E-03	g/seatbelt
waste (unspecified)	1.30E+03	g/seatbelt		5.46E-03	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.47.8 Transportation to Shunt-ring manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.9 Production of steel CuBe2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	0.0600	3.03E-03	g/seatbelt
Chemicals	4.99	g/1000g steel		2.99E-04	g/seatbelt
Coal	0.223	MJ/1000g steel		1.34E-05	MJ/seatbelt
Coal	517	g/1000g steel		1.33E-03	MJ/seatbelt
Diesel	0.195	MJ/1000g steel		1.17E-05	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		1.97E-04	MJ/seatbelt
Explosives	1.02	g/1000g steel		6.12E-05	g/seatbelt
Gas	4.81	MJ/1000g steel		2.89E-04	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		1.73E-04	MJ/seatbelt
Iron ore	2170	g/1000g steel		1.30E-01	g/seatbelt
Limestone	162	g/1000g steel		9.72E-03	g/seatbelt
Oil	0.00106	MJ/1000g steel		6.36E-08	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		3.13E-03	g/seatbelt
OUTFLOWS				0.00E+00	
ammonia	0.000517	g/1000g steel		3.10E-08	g/seatbelt
arsenic	2.08E-06	g/1000g steel		1.25E-10	g/seatbelt
cadmium	0.0000118	g/1000g steel		7.08E-10	g/seatbelt
cadmium	4.46E-08	g/1000g steel		2.68E-12	g/seatbelt
CH4	4.04	g/1000g steel		2.42E-04	g/seatbelt
carbon dioxide	1180	g/1000g steel		7.08E-02	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		1.54E-06	g/seatbelt
chromium	0.00036	g/1000g steel		2.16E-08	g/seatbelt
chromium	0.0000488	g/1000g steel		2.93E-09	g/seatbelt
cobalt	0.0000072	g/1000g steel		4.32E-10	g/seatbelt
cobalt	3.21E-06	g/1000g steel		1.93E-10	g/seatbelt
copper	0.000175	g/1000g steel		1.05E-08	g/seatbelt
copper	0.000101	g/1000g steel		6.06E-09	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		2.51E-06	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		3.37E-06	g/seatbelt
lead	0.000529	g/1000g steel		3.17E-08	g/seatbelt
lead	0.000402	g/1000g steel		2.41E-08	g/seatbelt

mercury	0.0000344	g/1000g steel		2.06E-09	g/seatbelt
nickel	0.0004	g/1000g steel		2.40E-08	g/seatbelt
nickel	0.0000815	g/1000g steel		4.89E-09	g/seatbelt
nitrogen	0.0318	g/1000g steel		1.91E-06	g/seatbelt
nitrous oxide	1.49	g/1000g steel		8.94E-05	g/seatbelt
Phosphorus	0.000372	g/1000g steel		2.23E-08	g/seatbelt
polycyclic aromatic hydrocarb	0.000147	g/1000g steel		8.82E-09	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		9.12E-05	g/seatbelt
zinc	0.00368	g/1000g steel		2.21E-07	g/seatbelt
zinc	0.000997	g/1000g steel		5.98E-08	g/seatbelt
Hazardous waste	1.62	g/1000g steel		9.72E-05	g/seatbelt
Industrial waste	96.4	g/1000g steel		5.78E-03	g/seatbelt
mineral waste	1100	g/1000g steel		6.60E-02	g/seatbelt
Remark:					
Electricity data for Germany					
Data adapted from ore based steel production (CPM, 1996)					
3.47.10 Transportation to Shunt-ring manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.11 Production of PBT-GF10	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	3.59E-08	g/1000g PBT-GF10	0.3900	1.40E-11	g/seatbelt
energy (recovered)	-1.72E+04	g/1000g PBT-GF10		-6.70E+00	g/seatbelt
hydrogen; gaseous	1.48E-01	g/1000g PBT-GF10		5.75E-05	g/seatbelt
waste	7.66E+00	g/1000g PBT-GF10		2.99E-03	g/seatbelt
air	-1.51E+02	g/1000g PBT-GF10		-5.90E-02	g/seatbelt
baryte	7.02E-02	g/1000g PBT-GF10		2.74E-05	g/seatbelt
bauxite	5.15E-01	g/1000g PBT-GF10		2.01E-04	g/seatbelt
bentonite	4.14E-02	g/1000g PBT-GF10		1.61E-05	g/seatbelt
biomass; 14.7 MJ/kg	1.05E-01	MJ/1000g PBT-GF10		4.11E-05	MJ/seatbelt
brown coal; 11.9 MJ/kg	6.72E-05	MJ/1000g PBT-GF10		2.62E-08	MJ/seatbelt
calcium carbonate (in)	6.76E+00	g/1000g PBT-GF10		2.64E-03	g/seatbelt
chromium (in)	1.45E-07	g/1000g PBT-GF10		5.65E-11	g/seatbelt
clay	8.01E-06	g/1000g PBT-GF10		3.12E-09	g/seatbelt
copper (in)	1.11E-03	g/1000g PBT-GF10		4.34E-07	g/seatbelt
crude oil; 42.3 MJ/kg	4.87E+01	MJ/1000g PBT-GF10		1.90E-02	MJ/seatbelt
dolomite	7.39E-03	g/1000g PBT-GF10		2.88E-06	g/seatbelt
feldspar	7.18E-12	g/1000g PBT-GF10		2.80E-15	g/seatbelt
fluorspar	1.17E-02	g/1000g PBT-GF10		4.55E-06	g/seatbelt
granite	3.53E-11	g/1000g PBT-GF10		1.38E-14	g/seatbelt
ground water	1.95E-01	l/1000g PBT-GF10		7.61E-05	l/seatbelt

gypsum	4.09E-03	g/1000g PBT-GF10		1.60E-06	g/seatbelt
hard coal; 26.3 MJ/kg	8.00E+00	MJ/1000g PBT-GF10		3.12E-03	MJ/seatbelt
inert rock	3.84E-05	g/1000g PBT-GF10		1.50E-08	g/seatbelt
iron (in)	6.04E-01	g/1000g PBT-GF10		2.36E-04	g/seatbelt
lead (in)	3.63E-03	g/1000g PBT-GF10		1.42E-06	g/seatbelt
magnesium (in)	2.60E-13	g/1000g PBT-GF10		1.01E-16	g/seatbelt
manganese (in)	4.56E-04	g/1000g PBT-GF10		1.78E-07	g/seatbelt
mercury (in)	3.47E-05	g/1000g PBT-GF10		1.35E-08	g/seatbelt
natural aggregate	2.23E-03	g/1000g PBT-GF10		8.70E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.00E+01	MJ/1000g PBT-GF10		2.34E-02	MJ/seatbelt
nickel	1.32E-07	g/1000g PBT-GF10		5.14E-11	g/seatbelt
nitrogen (in)	1.09E+02	g/1000g PBT-GF10		4.25E-02	g/seatbelt
olivine	5.67E-03	g/1000g PBT-GF10		2.21E-06	g/seatbelt
oxygen	1.31E+02	g/1000g PBT-GF10		5.11E-02	g/seatbelt
peat; 8.4 MJ/kg	1.18E-03	MJ/1000g PBT-GF10		4.59E-07	MJ/seatbelt
phosphorus (in)	8.42E-01	g/1000g PBT-GF10		3.28E-04	g/seatbelt
potassium chloride	3.64E-03	g/1000g PBT-GF10		1.42E-06	g/seatbelt
primary energy from geother	1.69E-02	MJ/1000g PBT-GF10		6.57E-06	MJ/seatbelt
primary energy from hydro p	4.80E-01	MJ/1000g PBT-GF10		1.87E-04	MJ/seatbelt
primary energy from solar en	7.23E-04	MJ/1000g PBT-GF10		2.82E-07	MJ/seatbelt
primary energy from waves	9.37E-04	MJ/1000g PBT-GF10		3.65E-07	MJ/seatbelt
primary energy from wind po	4.61E-02	MJ/1000g PBT-GF10		1.80E-05	MJ/seatbelt
quartz sand	1.10E-20	g/1000g PBT-GF10		4.30E-24	g/seatbelt
river water	1.37E+04	g/1000g PBT-GF10		5.35E+00	g/seatbelt
sand	3.32E+00	g/1000g PBT-GF10		1.30E-03	g/seatbelt
sea water	4.91E+00	1l/1000g PBT-GF10		1.92E-03	1l/seatbelt
slate	1.16E-02	g/1000g PBT-GF10		4.52E-06	g/seatbelt
sodium chloride	3.20E+01	g/1000g PBT-GF10		1.25E-02	g/seatbelt
sodium nitrate	7.80E-13	g/1000g PBT-GF10		3.04E-16	g/seatbelt
sulfur (in)	4.28E+01	g/1000g PBT-GF10		1.67E-02	g/seatbelt
talc	9.96E-24	g/1000g PBT-GF10		3.88E-27	g/seatbelt
titanium	6.91E-30	g/1000g PBT-GF10		2.70E-33	g/seatbelt
uranium	5.18E+03	g/1000g PBT-GF10		2.02E+00	g/seatbelt
water	5.53E+01	1l/1000g PBT-GF10		2.16E-02	1l/seatbelt
wood; 14.7 MJ/kg	8.10E-04	1MJ/1000g PBT-GF10		3.16E-07	1MJ/seatbelt
zinc (in)	1.33E-04	g/1000g PBT-GF10		5.19E-08	g/seatbelt
OUTFLOWS				0.00E+00	
acrylic resin	1000	g		3.90E-01	g
1,2-dichloroethane	2.99E-07	g/1000g PBT-GF10		1.17E-10	g/seatbelt
1,2-dichloroethane	5.11E-09	g/1000g PBT-GF10		1.99E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.39E-27	g/1000g PBT-GF10		5.43E-31	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.23E-10	g/1000g PBT-GF10		8.70E-14	g/seatbelt
acid (as H+)	2.09E-07	g/1000g PBT-GF10		8.15E-11	g/seatbelt
acid (as H+)	7.77E-02	g/1000g PBT-GF10		3.03E-05	g/seatbelt
adsorbable organic halogen c	1.45E-08	g/1000g PBT-GF10		5.66E-12	g/seatbelt
aluminium	5.38E-04	g/1000g PBT-GF10		2.10E-07	g/seatbelt
ammonia	9.33E-03	g/1000g PBT-GF10		3.64E-06	g/seatbelt
ammonia	1.13E+00	g/1000g PBT-GF10		4.42E-04	g/seatbelt
antimony	2.37E-09	g/1000g PBT-GF10		9.24E-13	g/seatbelt
arsenic	8.97E-08	g/1000g PBT-GF10		3.50E-11	g/seatbelt

arsenic	2.63E-07	g/1000g PBT-GF10		1.02E-10	g/seatbelt
benzene	5.77E-03	g/1000g PBT-GF10		2.25E-06	g/seatbelt
benzene	1.04E-09	g/1000g PBT-GF10		4.06E-13	g/seatbelt
biological oxygen demand	5.12E-01	g/1000g PBT-GF10		2.00E-04	g/seatbelt
bromate	3.27E-06	g/1000g PBT-GF10		1.28E-09	g/seatbelt
cadmium	6.44E-08	g/1000g PBT-GF10		2.51E-11	g/seatbelt
cadmium	5.11E-09	g/1000g PBT-GF10		1.99E-12	g/seatbelt
calcium	1.13E-01	g/1000g PBT-GF10		4.41E-05	g/seatbelt
carbon dioxide	5.86E+03	g/1000g PBT-GF10		2.28E+00	g/seatbelt
carbon disulfide	5.29E-08	g/1000g PBT-GF10		2.06E-11	g/seatbelt
carbon monoxide	5.53E+00	g/1000g PBT-GF10		2.16E-03	g/seatbelt
carbonate	5.52E-02	g/1000g PBT-GF10		2.15E-05	g/seatbelt
chemical oxygen demand	1.69E+00	g/1000g PBT-GF10		6.59E-04	g/seatbelt
chlorate	4.45E-03	g/1000g PBT-GF10		1.74E-06	g/seatbelt
chloride	8.69E+00	g/1000g PBT-GF10		3.39E-03	g/seatbelt
chlorine	4.35E-04	g/1000g PBT-GF10		1.70E-07	g/seatbelt
chlorine	1.35E-05	g/1000g PBT-GF10		5.28E-09	g/seatbelt
chromium	9.52E-04	g/1000g PBT-GF10		3.71E-07	g/seatbelt
chromium	3.48E-08	g/1000g PBT-GF10		1.36E-11	g/seatbelt
copper	1.83E-06	g/1000g PBT-GF10		7.13E-10	g/seatbelt
copper	5.16E-05	g/1000g PBT-GF10		2.01E-08	g/seatbelt
cyanide	3.66E-03	g/1000g PBT-GF10		1.43E-06	g/seatbelt
decane	1.20E-02	g/1000g PBT-GF10		4.69E-06	g/seatbelt
dichloromethane	9.60E-07	g/1000g PBT-GF10		3.74E-10	g/seatbelt
ethyl benzene	3.26E-04	g/1000g PBT-GF10		1.27E-07	g/seatbelt
ethylene	2.90E-03	g/1000g PBT-GF10		1.13E-06	g/seatbelt
fluoride	6.64E-03	g/1000g PBT-GF10		2.59E-06	g/seatbelt
fluorine	7.13E-06	g/1000g PBT-GF10		2.78E-09	g/seatbelt
hydrocarbons (unspecified)	5.45E-03	g/1000g PBT-GF10		2.12E-06	g/seatbelt
hydrocyanic acid	2.80E-03	g/1000g PBT-GF10		1.09E-06	g/seatbelt
hydrogen	1.14E-01	g/1000g PBT-GF10		4.46E-05	g/seatbelt
hydrogen chloride	1.60E-01	g/1000g PBT-GF10		6.23E-05	g/seatbelt
hydrogen fluoride	6.87E-03	g/1000g PBT-GF10		2.68E-06	g/seatbelt
hydrogen sulfide	2.02E-05	g/1000g PBT-GF10		7.89E-09	g/seatbelt
iron	3.09E-05	g/1000g PBT-GF10		1.21E-08	g/seatbelt
lead	2.29E-06	g/1000g PBT-GF10		8.95E-10	g/seatbelt
lead	1.83E-03	g/1000g PBT-GF10		7.13E-07	g/seatbelt
manganese	2.27E-08	g/1000g PBT-GF10		8.86E-12	g/seatbelt
mercury	1.71E-05	g/1000g PBT-GF10		6.66E-09	g/seatbelt
mercury	3.25E-06	g/1000g PBT-GF10		1.27E-09	g/seatbelt
methane	4.77E+01	g/1000g PBT-GF10		1.86E-02	g/seatbelt
nickel	1.73E-03	g/1000g PBT-GF10		6.75E-07	g/seatbelt
nickel	3.57E-05	g/1000g PBT-GF10		1.39E-08	g/seatbelt
nitrate	9.47E-03	g/1000g PBT-GF10		3.69E-06	g/seatbelt
nitrogen	1.68E-03	g/1000g PBT-GF10		6.57E-07	g/seatbelt
nitrogen dioxide	1.24E+01	g/1000g PBT-GF10		4.82E-03	g/seatbelt
nitrous oxide	7.64E-06	g/1000g PBT-GF10		2.98E-09	g/seatbelt
non-methane volatile organic	1.21E+01	g/1000g PBT-GF10		4.70E-03	g/seatbelt
oxygen	3.28E-09	g/1000g PBT-GF10		1.28E-12	g/seatbelt
particles (> PM10)	1.68E+00	g/1000g PBT-GF10		6.56E-04	g/seatbelt

particles (PM10)	2.00E+00	g/1000g PBT-GF10		7.81E-04	g/seatbelt
particles (PM10)	5.82E-02	g/1000g PBT-GF10		2.27E-05	g/seatbelt
particles (PM2.5)	9.56E-10	g/1000g PBT-GF10		3.73E-13	g/seatbelt
phenol	5.12E-04	g/1000g PBT-GF10		2.00E-07	g/seatbelt
phosphate	4.92E+00	g/1000g PBT-GF10		1.92E-03	g/seatbelt
polycyclic aromatic hydrocarl	1.73E-03	g/1000g PBT-GF10		6.75E-07	g/seatbelt
potassium	1.14E-04	g/1000g PBT-GF10		4.46E-08	g/seatbelt
propene	2.14E-03	g/1000g PBT-GF10		8.36E-07	g/seatbelt
selenium	2.09E-10	g/1000g PBT-GF10		8.14E-14	g/seatbelt
silver	6.02E-09	g/1000g PBT-GF10		2.35E-12	g/seatbelt
sodium	1.85E+01	g/1000g PBT-GF10		7.23E-03	g/seatbelt
strontium	4.89E-07	g/1000g PBT-GF10		1.91E-10	g/seatbelt
styrene	5.78E-05	g/1000g PBT-GF10		2.25E-08	g/seatbelt
sulfate	2.73E+01	g/1000g PBT-GF10		1.06E-02	g/seatbelt
sulfur	1.08E-06	g/1000g PBT-GF10		4.21E-10	g/seatbelt
sulfur dioxide	2.89E+01	g/1000g PBT-GF10		1.13E-02	g/seatbelt
tin	2.81E-10	g/1000g PBT-GF10		1.10E-13	g/seatbelt
toluene	9.78E-04	g/1000g PBT-GF10		3.82E-07	g/seatbelt
total organic carbon	1.69E-02	g/1000g PBT-GF10		6.60E-06	g/seatbelt
vinyl chloride	3.61E-06	g/1000g PBT-GF10		1.41E-09	g/seatbelt
vinyl chloride	6.61E-08	g/1000g PBT-GF10		2.58E-11	g/seatbelt
volatile organic compound	2.02E+00	g/1000g PBT-GF10		7.89E-04	g/seatbelt
volatile organic compound	1.08E+00	g/1000g PBT-GF10		4.20E-04	g/seatbelt
xylene (all isomers)	4.04E-04	g/1000g PBT-GF10		1.58E-07	g/seatbelt
zinc	9.90E-07	g/1000g PBT-GF10		3.86E-10	g/seatbelt
zinc	8.95E-05	g/1000g PBT-GF10		3.49E-08	g/seatbelt
chemical waste	1.56E+01	g/1000g PBT-GF10		6.09E-03	g/seatbelt
chemical waste, inert	6.29E+00	g/1000g PBT-GF10		2.45E-03	g/seatbelt
chemical waste, toxic	8.95E+00	g/1000g PBT-GF10		3.49E-03	g/seatbelt
demolition waste	1.52E-02	g/1000g PBT-GF10		5.94E-06	g/seatbelt
industrial waste	1.21E+01	g/1000g PBT-GF10		4.73E-03	g/seatbelt
mineral waste	3.22E+00	g/1000g PBT-GF10		1.25E-03	g/seatbelt
municipal waste	-7.23E+00	g/1000g PBT-GF10		-2.82E-03	g/seatbelt
organic waste	1.06E-04	g/1000g PBT-GF10		4.13E-08	g/seatbelt
overburden	5.72E+01	g/1000g PBT-GF10		2.23E-02	g/seatbelt
packaging waste (metal)	8.95E-07	g/1000g PBT-GF10		3.49E-10	g/seatbelt
packaging waste (plastic)	7.60E-09	g/1000g PBT-GF10		2.96E-12	g/seatbelt
plastic	1.86E-02	g/1000g PBT-GF10		7.27E-06	g/seatbelt
tailings	6.31E-02	g/1000g PBT-GF10		2.46E-05	g/seatbelt
waste	6.71E+00	g/1000g PBT-GF10		2.62E-03	g/seatbelt
waste paper	1.08E-07	g/1000g PBT-GF10		4.21E-11	g/seatbelt
wood	1.97E-03	g/1000g PBT-GF10		7.68E-07	g/seatbelt
wooden pallet	3.72E-08	g/1000g PBT-GF10		1.45E-11	g/seatbelt
Remark:					
Data for acrylic resin interpreted from LCI data for Polymethyl methacrylate (PMMA) beads; production mix, at plant (ELCD database, 1999)					

3.47.12 Transportation to Shunt-ring manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.13 Production of Shunt-ring	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
oil	0.1308158	MJ/1000g product	0.454303	5.94E-05	MJ/seatbelt
gas	0.0845028	MJ/1000g product		3.84E-05	MJ/seatbelt
electricity	3.3747613	MJ/1000g product		1.53E-03	MJ/seatbelt
Ep-Fe/Au	0.2487327	g/1000g product		1.13E-04	g/seatbelt
Ep-Fe/Ni	9.2515348	g/1000g product		4.20E-03	g/seatbelt
steel CuBe2	132.07045	g/1000g product		6.00E-02	g/seatbelt
PBT-GF10	858.4579	g/1000g product		3.90E-01	g/seatbelt
OUTFLOWS					
shunt ring				0.454303	g
chromium	0.0044461	g/1000g product		2.02E-06	g/seatbelt
cobalt	0.0044461	g/1000g product		2.02E-06	g/seatbelt
cyanide	0.0002047	g/1000g product		9.30E-08	g/seatbelt
nickel	0.0044461	g/1000g product		2.02E-06	g/seatbelt
zinc	0.0044461	g/1000g product		2.02E-06	g/seatbelt
used oil	0.003472	g/1000g product		1.58E-06	g/seatbelt
Remark					
Electricity data for Germany					
Production data adapted from production of frame pretensioner by STA					
3.47.14 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4428	MJ/1000g of product	1.0000	0.0004428	MJ/seatbelt
OUTFLOWS					
CO2	31.9800	g/1000g of product		0.03198	g/seatbelt
NOx	0.2030	g/1000g of product		0.00020295	g/seatbelt
HC	0.0289	g/1000g of product		0.000028905	g/seatbelt
Particulate matter	0.0035	g/1000g of product		3.5055E-06	g/seatbelt
CO	0.0283	g/1000g of product		0.00002829	g/seatbelt
SO2	0.0080	g/1000g of product		0.000007995	g/seatbelt
Remark:					

Distance between Shunt-ring manufacturer (Heilbronn, Germany) and NCS (Survilliers, France) in km		**615**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Data estimated from google map					
3.47.15 Production of adhesive, PAK	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Bauxite	0.2000	g/1000g adhesive	1.0000	0.0002	g/seatbelt
Coal	6.3600	MJ/1000g adhesive		0.00636	MJ/seatbelt
Copper ore	1.1000	g/1000g adhesive		0.0011	g/seatbelt
Crude oil	55.4700	MJ/1000g adhesive		0.05547	MJ/seatbelt
Hydro energy	1.7100	MJ/1000g adhesive		0.00171	MJ/seatbelt
Iron ore	16.2000	g/1000g adhesive		0.0162	g/seatbelt
Limestone	27.0000	g/1000g adhesive		0.027	g/seatbelt
Minerals	67.9000	g/1000g adhesive		0.0679	g/seatbelt
Natural gas	46.7400	MJ/1000g adhesive		0.04674	MJ/seatbelt
Nuclear energy	5.1700	MJ/1000g adhesive		0.00517	MJ/seatbelt
Other fuel	1.2200	MJ/1000g adhesive		0.00122	MJ/seatbelt
Uranium ore	0.5600	g/1000g adhesive		0.00056	g/seatbelt
Wood	0.4500	MJ/1000g adhesive		0.00045	MJ/seatbelt
OUTFLOWS	0.0000			0	
Biocides	1000.0000	g/1000g adhesive		1	g/seatbelt
CO	6.8000	g/1000g adhesive		0.0068	g/seatbelt
CO2	3137.0000	g/1000g adhesive		3.137	g/seatbelt
COD	12.6000	g/1000g adhesive		0.0126	g/seatbelt
Dissolved solids	0.2200	g/1000g adhesive		0.00022	g/seatbelt
Dust	1.8000	g/1000g adhesive		0.0018	g/seatbelt
HCl	0.0400	g/1000g adhesive		0.00004	g/seatbelt
Hydrocarbons	5.7000	g/1000g adhesive		0.0057	g/seatbelt
Hydrogen	0.0900	g/1000g adhesive		0.00009	g/seatbelt
Ionics	6.4000	g/1000g adhesive		0.0064	g/seatbelt
Metals	0.3100	g/1000g adhesive		0.00031	g/seatbelt
Methane	9.1000	g/1000g adhesive		0.0091	g/seatbelt
N total	0.0150	g/1000g adhesive		0.000015	g/seatbelt
NOx	19.0000	g/1000g adhesive		0.019	g/seatbelt
Phosphate as P2O5	0.1000	g/1000g adhesive		0.0001	g/seatbelt
SOx	15.4000	g/1000g adhesive		0.0154	g/seatbelt
Suspended solids	0.6000	g/1000g adhesive		0.0006	g/seatbelt
Total organic carbon	6.2000	g/1000g adhesive		0.0062	g/seatbelt
VOC	11.6000	g/1000g adhesive		0.0116	g/seatbelt
PVAc 3370	1.0000	g/1000g adhesive		0.001	g/seatbelt
Mineral waste	13.6000	g/1000g adhesive		0.0136	g/seatbelt
Mixed industrial waste	4.3000	g/1000g adhesive		0.0043	g/seatbelt
Non hazardous waste	167.0000	g/1000g adhesive		0.167	g/seatbelt

Slags and ash	4.7000	g/1000g adhesive		0.0047	g/seatbelt
Sludge (Dry matter)	1.0000	g/1000g adhesive		0.001	g/seatbelt
Remark					
Data adapted from prudction of Dowel Adhesive PVAC 3370					
3.47.15a Transportation to Adhesive producer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5314	MJ/1000g of product	1.0000	0.00053136	MJ/seatbelt
OUTFLOWS					
CO2	38.3760	g/1000g of product		0.038376	g/seatbelt
NOx	0.2435	g/1000g of product		0.00024354	g/seatbelt
HC	0.0347	g/1000g of product		0.000034686	g/seatbelt
Particulate matter	0.0042	g/1000g of product		4.2066E-06	g/seatbelt
CO	0.0339	g/1000g of product		0.000033948	g/seatbelt
SO2	0.0096	g/1000g of product		0.000009594	g/seatbelt
Remark:					
Distance between companies A,B,C,D and Adhesive producer Ireland in km	km	**738**			
	780				
	450				
	1100				
	1100				
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.16 Production of glue omnifit	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	442.8000	MJ/1000g of product	1.0000	0.4428	MJ/seatbelt
oil	450.0000	MJ/1000g of product		0.45	MJ/seatbelt
natural gas	465.2000	MJ/1000g of product		0.4652	MJ/seatbelt
adhesive	1000.0000	g/1000g product		1	g/seatbelt
OUTFLOWS					
glue, omnifit				1.0000	g/seatbelt
Remark:					
Electricity data for Ireland					
Data for production adapted from solder paste alfafry provided by Paste manufacturer no.2					

3.47.17 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.7697	MJ/1000g of product	1.0000	0.00076968	MJ/seatbelt
OUTFLOWS					
CO2	55.5880	g/1000g of product		0.055588	g/seatbelt
NOx	0.3528	g/1000g of product		0.00035277	g/seatbelt
HC	0.0502	g/1000g of product		0.000050243	g/seatbelt
Particulate matter	0.0061	g/1000g of product		6.0933E-06	g/seatbelt
CO	0.0492	g/1000g of product		0.000049174	g/seatbelt
SO2	0.0139	g/1000g of product		0.000013897	g/seatbelt
Remark:					
Distance between Adhesive producer Ireland (Dublin, Ireland), Adhesive producer France (Boulogne, France) and NCS (Survilliers, France) in km		**1069**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Data estimated from google map					

3.47.18 Production of EPDM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Coal	5.60E+00	MJ/1000g EPDM	0.1000	5.60E-04	MJ/seatbelt
Crude oil	2.10E+01	MJ/1000g EPDM		2.10E-03	MJ/seatbelt
Electricity	5.00E+00	MJ/1000g EPDM		5.00E-04	MJ/seatbelt
OUTFLOWS					
EPDM					
CO	0.2081156	g/1000g EPDM		2.08E-05	g/seatbelt
CO2	0.0154044	g/1000g EPDM		1.54E-06	g/seatbelt
COD	4.5500839	g/1000g EPDM		4.55E-04	g/seatbelt
methane	0.0480941	g/1000g EPDM		4.81E-06	g/seatbelt
N total	15.128484	g/1000g EPDM		1.51E-03	g/seatbelt
N2O	0.2234082	g/1000g EPDM		2.23E-05	g/seatbelt
NMVOC	0.2159465	g/1000g EPDM		2.16E-05	g/seatbelt
NOx	0.0022068	g/1000g EPDM		2.21E-07	g/seatbelt
PAH	1.611E-06	g/1000g EPDM		1.61E-10	g/seatbelt
Particles	6.3815832	g/1000g EPDM		6.38E-04	g/seatbelt
SO2	0.0002601	g/1000g EPDM		2.60E-08	g/seatbelt
Remark					
Data adapted from production of EPDM (CPM, 2001)					
Electricity data for France					

3.47.18a Transportation O-ring manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.19 Production of o-ring	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
EPDM	1000.0000	g/1000g product		0.1000	g/seatbelt
OUTFLOWS					
o-ring				0.1000	g/seatbelt
Lack of data					
3.47.20 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2880	MJ/1000g of product	0.1000	0.0000288	MJ/seatbelt
OUTFLOWS					
CO2	20.8000	g/1000g of product		0.00208	g/seatbelt
NOx	0.1320	g/1000g of product		0.0000132	g/seatbelt
HC	0.0188	g/1000g of product		0.00000188	g/seatbelt
Particulate matter	0.0023	g/1000g of product		0.000000228	g/seatbelt
CO	0.0184	g/1000g of product		0.00000184	g/seatbelt
SO2	0.0052	g/1000g of product		0.00000052	g/seatbelt
Remark:					
Distance between O-ring manufacturer (Chateau Gontier, France) and NCS (Survilliers, France) in km		**400**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.21.1 Production of PA66	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	65037.901	g/1000g PA66	0.2717	17.67079769	g/seatbelt
barium sulfate	2.532E-10	g/1000g PA66		6.87882E-14	g/seatbelt

baryte	10.843071	g/1000g PA66		0.002946062	g/seatbelt
basalt	2.8989118	g/1000g PA66		0.000787634	g/seatbelt
bauxite	0.0360362	g/1000g PA66		9.79103E-06	g/seatbelt
bentonite	4.4823458	g/1000g PA66		0.001217853	g/seatbelt
biomass; 14.7 MJ/kg	4.21E-08	MJ/1000g PA66		1.14417E-11	MJ/seatbelt
brown coal; 11.9 MJ/kg	6.1026615	MJ/1000g PA66		0.001658093	MJ/seatbelt
calcium carbonate	106.49348	g/1000g PA66		0.02893428	g/seatbelt
calcium chloride	2.592E-08	g/1000g PA66		7.04288E-12	g/seatbelt
carbon dioxide (in)	45.525624	g/1000g PA66		0.012369312	g/seatbelt
chromium (in)	0.0020571	g/1000g PA66		5.5892E-07	g/seatbelt
clay	1.1148825	g/1000g PA66		0.000302914	g/seatbelt
colemanite	0.0014229	g/1000g PA66		3.86603E-07	g/seatbelt
copper (in)	0.0205671	g/1000g PA66		5.58807E-06	g/seatbelt
crude oil; 42.3 MJ/kg	94.963275	MJ/1000g PA66		0.025801522	MJ/seatbelt
dolomite	0.0001163	g/1000g PA66		3.159E-08	g/seatbelt
fluorspar	0.0001352	g/1000g PA66		3.67273E-08	g/seatbelt
gold (in)	9.978E-09	g/1000g PA66		2.71111E-12	g/seatbelt
ground water	13.636795	l/1000g PA66		0.003705117	l/seatbelt
gypsum	0.2794838	g/1000g PA66		7.59357E-05	g/seatbelt
hard coal; 26.3 MJ/kg	9.8485012	MJ/1000g PA66		0.002675838	MJ/seatbelt
inert rock	9916.6379	g/1000g PA66		2.694350514	g/seatbelt
iron (in)	3.9243077	g/1000g PA66		0.001066234	g/seatbelt
kaolin	0.0025526	g/1000g PA66		6.93538E-07	g/seatbelt
lead (in)	0.1874423	g/1000g PA66		5.09281E-05	g/seatbelt
magnesite	5.871E-06	g/1000g PA66		1.59519E-09	g/seatbelt
magnesium chloride	11.894884	g/1000g PA66		0.00323184	g/seatbelt
manganese	0.0165722	g/1000g PA66		4.50268E-06	g/seatbelt
molybdenum (in)	3.422E-05	g/1000g PA66		9.29776E-09	g/seatbelt
natural aggregate	25.722624	g/1000g PA66		0.006988837	g/seatbelt
natural gas; 44.1 MJ/kg	63.14291	MJ/1000g PA66		0.017155929	MJ/seatbelt
nickel (in)	0.0031499	g/1000g PA66		8.55817E-07	g/seatbelt
nitrogen (in)	1.757E-06	g/1000g PA66		4.77381E-10	g/seatbelt
olivine	1.359E-11	g/1000g PA66		3.69108E-15	g/seatbelt
oxygen (in)	-30.805547	g/1000g PA66		-0.008369867	g/seatbelt
palladium	1.997E-07	g/1000g PA66		5.42544E-11	g/seatbelt
peat; 8.4 MJ/kg	0.1009196	MJ/1000g PA66		2.74198E-05	MJ/seatbelt
phosphorus (in)	0.00024	g/1000g PA66		6.51968E-08	g/seatbelt
platinum	2.399E-06	g/1000g PA66		6.51757E-10	g/seatbelt
potassium chloride	2.894E-06	g/1000g PA66		7.86197E-10	g/seatbelt
primary energy from geother	#REF!	MJ/1000g PA66		#REF!	MJ/seatbelt
primary energy from hydro p	2.7025393	MJ/1000g PA66		0.00073428	MJ/seatbelt
primary energy from solar en	439.74948	MJ/1000g PA66		0.119479935	MJ/seatbelt
primary energy from wind po	0.5377115	MJ/1000g PA66		0.000146096	MJ/seatbelt
quartz sand	2.9228481	g/1000g PA66		0.000794138	g/seatbelt
raw pumice	0.0002479	g/1000g PA66		6.7365E-08	g/seatbelt
rhodium	6.678E-09	g/1000g PA66		1.81435E-12	g/seatbelt
river water	-11.758225	l/1000g PA66		-0.00319471	l/seatbelt
sea water	0.1040295	l/1000g PA66		2.82648E-05	l/seatbelt
silver	1.717E-06	g/1000g PA66		4.66567E-10	g/seatbelt
slate	2.285E-11	g/1000g PA66		6.20772E-15	g/seatbelt

sodium chloride	55.453276	g/1000g PA66		0.015066655	g/seatbelt
sodium sulfate	0.1289922	g/1000g PA66		3.50472E-05	g/seatbelt
soil	10.598537	g/1000g PA66		0.002879622	g/seatbelt
sulfur (in)	1.835E-06	g/1000g PA66		4.98572E-10	g/seatbelt
surface water	22693.249	g/1000g PA66		6.165755762	g/seatbelt
talc	4.501E-05	g/1000g PA66		1.22301E-08	g/seatbelt
tin (in)	2.196E-14	g/1000g PA66		5.96542E-18	g/seatbelt
titanium	0.01209	g/1000g PA66		3.28484E-06	g/seatbelt
uranium	21.840667	MJ/1000g PA66		0.005934109	MJ/seatbelt
water	-14.734131	l/1000g PA66		-0.004003263	l/seatbelt
wood; 14.7 MJ/kg	0.0005997	MJ/1000g PA66		1.62933E-07	MJ/seatbelt
zinc (in)	0.053713	g/1000g PA66		1.45938E-05	g/seatbelt
OUTFLOWS				0	
polyamide 6.6 fibres (PA 6.6),	1000	g		0.2717	g
calcium fluoride; reactor fuel	0.0043676	g/1000g PA66		1.18667E-06	g/seatbelt
demolition waste (unspecifie	16.301945	g/1000g PA66		0.004429238	g/seatbelt
highly radioactive waste; rea	0.0130339	g/1000g PA66		3.54131E-06	g/seatbelt
medium and low radioactive	0.0154331	g/1000g PA66		4.19317E-06	g/seatbelt
overburden (unspecified)	9635.2185	g/1000g PA66		2.61788886	g/seatbelt
plutonium as residual produc	2.587E-05	g/1000g PA66		7.02977E-09	g/seatbelt
radioactive tailings; reactor fu	7.6508563	g/1000g PA66		0.002078738	g/seatbelt
slag (unspecified)	0.5697456	g/1000g PA66		0.0001548	g/seatbelt
slag (uranium conversion); re	0.0289252	g/1000g PA66		7.85897E-06	g/seatbelt
spoil (unspecified)	13.17962	g/1000g PA66		0.003580903	g/seatbelt
tailings (unspecified)	0.0110244	g/1000g PA66		2.99532E-06	g/seatbelt
unspecified radioactive waste	0.0259354	g/1000g PA66		7.04664E-06	g/seatbelt
uranium depleted; reactor fu	0.029923	g/1000g PA66		8.13008E-06	g/seatbelt
1,2-dibromoethane	2.129E-10	g/1000g PA66		5.78402E-14	g/seatbelt
1,2-dichloropropane	1.603E-12	g/1000g PA66		4.35594E-16	g/seatbelt
1,3,5-trimethylbenzene	1.038E-09	g/1000g PA66		2.82087E-13	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.685E-10	g/1000g PA66		7.29633E-14	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.402E-17	g/1000g PA66		6.52693E-21	g/seatbelt
acenaphthene	2.318E-05	g/1000g PA66		6.29707E-09	g/seatbelt
acenaphthene	4.205E-07	g/1000g PA66		1.1424E-10	g/seatbelt
acenaphthylene	1.698E-07	g/1000g PA66		4.61291E-11	g/seatbelt
acenaphthylene	8.821E-06	g/1000g PA66		2.39668E-09	g/seatbelt
acetaldehyde	0.0094645	g/1000g PA66		2.57149E-06	g/seatbelt
acetic acid	0.0389753	g/1000g PA66		1.05896E-05	g/seatbelt
acetic acid	7.328E-05	g/1000g PA66		1.99106E-08	g/seatbelt
acetic acid	0.0012746	g/1000g PA66		3.46318E-07	g/seatbelt
acetone	0.0094224	g/1000g PA66		2.56007E-06	g/seatbelt
acid (as H+)	1.265E-06	g/1000g PA66		3.43739E-10	g/seatbelt
acid (as H+)	0.0001269	g/1000g PA66		3.44783E-08	g/seatbelt
acrolein	1.543E-06	g/1000g PA66		4.19195E-10	g/seatbelt
acryolonitrile	1.172E-07	g/1000g PA66		3.18551E-11	g/seatbelt
adsorbable organic halogen c	1.724E-09	g/1000g PA66		4.68292E-13	g/seatbelt
adsorbable organic halogen c	0.0025857	g/1000g PA66		7.02521E-07	g/seatbelt
aluminium	0.0003937	g/1000g PA66		1.06961E-07	g/seatbelt
aluminium	0.0258018	g/1000g PA66		7.01034E-06	g/seatbelt
aluminium	1.942E-08	g/1000g PA66		5.27599E-12	g/seatbelt

americium-241	0.0455517	Bq/1000g PA66		1.23764E-05	Bq/seatbelt
ammonia	0.058	g/1000g PA66		1.57586E-05	g/seatbelt
ammonia	0.1800586	g/1000g PA66		4.89219E-05	g/seatbelt
ammonia	0.5783256	g/1000g PA66		0.000157131	g/seatbelt
ammonia	5.77E-07	g/1000g PA66		1.56783E-10	g/seatbelt
ammonium	1.109E-07	g/1000g PA66		3.01278E-11	g/seatbelt
anthracene	2.186E-07	g/1000g PA66		5.94066E-11	g/seatbelt
anthracene	7.089E-07	g/1000g PA66		1.92596E-10	g/seatbelt
anthracene	5.95E-06	g/1000g PA66		1.6167E-09	g/seatbelt
antimony	4.987E-05	g/1000g PA66		1.35488E-08	g/seatbelt
antimony	2.025E-10	g/1000g PA66		5.50102E-14	g/seatbelt
antimony-124	1.597E-05	Bq/1000g PA66		4.3398E-09	Bq/seatbelt
antimony-124	0.0004736	Bq/1000g PA66		1.28679E-07	Bq/seatbelt
antimony-125	0.0003227	Bq/1000g PA66		8.76781E-08	Bq/seatbelt
argon-41	100.75552	Bq/1000g PA66		0.027375275	Bq/seatbelt
arsenic	0.0002135	g/1000g PA66		5.7999E-08	g/seatbelt
arsenic	1.404E-07	g/1000g PA66		3.81526E-11	g/seatbelt
arsenic	0.0003981	g/1000g PA66		1.08169E-07	g/seatbelt
arsenic	0.0003603	g/1000g PA66		9.79011E-08	g/seatbelt
arsenic trioxide	6.042E-10	g/1000g PA66		1.6417E-13	g/seatbelt
barium	0.0077146	g/1000g PA66		2.09604E-06	g/seatbelt
barium	0.021286	g/1000g PA66		5.78341E-06	g/seatbelt
barium	0.0021872	g/1000g PA66		5.94267E-07	g/seatbelt
benzene	0.0110453	g/1000g PA66		3.00102E-06	g/seatbelt
benzene	0.0043696	g/1000g PA66		1.18723E-06	g/seatbelt
benzene	0.0008155	g/1000g PA66		2.21563E-07	g/seatbelt
benzo[a]anthracene	1.1E-07	g/1000g PA66		2.98894E-11	g/seatbelt
benzo[a]anthracene	5.015E-08	g/1000g PA66		1.36261E-11	g/seatbelt
benzo[a]anthracene	5.203E-06	g/1000g PA66		1.41369E-09	g/seatbelt
benzo[a]pyrene	1.293E-06	g/1000g PA66		3.51177E-10	g/seatbelt
benzo[g,h,i]perylene	9.814E-08	g/1000g PA66		2.66648E-11	g/seatbelt
benzo[k]fluoranthene	1.963E-07	g/1000g PA66		5.33295E-11	g/seatbelt
benzo[k]fluoranthene	5.789E-06	g/1000g PA66		1.57277E-09	g/seatbelt
benzo[k]fluoranthene	1.868E-08	g/1000g PA66		5.07613E-12	g/seatbelt
beryllium	4.828E-06	g/1000g PA66		1.31166E-09	g/seatbelt
beryllium	3.11E-05	g/1000g PA66		8.45007E-09	g/seatbelt
beryllium	1.005E-06	g/1000g PA66		2.73119E-10	g/seatbelt
biological oxygen demand	0.069525	g/1000g PA66		1.889E-05	g/seatbelt
biological oxygen demand	0.0019013	g/1000g PA66		5.16572E-07	g/seatbelt
boron	0.0065951	g/1000g PA66		1.79189E-06	g/seatbelt
boron	3.14E-07	g/1000g PA66		8.53139E-11	g/seatbelt
boron	0.0030996	g/1000g PA66		8.42158E-07	g/seatbelt
bromide	5.305E-05	g/1000g PA66		1.44136E-08	g/seatbelt
bromine	0.0026985	g/1000g PA66		7.33193E-07	g/seatbelt
bromine	6.436E-07	g/1000g PA66		1.74877E-10	g/seatbelt
butadiene	3.396E-08	g/1000g PA66		9.22578E-12	g/seatbelt
cadmium	2.524E-05	g/1000g PA66		6.85647E-09	g/seatbelt
cadmium	1.281E-06	g/1000g PA66		3.47923E-10	g/seatbelt
cadmium	0.0001785	g/1000g PA66		4.8493E-08	g/seatbelt
cadmium	0.0003397	g/1000g PA66		9.23055E-08	g/seatbelt

calcium	0.0012607	g/1000g PA66		3.42523E-07	g/seatbelt
calcium	2.0086314	g/1000g PA66		0.000545745	g/seatbelt
calcium	3.429E-05	g/1000g PA66		9.31718E-09	g/seatbelt
carbon dioxide	9865.4907	g/1000g PA66		2.680453812	g/seatbelt
carbon disulfide	3.954E-08	g/1000g PA66		1.07417E-11	g/seatbelt
carbon monoxide	3.5594431	g/1000g PA66		0.000967101	g/seatbelt
carbon-14	46.225954	Bq/1000g PA66		0.012559592	Bq/seatbelt
carbon-14	2.305559	Bq/1000g PA66		0.00062642	Bq/seatbelt
carbonate	0.1343343	g/1000g PA66		3.64986E-05	g/seatbelt
carbonate	1.3382783	g/1000g PA66		0.00036361	g/seatbelt
cesium-134	0.0126536	Bq/1000g PA66		3.43798E-06	Bq/seatbelt
cesium-134	2.3128284	Bq/1000g PA66		0.000628395	Bq/seatbelt
cesium-137	0.0258512	Bq/1000g PA66		7.02378E-06	Bq/seatbelt
cesium-137	21.409842	Bq/1000g PA66		0.005817054	Bq/seatbelt
CFC-11	0.0002859	g/1000g PA66		7.76743E-08	g/seatbelt
CFC-114	0.0002928	g/1000g PA66		7.9546E-08	g/seatbelt
CFC-12	6.146E-05	g/1000g PA66		1.67E-08	g/seatbelt
CFC-13	3.859E-05	g/1000g PA66		1.0486E-08	g/seatbelt
chemical oxygen demand	0.1218039	g/1000g PA66		3.30941E-05	g/seatbelt
chemical oxygen demand	13.378357	g/1000g PA66		0.0036349	g/seatbelt
chloride	0.0048838	g/1000g PA66		1.32694E-06	g/seatbelt
chloride	0.061964	g/1000g PA66		1.68356E-05	g/seatbelt
chloride	105.68389	g/1000g PA66		0.028714312	g/seatbelt
chloride	33.907648	g/1000g PA66		0.009212708	g/seatbelt
chlorine	0.0001041	g/1000g PA66		2.82838E-08	g/seatbelt
chlorine	0.0360205	g/1000g PA66		9.78677E-06	g/seatbelt
chromium	0.000165	g/1000g PA66		4.48243E-08	g/seatbelt
chromium	0.0003487	g/1000g PA66		9.47516E-08	g/seatbelt
chromium	0.0009128	g/1000g PA66		2.48016E-07	g/seatbelt
chromium	0.0008454	g/1000g PA66		2.297E-07	g/seatbelt
chromium III	2.169E-07	g/1000g PA66		5.89376E-11	g/seatbelt
chromium III	2.509E-09	g/1000g PA66		6.81628E-13	g/seatbelt
chromium III	7.841E-05	g/1000g PA66		2.13032E-08	g/seatbelt
chromium VI	0.0003322	g/1000g PA66		9.02482E-08	g/seatbelt
chrysene	2.702E-07	g/1000g PA66		7.34211E-11	g/seatbelt
chrysene	2.068E-07	g/1000g PA66		5.61926E-11	g/seatbelt
chrysene	2.941E-05	g/1000g PA66		7.9909E-09	g/seatbelt
cobalt	6.446E-05	g/1000g PA66		1.75133E-08	g/seatbelt
cobalt	6.19E-06	g/1000g PA66		1.68182E-09	g/seatbelt
cobalt	3.778E-07	g/1000g PA66		1.02639E-10	g/seatbelt
cobalt	0.0005443	g/1000g PA66		1.47877E-07	g/seatbelt
cobalt-58	7.927E-05	Bq/1000g PA66		2.15374E-08	Bq/seatbelt
cobalt-58	0.0177048	Bq/1000g PA66		4.8104E-06	Bq/seatbelt
cobalt-60	0.0020105	Bq/1000g PA66		5.46261E-07	Bq/seatbelt
cobalt-60	9.9264314	Bq/1000g PA66		0.002697011	Bq/seatbelt
copper	0.0001605	g/1000g PA66		4.36188E-08	g/seatbelt
copper	3.543E-06	g/1000g PA66		9.62697E-10	g/seatbelt
copper	0.000623	g/1000g PA66		1.69274E-07	g/seatbelt
copper	0.0017204	g/1000g PA66		4.67426E-07	g/seatbelt
cresol	4.352E-09	g/1000g PA66		1.18242E-12	g/seatbelt

cresol	5.674E-09	g/1000g PA66		1.54166E-12	g/seatbelt
curium	0.0603697	Bq/1000g PA66		1.64024E-05	Bq/seatbelt
cyanide	9.967E-05	g/1000g PA66		2.7079E-08	g/seatbelt
cyanide	0.0008289	g/1000g PA66		2.25215E-07	g/seatbelt
cyclohexane	9.063E-07	g/1000g PA66		2.46234E-10	g/seatbelt
decane	0.0026307	g/1000g PA66		7.14765E-07	g/seatbelt
decane	0.0042715	g/1000g PA66		1.16056E-06	g/seatbelt
decane	0.0410303	g/1000g PA66		1.11479E-05	g/seatbelt
dibenz[a,h]anthracene	6.117E-08	g/1000g PA66		1.6619E-11	g/seatbelt
dichloromethane	1.002E-11	g/1000g PA66		2.72364E-15	g/seatbelt
diethylamine	2.738E-12	g/1000g PA66		7.4392E-16	g/seatbelt
ethane	0.7715299	g/1000g PA66		0.000209625	g/seatbelt
ethanol	0.0186245	g/1000g PA66		5.06026E-06	g/seatbelt
ethyl benzene	0.0072081	g/1000g PA66		1.95845E-06	g/seatbelt
ethyl benzene	0.0005657	g/1000g PA66		1.53695E-07	g/seatbelt
ethyl benzene	4.553E-05	g/1000g PA66		1.23701E-08	g/seatbelt
ethylene	6.79E-05	g/1000g PA66		1.8449E-08	g/seatbelt
FC-14	8.111E-07	g/1000g PA66		2.20367E-10	g/seatbelt
fluoranthene	7.121E-07	g/1000g PA66		1.93475E-10	g/seatbelt
fluoranthene	6.087E-06	g/1000g PA66		1.65387E-09	g/seatbelt
fluoranthene	8.855E-08	g/1000g PA66		2.406E-11	g/seatbelt
fluorene	2.26E-06	g/1000g PA66		6.1391E-10	g/seatbelt
fluoride	0.0034329	g/1000g PA66		9.32731E-07	g/seatbelt
fluoride	0.0017684	g/1000g PA66		4.80462E-07	g/seatbelt
fluoride	1.4130848	g/1000g PA66		0.000383935	g/seatbelt
fluorine	1.442E-06	g/1000g PA66		3.91722E-10	g/seatbelt
fluorine	1.965E-05	g/1000g PA66		5.33826E-09	g/seatbelt
formaldehyde	0.0442843	g/1000g PA66		1.2032E-05	g/seatbelt
HCFC-22	6.718E-05	g/1000g PA66		1.82535E-08	g/seatbelt
helium	4.434E-05	g/1000g PA66		1.20474E-08	g/seatbelt
heptane	0.004832	g/1000g PA66		1.31287E-06	g/seatbelt
hexamethylene diamine	1.997E-09	g/1000g PA66		5.42693E-13	g/seatbelt
hexane	0.0072443	g/1000g PA66		1.96827E-06	g/seatbelt
hexane	6.96E-10	g/1000g PA66		1.8911E-13	g/seatbelt
hexane	4.751E-10	g/1000g PA66		1.29093E-13	g/seatbelt
hydrocarbons (unspecified)	0.2781479	g/1000g PA66		7.55728E-05	g/seatbelt
hydrocyanic acid	2.034E-06	g/1000g PA66		5.5259E-10	g/seatbelt
hydrogen	0.2527243	g/1000g PA66		6.86652E-05	g/seatbelt
hydrogen arsenide	5.015E-08	g/1000g PA66		1.36261E-11	g/seatbelt
hydrogen bromide	9.87E-06	g/1000g PA66		2.68173E-09	g/seatbelt
hydrogen chloride	0.2809653	g/1000g PA66		7.63383E-05	g/seatbelt
hydrogen chloride	4.454E-07	g/1000g PA66		1.21013E-10	g/seatbelt
hydrogen fluoride	0.0223994	g/1000g PA66		6.08592E-06	g/seatbelt
hydrogen fluoride	8.074E-07	g/1000g PA66		2.19359E-10	g/seatbelt
hydrogen iodide	1.075E-08	g/1000g PA66		2.92089E-12	g/seatbelt
hydrogen sulfide	0.0577218	g/1000g PA66		1.5683E-05	g/seatbelt
hydrogen-3	196.32512	Bq/1000g PA66		0.053341536	Bq/seatbelt
hydrogen-3	67284.046	Bq/1000g PA66		18.28107526	Bq/seatbelt
hydroxide	9.082E-06	g/1000g PA66		2.46761E-09	g/seatbelt
indeno(1,2,3-cd)pyrene	7.303E-08	g/1000g PA66		1.98436E-11	g/seatbelt

iodine-129	0.0987867	Bq/1000g PA66		2.68404E-05	Bq/seatbelt
iodine-129	6.5873485	Bq/1000g PA66		0.001789783	Bq/seatbelt
iodine-131	0.0148459	Bq/1000g PA66		4.03363E-06	Bq/seatbelt
iodine-131	0.0003379	Bq/1000g PA66		9.1816E-08	Bq/seatbelt
iron	0.0002621	g/1000g PA66		7.1218E-08	g/seatbelt
iron	0.0005071	g/1000g PA66		1.37767E-07	g/seatbelt
iron	0.0066869	g/1000g PA66		1.81683E-06	g/seatbelt
iron	1.1115728	g/1000g PA66		0.000302014	g/seatbelt
krypton-85	1701784.8	Bq/1000g PA66		462.3749274	Bq/seatbelt
lead	0.000578	g/1000g PA66		1.57055E-07	g/seatbelt
lead	9.591E-08	g/1000g PA66		2.60598E-11	g/seatbelt
lead	0.0011071	g/1000g PA66		3.00795E-07	g/seatbelt
lead	0.0001275	g/1000g PA66		3.46328E-08	g/seatbelt
lead dioxide	1.225E-09	g/1000g PA66		3.32805E-13	g/seatbelt
magnesium	0.0001748	g/1000g PA66		4.74873E-08	g/seatbelt
magnesium	0.0003402	g/1000g PA66		9.24196E-08	g/seatbelt
magnesium	4.977E-08	g/1000g PA66		1.35215E-11	g/seatbelt
manganese	0.0003038	g/1000g PA66		8.2555E-08	g/seatbelt
manganese	7.512E-05	g/1000g PA66		2.04101E-08	g/seatbelt
manganese	0.0006998	g/1000g PA66		1.90133E-07	g/seatbelt
manganese	0.003167	g/1000g PA66		8.60476E-07	g/seatbelt
manganese-54	1.5389015	Bq/1000g PA66		0.00041812	Bq/seatbelt
mercury	6.738E-05	g/1000g PA66		1.83076E-08	g/seatbelt
mercury	7.014E-09	g/1000g PA66		1.90564E-12	g/seatbelt
mercury	4.27E-06	g/1000g PA66		1.16024E-09	g/seatbelt
mercury	1.308E-05	g/1000g PA66		3.55272E-09	g/seatbelt
methane	19.210793	g/1000g PA66		0.005219572	g/seatbelt
methanol	0.0184412	g/1000g PA66		5.01047E-06	g/seatbelt
methanol	0.5240867	g/1000g PA66		0.000142394	g/seatbelt
molybdenum	1.99E-05	g/1000g PA66		5.4068E-09	g/seatbelt
molybdenum	0.0008012	g/1000g PA66		2.17696E-07	g/seatbelt
molybdenum	1.666E-09	g/1000g PA66		4.52763E-13	g/seatbelt
naphthalene	2.296E-05	g/1000g PA66		6.23832E-09	g/seatbelt
naphthalene	0.0007527	g/1000g PA66		2.04497E-07	g/seatbelt
naphthalene	2.418E-05	g/1000g PA66		6.56864E-09	g/seatbelt
n-butane	0.2486347	g/1000g PA66		6.75541E-05	g/seatbelt
nickel	0.0009331	g/1000g PA66		2.53521E-07	g/seatbelt
nickel	0.0001091	g/1000g PA66		2.96335E-08	g/seatbelt
nickel	0.000436	g/1000g PA66		1.18468E-07	g/seatbelt
nickel	0.001759	g/1000g PA66		4.77924E-07	g/seatbelt
nitrate	0.4607264	g/1000g PA66		0.000125179	g/seatbelt
nitrate	0.0017357	g/1000g PA66		4.71586E-07	g/seatbelt
nitrogen	7.7833676	g/1000g PA66		0.002114741	g/seatbelt
nitrogen	0.07833	g/1000g PA66		2.12823E-05	g/seatbelt
nitrogen dioxide	22.555031	g/1000g PA66		0.006128202	g/seatbelt
nitrogen monoxide	5.768E-08	g/1000g PA66		1.56727E-11	g/seatbelt
nitrous oxide	2.5976494	g/1000g PA66		0.000705781	g/seatbelt
non-methane volatile organic	4.8762577	g/1000g PA66		0.001324879	g/seatbelt
octane	0.0026582	g/1000g PA66		7.2224E-07	g/seatbelt
oxygen	3.287032	g/1000g PA66		0.000893087	g/seatbelt

palladium	7.175E-13	g/1000g PA66		1.94941E-16	g/seatbelt
particles (> PM10)	3.934E-08	g/1000g PA66		1.06881E-11	g/seatbelt
particles (> PM10)	1.5131309	g/1000g PA66		0.000411118	g/seatbelt
particles (> PM10)	10.107467	g/1000g PA66		0.002746199	g/seatbelt
particles (PM10)	0.1650851	g/1000g PA66		4.48536E-05	g/seatbelt
particles (PM10)	5.949E-07	g/1000g PA66		1.61633E-10	g/seatbelt
particles (PM2.5 - PM10)	0.4962662	g/1000g PA66		0.000134836	g/seatbelt
particles (PM2.5)	0.5763009	g/1000g PA66		0.000156581	g/seatbelt
pentane	0.1175756	g/1000g PA66		3.19453E-05	g/seatbelt
phenanthrene	7.212E-06	g/1000g PA66		1.95955E-09	g/seatbelt
phenol	8.437E-08	g/1000g PA66		2.2922E-11	g/seatbelt
phenol	0.0095167	g/1000g PA66		2.58569E-06	g/seatbelt
phenol	0.0020549	g/1000g PA66		5.5832E-07	g/seatbelt
phosphate	0.103105	g/1000g PA66		2.80136E-05	g/seatbelt
phosphate	0.0096859	g/1000g PA66		2.63167E-06	g/seatbelt
phosphine	1.078E-09	g/1000g PA66		2.93027E-13	g/seatbelt
plutonium	2.099E-06	Bq/1000g PA66		5.70246E-10	Bq/seatbelt
plutonium	0.1812526	Bq/1000g PA66		4.92463E-05	Bq/seatbelt
polychlorinated biphenyls	1.104E-07	g/1000g PA66		2.99867E-11	g/seatbelt
polycyclic aromatic hydrocark	0.0010412	g/1000g PA66		2.82895E-07	g/seatbelt
polycyclic aromatic hydrocark	0.0003491	g/1000g PA66		9.48593E-08	g/seatbelt
potassium	0.0449683	g/1000g PA66		1.22179E-05	g/seatbelt
potassium	0.0003877	g/1000g PA66		1.0535E-07	g/seatbelt
propane	0.9461701	g/1000g PA66		0.000257074	g/seatbelt
propene	0.0006518	g/1000g PA66		1.77107E-07	g/seatbelt
propionic acid	9.076E-07	g/1000g PA66		2.46601E-10	g/seatbelt
R-40	2.473E-06	g/1000g PA66		6.71783E-10	g/seatbelt
radium-226	750.68456	Bq/1000g PA66		0.203960994	Bq/seatbelt
radon-222	24806.227	Bq/1000g PA66		6.739851743	Bq/seatbelt
rhodium	6.926E-13	g/1000g PA66		1.88183E-16	g/seatbelt
ruthenium-106	0.0455517	Bq/1000g PA66		1.23764E-05	Bq/seatbelt
scandium	2.873E-09	g/1000g PA66		7.80608E-13	g/seatbelt
selenium	0.0006187	g/1000g PA66		1.681E-07	g/seatbelt
selenium	0.0001613	g/1000g PA66		4.38167E-08	g/seatbelt
silver	1.173E-13	g/1000g PA66		3.18691E-17	g/seatbelt
silver	7.984E-07	g/1000g PA66		2.16924E-10	g/seatbelt
silver	4.944E-09	g/1000g PA66		1.34332E-12	g/seatbelt
silver-110	6.921E-05	Bq/1000g PA66		1.88056E-08	Bq/seatbelt
sodium	0.0001102	g/1000g PA66		2.99355E-08	g/seatbelt
sodium	0.0379689	g/1000g PA66		1.03161E-05	g/seatbelt
sodium	8.8102429	g/1000g PA66		0.002393743	g/seatbelt
strontium	1.115E-07	g/1000g PA66		3.02889E-11	g/seatbelt
strontium	0.1138124	g/1000g PA66		3.09228E-05	g/seatbelt
strontium	0.0078955	g/1000g PA66		2.1452E-06	g/seatbelt
strontium	0.0002174	g/1000g PA66		5.90806E-08	g/seatbelt
strontium-90	2.1984411	Bq/1000g PA66		0.000597316	Bq/seatbelt
styrene	1.004E-09	g/1000g PA66		2.72675E-13	g/seatbelt
sulfate	7.494E-07	g/1000g PA66		2.03615E-10	g/seatbelt
sulfate	0.0057243	g/1000g PA66		1.55528E-06	g/seatbelt
sulfate	5.3080717	g/1000g PA66		0.001442203	g/seatbelt

sulfate	0.5665133	g/1000g PA66		0.000153922	g/seatbelt
sulfide	0.0343456	g/1000g PA66		9.3317E-06	g/seatbelt
sulfide	0.0255881	g/1000g PA66		6.9523E-06	g/seatbelt
sulfide	0.2430917	g/1000g PA66		6.6048E-05	g/seatbelt
sulfite	0.0010282	g/1000g PA66		2.7935E-07	g/seatbelt
sulfur	2.191E-07	g/1000g PA66		5.95197E-11	g/seatbelt
sulfur	1.68E-07	g/1000g PA66		4.56504E-11	g/seatbelt
sulfur dioxide	21.809955	g/1000g PA66		0.005925765	g/seatbelt
sulfur hexafluoride	8.492E-08	g/1000g PA66		2.30717E-11	g/seatbelt
tellurium	2.892E-08	g/1000g PA66		7.85773E-12	g/seatbelt
thallium	4.255E-05	g/1000g PA66		1.15617E-08	g/seatbelt
thallium	5.219E-08	g/1000g PA66		1.41795E-11	g/seatbelt
tin	0.0002146	g/1000g PA66		5.83116E-08	g/seatbelt
tin	5.922E-09	g/1000g PA66		1.60899E-12	g/seatbelt
tin	3.497E-08	g/1000g PA66		9.50131E-12	g/seatbelt
tin oxide	1.066E-10	g/1000g PA66		2.89586E-14	g/seatbelt
titanium	3.615E-07	g/1000g PA66		9.82095E-11	g/seatbelt
titanium	6.032E-10	g/1000g PA66		1.63893E-13	g/seatbelt
titanium	8.71E-05	g/1000g PA66		2.3666E-08	g/seatbelt
toluene	0.0033733	g/1000g PA66		9.16519E-07	g/seatbelt
toluene	0.0004833	g/1000g PA66		1.313E-07	g/seatbelt
toluene	0.00244	g/1000g PA66		6.62949E-07	g/seatbelt
total organic carbon	0.0019013	g/1000g PA66		5.16572E-07	g/seatbelt
total organic carbon	0.0621927	g/1000g PA66		1.68978E-05	g/seatbelt
uranium-234	0.1078405	Bq/1000g PA66		2.93003E-05	Bq/seatbelt
uranium-235	0.415605	Bq/1000g PA66		0.00011292	Bq/seatbelt
uranium-238	0.5595855	Bq/1000g PA66		0.000152039	Bq/seatbelt
uranium-238	13.295541	Bq/1000g PA66		0.003612399	Bq/seatbelt
used air	49854.688	g/1000g PA66		13.54551862	g/seatbelt
vanadium	0.0041691	g/1000g PA66		1.13275E-06	g/seatbelt
vanadium	0.0003732	g/1000g PA66		1.01401E-07	g/seatbelt
vanadium	0.0002795	g/1000g PA66		7.59334E-08	g/seatbelt
vinyl chloride	1.972E-05	g/1000g PA66		5.35914E-09	g/seatbelt
vinyl chloride	7.325E-10	g/1000g PA66		1.99033E-13	g/seatbelt
volatile organic compound	4.2650923	g/1000g PA66		0.001158826	g/seatbelt
volatile organic compound	1.901E-05	g/1000g PA66		5.16572E-09	g/seatbelt
volatile organic compound	0.0002343	g/1000g PA66		6.36511E-08	g/seatbelt
waste heat	37453.179	g/1000g PA66		10.17602862	g/seatbelt
waste heat	4835.7372	g/1000g PA66		1.313869802	g/seatbelt
water vapour	25387.969	g/1000g PA66		6.897911044	g/seatbelt
xenon-131	1.3906	Bq/1000g PA66		0.000377826	Bq/seatbelt
xenon-133	227.59813	Bq/1000g PA66		0.061838413	Bq/seatbelt
xenon-135	75.245453	Bq/1000g PA66		0.02044419	Bq/seatbelt
xenon-137	0.0197242	Bq/1000g PA66		5.35908E-06	Bq/seatbelt
xenon-138	2.540723	Bq/1000g PA66		0.000690314	Bq/seatbelt
xylene (all isomers)	0.0300684	g/1000g PA66		8.16958E-06	g/seatbelt
xylene (all isomers)	0.0002839	g/1000g PA66		7.7144E-08	g/seatbelt
xylene (all isomers)	0.0028809	g/1000g PA66		7.82732E-07	g/seatbelt
zinc	0.0011105	g/1000g PA66		3.01733E-07	g/seatbelt
zinc	3.89E-05	g/1000g PA66		1.05682E-08	g/seatbelt

zinc	0.0109052	g/1000g PA66		2.96295E-06	g/seatbelt
zinc	0.0004391	g/1000g PA66		1.19314E-07	g/seatbelt
zinc oxide	2.132E-10	g/1000g PA66		5.79172E-14	g/seatbelt
Remark					
Data adapted from Polyamide 6.6 fibres (PA 6.6); from adipic acid and hexamethylene diamine (HMDA); production mix, at plant; PA 6.6 granulate without additives					
3.47.21.2 Transportation to granules producer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2618	MJ/1000g of product	0.2717	7.11311E-05	MJ/seatbelt
				0	
OUTFLOWS				0	
CO2	19.0400	g/1000g of product		0.005173168	g/seatbelt
NOx	0.1260	g/1000g of product		3.42342E-05	g/seatbelt
HC	0.0168	g/1000g of product		4.56456E-06	g/seatbelt
Particulate matter	0.0021	g/1000g of product		5.7057E-07	g/seatbelt
CO	0.0168	g/1000g of product		4.56456E-06	g/seatbelt
SO2	0.0048	g/1000g of product		1.29329E-06	g/seatbelt
Remark:					
Distance between plant in Italy and granules producer (Plaisir, France) in km		**140**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.47.21.3 Production of glass fibre	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
sand	595	g/1000g glass	0.1463	0.0870485	g/seatbelt
soda	170	g/1000g glass		0.024871	g/seatbelt
lime	103.75	g/1000g glass		0.015178625	g/seatbelt
dolomite	72.5	g/1000g glass		0.01060675	g/seatbelt
feldspar	53.75	g/1000g glass		0.007863625	g/seatbelt
sodium sulphate	5	g/1000g glass		0.0007315	g/seatbelt
natural gas	5.64E+02	MJ/1000g glass		0.0825132	MJ/seatbelt
oil	4.23E+03	MJ/1000g glass		0.61946346	MJ/seatbelt
electricity	368.2	MJ/1000g glass		0.05386766	MJ/seatbelt
OUTFLOWS				0	
NOx	2.69	g/1000g glass		0.000393547	g/seatbelt
CO2	352.08516	g/1000g glass		0.051510059	g/seatbelt
SO2	1.01	g/1000g glass		0.000147763	g/seatbelt
Particulates	0.26	g/1000g glass		0.000038038	g/seatbelt

waste oil	0.009	g/1000g glass		1.3167E-06	g/seatbelt
suspended matter	0.018	g/1000g glass		2.6334E-06	g/seatbelt
Remark					
Data for glass fibre adapted from glass production (Metal parts manufacturer no.8, 2004)					
Electricity data for France					
3.47.21.4 Transportation to granules producer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.3600	MJ/1000g of product	0.1463	0.000052668	MJ/seatbelt
OUTFLOWS					
CO2	26.0000	g/1000g of product		0.0038038	g/seatbelt
NOx	0.1650	g/1000g of product		2.41395E-05	g/seatbelt
HC	0.0235	g/1000g of product		3.43805E-06	g/seatbelt
Particulate matter	0.0029	g/1000g of product		4.16955E-07	g/seatbelt
CO	0.0230	g/1000g of product		3.3649E-06	g/seatbelt
SO2	0.0065	g/1000g of product		9.5095E-07	g/seatbelt
Remark:					
Distance between plant in Malysia and granules producer (Plaisir, France) in km		**500**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
		14500	ship		
		500	truck		
3.47.21.4 Transportation granules producer (ship)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	3.1320	MJ/1000g of product	0.1463	0.000458212	MJ/seatbelt
OUTFLOWS					
CO2	223.3000	g/1000g of product		0.03266879	g/seatbelt
NOx	6.2205	g/1000g of product		0.000910059	g/seatbelt
HC	0.2900	g/1000g of product		0.000042427	g/seatbelt
Particulate matter	0.2958	g/1000g of product		4.32755E-05	g/seatbelt
CO	0.1262	g/1000g of product		1.84557E-05	g/seatbelt
SO2	3.7990	g/1000g of product		0.000555794	g/seatbelt

3.47.21.5 Production of granules	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	2.88	MJ/1000g product	0.4180	0.00120384	MJ/seatbelt
LPG	0.1323	MJ/1000g product		5.53014E-05	MJ/seatbelt
methane	2.1492	MJ/1000g product		0.000898366	MJ/seatbelt
PA66	650	g/1000g product		0.2717	g/seatbelt
glass fibre	350	g/1000g product		0.1463	g/seatbelt
Remark:					
Electricity data for France					
3.47.21.6 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1309	MJ/1000g of product	0.4180	5.47162E-05	MJ/seatbelt
OUTFLOWS					
CO2	9.5200	g/1000g of product		0.00397936	g/seatbelt
NOx	0.0630	g/1000g of product		0.000026334	g/seatbelt
HC	0.0084	g/1000g of product		3.5112E-06	g/seatbelt
Particulate matter	0.0011	g/1000g of product		4.389E-07	g/seatbelt
CO	0.0084	g/1000g of product		3.5112E-06	g/seatbelt
SO2	0.0024	g/1000g of product		9.9484E-07	g/seatbelt
Remark:					
Distance between granules producer (Plaisir, France) and NCS (Survilliers, France) in km		**70**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.47.21.7 Production of initiator overmoulding	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
granules	1000.0000	g/1000g initiator	0.4180	0.4180	g/seatbelt
OUTFLOWS					
initiator ovemoulding				0.4180	g/seatbelt
Lack of data					

3.47.21.8 Production of gold for coating	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g gold	0.0100	0.135	g/seatbelt
baryte	1.5574821	g/1000g gold		1.55748E-05	g/seatbelt
basalt	34.801523	g/1000g gold		0.000348015	g/seatbelt
bauxite	21.142572	g/1000g gold		0.000211426	g/seatbelt
bentonite	0.648349	g/1000g gold		6.48349E-06	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g gold		2.1446E-09	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g gold		4.35629E-05	MJ/seatbelt
calcium carbonate	85.44366	g/1000g gold		0.000854437	g/seatbelt
calcium chloride	5.527E-09	g/1000g gold		5.5267E-14	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g gold		0.000629631	g/seatbelt
nickel (in)	0.0023622	g/1000g gold		2.36221E-08	g/seatbelt
clay	0.2616171	g/1000g gold		2.61617E-06	g/seatbelt
colemanite	0.9853674	g/1000g gold		9.85367E-06	g/seatbelt
copper (in)	-31.106001	g/1000g gold		-0.00031106	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g gold		4.16583E-05	MJ/seatbelt
fluorspar	0.1583729	g/1000g gold		1.58373E-06	g/seatbelt
gold (in)	-0.0026783	g/1000g gold		-2.67825E-08	g/seatbelt
ground water	3624.1777	g/1000g gold		0.036241777	g/seatbelt
gypsum	0.1523604	g/1000g gold		1.5236E-06	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g gold		0.00013692	MJ/seatbelt
inert rock	47243.326	g/1000g gold		0.472433261	g/seatbelt
iron (in)	4.1413625	g/1000g gold		4.14136E-05	g/seatbelt
kaolin	0.0019158	g/1000g gold		1.91584E-08	g/seatbelt
lead (in)	120.22987	g/1000g gold		0.001202299	g/seatbelt
magnesite	0.0012403	g/1000g gold		1.24034E-08	g/seatbelt
manganese	-11.317555	g/1000g gold		-0.000113176	g/seatbelt
mercury (in)	4.417E-06	g/1000g gold		4.41735E-11	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g gold		9.51334E-10	g/seatbelt
natural aggregate	26.231425	g/1000g gold		0.000262314	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g gold		8.22097E-05	MJ/seatbelt
nickel (in)	0.0042159	g/1000g gold		4.21589E-08	g/seatbelt
olivine	1.735E-06	g/1000g gold		1.73545E-11	g/seatbelt
oxygen	-42.44669	g/1000g gold		-0.000424467	g/seatbelt
palladium	3.273E-09	g/1000g gold		3.27271E-14	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g gold		1.52662E-06	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g gold		5.56641E-10	g/seatbelt
platinum	3.931E-08	g/1000g gold		3.9315E-13	g/seatbelt
potassium chloride	0.0009365	g/1000g gold		9.36461E-09	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g gold		2.29938E-07	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g gold		6.52631E-05	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g gold		5.79255E-06	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g gold		3.92798E-11	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g gold		3.59206E-06	MJ/seatbelt
quartz sand	-12.853854	g/1000g gold		-0.000128539	g/seatbelt

raw pumice	0.0001656	g/1000g gold		1.65633E-09	g/seatbelt
rhodium	1.094E-10	g/1000g gold		1.09444E-15	g/seatbelt
river water	6.1598962	l/1000g gold		6.1599E-05	l/seatbelt
sand	0.0001874	g/1000g gold		1.87365E-09	g/seatbelt
sea water	-0.000147	l/1000g gold		-1.47028E-09	l/seatbelt
silicon (in)	0.0001218	g/1000g gold		1.21802E-09	g/seatbelt
silver (in)	-0.0161287	g/1000g gold		-1.61287E-07	g/seatbelt
slate	1.32E-08	g/1000g gold		1.31977E-13	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g gold		-0.000140007	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g gold		-7.45897E-09	g/seatbelt
soil	13.199188	g/1000g gold		0.000131992	g/seatbelt
sulfur (in)	0.0033189	g/1000g gold		3.31894E-08	g/seatbelt
surface water	27.074991	l/1000g gold		0.00027075	l/seatbelt
talc	0.0005357	g/1000g gold		5.35716E-09	g/seatbelt
titanium	0.0025897	g/1000g gold		2.58965E-08	g/seatbelt
uranium	11208.633	g/1000g gold		0.112086328	g/seatbelt
water	372.88334	l/1000g gold		0.003728833	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g gold		4.2773E-09	MJ/seatbelt
zinc (in)	819.6244	g/1000g gold		0.008196244	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g gold		9.24737E-05	g/seatbelt
zinc dross	31.9	g/1000g gold		0.000319	g/seatbelt
zinc dust	3.2163809	g/1000g gold		3.21638E-05	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g gold		0.00025345	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g gold		8.2458E-07	g/seatbelt
ammonia	0.0101456	g/1000g gold		1.01456E-07	g/seatbelt
ammonia	0.0944373	g/1000g gold		9.44373E-07	g/seatbelt
ammonia	0.0048189	g/1000g gold		4.81893E-08	g/seatbelt
ammonium	0.0001497	g/1000g gold		1.49738E-09	g/seatbelt
ammonium	0.0018023	g/1000g gold		1.80227E-08	g/seatbelt
ammonium to sea water	0.0013248	g/1000g gold		1.32478E-08	g/seatbelt
arsenic	0.0058028	g/1000g gold		5.80276E-08	g/seatbelt
arsenic	5.36E-06	g/1000g gold		5.35908E-11	g/seatbelt
arsenic	0.0310056	g/1000g gold		3.10056E-07	g/seatbelt
arsenic	5.75E-05	g/1000g gold		5.75421E-10	g/seatbelt
benzene	0.0011388	g/1000g gold		1.13875E-08	g/seatbelt
benzene	5.18E-05	g/1000g gold		5.17717E-10	g/seatbelt
benzene	0.000199	g/1000g gold		1.99016E-09	g/seatbelt
cadmium	0.0089817	g/1000g gold		8.98166E-08	g/seatbelt
cadmium	1.94E-05	g/1000g gold		1.9433E-10	g/seatbelt
cadmium	0.0002277	g/1000g gold		2.27677E-09	g/seatbelt
cadmium	0.0015242	g/1000g gold		1.52418E-08	g/seatbelt
carbon dioxide	3040.5	g/1000g gold		0.030405	g/seatbelt
CFC-11	0.0001464	g/1000g gold		1.46417E-09	g/seatbelt
CFC-114	0.0001499	g/1000g gold		1.49945E-09	g/seatbelt
CFC-12	3.15E-05	g/1000g gold		3.14796E-10	g/seatbelt
CFC-13	1.98E-05	g/1000g gold		1.97662E-10	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g gold		9.78642E-06	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g gold		2.12362E-07	g/seatbelt
nickel III	-2.72E-07	g/1000g gold		-2.7208E-12	g/seatbelt

nickel III	1.13E-06	g/1000g gold		1.13229E-11	g/seatbelt
nickel III	5.03E-05	g/1000g gold		5.03364E-10	g/seatbelt
nickel VI	1.75E-05	g/1000g gold		1.75133E-10	g/seatbelt
nickel VI	-4.32E-06	g/1000g gold		-4.31675E-11	g/seatbelt
cobalt	0.0018228	g/1000g gold		1.82276E-08	g/seatbelt
cobalt	2.97E-07	g/1000g gold		2.97234E-12	g/seatbelt
cobalt	3.29E-07	g/1000g gold		3.29147E-12	g/seatbelt
cobalt	1.10E-05	g/1000g gold		1.09762E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g gold		4.13397E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g gold		9.23034E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g gold		1.04826E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g gold		5.17483E-05	g/seatbelt
copper	0.1356498	g/1000g gold		1.3565E-06	g/seatbelt
copper	0.0049752	g/1000g gold		4.97515E-08	g/seatbelt
copper	0.0001369	g/1000g gold		1.36935E-09	g/seatbelt
copper	0.0110447	g/1000g gold		1.10447E-07	g/seatbelt
ethylene	1.23E-05	g/1000g gold		1.23434E-10	g/seatbelt
hydrogen chloride	0.1782016	g/1000g gold		1.78202E-06	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g gold		7.22026E-12	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g gold		4.06748E-07	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g gold		5.04341E-13	g/seatbelt
lead	0.1242728	g/1000g gold		1.24273E-06	g/seatbelt
lead	4.66E-05	g/1000g gold		4.6582E-10	g/seatbelt
lead	0.0008935	g/1000g gold		8.93547E-09	g/seatbelt
lead	0.0044786	g/1000g gold		4.47857E-08	g/seatbelt
mercury	0.0001779	g/1000g gold		1.77944E-09	g/seatbelt
mercury	7.93E-07	g/1000g gold		7.92607E-12	g/seatbelt
mercury	0.0001995	g/1000g gold		1.99483E-09	g/seatbelt
mercury	5.12E-06	g/1000g gold		5.12016E-11	g/seatbelt
methane	3.9556308	g/1000g gold		3.95563E-05	g/seatbelt
nickel	0.0010629	g/1000g gold		1.06292E-08	g/seatbelt
nickel	4.75E-05	g/1000g gold		4.75113E-10	g/seatbelt
nickel	0.0001204	g/1000g gold		1.20408E-09	g/seatbelt
nickel	3.02E-05	g/1000g gold		3.02389E-10	g/seatbelt
nitrate	3.61E-05	g/1000g gold		3.6091E-10	g/seatbelt
nitrate	0.0008705	g/1000g gold		8.70483E-09	g/seatbelt
nitrate	0.2355114	g/1000g gold		2.35511E-06	g/seatbelt
nitrogen	3.0664234	g/1000g gold		3.06642E-05	g/seatbelt
nitrogen	0.0037303	g/1000g gold		3.73031E-08	g/seatbelt
nitrogen	0.0388564	g/1000g gold		3.88564E-07	g/seatbelt
nitrogen	0.0331367	g/1000g gold		3.31367E-07	g/seatbelt
nitrogen dioxide	17.053961	g/1000g gold		0.00017054	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g gold		1.97566E-10	g/seatbelt
nitrous oxide	0.1158841	g/1000g gold		1.15884E-06	g/seatbelt
phosphate	0.0051168	g/1000g gold		5.11677E-08	g/seatbelt
phosphate	0.0030974	g/1000g gold		3.09743E-08	g/seatbelt
toluene	0.0001184	g/1000g gold		1.18412E-09	g/seatbelt
toluene	3.15E-05	g/1000g gold		3.15437E-10	g/seatbelt
vanadium	0.0027262	g/1000g gold		2.72622E-08	g/seatbelt
vanadium	7.30E-06	g/1000g gold		7.29769E-11	g/seatbelt

vanadium	0.0001296	g/1000g gold		1.29574E-09	g/seatbelt
zinc	0.1760723	g/1000g gold		1.76072E-06	g/seatbelt
zinc	0.0085203	g/1000g gold		8.52028E-08	g/seatbelt
zinc	0.0090181	g/1000g gold		9.01814E-08	g/seatbelt
zinc	0.1440723	g/1000g gold		1.44072E-06	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g gold		2.27595E-08	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g gold		6.50756E-05	g/seatbelt
Hazardous waste	27.620581	g/1000g gold		0.000276206	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g gold		6.792E-08	g/seatbelt
Industrial waste	177.6031	g/1000g gold		0.001776031	g/seatbelt
Iron scrap	18.917083	g/1000g gold		0.000189171	g/seatbelt
jarosite	123.75866	g/1000g gold		0.001237587	g/seatbelt
medium and low radioactive	0.0080611	g/1000g gold		8.06107E-08	g/seatbelt
mineral waste	6.121768	g/1000g gold		6.12177E-05	g/seatbelt
overburden (unspecified)	44482.62	g/1000g gold		0.444826205	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g gold		3.98688E-05	g/seatbelt
slag (unspecified)	10.21577	g/1000g gold		0.000102158	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g gold		1.5073E-07	g/seatbelt
spoil (unspecified)	14.286476	g/1000g gold		0.000142865	g/seatbelt
sludge	12.2	g/1000g gold		0.000122	g/seatbelt
steel scrap	1.0967234	g/1000g gold		1.09672E-05	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g gold		0.050450465	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g gold		1.3515E-07	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g gold		1.55929E-07	g/seatbelt
used oil	220.9923	g/1000g gold		0.002209923	g/seatbelt
gold slag	0.8737593	g/1000g gold		8.73759E-06	g/seatbelt
gold scrab	16.168781	g/1000g gold		0.000161688	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.47.21.9 Transportation to Header manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.10 Production of ceramic	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
atomised clays	951.52229	g/1000g ceramic	0.4172	0.396975098	g/seatbelt
glazes	31.148487	g/1000g ceramic		0.012995149	g/seatbelt
colourings	0.2146259	g/1000g ceramic		8.95419E-05	g/seatbelt
screen-printing	2.7350932	g/1000g ceramic		0.001141081	g/seatbelt
packing products	14.379507	g/1000g ceramic		0.00599913	g/seatbelt
oil	1.8049055	MJ/1000g ceramic		0.000753007	MJ/seatbelt

electricity	26.134228	MJ/1000g ceramic		0.0109032	MJ/seatbelt
natural gas	27.29246	MJ/1000g ceramic		0.011386414	MJ/seatbelt
diesel	0.7979133	l/1000g ceramic		0.000332889	l/seatbelt
water	0.3785608	l/1000g ceramic		0.000157936	l/seatbelt
OUTFLOWS					
CO	27.692285	g/1000g ceramic		0.011553221	g/seatbelt
CO2	139.95485	g/1000g ceramic		0.058389162	g/seatbelt
NO	0.2952706	g/1000g ceramic		0.000123187	g/seatbelt
SO2	1.3317045	g/1000g ceramic		0.000555587	g/seatbelt
F	0.0344767	g/1000g ceramic		1.43837E-05	g/seatbelt
Remark:					
Electricity data for Czech Republic					
Data for ceramic adapted from (Bovea, 2009)					
3.47.21.11 Transportation to Header manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.12 Production of alloy NiFe47	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.4520	7.14E-06	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		1.42E-05	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		3.22E-07	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		3.97E-04	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		9.41E-02	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		6.96E-03	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		2.06E-03	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		2.17E-02	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		6.84E-03	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		1.01E-01	g/seatbelt
iron (in)	215.94651	g/1000g alloy		9.76E-02	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		9.97E-04	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		7.28E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		2.88E-03	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		1.18E-04	g/seatbelt
water	18.985568	l/1000g alloy		8.58E-03	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		4.52E-01	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		1.01E-12	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		2.72E-05	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		5.33E-06	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		2.73E-05	g/seatbelt

cadmium	2.18E-05	g/1000g alloy		9.85E-09	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		1.53E+00	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		4.45E-03	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		2.04E-04	g/seatbelt
chloride	3.56E+00	g/1000g alloy		1.61E-03	g/seatbelt
chromium	1.14E-01	g/1000g alloy		5.14E-05	g/seatbelt
chromium	9.22E-04	g/1000g alloy		4.17E-07	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		2.68E-08	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		1.04E-07	g/seatbelt
copper	1.22E-04	g/1000g alloy		5.51E-08	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		3.13E-05	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		9.85E-06	g/seatbelt
iron	1.31E-01	g/1000g alloy		5.94E-05	g/seatbelt
lead	5.17E-04	g/1000g alloy		2.34E-07	g/seatbelt
manganese	2.83E-03	g/1000g alloy		1.28E-06	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		2.82E-06	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		7.50E-07	g/seatbelt
nickel	2.97E-02	g/1000g alloy		1.34E-05	g/seatbelt
nickel	3.38E-03	g/1000g alloy		1.53E-06	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		9.06E-05	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		4.62E-05	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		3.40E-03	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		1.06E-04	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		2.01E-03	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		1.34E-06	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		4.16E-04	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		5.60E-03	g/seatbelt
tin	1.61E-04	g/1000g alloy		7.28E-08	g/seatbelt
zinc	1.11E-03	g/1000g alloy		5.02E-07	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		1.10E-01	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		5.87E-01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.47.21.13 Transportation to Header manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.14 Production of steel 11SMnPb37	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	0.9786	0.0494193	g/seatbelt
Chemicals	4.99	g/1000g steel		0.004883214	g/seatbelt

Coal	0.223	MJ/1000g steel		0.000218228	MJ/seatbelt
Coal	517	g/1000g steel		0.021755257	g/seatbelt
Diesel	0.195	MJ/1000g steel		0.000190827	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.003219594	MJ/seatbelt
Explosives	1.02	g/1000g steel		0.000998172	g/seatbelt
Gas	4.81	MJ/1000g steel		0.004707066	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.002818368	MJ/seatbelt
Iron ore	2170	g/1000g steel		2.123562	g/seatbelt
Limestone	162	g/1000g steel		0.1585332	g/seatbelt
Oil	0.00106	MJ/1000g steel		1.03732E-06	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		0.05108292	g/seatbelt
OUTFLOWS					
ammonia	0.000517	g/1000g steel		5.05936E-07	g/seatbelt
arsenic	2.08E-06	g/1000g steel		2.03549E-09	g/seatbelt
cadmium	0.0000118	g/1000g steel		1.15475E-08	g/seatbelt
cadmium	4.46E-08	g/1000g steel		4.36456E-11	g/seatbelt
CH4	4.04	g/1000g steel		0.003953544	g/seatbelt
carbon dioxide	1180	g/1000g steel		1.154748	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		2.50522E-05	g/seatbelt
chromium	0.00036	g/1000g steel		3.52296E-07	g/seatbelt
chromium	0.0000488	g/1000g steel		4.77557E-08	g/seatbelt
cobalt	0.0000072	g/1000g steel		7.04592E-09	g/seatbelt
cobalt	3.21E-06	g/1000g steel		3.14131E-09	g/seatbelt
copper	0.000175	g/1000g steel		1.71255E-07	g/seatbelt
copper	0.000101	g/1000g steel		9.88386E-08	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		4.09055E-05	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		5.49973E-05	g/seatbelt
lead	0.000529	g/1000g steel		5.17679E-07	g/seatbelt
lead	0.000402	g/1000g steel		3.93397E-07	g/seatbelt
mercury	0.0000344	g/1000g steel		3.36638E-08	g/seatbelt
nickel	0.0004	g/1000g steel		3.9144E-07	g/seatbelt
nickel	0.0000815	g/1000g steel		7.97559E-08	g/seatbelt
nitrogen	0.0318	g/1000g steel		3.11195E-05	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.001458114	g/seatbelt
Phosphorus	0.000372	g/1000g steel		3.64039E-07	g/seatbelt
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		1.43854E-07	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.001487472	g/seatbelt
zinc	0.00368	g/1000g steel		3.60125E-06	g/seatbelt
zinc	0.000997	g/1000g steel		9.75664E-07	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.001585332	g/seatbelt
Industrial waste	96.4	g/1000g steel		0.09433704	g/seatbelt
mineral waste	1100	g/1000g steel		1.07646	g/seatbelt
Remark:					
Electricity data for Czech Republic					
3.47.21.15 Transportation to Header manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.

Lack of data					
3.47.21.16 Production of special metal	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g special meta	0.0280	0.378	g/seatbelt
baryte	1.5574821	g/1000g special metal		4.36095E-05	g/seatbelt
basalt	34.801523	g/1000g special metal		0.000974443	g/seatbelt
bauxite	21.142572	g/1000g special metal		0.000591992	g/seatbelt
bentonite	0.648349	g/1000g special metal		1.81538E-05	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g special metal		6.00488E-09	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g special metal		0.000121976	MJ/seatbelt
calcium carbonate	85.44366	g/1000g special metal		0.002392422	g/seatbelt
calcium chloride	5.527E-09	g/1000g special metal		1.54748E-13	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g special metal		0.001762966	g/seatbelt
nickel (in)	0.0023622	g/1000g special metal		6.61419E-08	g/seatbelt
clay	0.2616171	g/1000g special metal		7.32528E-06	g/seatbelt
colemanite	0.9853674	g/1000g special metal		2.75903E-05	g/seatbelt
copper (in)	-31.106001	g/1000g special metal		-0.000870968	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g special metal		0.000116643	MJ/seatbelt
fluorspar	0.1583729	g/1000g special metal		4.43444E-06	g/seatbelt
gold (in)	-0.0026783	g/1000g special metal		-7.4991E-08	g/seatbelt
ground water	3624.1777	g/1000g special metal		0.101476974	g/seatbelt
gypsum	0.1523604	g/1000g special metal		4.26609E-06	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g special metal		0.000383375	MJ/seatbelt
inert rock	47243.326	g/1000g special metal		1.32281313	g/seatbelt
iron (in)	4.1413625	g/1000g special metal		0.000115958	g/seatbelt
kaolin	0.0019158	g/1000g special metal		5.36436E-08	g/seatbelt
lead (in)	120.22987	g/1000g special metal		0.003366436	g/seatbelt
magnesite	0.0012403	g/1000g special metal		3.47296E-08	g/seatbelt
manganese	-11.317555	g/1000g special metal		-0.000316892	g/seatbelt
mercury (in)	4.417E-06	g/1000g special metal		1.23686E-10	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g special metal		2.66373E-09	g/seatbelt
natural aggregate	26.231425	g/1000g special metal		0.00073448	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g special metal		0.000230187	MJ/seatbelt
nickel (in)	0.0042159	g/1000g special metal		1.18045E-07	g/seatbelt
olivine	1.735E-06	g/1000g special metal		4.85927E-11	g/seatbelt
oxygen	-42.44669	g/1000g special metal		-0.001188507	g/seatbelt
palladium	3.273E-09	g/1000g special metal		9.16358E-14	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g special metal		4.27454E-06	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g special metal		1.55859E-09	g/seatbelt
platinum	3.931E-08	g/1000g special metal		1.10082E-12	g/seatbelt
potassium chloride	0.0009365	g/1000g special metal		2.62209E-08	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g special metal		6.43827E-07	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g special metal		0.000182737	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g special metal		1.62191E-05	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g special metal		1.09983E-10	MJ/seatbelt

primary energy from wind po	0.3592062	MJ/1000g special metal	1.00578E-05	MJ/seatbelt
quartz sand	-12.853854	g/1000g special metal	-0.000359908	g/seatbelt
raw pumice	0.0001656	g/1000g special metal	4.63773E-09	g/seatbelt
rhodium	1.094E-10	g/1000g special metal	3.06444E-15	g/seatbelt
river water	6.1598962	l/1000g special metal	0.000172477	l/seatbelt
sand	0.0001874	g/1000g special metal	5.24623E-09	g/seatbelt
sea water	-0.000147	l/1000g special metal	-4.11678E-09	l/seatbelt
silicon (in)	0.0001218	g/1000g special metal	3.41047E-09	g/seatbelt
silver (in)	-0.0161287	g/1000g special metal	-4.51603E-07	g/seatbelt
slate	1.32E-08	g/1000g special metal	3.69535E-13	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g special metal	-0.000392021	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g special metal	-2.08851E-08	g/seatbelt
soil	13.199188	g/1000g special metal	0.000369577	g/seatbelt
sulfur (in)	0.0033189	g/1000g special metal	9.29304E-08	g/seatbelt
surface water	27.074991	l/1000g special metal	0.0007581	l/seatbelt
talc	0.0005357	g/1000g special metal	1.5E-08	g/seatbelt
titanium	0.0025897	g/1000g special metal	7.25102E-08	g/seatbelt
uranium	11208.633	g/1000g special metal	0.31384172	g/seatbelt
water	372.88334	l/1000g special metal	0.010440734	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g special metal	1.19764E-08	MJ/seatbelt
zinc (in)	819.6244	g/1000g special metal	0.022949483	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g special metal	0.000258926	g/seatbelt
zinc dross	31.9	g/1000g special metal	0.0008932	g/seatbelt
zinc dust	3.2163809	g/1000g special metal	9.00587E-05	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g special metal	0.00070966	g/seatbelt
OUTFLOWS			0	
ammonia	0.082458	g/1000g special metal	2.30882E-06	g/seatbelt
ammonia	0.0101456	g/1000g special metal	2.84076E-07	g/seatbelt
ammonia	0.0944373	g/1000g special metal	2.64424E-06	g/seatbelt
ammonia	0.0048189	g/1000g special metal	1.3493E-07	g/seatbelt
ammonium	0.0001497	g/1000g special metal	4.19267E-09	g/seatbelt
ammonium	0.0018023	g/1000g special metal	5.04637E-08	g/seatbelt
ammonium to sea water	0.0013248	g/1000g special metal	3.70939E-08	g/seatbelt
arsenic	0.0058028	g/1000g special metal	1.62477E-07	g/seatbelt
arsenic	5.36E-06	g/1000g special metal	1.50054E-10	g/seatbelt
arsenic	0.0310056	g/1000g special metal	8.68158E-07	g/seatbelt
arsenic	5.75E-05	g/1000g special metal	1.61118E-09	g/seatbelt
benzene	0.0011388	g/1000g special metal	3.18851E-08	g/seatbelt
benzene	5.18E-05	g/1000g special metal	1.44961E-09	g/seatbelt
benzene	0.000199	g/1000g special metal	5.57246E-09	g/seatbelt
cadmium	0.0089817	g/1000g special metal	2.51486E-07	g/seatbelt
cadmium	1.94E-05	g/1000g special metal	5.44123E-10	g/seatbelt
cadmium	0.0002277	g/1000g special metal	6.37496E-09	g/seatbelt
cadmium	0.0015242	g/1000g special metal	4.26771E-08	g/seatbelt
carbon dioxide	3040.5	g/1000g special metal	0.085134	g/seatbelt
CFC-11	0.0001464	g/1000g special metal	4.09966E-09	g/seatbelt
CFC-114	0.0001499	g/1000g special metal	4.19845E-09	g/seatbelt
CFC-12	3.15E-05	g/1000g special metal	8.81428E-10	g/seatbelt
CFC-13	1.98E-05	g/1000g special metal	5.53455E-10	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g special metal	2.7402E-05	g/seatbelt

chemical oxygen demand	0.0212362	g/1000g special metal	5.94613E-07	g/seatbelt
nickel III	-2.72E-07	g/1000g special metal	-7.61824E-12	g/seatbelt
nickel III	1.13E-06	g/1000g special metal	3.1704E-11	g/seatbelt
nickel III	5.03E-05	g/1000g special metal	1.40942E-09	g/seatbelt
nickel VI	1.75E-05	g/1000g special metal	4.90372E-10	g/seatbelt
nickel VI	-4.32E-06	g/1000g special metal	-1.20869E-10	g/seatbelt
cobalt	0.0018228	g/1000g special metal	5.10373E-08	g/seatbelt
cobalt	2.97E-07	g/1000g special metal	8.32255E-12	g/seatbelt
cobalt	3.29E-07	g/1000g special metal	9.21613E-12	g/seatbelt
cobalt	1.10E-05	g/1000g special metal	3.07333E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g special metal	1.15751E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g special metal	2.58449E-07	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g special metal	2.93513E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g special metal	0.000144895	g/seatbelt
copper	0.1356498	g/1000g special metal	3.7982E-06	g/seatbelt
copper	0.0049752	g/1000g special metal	1.39304E-07	g/seatbelt
copper	0.0001369	g/1000g special metal	3.83417E-09	g/seatbelt
copper	0.0110447	g/1000g special metal	3.09251E-07	g/seatbelt
ethylene	1.23E-05	g/1000g special metal	3.45614E-10	g/seatbelt
hydrogen chloride	0.1782016	g/1000g special metal	4.98964E-06	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g special metal	2.02167E-11	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g special metal	1.13889E-06	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g special metal	1.41216E-12	g/seatbelt
lead	0.1242728	g/1000g special metal	3.47964E-06	g/seatbelt
lead	4.66E-05	g/1000g special metal	1.3043E-09	g/seatbelt
lead	0.0008935	g/1000g special metal	2.50193E-08	g/seatbelt
lead	0.0044786	g/1000g special metal	1.254E-07	g/seatbelt
mercury	0.0001779	g/1000g special metal	4.98244E-09	g/seatbelt
mercury	7.93E-07	g/1000g special metal	2.2193E-11	g/seatbelt
mercury	0.0001995	g/1000g special metal	5.58552E-09	g/seatbelt
mercury	5.12E-06	g/1000g special metal	1.43365E-10	g/seatbelt
methane	3.9556308	g/1000g special metal	0.000110758	g/seatbelt
nickel	0.0010629	g/1000g special metal	2.97619E-08	g/seatbelt
nickel	4.75E-05	g/1000g special metal	1.33032E-09	g/seatbelt
nickel	0.0001204	g/1000g special metal	3.37144E-09	g/seatbelt
nickel	3.02E-05	g/1000g special metal	8.46689E-10	g/seatbelt
nitrate	3.61E-05	g/1000g special metal	1.01055E-09	g/seatbelt
nitrate	0.0008705	g/1000g special metal	2.43735E-08	g/seatbelt
nitrate	0.2355114	g/1000g special metal	6.59432E-06	g/seatbelt
nitrogen	3.0664234	g/1000g special metal	8.58599E-05	g/seatbelt
nitrogen	0.0037303	g/1000g special metal	1.04449E-07	g/seatbelt
nitrogen	0.0388564	g/1000g special metal	1.08798E-06	g/seatbelt
nitrogen	0.0331367	g/1000g special metal	9.27827E-07	g/seatbelt
nitrogen dioxide	17.053961	g/1000g special metal	0.000477511	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g special metal	5.53186E-10	g/seatbelt
nitrous oxide	0.1158841	g/1000g special metal	3.24475E-06	g/seatbelt
phosphate	0.0051168	g/1000g special metal	1.43269E-07	g/seatbelt
phosphate	0.0030974	g/1000g special metal	8.67281E-08	g/seatbelt
toluene	0.0001184	g/1000g special metal	3.31555E-09	g/seatbelt
toluene	3.15E-05	g/1000g special metal	8.83222E-10	g/seatbelt

vanadium	0.0027262	g/1000g special metal		7.63341E-08	g/seatbelt
vanadium	7.30E-06	g/1000g special metal		2.04335E-10	g/seatbelt
vanadium	0.0001296	g/1000g special metal		3.62808E-09	g/seatbelt
zinc	0.1760723	g/1000g special metal		4.93002E-06	g/seatbelt
zinc	0.0085203	g/1000g special metal		2.38568E-07	g/seatbelt
zinc	0.0090181	g/1000g special metal		2.52508E-07	g/seatbelt
zinc	0.1440723	g/1000g special metal		4.03402E-06	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g special metal		6.37265E-08	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g special metal		0.000182212	g/seatbelt
Hazardous waste	27.620581	g/1000g special metal		0.000773376	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g special metal		1.90176E-07	g/seatbelt
Industrial waste	177.6031	g/1000g special metal		0.004972887	g/seatbelt
Iron scrap	18.917083	g/1000g special metal		0.000529678	g/seatbelt
jarosite	123.75866	g/1000g special metal		0.003465242	g/seatbelt
medium and low radioactive	0.0080611	g/1000g special metal		2.2571E-07	g/seatbelt
mineral waste	6.121768	g/1000g special metal		0.00017141	g/seatbelt
overburden (unspecified)	44482.62	g/1000g special metal		1.245513373	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g special metal		0.000111633	g/seatbelt
slag (unspecified)	10.21577	g/1000g special metal		0.000286042	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g special metal		4.22043E-07	g/seatbelt
spoil (unspecified)	14.286476	g/1000g special metal		0.000400021	g/seatbelt
sludge	12.2	g/1000g special metal		0.0003416	g/seatbelt
steel scrap	1.0967234	g/1000g special metal		3.07083E-05	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g special metal		0.141261301	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g special metal		3.78419E-07	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g special metal		4.36602E-07	g/seatbelt
used oil	220.9923	g/1000g special metal		0.006187784	g/seatbelt
metal slag	0.8737593	g/1000g special metal		2.44653E-05	g/seatbelt
metal scrab	16.168781	g/1000g special metal		0.000452726	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.47.21.17 Transportation to Header manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.18 Production of Nickel for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g nickel	0.0316	0.4266	g/seatbelt
baryte	1.5574821	g/1000g nickel		4.92164E-05	g/seatbelt
basalt	34.801523	g/1000g nickel		0.001099728	g/seatbelt
bauxite	21.142572	g/1000g nickel		0.000668105	g/seatbelt

bentonite	0.648349	g/1000g nickel		2.04878E-05	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g nickel		6.77693E-09	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g nickel		0.000137659	MJ/seatbelt
calcium carbonate	85.44366	g/1000g nickel		0.00270002	g/seatbelt
calcium chloride	5.527E-09	g/1000g nickel		1.74644E-13	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g nickel		0.001989633	g/seatbelt
nickel (in)	0.0023622	g/1000g nickel		7.46459E-08	g/seatbelt
clay	0.2616171	g/1000g nickel		8.2671E-06	g/seatbelt
colemanite	0.9853674	g/1000g nickel		3.11376E-05	g/seatbelt
copper (in)	-31.106001	g/1000g nickel		-0.00098295	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g nickel		0.00013164	MJ/seatbelt
fluorspar	0.1583729	g/1000g nickel		5.00458E-06	g/seatbelt
gold (in)	-0.0026783	g/1000g nickel		-8.46327E-08	g/seatbelt
ground water	3624.1777	g/1000g nickel		0.114524014	g/seatbelt
gypsum	0.1523604	g/1000g nickel		4.81459E-06	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g nickel		0.000432666	MJ/seatbelt
inert rock	47243.326	g/1000g nickel		1.492889104	g/seatbelt
iron (in)	4.1413625	g/1000g nickel		0.000130867	g/seatbelt
kaolin	0.0019158	g/1000g nickel		6.05406E-08	g/seatbelt
lead (in)	120.22987	g/1000g nickel		0.003799264	g/seatbelt
magnesite	0.0012403	g/1000g nickel		3.91948E-08	g/seatbelt
manganese	-11.317555	g/1000g nickel		-0.000357635	g/seatbelt
mercury (in)	4.417E-06	g/1000g nickel		1.39588E-10	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g nickel		3.00622E-09	g/seatbelt
natural aggregate	26.231425	g/1000g nickel		0.000828913	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g nickel		0.000259783	MJ/seatbelt
nickel (in)	0.0042159	g/1000g nickel		1.33222E-07	g/seatbelt
olivine	1.735E-06	g/1000g nickel		5.48403E-11	g/seatbelt
oxygen	-42.44669	g/1000g nickel		-0.001341315	g/seatbelt
palladium	3.273E-09	g/1000g nickel		1.03418E-13	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g nickel		4.82412E-06	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g nickel		1.75899E-09	g/seatbelt
platinum	3.931E-08	g/1000g nickel		1.24235E-12	g/seatbelt
potassium chloride	0.0009365	g/1000g nickel		2.95922E-08	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g nickel		7.26605E-07	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g nickel		0.000206231	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g nickel		1.83044E-05	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g nickel		1.24124E-10	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g nickel		1.13509E-05	MJ/seatbelt
quartz sand	-12.853854	g/1000g nickel		-0.000406182	g/seatbelt
raw pumice	0.0001656	g/1000g nickel		5.234E-09	g/seatbelt
rhodium	1.094E-10	g/1000g nickel		3.45844E-15	g/seatbelt
river water	6.1598962	l/1000g nickel		0.000194653	l/seatbelt
sand	0.0001874	g/1000g nickel		5.92075E-09	g/seatbelt
sea water	-0.000147	l/1000g nickel		-4.64608E-09	l/seatbelt
silicon (in)	0.0001218	g/1000g nickel		3.84895E-09	g/seatbelt
silver (in)	-0.0161287	g/1000g nickel		-5.09666E-07	g/seatbelt
slate	1.32E-08	g/1000g nickel		4.17047E-13	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g nickel		-0.000442424	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g nickel		-2.35703E-08	g/seatbelt

soil	13.199188	g/1000g nickel		0.000417094	g/seatbelt
sulfur (in)	0.0033189	g/1000g nickel		1.04879E-07	g/seatbelt
surface water	27.074991	l/1000g nickel		0.00085557	l/seatbelt
talc	0.0005357	g/1000g nickel		1.69286E-08	g/seatbelt
titanium	0.0025897	g/1000g nickel		8.1833E-08	g/seatbelt
uranium	11208.633	g/1000g nickel		0.354192798	g/seatbelt
water	372.88334	l/1000g nickel		0.011783114	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g nickel		1.35163E-08	MJ/seatbelt
zinc (in)	819.6244	g/1000g nickel		0.025900131	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g nickel		0.000292217	g/seatbelt
zinc dross	31.9	g/1000g nickel		0.00100804	g/seatbelt
zinc dust	3.2163809	g/1000g nickel		0.000101638	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g nickel		0.000800902	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g nickel		2.60567E-06	g/seatbelt
ammonia	0.0101456	g/1000g nickel		3.206E-07	g/seatbelt
ammonia	0.0944373	g/1000g nickel		2.98422E-06	g/seatbelt
ammonia	0.0048189	g/1000g nickel		1.52278E-07	g/seatbelt
ammonium	0.0001497	g/1000g nickel		4.73173E-09	g/seatbelt
ammonium	0.0018023	g/1000g nickel		5.69519E-08	g/seatbelt
ammonium to sea water	0.0013248	g/1000g nickel		4.18632E-08	g/seatbelt
arsenic	0.0058028	g/1000g nickel		1.83367E-07	g/seatbelt
arsenic	5.36E-06	g/1000g nickel		1.69347E-10	g/seatbelt
arsenic	0.0310056	g/1000g nickel		9.79778E-07	g/seatbelt
arsenic	5.75E-05	g/1000g nickel		1.81833E-09	g/seatbelt
benzene	0.0011388	g/1000g nickel		3.59846E-08	g/seatbelt
benzene	5.18E-05	g/1000g nickel		1.63599E-09	g/seatbelt
benzene	0.000199	g/1000g nickel		6.28891E-09	g/seatbelt
cadmium	0.0089817	g/1000g nickel		2.8382E-07	g/seatbelt
cadmium	1.94E-05	g/1000g nickel		6.14082E-10	g/seatbelt
cadmium	0.0002277	g/1000g nickel		7.1946E-09	g/seatbelt
cadmium	0.0015242	g/1000g nickel		4.81642E-08	g/seatbelt
carbon dioxide	3040.5	g/1000g nickel		0.0960798	g/seatbelt
CFC-11	0.0001464	g/1000g nickel		4.62676E-09	g/seatbelt
CFC-114	0.0001499	g/1000g nickel		4.73825E-09	g/seatbelt
CFC-12	3.15E-05	g/1000g nickel		9.94754E-10	g/seatbelt
CFC-13	1.98E-05	g/1000g nickel		6.24613E-10	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g nickel		3.09251E-05	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g nickel		6.71064E-07	g/seatbelt
nickel III	-2.72E-07	g/1000g nickel		-8.59773E-12	g/seatbelt
nickel III	1.13E-06	g/1000g nickel		3.57803E-11	g/seatbelt
nickel III	5.03E-05	g/1000g nickel		1.59063E-09	g/seatbelt
nickel VI	1.75E-05	g/1000g nickel		5.5342E-10	g/seatbelt
nickel VI	-4.32E-06	g/1000g nickel		-1.36409E-10	g/seatbelt
cobalt	0.0018228	g/1000g nickel		5.75993E-08	g/seatbelt
cobalt	2.97E-07	g/1000g nickel		9.39259E-12	g/seatbelt
cobalt	3.29E-07	g/1000g nickel		1.04011E-11	g/seatbelt
cobalt	1.10E-05	g/1000g nickel		3.46847E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g nickel		1.30634E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g nickel		2.91679E-07	g/seatbelt

cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g nickel		3.31251E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g nickel		0.000163525	g/seatbelt
copper	0.1356498	g/1000g nickel		4.28653E-06	g/seatbelt
copper	0.0049752	g/1000g nickel		1.57215E-07	g/seatbelt
copper	0.0001369	g/1000g nickel		4.32713E-09	g/seatbelt
copper	0.0110447	g/1000g nickel		3.49012E-07	g/seatbelt
ethylene	1.23E-05	g/1000g nickel		3.9005E-10	g/seatbelt
hydrogen chloride	0.1782016	g/1000g nickel		5.63117E-06	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g nickel		2.2816E-11	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g nickel		1.28532E-06	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g nickel		1.59372E-12	g/seatbelt
lead	0.1242728	g/1000g nickel		3.92702E-06	g/seatbelt
lead	4.66E-05	g/1000g nickel		1.47199E-09	g/seatbelt
lead	0.0008935	g/1000g nickel		2.82361E-08	g/seatbelt
lead	0.0044786	g/1000g nickel		1.41523E-07	g/seatbelt
mercury	0.0001779	g/1000g nickel		5.62304E-09	g/seatbelt
mercury	7.93E-07	g/1000g nickel		2.50464E-11	g/seatbelt
mercury	0.0001995	g/1000g nickel		6.30366E-09	g/seatbelt
mercury	5.12E-06	g/1000g nickel		1.61797E-10	g/seatbelt
methane	3.9556308	g/1000g nickel		0.000124998	g/seatbelt
nickel	0.0010629	g/1000g nickel		3.35884E-08	g/seatbelt
nickel	4.75E-05	g/1000g nickel		1.50136E-09	g/seatbelt
nickel	0.0001204	g/1000g nickel		3.80491E-09	g/seatbelt
nickel	3.02E-05	g/1000g nickel		9.55549E-10	g/seatbelt
nitrate	3.61E-05	g/1000g nickel		1.14048E-09	g/seatbelt
nitrate	0.0008705	g/1000g nickel		2.75073E-08	g/seatbelt
nitrate	0.2355114	g/1000g nickel		7.44216E-06	g/seatbelt
nitrogen	3.0664234	g/1000g nickel		9.6899E-05	g/seatbelt
nitrogen	0.0037303	g/1000g nickel		1.17878E-07	g/seatbelt
nitrogen	0.0388564	g/1000g nickel		1.22786E-06	g/seatbelt
nitrogen	0.0331367	g/1000g nickel		1.04712E-06	g/seatbelt
nitrogen dioxide	17.053961	g/1000g nickel		0.000538905	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g nickel		6.2431E-10	g/seatbelt
nitrous oxide	0.1158841	g/1000g nickel		3.66194E-06	g/seatbelt
phosphate	0.0051168	g/1000g nickel		1.6169E-07	g/seatbelt
phosphate	0.0030974	g/1000g nickel		9.78788E-08	g/seatbelt
toluene	0.0001184	g/1000g nickel		3.74183E-09	g/seatbelt
toluene	3.15E-05	g/1000g nickel		9.96779E-10	g/seatbelt
vanadium	0.0027262	g/1000g nickel		8.61485E-08	g/seatbelt
vanadium	7.30E-06	g/1000g nickel		2.30607E-10	g/seatbelt
vanadium	0.0001296	g/1000g nickel		4.09454E-09	g/seatbelt
zinc	0.1760723	g/1000g nickel		5.56388E-06	g/seatbelt
zinc	0.0085203	g/1000g nickel		2.69241E-07	g/seatbelt
zinc	0.0090181	g/1000g nickel		2.84973E-07	g/seatbelt
zinc	0.1440723	g/1000g nickel		4.55268E-06	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g nickel		7.192E-08	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g nickel		0.000205639	g/seatbelt
Hazardous waste	27.620581	g/1000g nickel		0.00087281	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g nickel		2.14627E-07	g/seatbelt
Industrial waste	177.6031	g/1000g nickel		0.005612258	g/seatbelt

Iron scrap	18.917083	g/1000g nickel		0.00059778	g/seatbelt
jarosite	123.75866	g/1000g nickel		0.003910774	g/seatbelt
medium and low radioactive	0.0080611	g/1000g nickel		2.5473E-07	g/seatbelt
mineral waste	6.121768	g/1000g nickel		0.000193448	g/seatbelt
overburden (unspecified)	44482.62	g/1000g nickel		1.405650807	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g nickel		0.000125985	g/seatbelt
slag (unspecified)	10.21577	g/1000g nickel		0.000322818	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g nickel		4.76306E-07	g/seatbelt
spoil (unspecified)	14.286476	g/1000g nickel		0.000451453	g/seatbelt
sludge	12.2	g/1000g nickel		0.00038552	g/seatbelt
steel scrap	1.0967234	g/1000g nickel		3.46565E-05	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g nickel		0.159423468	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g nickel		4.27073E-07	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g nickel		4.92737E-07	g/seatbelt
used oil	220.9923	g/1000g nickel		0.006983357	g/seatbelt
nickel slag	0.8737593	g/1000g nickel		2.76108E-05	g/seatbelt
nickel scrap	16.168781	g/1000g nickel		0.000510933	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.47.21.19 Transportation to Header manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.20 Production of header	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.0086	MJ/1000g of product	1.9174	1.64203E-05	MJ/seatbelt
oil	0.5165	MJ/1000g of product		0.000990262	MJ/seatbelt
Au for e-plate	5.2154	g/1000g product		0.01	g/seatbelt
ceramic	217.5863	g/1000g product		0.4172	g/seatbelt
NiFe 47	235.7359	g/1000g product		0.452	g/seatbelt
11SMnPb37	510.3786	g/1000g product		0.9786	g/seatbelt
special metal (92,5%Ag and 7	14.6031	g/1000g product		0.028	g/seatbelt
Ni for e-plate	16.4807	g/1000g product		0.0316	g/seatbelt
OUTFLOWS					
header				1.9174	g/seatbelt
Remark:					
Electricity data for Czech Republic					
Electricity consumption					
Water consumption					
Unit price of header 1,9168g	Unit price he	0.211494157	$		
Total month sale					

3.47.21.21 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5760	MJ/1000g of product	1.9174	0.001104422	MJ/seatbelt
OUTFLOWS					
CO2	41.6000	g/1000g of product		0.07976384	g/seatbelt
NOx	0.2640	g/1000g of product		0.000506194	g/seatbelt
HC	0.0376	g/1000g of product		7.20942E-05	g/seatbelt
Particulate matter	0.0046	g/1000g of product		8.74334E-06	g/seatbelt
CO	0.0368	g/1000g of product		7.05603E-05	g/seatbelt
SO2	0.0104	g/1000g of product		1.9941E-05	g/seatbelt
Remark:					
Distance between Header manufacturer (Lan Skroun, Czech Republic) and NCS (Survilliers, France) in km		**800**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.21.22 Production of electroless Sn	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g tin	0.0000	0.000455625	g/seatbelt
baryte	1.5574821	g/1000g tin		5.2565E-08	g/seatbelt
basalt	34.801523	g/1000g tin		1.17455E-06	g/seatbelt
bauxite	21.142572	g/1000g tin		7.13562E-07	g/seatbelt
bentonite	0.648349	g/1000g tin		2.18818E-08	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g tin		7.23802E-12	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g tin		1.47025E-07	MJ/seatbelt
calcium carbonate	85.44366	g/1000g tin		2.88372E-06	g/seatbelt
calcium chloride	5.527E-09	g/1000g tin		1.86526E-16	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g tin		2.125E-06	g/seatbelt
nickel (in)	0.0023622	g/1000g tin		7.97246E-11	g/seatbelt
clay	0.2616171	g/1000g tin		8.82958E-09	g/seatbelt
colemanite	0.9853674	g/1000g tin		3.32562E-08	g/seatbelt
copper (in)	-31.106001	g/1000g tin		-1.04983E-06	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g tin		1.40597E-07	MJ/seatbelt
fluorspar	0.1583729	g/1000g tin		5.34509E-09	g/seatbelt
gold (in)	-0.0026783	g/1000g tin		-9.03909E-11	g/seatbelt
ground water	3624.1777	g/1000g tin		0.000122316	g/seatbelt
gypsum	0.1523604	g/1000g tin		5.14216E-09	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g tin		4.62103E-07	MJ/seatbelt

inert rock	47243.326	g/1000g tin		0.001594462	g/seatbelt
iron (in)	4.1413625	g/1000g tin		1.39771E-07	g/seatbelt
kaolin	0.0019158	g/1000g tin		6.46596E-11	g/seatbelt
lead (in)	120.22987	g/1000g tin		4.05776E-06	g/seatbelt
magnesite	0.0012403	g/1000g tin		4.18615E-11	g/seatbelt
manganese	-11.317555	g/1000g tin		-3.81967E-07	g/seatbelt
mercury (in)	4.417E-06	g/1000g tin		1.49086E-13	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g tin		3.21075E-12	g/seatbelt
natural aggregate	26.231425	g/1000g tin		8.85311E-07	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g tin		2.77458E-07	MJ/seatbelt
nickel (in)	0.0042159	g/1000g tin		1.42286E-10	g/seatbelt
olivine	1.735E-06	g/1000g tin		5.85716E-14	g/seatbelt
oxygen	-42.44669	g/1000g tin		-1.43258E-06	g/seatbelt
palladium	3.273E-09	g/1000g tin		1.10454E-16	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g tin		5.15234E-09	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g tin		1.87866E-12	g/seatbelt
platinum	3.931E-08	g/1000g tin		1.32688E-15	g/seatbelt
potassium chloride	0.0009365	g/1000g tin		3.16056E-11	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g tin		7.76042E-10	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g tin		2.20263E-07	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g tin		1.95498E-08	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g tin		1.32569E-13	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g tin		1.21232E-08	MJ/seatbelt
quartz sand	-12.853854	g/1000g tin		-4.33818E-07	g/seatbelt
raw pumice	0.0001656	g/1000g tin		5.59012E-12	g/seatbelt
rhodium	1.094E-10	g/1000g tin		3.69375E-18	g/seatbelt
river water	6.1598962	l/1000g tin		2.07896E-07	l/seatbelt
sand	0.0001874	g/1000g tin		6.32358E-12	g/seatbelt
sea water	-0.000147	l/1000g tin		-4.96219E-12	l/seatbelt
silicon (in)	0.0001218	g/1000g tin		4.11083E-12	g/seatbelt
silver (in)	-0.0161287	g/1000g tin		-5.44343E-10	g/seatbelt
slate	1.32E-08	g/1000g tin		4.45422E-16	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g tin		-4.72525E-07	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g tin		-2.5174E-11	g/seatbelt
soil	13.199188	g/1000g tin		4.45473E-07	g/seatbelt
sulfur (in)	0.0033189	g/1000g tin		1.12014E-10	g/seatbelt
surface water	27.074991	l/1000g tin		9.13781E-07	l/seatbelt
talc	0.0005357	g/1000g tin		1.80804E-11	g/seatbelt
titanium	0.0025897	g/1000g tin		8.74007E-11	g/seatbelt
uranium	11208.633	g/1000g tin		0.000378291	g/seatbelt
water	372.88334	l/1000g tin		1.25848E-05	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g tin		1.44359E-11	MJ/seatbelt
zinc (in)	819.6244	g/1000g tin		2.76623E-05	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g tin		3.12099E-07	g/seatbelt
zinc dross	31.9	g/1000g tin		1.07663E-06	g/seatbelt
zinc dust	3.2163809	g/1000g tin		1.08553E-07	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g tin		8.55394E-07	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g tin		2.78296E-09	g/seatbelt
ammonia	0.0101456	g/1000g tin		3.42413E-10	g/seatbelt

ammonia	0.0944373	g/1000g tin		3.18726E-09	g/seatbelt
ammonia	0.0048189	g/1000g tin		1.62639E-10	g/seatbelt
ammonium	0.0001497	g/1000g tin		5.05366E-12	g/seatbelt
ammonium	0.0018023	g/1000g tin		6.08268E-11	g/seatbelt
ammonium to sea water	0.0013248	g/1000g tin		4.47114E-11	g/seatbelt
arsenic	0.0058028	g/1000g tin		1.95843E-10	g/seatbelt
arsenic	5.36E-06	g/1000g tin		1.80869E-13	g/seatbelt
arsenic	0.0310056	g/1000g tin		1.04644E-09	g/seatbelt
arsenic	5.75E-05	g/1000g tin		1.94205E-12	g/seatbelt
benzene	0.0011388	g/1000g tin		3.84329E-11	g/seatbelt
benzene	5.18E-05	g/1000g tin		1.7473E-12	g/seatbelt
benzene	0.000199	g/1000g tin		6.7168E-12	g/seatbelt
cadmium	0.0089817	g/1000g tin		3.03131E-10	g/seatbelt
cadmium	1.94E-05	g/1000g tin		6.55863E-13	g/seatbelt
cadmium	0.0002277	g/1000g tin		7.68411E-12	g/seatbelt
cadmium	0.0015242	g/1000g tin		5.14412E-11	g/seatbelt
carbon dioxide	3040.5	g/1000g tin		0.000102617	g/seatbelt
CFC-11	0.0001464	g/1000g tin		4.94156E-12	g/seatbelt
CFC-114	0.0001499	g/1000g tin		5.06063E-12	g/seatbelt
CFC-12	3.15E-05	g/1000g tin		1.06244E-12	g/seatbelt
CFC-13	1.98E-05	g/1000g tin		6.6711E-13	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g tin		3.30292E-08	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g tin		7.16721E-10	g/seatbelt
nickel III	-2.72E-07	g/1000g tin		-9.1827E-15	g/seatbelt
nickel III	1.13E-06	g/1000g tin		3.82147E-14	g/seatbelt
nickel III	5.03E-05	g/1000g tin		1.69885E-12	g/seatbelt
nickel VI	1.75E-05	g/1000g tin		5.91073E-13	g/seatbelt
nickel VI	-4.32E-06	g/1000g tin		-1.4569E-13	g/seatbelt
cobalt	0.0018228	g/1000g tin		6.15182E-11	g/seatbelt
cobalt	2.97E-07	g/1000g tin		1.00316E-14	g/seatbelt
cobalt	3.29E-07	g/1000g tin		1.11087E-14	g/seatbelt
cobalt	1.10E-05	g/1000g tin		3.70446E-13	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g tin		1.39522E-12	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g tin		3.11524E-10	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g tin		3.53789E-11	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g tin		1.7465E-07	g/seatbelt
copper	0.1356498	g/1000g tin		4.57818E-09	g/seatbelt
copper	0.0049752	g/1000g tin		1.67911E-10	g/seatbelt
copper	0.0001369	g/1000g tin		4.62154E-12	g/seatbelt
copper	0.0110447	g/1000g tin		3.72758E-10	g/seatbelt
ethylene	1.23E-05	g/1000g tin		4.16588E-13	g/seatbelt
hydrogen chloride	0.1782016	g/1000g tin		6.0143E-09	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g tin		2.43684E-14	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g tin		1.37277E-09	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g tin		1.70215E-15	g/seatbelt
lead	0.1242728	g/1000g tin		4.19421E-09	g/seatbelt
lead	4.66E-05	g/1000g tin		1.57214E-12	g/seatbelt
lead	0.0008935	g/1000g tin		3.01572E-11	g/seatbelt
lead	0.0044786	g/1000g tin		1.51152E-10	g/seatbelt
mercury	0.0001779	g/1000g tin		6.00562E-12	g/seatbelt

mercury	7.93E-07	g/1000g tin		2.67505E-14	g/seatbelt
mercury	0.0001995	g/1000g tin		6.73255E-12	g/seatbelt
mercury	5.12E-06	g/1000g tin		1.72806E-13	g/seatbelt
methane	3.9556308	g/1000g tin		1.33503E-07	g/seatbelt
nickel	0.0010629	g/1000g tin		3.58737E-11	g/seatbelt
nickel	4.75E-05	g/1000g tin		1.60351E-12	g/seatbelt
nickel	0.0001204	g/1000g tin		4.06379E-12	g/seatbelt
nickel	3.02E-05	g/1000g tin		1.02056E-12	g/seatbelt
nitrate	3.61E-05	g/1000g tin		1.21807E-12	g/seatbelt
nitrate	0.0008705	g/1000g tin		2.93788E-11	g/seatbelt
nitrate	0.2355114	g/1000g tin		7.94851E-09	g/seatbelt
nitrogen	3.0664234	g/1000g tin		1.03492E-07	g/seatbelt
nitrogen	0.0037303	g/1000g tin		1.25898E-10	g/seatbelt
nitrogen	0.0388564	g/1000g tin		1.3114E-09	g/seatbelt
nitrogen	0.0331367	g/1000g tin		1.11836E-09	g/seatbelt
nitrogen dioxide	17.053961	g/1000g tin		5.75571E-07	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g tin		6.66787E-13	g/seatbelt
nitrous oxide	0.1158841	g/1000g tin		3.91109E-09	g/seatbelt
phosphate	0.0051168	g/1000g tin		1.72691E-10	g/seatbelt
phosphate	0.0030974	g/1000g tin		1.04538E-10	g/seatbelt
toluene	0.0001184	g/1000g tin		3.99642E-12	g/seatbelt
toluene	3.15E-05	g/1000g tin		1.0646E-12	g/seatbelt
vanadium	0.0027262	g/1000g tin		9.20098E-11	g/seatbelt
vanadium	7.30E-06	g/1000g tin		2.46297E-13	g/seatbelt
vanadium	0.0001296	g/1000g tin		4.37313E-12	g/seatbelt
zinc	0.1760723	g/1000g tin		5.94244E-09	g/seatbelt
zinc	0.0085203	g/1000g tin		2.87559E-10	g/seatbelt
zinc	0.0090181	g/1000g tin		3.04362E-10	g/seatbelt
zinc	0.1440723	g/1000g tin		4.86244E-09	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g tin		7.68132E-11	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g tin		2.1963E-07	g/seatbelt
Hazardous waste	27.620581	g/1000g tin		9.32195E-07	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g tin		2.2923E-10	g/seatbelt
Industrial waste	177.6031	g/1000g tin		5.9941E-06	g/seatbelt
Iron scrap	18.917083	g/1000g tin		6.38452E-07	g/seatbelt
jarosite	123.75866	g/1000g tin		4.17685E-06	g/seatbelt
medium and low radioactive	0.0080611	g/1000g tin		2.72061E-10	g/seatbelt
mineral waste	6.121768	g/1000g tin		2.0661E-07	g/seatbelt
overburden (unspecified)	44482.62	g/1000g tin		0.001501288	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g tin		1.34557E-07	g/seatbelt
slag (unspecified)	10.21577	g/1000g tin		3.44782E-07	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g tin		5.08713E-10	g/seatbelt
spoil (unspecified)	14.286476	g/1000g tin		4.82169E-07	g/seatbelt
sludge	12.2	g/1000g tin		4.1175E-07	g/seatbelt
steel scrap	1.0967234	g/1000g tin		3.70144E-08	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g tin		0.00017027	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g tin		4.56131E-10	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g tin		5.26262E-10	g/seatbelt
used oil	220.9923	g/1000g tin		7.45849E-06	g/seatbelt
tin slag	0.8737593	g/1000g tin		2.94894E-08	g/seatbelt

tin scrab	16.168781	g/1000g tin		5.45696E-07	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.47.21.23 Transportation to PCB manufacturer (truck)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1440	MJ/1000g of product	0.0000	4.86E-09	MJ/seatbelt
OUTFLOWS					
CO2	10.4000	g/1000g of product		0.000000351	g/seatbelt
NOx	0.0660	g/1000g of product		2.2275E-09	g/seatbelt
HC	0.0094	g/1000g of product		3.1725E-10	g/seatbelt
Particulate matter	0.0011	g/1000g of product		3.8475E-11	g/seatbelt
CO	0.0092	g/1000g of product		3.105E-10	g/seatbelt
SO2	0.0026	g/1000g of product		8.775E-11	g/seatbelt
Remark:					
Distance between plant and PCB manufacturer (Boudry, Switzerland) in km		**200**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.21.24 Production of alloy NiCr8020	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0004	5.53E-09	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		1.10E-08	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		2.49E-10	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		3.07E-07	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		7.28E-05	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		5.39E-06	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		1.59E-06	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		1.68E-05	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		5.29E-06	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		7.82E-05	g/seatbelt
iron (in)	215.94651	g/1000g alloy		7.56E-05	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		7.72E-07	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		5.64E-10	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		2.23E-06	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		9.10E-08	g/seatbelt
water	18.985568	l/1000g alloy		6.64E-06	l/seatbelt
OUTFLOWS				0.00E+00	

stainless steel hot rolled coil,	1000	g		3.50E-04	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		7.84E-16	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		2.10E-08	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		4.13E-09	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		2.12E-08	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		7.63E-12	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		1.18E-03	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		3.45E-06	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		1.58E-07	g/seatbelt
chloride	3.56E+00	g/1000g alloy		1.24E-06	g/seatbelt
chromium	1.14E-01	g/1000g alloy		3.98E-08	g/seatbelt
chromium	9.22E-04	g/1000g alloy		3.23E-10	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		2.08E-11	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		8.02E-11	g/seatbelt
copper	1.22E-04	g/1000g alloy		4.27E-11	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		2.42E-08	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		7.63E-09	g/seatbelt
iron	1.31E-01	g/1000g alloy		4.60E-08	g/seatbelt
lead	5.17E-04	g/1000g alloy		1.81E-10	g/seatbelt
manganese	2.83E-03	g/1000g alloy		9.91E-10	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		2.18E-09	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		5.81E-10	g/seatbelt
nickel	2.97E-02	g/1000g alloy		1.04E-08	g/seatbelt
nickel	3.38E-03	g/1000g alloy		1.18E-09	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		7.02E-08	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		3.57E-08	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		2.63E-06	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		8.22E-08	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		1.56E-06	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		1.04E-09	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		3.22E-07	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		4.33E-06	g/seatbelt
tin	1.61E-04	g/1000g alloy		5.64E-11	g/seatbelt
zinc	1.11E-03	g/1000g alloy		3.89E-10	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		8.50E-05	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		4.55E-04	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.47.21.25 Transportation to PCB manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1440	MJ/1000g of product	0.0004	5.04E-08	MJ/seatbelt
				0.00E+00	
OUTFLOWS				0.00E+00	
CO2	10.4000	g/1000g of product		3.64E-06	g/seatbelt

NOx	0.0660	g/1000g of product		2.31E-08	g/seatbelt
HC	0.0094	g/1000g of product		3.29E-09	g/seatbelt
Particulate matter	0.0011	g/1000g of product		3.99E-10	g/seatbelt
CO	0.0092	g/1000g of product		3.22E-09	g/seatbelt
SO2	0.0026	g/1000g of product		9.10E-10	g/seatbelt
Remark:					
Distance between plant and PCB manufacturer (Boudry, Switzerland) in km		**200**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.21.26 Production of copper	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g copper	0.0008	0.010125	g/seatbelt
baryte	1.5574821	g/1000g copper		1.16811E-06	g/seatbelt
basalt	34.801523	g/1000g copper		2.61011E-05	g/seatbelt
bauxite	21.142572	g/1000g copper		1.58569E-05	g/seatbelt
bentonite	0.648349	g/1000g copper		4.86262E-07	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g copper		1.60845E-10	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g copper		3.26722E-06	MJ/seatbelt
calcium carbonate	85.44366	g/1000g copper		6.40827E-05	g/seatbelt
calcium chloride	5.527E-09	g/1000g copper		4.14502E-15	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g copper		4.72223E-05	g/seatbelt
nickel (in)	0.0023622	g/1000g copper		1.77166E-09	g/seatbelt
clay	0.2616171	g/1000g copper		1.96213E-07	g/seatbelt
colemanite	0.9853674	g/1000g copper		7.39026E-07	g/seatbelt
copper (in)	-31.106001	g/1000g copper		-2.33295E-05	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g copper		3.12437E-06	MJ/seatbelt
fluorspar	0.1583729	g/1000g copper		1.1878E-07	g/seatbelt
gold (in)	-0.0026783	g/1000g copper		-2.00869E-09	g/seatbelt
ground water	3624.1777	g/1000g copper		0.002718133	g/seatbelt
gypsum	0.1523604	g/1000g copper		1.1427E-07	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g copper		1.0269E-05	MJ/seatbelt
inert rock	47243.326	g/1000g copper		0.035432495	g/seatbelt
iron (in)	4.1413625	g/1000g copper		3.10602E-06	g/seatbelt
kaolin	0.0019158	g/1000g copper		1.43688E-09	g/seatbelt
lead (in)	120.22987	g/1000g copper		9.01724E-05	g/seatbelt
magnesite	0.0012403	g/1000g copper		9.30256E-10	g/seatbelt
manganese	-11.317555	g/1000g copper		-8.48817E-06	g/seatbelt
mercury (in)	4.417E-06	g/1000g copper		3.31302E-12	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g copper		7.135E-11	g/seatbelt
natural aggregate	26.231425	g/1000g copper		1.96736E-05	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g copper		6.16573E-06	MJ/seatbelt
nickel (in)	0.0042159	g/1000g copper		3.16192E-09	g/seatbelt
olivine	1.735E-06	g/1000g copper		1.30159E-12	g/seatbelt

oxygen	-42.44669	g/1000g copper		-3.1835E-05	g/seatbelt
palladium	3.273E-09	g/1000g copper		2.45453E-15	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g copper		1.14497E-07	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g copper		4.17481E-11	g/seatbelt
platinum	3.931E-08	g/1000g copper		2.94862E-14	g/seatbelt
potassium chloride	0.0009365	g/1000g copper		7.02346E-10	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g copper		1.72454E-08	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g copper		4.89473E-06	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g copper		4.34441E-07	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g copper		2.94599E-12	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g copper		2.69405E-07	MJ/seatbelt
quartz sand	-12.853854	g/1000g copper		-9.64039E-06	g/seatbelt
raw pumice	0.0001656	g/1000g copper		1.24225E-10	g/seatbelt
rhodium	1.094E-10	g/1000g copper		8.20833E-17	g/seatbelt
river water	6.1598962	l/1000g copper		4.61992E-06	l/seatbelt
sand	0.0001874	g/1000g copper		1.40524E-10	g/seatbelt
sea water	-0.000147	l/1000g copper		-1.10271E-10	l/seatbelt
silicon (in)	0.0001218	g/1000g copper		9.13518E-11	g/seatbelt
silver (in)	-0.0161287	g/1000g copper		-1.20965E-08	g/seatbelt
slate	1.32E-08	g/1000g copper		9.89826E-15	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g copper		-1.05006E-05	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g copper		-5.59423E-10	g/seatbelt
soil	13.199188	g/1000g copper		9.89939E-06	g/seatbelt
sulfur (in)	0.0033189	g/1000g copper		2.48921E-09	g/seatbelt
surface water	27.074991	l/1000g copper		2.03062E-05	l/seatbelt
talc	0.0005357	g/1000g copper		4.01787E-10	g/seatbelt
titanium	0.0025897	g/1000g copper		1.94224E-09	g/seatbelt
uranium	11208.633	g/1000g copper		0.008406475	g/seatbelt
water	372.88334	l/1000g copper		0.000279663	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g copper		3.20797E-10	MJ/seatbelt
zinc (in)	819.6244	g/1000g copper		0.000614718	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g copper		6.93553E-06	g/seatbelt
zinc dross	31.9	g/1000g copper		0.000023925	g/seatbelt
zinc dust	3.2163809	g/1000g copper		2.41229E-06	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g copper		1.90088E-05	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g copper		6.18435E-08	g/seatbelt
ammonia	0.0101456	g/1000g copper		7.60918E-09	g/seatbelt
ammonia	0.0944373	g/1000g copper		7.0828E-08	g/seatbelt
ammonia	0.0048189	g/1000g copper		3.6142E-09	g/seatbelt
ammonium	0.0001497	g/1000g copper		1.12304E-10	g/seatbelt
ammonium	0.0018023	g/1000g copper		1.35171E-09	g/seatbelt
ammonium to sea water	0.0013248	g/1000g copper		9.93588E-10	g/seatbelt
arsenic	0.0058028	g/1000g copper		4.35207E-09	g/seatbelt
arsenic	5.36E-06	g/1000g copper		4.01931E-12	g/seatbelt
arsenic	0.0310056	g/1000g copper		2.32542E-08	g/seatbelt
arsenic	5.75E-05	g/1000g copper		4.31566E-11	g/seatbelt
benzene	0.0011388	g/1000g copper		8.54065E-10	g/seatbelt
benzene	5.18E-05	g/1000g copper		3.88288E-11	g/seatbelt
benzene	0.000199	g/1000g copper		1.49262E-10	g/seatbelt

cadmium	0.0089817	g/1000g copper		6.73624E-09	g/seatbelt
cadmium	1.94E-05	g/1000g copper		1.45747E-11	g/seatbelt
cadmium	0.0002277	g/1000g copper		1.70758E-10	g/seatbelt
cadmium	0.0015242	g/1000g copper		1.14314E-09	g/seatbelt
carbon dioxide	3040.5	g/1000g copper		0.002280375	g/seatbelt
CFC-11	0.0001464	g/1000g copper		1.09812E-10	g/seatbelt
CFC-114	0.0001499	g/1000g copper		1.12458E-10	g/seatbelt
CFC-12	3.15E-05	g/1000g copper		2.36097E-11	g/seatbelt
CFC-13	1.98E-05	g/1000g copper		1.48247E-11	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g copper		7.33981E-07	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g copper		1.59271E-08	g/seatbelt
nickel III	-2.72E-07	g/1000g copper		-2.0406E-13	g/seatbelt
nickel III	1.13E-06	g/1000g copper		8.49216E-13	g/seatbelt
nickel III	5.03E-05	g/1000g copper		3.77523E-11	g/seatbelt
nickel VI	1.75E-05	g/1000g copper		1.3135E-11	g/seatbelt
nickel VI	-4.32E-06	g/1000g copper		-3.23756E-12	g/seatbelt
cobalt	0.0018228	g/1000g copper		1.36707E-09	g/seatbelt
cobalt	2.97E-07	g/1000g copper		2.22925E-13	g/seatbelt
cobalt	3.29E-07	g/1000g copper		2.46861E-13	g/seatbelt
cobalt	1.10E-05	g/1000g copper		8.23213E-12	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g copper		3.10048E-11	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g copper		6.92275E-09	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g copper		7.86197E-10	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g copper		3.88112E-06	g/seatbelt
copper	0.1356498	g/1000g copper		1.01737E-07	g/seatbelt
copper	0.0049752	g/1000g copper		3.73136E-09	g/seatbelt
copper	0.0001369	g/1000g copper		1.02701E-10	g/seatbelt
copper	0.0110447	g/1000g copper		8.28351E-09	g/seatbelt
ethylene	1.23E-05	g/1000g copper		9.25752E-12	g/seatbelt
hydrogen chloride	0.1782016	g/1000g copper		1.33651E-07	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g copper		5.41519E-13	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g copper		3.05061E-08	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g copper		3.78256E-14	g/seatbelt
lead	0.1242728	g/1000g copper		9.32046E-08	g/seatbelt
lead	4.66E-05	g/1000g copper		3.49365E-11	g/seatbelt
lead	0.0008935	g/1000g copper		6.7016E-10	g/seatbelt
lead	0.0044786	g/1000g copper		3.35893E-09	g/seatbelt
mercury	0.0001779	g/1000g copper		1.33458E-10	g/seatbelt
mercury	7.93E-07	g/1000g copper		5.94456E-13	g/seatbelt
mercury	0.0001995	g/1000g copper		1.49612E-10	g/seatbelt
mercury	5.12E-06	g/1000g copper		3.84012E-12	g/seatbelt
methane	3.9556308	g/1000g copper		2.96672E-06	g/seatbelt
nickel	0.0010629	g/1000g copper		7.97193E-10	g/seatbelt
nickel	4.75E-05	g/1000g copper		3.56335E-11	g/seatbelt
nickel	0.0001204	g/1000g copper		9.03063E-11	g/seatbelt
nickel	3.02E-05	g/1000g copper		2.26792E-11	g/seatbelt
nitrate	3.61E-05	g/1000g copper		2.70683E-11	g/seatbelt
nitrate	0.0008705	g/1000g copper		6.52862E-10	g/seatbelt
nitrate	0.2355114	g/1000g copper		1.76634E-07	g/seatbelt
nitrogen	3.0664234	g/1000g copper		2.29982E-06	g/seatbelt

nitrogen	0.0037303	g/1000g copper		2.79774E-09	g/seatbelt
nitrogen	0.0388564	g/1000g copper		2.91423E-08	g/seatbelt
nitrogen	0.0331367	g/1000g copper		2.48525E-08	g/seatbelt
nitrogen dioxide	17.053961	g/1000g copper		1.27905E-05	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g copper		1.48175E-11	g/seatbelt
nitrous oxide	0.1158841	g/1000g copper		8.6913E-08	g/seatbelt
phosphate	0.0051168	g/1000g copper		3.83758E-09	g/seatbelt
phosphate	0.0030974	g/1000g copper		2.32307E-09	g/seatbelt
toluene	0.0001184	g/1000g copper		8.88094E-11	g/seatbelt
toluene	3.15E-05	g/1000g copper		2.36577E-11	g/seatbelt
vanadium	0.0027262	g/1000g copper		2.04466E-09	g/seatbelt
vanadium	7.30E-06	g/1000g copper		5.47327E-12	g/seatbelt
vanadium	0.0001296	g/1000g copper		9.71806E-11	g/seatbelt
zinc	0.1760723	g/1000g copper		1.32054E-07	g/seatbelt
zinc	0.0085203	g/1000g copper		6.39021E-09	g/seatbelt
zinc	0.0090181	g/1000g copper		6.7636E-09	g/seatbelt
zinc	0.1440723	g/1000g copper		1.08054E-07	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g copper		1.70696E-09	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g copper		4.88067E-06	g/seatbelt
Hazardous waste	27.620581	g/1000g copper		2.07154E-05	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g copper		5.094E-09	g/seatbelt
Industrial waste	177.6031	g/1000g copper		0.000133202	g/seatbelt
Iron scrap	18.917083	g/1000g copper		1.41878E-05	g/seatbelt
jarosite	123.75866	g/1000g copper		9.2819E-05	g/seatbelt
medium and low radioactive	0.0080611	g/1000g copper		6.0458E-09	g/seatbelt
mineral waste	6.121768	g/1000g copper		4.59133E-06	g/seatbelt
overburden (unspecified)	44482.62	g/1000g copper		0.033361965	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g copper		2.99016E-06	g/seatbelt
slag (unspecified)	10.21577	g/1000g copper		7.66183E-06	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g copper		1.13047E-08	g/seatbelt
spoil (unspecified)	14.286476	g/1000g copper		1.07149E-05	g/seatbelt
sludge	12.2	g/1000g copper		0.00000915	g/seatbelt
steel scrap	1.0967234	g/1000g copper		8.22543E-07	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g copper		0.003783785	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g copper		1.01362E-08	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g copper		1.16947E-08	g/seatbelt
used oil	220.9923	g/1000g copper		0.000165744	g/seatbelt
copper slag	0.8737593	g/1000g copper		6.5532E-07	g/seatbelt
copper scrab	16.168781	g/1000g copper		1.21266E-05	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.47.21.27 Transportation to PCB manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1440	MJ/1000g of product	0.0008	0.000000108	MJ/seatbelt

				0	
OUTFLOWS				0	
CO2	10.4000	g/1000g of product		0.0000078	g/seatbelt
NOx	0.0660	g/1000g of product		4.95E-08	g/seatbelt
HC	0.0094	g/1000g of product		7.05E-09	g/seatbelt
Particulate matter	0.0011	g/1000g of product		8.55E-10	g/seatbelt
CO	0.0092	g/1000g of product		6.9E-09	g/seatbelt
SO2	0.0026	g/1000g of product		1.95E-09	g/seatbelt
Remark:					
Distance between plant and PCB manufacturer (Boudry, Switzerland) in km		**200**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.21.28 Production of acrylic resin	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	3.59E-08	g/1000g acrylic resin	0.0008	3.02E-14	g/seatbelt
energy (recovered)	-1.72E+04	g/1000g acrylic resin		-1.44E-02	g/seatbelt
hydrogen; gaseous	1.48E-01	g/1000g acrylic resin		1.24E-07	g/seatbelt
waste	7.66E+00	g/1000g acrylic resin		6.44E-06	g/seatbelt
air	-1.51E+02	g/1000g acrylic resin		-1.27E-04	g/seatbelt
baryte	7.02E-02	g/1000g acrylic resin		5.89E-08	g/seatbelt
bauxite	5.15E-01	g/1000g acrylic resin		4.32E-07	g/seatbelt
bentonite	4.14E-02	g/1000g acrylic resin		3.47E-08	g/seatbelt
biomass; 14.7 MJ/kg	1.05E-01	MJ/1000g acrylic resin		8.85E-08	MJ/seatbelt
brown coal; 11.9 MJ/kg	6.72E-05	MJ/1000g acrylic resin		5.65E-11	MJ/seatbelt
calcium carbonate (in)	6.76E+00	g/1000g acrylic resin		5.68E-06	g/seatbelt
chromium (in)	1.45E-07	g/1000g acrylic resin		1.22E-13	g/seatbelt
clay	8.01E-06	g/1000g acrylic resin		6.73E-12	g/seatbelt
copper (in)	1.11E-03	g/1000g acrylic resin		9.35E-10	g/seatbelt
crude oil; 42.3 MJ/kg	4.87E+01	MJ/1000g acrylic resin		4.09E-05	MJ/seatbelt
dolomite	7.39E-03	g/1000g acrylic resin		6.21E-09	g/seatbelt
feldspar	7.18E-12	g/1000g acrylic resin		6.03E-18	g/seatbelt
fluorspar	1.17E-02	g/1000g acrylic resin		9.79E-09	g/seatbelt
granite	3.53E-11	g/1000g acrylic resin		2.97E-17	g/seatbelt
ground water	1.95E-01	l/1000g acrylic resin		1.64E-07	l/seatbelt
gypsum	4.09E-03	g/1000g acrylic resin		3.44E-09	g/seatbelt
hard coal; 26.3 MJ/kg	8.00E+00	MJ/1000g acrylic resin		6.72E-06	MJ/seatbelt
inert rock	3.84E-05	g/1000g acrylic resin		3.23E-11	g/seatbelt
iron (in)	6.04E-01	g/1000g acrylic resin		5.08E-07	g/seatbelt
lead (in)	3.63E-03	g/1000g acrylic resin		3.05E-09	g/seatbelt
magnesium (in)	2.60E-13	g/1000g acrylic resin		2.18E-19	g/seatbelt
manganese (in)	4.56E-04	g/1000g acrylic resin		3.83E-10	g/seatbelt
mercury (in)	3.47E-05	g/1000g acrylic resin		2.91E-11	g/seatbelt
natural aggregate	2.23E-03	g/1000g acrylic resin		1.87E-09	g/seatbelt

natural gas; 44.1 MJ/kg	6.00E+01	MJ/1000g acrylic resin	5.04E-05	MJ/seatbelt
nickel	1.32E-07	g/1000g acrylic resin	1.11E-13	g/seatbelt
nitrogen (in)	1.09E+02	g/1000g acrylic resin	9.15E-05	g/seatbelt
olivine	5.67E-03	g/1000g acrylic resin	4.76E-09	g/seatbelt
oxygen	1.31E+02	g/1000g acrylic resin	1.10E-04	g/seatbelt
peat; 8.4 MJ/kg	1.18E-03	MJ/1000g acrylic resin	9.88E-10	MJ/seatbelt
phosphorus (in)	8.42E-01	g/1000g acrylic resin	7.07E-07	g/seatbelt
potassium chloride	3.64E-03	g/1000g acrylic resin	3.06E-09	g/seatbelt
primary energy from geother	1.69E-02	MJ/1000g acrylic resin	1.42E-08	MJ/seatbelt
primary energy from hydro p	4.80E-01	MJ/1000g acrylic resin	4.03E-07	MJ/seatbelt
primary energy from solar en	7.23E-04	MJ/1000g acrylic resin	6.07E-10	MJ/seatbelt
primary energy from waves	9.37E-04	MJ/1000g acrylic resin	7.87E-10	MJ/seatbelt
primary energy from wind po	4.61E-02	MJ/1000g acrylic resin	3.87E-08	MJ/seatbelt
quartz sand	1.10E-20	g/1000g acrylic resin	9.27E-27	g/seatbelt
river water	1.37E+04	g/1000g acrylic resin	1.15E-02	g/seatbelt
sand	3.32E+00	g/1000g acrylic resin	2.79E-06	g/seatbelt
sea water	4.91E+00	1l/1000g acrylic resin	4.13E-06	1l/seatbelt
slate	1.16E-02	g/1000g acrylic resin	9.74E-09	g/seatbelt
sodium chloride	3.20E+01	g/1000g acrylic resin	2.69E-05	g/seatbelt
sodium nitrate	7.80E-13	g/1000g acrylic resin	6.55E-19	g/seatbelt
sulfur (in)	4.28E+01	g/1000g acrylic resin	3.60E-05	g/seatbelt
talc	9.96E-24	g/1000g acrylic resin	8.37E-30	g/seatbelt
titanium	6.91E-30	g/1000g acrylic resin	5.81E-36	g/seatbelt
uranium	5.18E+03	g/1000g acrylic resin	4.35E-03	g/seatbelt
water	5.53E+01	1l/1000g acrylic resin	4.64E-05	1l/seatbelt
wood; 14.7 MJ/kg	8.10E-04	1MJ/1000g acrylic resin	6.81E-10	1MJ/seatbelt
zinc (in)	1.33E-04	g/1000g acrylic resin	1.12E-10	g/seatbelt
OUTFLOWS			0.00E+00	
acrylic resin	1000	g	8.40E-04	g
1,2-dichloroethane	2.99E-07	g/1000g acrylic resin	2.51E-13	g/seatbelt
1,2-dichloroethane	5.11E-09	g/1000g acrylic resin	4.29E-15	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.39E-27	g/1000g acrylic resin	1.17E-33	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.23E-10	g/1000g acrylic resin	1.87E-16	g/seatbelt
acid (as H+)	2.09E-07	g/1000g acrylic resin	1.76E-13	g/seatbelt
acid (as H+)	7.77E-02	g/1000g acrylic resin	6.53E-08	g/seatbelt
adsorbable organic halogen c	1.45E-08	g/1000g acrylic resin	1.22E-14	g/seatbelt
aluminium	5.38E-04	g/1000g acrylic resin	4.52E-10	g/seatbelt
ammonia	9.33E-03	g/1000g acrylic resin	7.84E-09	g/seatbelt
ammonia	1.13E+00	g/1000g acrylic resin	9.53E-07	g/seatbelt
antimony	2.37E-09	g/1000g acrylic resin	1.99E-15	g/seatbelt
arsenic	8.97E-08	g/1000g acrylic resin	7.54E-14	g/seatbelt
arsenic	2.63E-07	g/1000g acrylic resin	2.21E-13	g/seatbelt
benzene	5.77E-03	g/1000g acrylic resin	4.85E-09	g/seatbelt
benzene	1.04E-09	g/1000g acrylic resin	8.74E-16	g/seatbelt
biological oxygen demand	5.12E-01	g/1000g acrylic resin	4.30E-07	g/seatbelt
bromate	3.27E-06	g/1000g acrylic resin	2.75E-12	g/seatbelt
cadmium	6.44E-08	g/1000g acrylic resin	5.41E-14	g/seatbelt
cadmium	5.11E-09	g/1000g acrylic resin	4.29E-15	g/seatbelt
calcium	1.13E-01	g/1000g acrylic resin	9.49E-08	g/seatbelt
carbon dioxide	5.86E+03	g/1000g acrylic resin	4.92E-03	g/seatbelt

carbon disulfide	5.29E-08	g/1000g acrylic resin	4.44E-14	g/seatbelt
carbon monoxide	5.53E+00	g/1000g acrylic resin	4.65E-06	g/seatbelt
carbonate	5.52E-02	g/1000g acrylic resin	4.64E-08	g/seatbelt
chemical oxygen demand	1.69E+00	g/1000g acrylic resin	1.42E-06	g/seatbelt
chlorate	4.45E-03	g/1000g acrylic resin	3.74E-09	g/seatbelt
chloride	8.69E+00	g/1000g acrylic resin	7.30E-06	g/seatbelt
chlorine	4.35E-04	g/1000g acrylic resin	3.65E-10	g/seatbelt
chlorine	1.35E-05	g/1000g acrylic resin	1.14E-11	g/seatbelt
chromium	9.52E-04	g/1000g acrylic resin	7.99E-10	g/seatbelt
chromium	3.48E-08	g/1000g acrylic resin	2.92E-14	g/seatbelt
copper	1.83E-06	g/1000g acrylic resin	1.53E-12	g/seatbelt
copper	5.16E-05	g/1000g acrylic resin	4.34E-11	g/seatbelt
cyanide	3.66E-03	g/1000g acrylic resin	3.08E-09	g/seatbelt
decane	1.20E-02	g/1000g acrylic resin	1.01E-08	g/seatbelt
dichloromethane	9.60E-07	g/1000g acrylic resin	8.06E-13	g/seatbelt
ethyl benzene	3.26E-04	g/1000g acrylic resin	2.74E-10	g/seatbelt
ethylene	2.90E-03	g/1000g acrylic resin	2.43E-09	g/seatbelt
fluoride	6.64E-03	g/1000g acrylic resin	5.57E-09	g/seatbelt
fluorine	7.13E-06	g/1000g acrylic resin	5.99E-12	g/seatbelt
hydrocarbons (unspecified)	5.45E-03	g/1000g acrylic resin	4.58E-09	g/seatbelt
hydrocyanic acid	2.80E-03	g/1000g acrylic resin	2.35E-09	g/seatbelt
hydrogen	1.14E-01	g/1000g acrylic resin	9.62E-08	g/seatbelt
hydrogen chloride	1.60E-01	g/1000g acrylic resin	1.34E-07	g/seatbelt
hydrogen fluoride	6.87E-03	g/1000g acrylic resin	5.77E-09	g/seatbelt
hydrogen sulfide	2.02E-05	g/1000g acrylic resin	1.70E-11	g/seatbelt
iron	3.09E-05	g/1000g acrylic resin	2.60E-11	g/seatbelt
lead	2.29E-06	g/1000g acrylic resin	1.93E-12	g/seatbelt
lead	1.83E-03	g/1000g acrylic resin	1.54E-09	g/seatbelt
manganese	2.27E-08	g/1000g acrylic resin	1.91E-14	g/seatbelt
mercury	1.71E-05	g/1000g acrylic resin	1.43E-11	g/seatbelt
mercury	3.25E-06	g/1000g acrylic resin	2.73E-12	g/seatbelt
methane	4.77E+01	g/1000g acrylic resin	4.00E-05	g/seatbelt
nickel	1.73E-03	g/1000g acrylic resin	1.45E-09	g/seatbelt
nickel	3.57E-05	g/1000g acrylic resin	3.00E-11	g/seatbelt
nitrate	9.47E-03	g/1000g acrylic resin	7.96E-09	g/seatbelt
nitrogen	1.68E-03	g/1000g acrylic resin	1.41E-09	g/seatbelt
nitrogen dioxide	1.24E+01	g/1000g acrylic resin	1.04E-05	g/seatbelt
nitrous oxide	7.64E-06	g/1000g acrylic resin	6.42E-12	g/seatbelt
non-methane volatile organic	1.21E+01	g/1000g acrylic resin	1.01E-05	g/seatbelt
oxygen	3.28E-09	g/1000g acrylic resin	2.75E-15	g/seatbelt
particles (> PM10)	1.68E+00	g/1000g acrylic resin	1.41E-06	g/seatbelt
particles (PM10)	2.00E+00	g/1000g acrylic resin	1.68E-06	g/seatbelt
particles (PM10)	5.82E-02	g/1000g acrylic resin	4.89E-08	g/seatbelt
particles (PM2.5)	9.56E-10	g/1000g acrylic resin	8.03E-16	g/seatbelt
phenol	5.12E-04	g/1000g acrylic resin	4.30E-10	g/seatbelt
phosphate	4.92E+00	g/1000g acrylic resin	4.13E-06	g/seatbelt
polycyclic aromatic hydrocarb	1.73E-03	g/1000g acrylic resin	1.45E-09	g/seatbelt
potassium	1.14E-04	g/1000g acrylic resin	9.62E-11	g/seatbelt
propene	2.14E-03	g/1000g acrylic resin	1.80E-09	g/seatbelt
selenium	2.09E-10	g/1000g acrylic resin	1.75E-16	g/seatbelt

silver	6.02E-09	g/1000g acrylic resin		5.06E-15	g/seatbelt
sodium	1.85E+01	g/1000g acrylic resin		1.56E-05	g/seatbelt
strontium	4.89E-07	g/1000g acrylic resin		4.10E-13	g/seatbelt
styrene	5.78E-05	g/1000g acrylic resin		4.86E-11	g/seatbelt
sulfate	2.73E+01	g/1000g acrylic resin		2.29E-05	g/seatbelt
sulfur	1.08E-06	g/1000g acrylic resin		9.07E-13	g/seatbelt
sulfur dioxide	2.89E+01	g/1000g acrylic resin		2.43E-05	g/seatbelt
tin	2.81E-10	g/1000g acrylic resin		2.36E-16	g/seatbelt
toluene	9.78E-04	g/1000g acrylic resin		8.22E-10	g/seatbelt
total organic carbon	1.69E-02	g/1000g acrylic resin		1.42E-08	g/seatbelt
vinyl chloride	3.61E-06	g/1000g acrylic resin		3.03E-12	g/seatbelt
vinyl chloride	6.61E-08	g/1000g acrylic resin		5.56E-14	g/seatbelt
volatile organic compound	2.02E+00	g/1000g acrylic resin		1.70E-06	g/seatbelt
volatile organic compound	1.08E+00	g/1000g acrylic resin		9.05E-07	g/seatbelt
xylene (all isomers)	4.04E-04	g/1000g acrylic resin		3.39E-10	g/seatbelt
zinc	9.90E-07	g/1000g acrylic resin		8.32E-13	g/seatbelt
zinc	8.95E-05	g/1000g acrylic resin		7.52E-11	g/seatbelt
chemical waste	1.56E+01	g/1000g acrylic resin		1.31E-05	g/seatbelt
chemical waste, inert	6.29E+00	g/1000g acrylic resin		5.28E-06	g/seatbelt
chemical waste, toxic	8.95E+00	g/1000g acrylic resin		7.52E-06	g/seatbelt
demolition waste	1.52E-02	g/1000g acrylic resin		1.28E-08	g/seatbelt
industrial waste	1.21E+01	g/1000g acrylic resin		1.02E-05	g/seatbelt
mineral waste	3.22E+00	g/1000g acrylic resin		2.70E-06	g/seatbelt
municipal waste	-7.23E+00	g/1000g acrylic resin		-6.07E-06	g/seatbelt
organic waste	1.06E-04	g/1000g acrylic resin		8.90E-11	g/seatbelt
overburden	5.72E+01	g/1000g acrylic resin		4.80E-05	g/seatbelt
packaging waste (metal)	8.95E-07	g/1000g acrylic resin		7.51E-13	g/seatbelt
packaging waste (plastic)	7.60E-09	g/1000g acrylic resin		6.38E-15	g/seatbelt
plastic	1.86E-02	g/1000g acrylic resin		1.57E-08	g/seatbelt
tailings	6.31E-02	g/1000g acrylic resin		5.30E-08	g/seatbelt
waste	6.71E+00	g/1000g acrylic resin		5.63E-06	g/seatbelt
waste paper	1.08E-07	g/1000g acrylic resin		9.06E-14	g/seatbelt
wood	1.97E-03	g/1000g acrylic resin		1.65E-09	g/seatbelt
wooden pallet	3.72E-08	g/1000g acrylic resin		3.13E-14	g/seatbelt
Remark:					
Data for acrylic resin interpreted from LCI data for Polymethyl methacrylate (PMMA) beads; production mix, at plant (ELCD database, 1999)					
3.47.21.29 Transportation to PCB manufacturer (truck)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.7200	MJ/1000g of product	0.0008	6.05E-07	MJ/seatbelt
OUTFLOWS					
CO_2	52.0000	g/1000g of product		4.37E-05	g/seatbelt
NOx	0.3300	g/1000g of product		2.77E-07	g/seatbelt

HC	0.0470	g/1000g of product		3.95E-08	g/seatbelt
Particulate matter	0.0057	g/1000g of product		4.79E-09	g/seatbelt
CO	0.0460	g/1000g of product		3.86E-08	g/seatbelt
SO2	0.0130	g/1000g of product		1.09E-08	g/seatbelt
Remark:					
Distance between plant and PCB manufacturer (Boudry, Switzerland) in km		**1000**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
		5000			
		1000			
3.47.21.29 Transportation to PCB manufacturer (ship)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	1.0800	MJ/1000g of product	0.0008	9.07E-07	MJ/seatbelt
OUTFLOWS					
CO2	77.0000	g/1000g of product		6.47E-05	g/seatbelt
NOx	2.1450	g/1000g of product		1.80E-06	g/seatbelt
HC	0.1000	g/1000g of product		8.40E-08	g/seatbelt
Particulate matter	0.1020	g/1000g of product		8.57E-08	g/seatbelt
CO	0.0435	g/1000g of product		3.65E-08	g/seatbelt
SO2	1.3100	g/1000g of product		1.10E-06	g/seatbelt
3.47.21.30 Production of duromer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	3.59E-08	g/1000g duromer	0.0101	3.63E-13	g/seatbelt
energy (recovered)	-1.72E+04	g/1000g duromer		-1.74E-01	g/seatbelt
hydrogen; gaseous	1.48E-01	g/1000g duromer		1.49E-06	g/seatbelt
waste	7.66E+00	g/1000g duromer		7.75E-05	g/seatbelt
air	-1.51E+02	g/1000g duromer		-1.53E-03	g/seatbelt
baryte	7.02E-02	g/1000g duromer		7.10E-07	g/seatbelt
bauxite	5.15E-01	g/1000g duromer		5.21E-06	g/seatbelt
bentonite	4.14E-02	g/1000g duromer		4.19E-07	g/seatbelt
biomass; 14.7 MJ/kg	1.05E-01	MJ/1000g duromer		1.07E-06	MJ/seatbelt
brown coal; 11.9 MJ/kg	6.72E-05	MJ/1000g duromer		6.80E-10	MJ/seatbelt
calcium carbonate (in)	6.76E+00	g/1000g duromer		6.84E-05	g/seatbelt
chromium (in)	1.45E-07	g/1000g duromer		1.47E-12	g/seatbelt
clay	8.01E-06	g/1000g duromer		8.11E-11	g/seatbelt
copper (in)	1.11E-03	g/1000g duromer		1.13E-08	g/seatbelt

crude oil; 42.3 MJ/kg	4.87E+01	MJ/1000g duromer		4.93E-04	MJ/seatbelt
dolomite	7.39E-03	g/1000g duromer		7.48E-08	g/seatbelt
feldspar	7.18E-12	g/1000g duromer		7.27E-17	g/seatbelt
fluorspar	1.17E-02	g/1000g duromer		1.18E-07	g/seatbelt
granite	3.53E-11	g/1000g duromer		3.57E-16	g/seatbelt
ground water	1.95E-01	l/1000g duromer		1.97E-06	l/seatbelt
gypsum	4.09E-03	g/1000g duromer		4.14E-08	g/seatbelt
hard coal; 26.3 MJ/kg	8.00E+00	MJ/1000g duromer		8.10E-05	MJ/seatbelt
inert rock	3.84E-05	g/1000g duromer		3.89E-10	g/seatbelt
iron (in)	6.04E-01	g/1000g duromer		6.12E-06	g/seatbelt
lead (in)	3.63E-03	g/1000g duromer		3.68E-08	g/seatbelt
magnesium (in)	2.60E-13	g/1000g duromer		2.63E-18	g/seatbelt
manganese (in)	4.56E-04	g/1000g duromer		4.61E-09	g/seatbelt
mercury (in)	3.47E-05	g/1000g duromer		3.51E-10	g/seatbelt
natural aggregate	2.23E-03	g/1000g duromer		2.26E-08	g/seatbelt
natural gas; 44.1 MJ/kg	6.00E+01	MJ/1000g duromer		6.08E-04	MJ/seatbelt
nickel	1.32E-07	g/1000g duromer		1.33E-12	g/seatbelt
nitrogen (in)	1.09E+02	g/1000g duromer		1.10E-03	g/seatbelt
olivine	5.67E-03	g/1000g duromer		5.74E-08	g/seatbelt
oxygen	1.31E+02	g/1000g duromer		1.33E-03	g/seatbelt
peat; 8.4 MJ/kg	1.18E-03	MJ/1000g duromer		1.19E-08	MJ/seatbelt
phosphorus (in)	8.42E-01	g/1000g duromer		8.52E-06	g/seatbelt
potassium chloride	3.64E-03	g/1000g duromer		3.69E-08	g/seatbelt
primary energy from geother	1.69E-02	MJ/1000g duromer		1.71E-07	MJ/seatbelt
primary energy from hydro p	4.80E-01	MJ/1000g duromer		4.85E-06	MJ/seatbelt
primary energy from solar en	7.23E-04	MJ/1000g duromer		7.31E-09	MJ/seatbelt
primary energy from waves	9.37E-04	MJ/1000g duromer		9.48E-09	MJ/seatbelt
primary energy from wind po	4.61E-02	MJ/1000g duromer		4.67E-07	MJ/seatbelt
quartz sand	1.10E-20	g/1000g duromer		1.12E-25	g/seatbelt
river water	1.37E+04	g/1000g duromer		1.39E-01	g/seatbelt
sand	3.32E+00	g/1000g duromer		3.36E-05	g/seatbelt
sea water	4.91E+00	1l/1000g duromer		4.97E-05	1l/seatbelt
slate	1.16E-02	g/1000g duromer		1.17E-07	g/seatbelt
sodium chloride	3.20E+01	g/1000g duromer		3.24E-04	g/seatbelt
sodium nitrate	7.80E-13	g/1000g duromer		7.90E-18	g/seatbelt
sulfur (in)	4.28E+01	g/1000g duromer		4.33E-04	g/seatbelt
talc	9.96E-24	g/1000g duromer		1.01E-28	g/seatbelt
titanium	6.91E-30	g/1000g duromer		6.99E-35	g/seatbelt
uranium	5.18E+03	g/1000g duromer		5.24E-02	g/seatbelt
water	5.53E+01	1l/1000g duromer		5.59E-04	1l/seatbelt
wood; 14.7 MJ/kg	8.10E-04	1MJ/1000g duromer		8.20E-09	1MJ/seatbelt
zinc (in)	1.33E-04	g/1000g duromer		1.35E-09	g/seatbelt
OUTFLOWS				0.00E+00	
acrylic resin	1000	g		1.01E-02	g
1,2-dichloroethane	2.99E-07	g/1000g duromer		3.03E-12	g/seatbelt
1,2-dichloroethane	5.11E-09	g/1000g duromer		5.17E-14	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.39E-27	g/1000g duromer		1.41E-32	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.23E-10	g/1000g duromer		2.26E-15	g/seatbelt
acid (as H+)	2.09E-07	g/1000g duromer		2.12E-12	g/seatbelt
acid (as H+)	7.77E-02	g/1000g duromer		7.87E-07	g/seatbelt

adsorbable organic halogen c	1.45E-08	g/1000g duromer		1.47E-13	g/seatbelt
aluminium	5.38E-04	g/1000g duromer		5.45E-09	g/seatbelt
ammonia	9.33E-03	g/1000g duromer		9.45E-08	g/seatbelt
ammonia	1.13E+00	g/1000g duromer		1.15E-05	g/seatbelt
antimony	2.37E-09	g/1000g duromer		2.40E-14	g/seatbelt
arsenic	8.97E-08	g/1000g duromer		9.08E-13	g/seatbelt
arsenic	2.63E-07	g/1000g duromer		2.66E-12	g/seatbelt
benzene	5.77E-03	g/1000g duromer		5.84E-08	g/seatbelt
benzene	1.04E-09	g/1000g duromer		1.05E-14	g/seatbelt
biological oxygen demand	5.12E-01	g/1000g duromer		5.18E-06	g/seatbelt
bromate	3.27E-06	g/1000g duromer		3.31E-11	g/seatbelt
cadmium	6.44E-08	g/1000g duromer		6.51E-13	g/seatbelt
cadmium	5.11E-09	g/1000g duromer		5.17E-14	g/seatbelt
calcium	1.13E-01	g/1000g duromer		1.14E-06	g/seatbelt
carbon dioxide	5.86E+03	g/1000g duromer		5.93E-02	g/seatbelt
carbon disulfide	5.29E-08	g/1000g duromer		5.35E-13	g/seatbelt
carbon monoxide	5.53E+00	g/1000g duromer		5.60E-05	g/seatbelt
carbonate	5.52E-02	g/1000g duromer		5.59E-07	g/seatbelt
chemical oxygen demand	1.69E+00	g/1000g duromer		1.71E-05	g/seatbelt
chlorate	4.45E-03	g/1000g duromer		4.50E-08	g/seatbelt
chloride	8.69E+00	g/1000g duromer		8.79E-05	g/seatbelt
chlorine	4.35E-04	g/1000g duromer		4.40E-09	g/seatbelt
chlorine	1.35E-05	g/1000g duromer		1.37E-10	g/seatbelt
chromium	9.52E-04	g/1000g duromer		9.63E-09	g/seatbelt
chromium	3.48E-08	g/1000g duromer		3.52E-13	g/seatbelt
copper	1.83E-06	g/1000g duromer		1.85E-11	g/seatbelt
copper	5.16E-05	g/1000g duromer		5.23E-10	g/seatbelt
cyanide	3.66E-03	g/1000g duromer		3.71E-08	g/seatbelt
decane	1.20E-02	g/1000g duromer		1.22E-07	g/seatbelt
dichloromethane	9.60E-07	g/1000g duromer		9.71E-12	g/seatbelt
ethyl benzene	3.26E-04	g/1000g duromer		3.30E-09	g/seatbelt
ethylene	2.90E-03	g/1000g duromer		2.93E-08	g/seatbelt
fluoride	6.64E-03	g/1000g duromer		6.71E-08	g/seatbelt
fluorine	7.13E-06	g/1000g duromer		7.21E-11	g/seatbelt
hydrocarbons (unspecified)	5.45E-03	g/1000g duromer		5.51E-08	g/seatbelt
hydrocyanic acid	2.80E-03	g/1000g duromer		2.84E-08	g/seatbelt
hydrogen	1.14E-01	g/1000g duromer		1.16E-06	g/seatbelt
hydrogen chloride	1.60E-01	g/1000g duromer		1.62E-06	g/seatbelt
hydrogen fluoride	6.87E-03	g/1000g duromer		6.96E-08	g/seatbelt
hydrogen sulfide	2.02E-05	g/1000g duromer		2.05E-10	g/seatbelt
iron	3.09E-05	g/1000g duromer		3.13E-10	g/seatbelt
lead	2.29E-06	g/1000g duromer		2.32E-11	g/seatbelt
lead	1.83E-03	g/1000g duromer		1.85E-08	g/seatbelt
manganese	2.27E-08	g/1000g duromer		2.30E-13	g/seatbelt
mercury	1.71E-05	g/1000g duromer		1.73E-10	g/seatbelt
mercury	3.25E-06	g/1000g duromer		3.29E-11	g/seatbelt
methane	4.77E+01	g/1000g duromer		4.82E-04	g/seatbelt
nickel	1.73E-03	g/1000g duromer		1.75E-08	g/seatbelt
nickel	3.57E-05	g/1000g duromer		3.61E-10	g/seatbelt
nitrate	9.47E-03	g/1000g duromer		9.59E-08	g/seatbelt

nitrogen	1.68E-03	g/1000g duromer		1.70E-08	g/seatbelt
nitrogen dioxide	1.24E+01	g/1000g duromer		1.25E-04	g/seatbelt
nitrous oxide	7.64E-06	g/1000g duromer		7.73E-11	g/seatbelt
non-methane volatile organic	1.21E+01	g/1000g duromer		1.22E-04	g/seatbelt
oxygen	3.28E-09	g/1000g duromer		3.32E-14	g/seatbelt
particles (> PM10)	1.68E+00	g/1000g duromer		1.70E-05	g/seatbelt
particles (PM10)	2.00E+00	g/1000g duromer		2.03E-05	g/seatbelt
particles (PM10)	5.82E-02	g/1000g duromer		5.89E-07	g/seatbelt
particles (PM2.5)	9.56E-10	g/1000g duromer		9.67E-15	g/seatbelt
phenol	5.12E-04	g/1000g duromer		5.18E-09	g/seatbelt
phosphate	4.92E+00	g/1000g duromer		4.98E-05	g/seatbelt
polycyclic aromatic hydrocark	1.73E-03	g/1000g duromer		1.75E-08	g/seatbelt
potassium	1.14E-04	g/1000g duromer		1.16E-09	g/seatbelt
propene	2.14E-03	g/1000g duromer		2.17E-08	g/seatbelt
selenium	2.09E-10	g/1000g duromer		2.11E-15	g/seatbelt
silver	6.02E-09	g/1000g duromer		6.10E-14	g/seatbelt
sodium	1.85E+01	g/1000g duromer		1.87E-04	g/seatbelt
strontium	4.89E-07	g/1000g duromer		4.94E-12	g/seatbelt
styrene	5.78E-05	g/1000g duromer		5.85E-10	g/seatbelt
sulfate	2.73E+01	g/1000g duromer		2.76E-04	g/seatbelt
sulfur	1.08E-06	g/1000g duromer		1.09E-11	g/seatbelt
sulfur dioxide	2.89E+01	g/1000g duromer		2.92E-04	g/seatbelt
tin	2.81E-10	g/1000g duromer		2.84E-15	g/seatbelt
toluene	9.78E-04	g/1000g duromer		9.90E-09	g/seatbelt
total organic carbon	1.69E-02	g/1000g duromer		1.71E-07	g/seatbelt
vinyl chloride	3.61E-06	g/1000g duromer		3.65E-11	g/seatbelt
vinyl chloride	6.61E-08	g/1000g duromer		6.69E-13	g/seatbelt
volatile organic compound	2.02E+00	g/1000g duromer		2.05E-05	g/seatbelt
volatile organic compound	1.08E+00	g/1000g duromer		1.09E-05	g/seatbelt
xylene (all isomers)	4.04E-04	g/1000g duromer		4.09E-09	g/seatbelt
zinc	9.90E-07	g/1000g duromer		1.00E-11	g/seatbelt
zinc	8.95E-05	g/1000g duromer		9.06E-10	g/seatbelt
chemical waste	1.56E+01	g/1000g duromer		1.58E-04	g/seatbelt
chemical waste, inert	6.29E+00	g/1000g duromer		6.37E-05	g/seatbelt
chemical waste, toxic	8.95E+00	g/1000g duromer		9.06E-05	g/seatbelt
demolition waste	1.52E-02	g/1000g duromer		1.54E-07	g/seatbelt
industrial waste	1.21E+01	g/1000g duromer		1.23E-04	g/seatbelt
mineral waste	3.22E+00	g/1000g duromer		3.26E-05	g/seatbelt
municipal waste	-7.23E+00	g/1000g duromer		-7.32E-05	g/seatbelt
organic waste	1.06E-04	g/1000g duromer		1.07E-09	g/seatbelt
overburden	5.72E+01	g/1000g duromer		5.79E-04	g/seatbelt
packaging waste (metal)	8.95E-07	g/1000g duromer		9.05E-12	g/seatbelt
packaging waste (plastic)	7.60E-09	g/1000g duromer		7.69E-14	g/seatbelt
plastic	1.86E-02	g/1000g duromer		1.89E-07	g/seatbelt
tailings	6.31E-02	g/1000g duromer		6.38E-07	g/seatbelt
waste	6.71E+00	g/1000g duromer		6.79E-05	g/seatbelt
waste paper	1.08E-07	g/1000g duromer		1.09E-12	g/seatbelt
wood	1.97E-03	g/1000g duromer		1.99E-08	g/seatbelt
wooden pallet	3.72E-08	g/1000g duromer		3.77E-13	g/seatbelt
Remark:					

Data for acrylic resin interpreted from LCI data for Polymethyl methacrylate (PMMA) beads; production mix, at plant (ELCD database, 1999)					
3.47.21.31 Transportation to PCB manufacturer (truck)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.7200	MJ/1000g of product	0.0101	7.29E-06	MJ/seatbelt
OUTFLOWS					
CO2	52.0000	g/1000g of product		5.26E-04	g/seatbelt
NOx	0.3300	g/1000g of product		3.34E-06	g/seatbelt
HC	0.0470	g/1000g of product		4.76E-07	g/seatbelt
Particulate matter	0.0057	g/1000g of product		5.77E-08	g/seatbelt
CO	0.0460	g/1000g of product		4.66E-07	g/seatbelt
SO2	0.0130	g/1000g of product		1.32E-07	g/seatbelt
Remark:					
Distance between plant and PCB manufacturer (Boudry, Switzerland) in km		**1000**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
		5000	ship		
		1000	truck		
3.47.21.31 Transportation to PCB manufacturer (ship)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	1.0800	MJ/1000g of product	0.0101	1.09E-05	MJ/seatbelt
OUTFLOWS					
CO2	77.0000	g/1000g of product		7.79E-04	g/seatbelt
NOx	2.1450	g/1000g of product		2.17E-05	g/seatbelt
HC	0.1000	g/1000g of product		1.01E-06	g/seatbelt
Particulate matter	0.1020	g/1000g of product		1.03E-06	g/seatbelt
CO	0.0435	g/1000g of product		4.40E-07	g/seatbelt
SO2	1.3100	g/1000g of product		1.33E-05	g/seatbelt
3.47.21.32 Production of PCB	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.

INFLOWS					
Electricity	893.0233	MJ/1000g	0.0097	8.64E-03	MJ/1000g
Electroless Sn	3.4884	g/1000g product		3.38E-05	g/seatbelt
NiCr8020	36.1757	g/1000g product		3.50E-04	g/seatbelt
copper for coating	77.5194	g/1000g product		7.50E-04	g/seatbelt
Acrylic resin	86.8217	g/1000g product		8.40E-04	g/seatbelt
duromer, EP-GF50	1045.9948	g/1000g product		1.01E-02	g/seatbelt
OUTFLOWS				0.00E+00	
PCB				0.009675	g/seatbelt
scrap	200.0000	g/1000g product		1.94E-03	g/seatbelt
Remark					
Electricity data for Switzerland					
Weight of 1 amount of materials being pro		0.01209375	g		
3.47.21.33 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2880	MJ/1000g of product	0.0097	2.79E-06	MJ/seatbelt
OUTFLOWS					
CO2	20.8000	g/1000g of product		2.01E-04	g/seatbelt
NOx	0.1320	g/1000g of product		1.28E-06	g/seatbelt
HC	0.0188	g/1000g of product		1.82E-07	g/seatbelt
Particulate matter	0.0023	g/1000g of product		2.21E-08	g/seatbelt
CO	0.0184	g/1000g of product		1.78E-07	g/seatbelt
SO2	0.0052	g/1000g of product		5.03E-08	g/seatbelt
Remark:					
Distance between PCB manufacturer (Boudry, Switzerland) and NCS (Survilliers, France) in km		**400**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.21.34 Production of flux	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.35 Transportation of flux	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.21.36 Production of Sn96Ag3Cu1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0013	2.05E-08	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		4.08E-08	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		9.25E-10	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		1.14E-06	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		2.71E-04	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		2.00E-05	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		5.92E-06	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		6.25E-05	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		1.97E-05	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		2.90E-04	g/seatbelt
iron (in)	215.94651	g/1000g alloy		2.81E-04	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		2.87E-06	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		2.09E-09	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		8.30E-06	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		3.38E-07	g/seatbelt
water	18.985568	l/1000g alloy		2.47E-05	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		1.30E-03	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		2.91E-15	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		7.81E-08	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		1.53E-08	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		7.87E-08	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		2.83E-11	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		4.39E-03	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		1.28E-05	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		5.87E-07	g/seatbelt
chloride	3.56E+00	g/1000g alloy		4.62E-06	g/seatbelt
chromium	1.14E-01	g/1000g alloy		1.48E-07	g/seatbelt
chromium	9.22E-04	g/1000g alloy		1.20E-09	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		7.72E-11	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		2.98E-10	g/seatbelt
copper	1.22E-04	g/1000g alloy		1.59E-10	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		9.00E-08	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		2.83E-08	g/seatbelt
iron	1.31E-01	g/1000g alloy		1.71E-07	g/seatbelt
lead	5.17E-04	g/1000g alloy		6.72E-10	g/seatbelt
manganese	2.83E-03	g/1000g alloy		3.68E-09	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		8.11E-09	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		2.16E-09	g/seatbelt
nickel	2.97E-02	g/1000g alloy		3.86E-08	g/seatbelt
nickel	3.38E-03	g/1000g alloy		4.39E-09	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		2.61E-07	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		1.33E-07	g/seatbelt

nitrogen dioxide	7.52E+00	g/1000g alloy		9.78E-06	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		3.05E-07	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		5.78E-06	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		3.84E-09	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		1.20E-06	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		1.61E-05	g/seatbelt
tin	1.61E-04	g/1000g alloy		2.09E-10	g/seatbelt
zinc	1.11E-03	g/1000g alloy		1.44E-09	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		3.16E-04	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		1.69E-03	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.47.21.37 Transportation to Paste manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.38 Production of PET	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	2.08E-10	g/1000g PET	120.0000	2.50E-11	g/seatbelt
energy (recovered)	-1.26E+03	g/1000g PET		-1.51E+02	g/seatbelt
hydrogen; gaseous	6.50E-03	g/1000g PET		7.80E-04	g/seatbelt
waste	6.58E+00	g/1000g PET		7.89E-01	g/seatbelt
air	4.11E+03	g/1000g PET		4.93E+02	g/seatbelt
baryte	1.09E-04	g/1000g PET		1.31E-05	g/seatbelt
bauxite	2.15E-03	g/1000g PET		2.58E-04	g/seatbelt
bentonite	7.16E-02	g/1000g PET		8.59E-03	g/seatbelt
biomass; 14.7 MJ/kg	2.11E-01	MJ/1000g PET		2.53E-02	MJ/seatbelt
brown coal; 11.9 MJ/kg	2.55E-04	MJ/1000g PET		3.05E-05	MJ/seatbelt
calcium carbonate (in)	2.77E-01	g/1000g PET		3.32E-02	g/seatbelt
chromium (in)	2.22E-09	g/1000g PET		2.66E-10	g/seatbelt
clay	1.46E-05	g/1000g PET		1.76E-06	g/seatbelt
copper (in)	6.44E-06	g/1000g PET		7.73E-07	g/seatbelt
crude oil; 42.3 MJ/kg	3.10E+01	MJ/1000g PET		3.72E+00	MJ/seatbelt
dolomite	4.00E-03	g/1000g PET		4.80E-04	g/seatbelt
feldspar	1.54E-13	g/1000g PET		1.85E-14	g/seatbelt
fluorspar	8.74E-04	g/1000g PET		1.05E-04	g/seatbelt
granite	6.30E-12	g/1000g PET		7.56E-13	g/seatbelt
ground water	5.70E-04	l/1000g PET		6.84E-05	l/seatbelt
gypsum	7.13E-03	g/1000g PET		8.56E-04	g/seatbelt
hard coal; 26.3 MJ/kg	7.69E+00	MJ/1000g PET		9.23E-01	MJ/seatbelt
inert rock	2.07E-05	g/1000g PET		2.49E-06	g/seatbelt

iron (in)	3.26E-01	g/1000g PET		3.91E-02	g/seatbelt
lead (in)	7.37E-04	g/1000g PET		8.85E-05	g/seatbelt
magnesium (in)	1.50E-15	g/1000g PET		1.79E-16	g/seatbelt
manganese (in)	2.46E-04	g/1000g PET		2.95E-05	g/seatbelt
mercury (in)	3.03E-06	g/1000g PET		3.63E-07	g/seatbelt
natural aggregate	1.20E-03	g/1000g PET		1.44E-04	g/seatbelt
natural gas; 44.1 MJ/kg	3.23E+01	MJ/1000g PET		3.88E+00	MJ/seatbelt
nickel	7.52E-10	g/1000g PET		9.03E-11	g/seatbelt
nitrogen (in)	2.81E+02	g/1000g PET		3.37E+01	g/seatbelt
olivine	3.06E-03	g/1000g PET		3.67E-04	g/seatbelt
oxygen	5.92E-03	g/1000g PET		7.10E-04	g/seatbelt
peat; 8.4 MJ/kg	1.14E-03	MJ/1000g PET		1.37E-04	MJ/seatbelt
phosphorus (in)	9.95E-03	g/1000g PET		1.19E-03	g/seatbelt
potassium chloride	5.35E-04	g/1000g PET		6.42E-05	g/seatbelt
primary energy from geother	2.09E-02	MJ/1000g PET		2.50E-03	MJ/seatbelt
primary energy from hydro p	2.03E-01	MJ/1000g PET		2.44E-02	MJ/seatbelt
primary energy from solar en	4.64E-05	MJ/1000g PET		5.57E-06	MJ/seatbelt
primary energy from waves	2.54E-04	MJ/1000g PET		3.04E-05	MJ/seatbelt
primary energy from wind po	1.46E-02	MJ/1000g PET		1.75E-03	MJ/seatbelt
quartz sand	6.35E-23	g/1000g PET		7.62E-24	g/seatbelt
river water	2.44E+02	g/1000g PET		2.92E+01	g/seatbelt
sand	2.65E-01	g/1000g PET		3.18E-02	g/seatbelt
sea water	3.77E+00	1l/1000g PET		4.52E-01	1l/seatbelt
slate	2.02E-02	g/1000g PET		2.42E-03	g/seatbelt
sodium chloride	1.69E+00	g/1000g PET		2.03E-01	g/seatbelt
sodium nitrate	4.49E-15	g/1000g PET		5.39E-16	g/seatbelt
sulfur (in)	8.27E-02	g/1000g PET		9.92E-03	g/seatbelt
talc	2.69E-24	g/1000g PET		3.22E-25	g/seatbelt
titanium	8.53E-31	g/1000g PET		1.02E-31	g/seatbelt
uranium	4.43E+03	g/1000g PET		5.32E+02	g/seatbelt
water	5.41E+01	1l/1000g PET		6.49E+00	1l/seatbelt
wood; 14.7 MJ/kg	8.14E-05	1MJ/1000g PET		9.77E-06	1MJ/seatbelt
zinc (in)	2.57E-05	g/1000g PET		3.08E-06	g/seatbelt
				0.00E+00	
OUTFLOWS				0.00E+00	
ammonia	1.225E-09	g/1000g PET		1.47E-10	g/seatbelt
ammonia	2.473E-06	g/1000g PET		2.97E-07	g/seatbelt
arsenic	3.717E-11	g/1000g PET		4.46E-12	g/seatbelt
arsenic	3.197E-10	g/1000g PET		3.84E-11	g/seatbelt
benzene	2.307E-06	g/1000g PET		2.77E-07	g/seatbelt
benzene	8.397E-21	g/1000g PET		1.01E-21	g/seatbelt
cadmium	2.27E-11	g/1000g PET		2.72E-12	g/seatbelt
cadmium	4.427E-15	g/1000g PET		5.31E-16	g/seatbelt
carbon dioxide	2.8088601	g/1000g PET		3.37E-01	g/seatbelt
chemical oxygen demand	0.0013847	g/1000g PET		1.66E-04	g/seatbelt
copper	1.062E-11	g/1000g PET		1.27E-12	g/seatbelt
copper	8.3E-08	g/1000g PET		9.96E-09	g/seatbelt
ethylene	1.688E-06	g/1000g PET		2.03E-07	g/seatbelt
hydrogen chloride	0.0001549	g/1000g PET		1.86E-05	g/seatbelt
hydrogen fluoride	5.797E-06	g/1000g PET		6.96E-07	g/seatbelt

lead	3.743E-10	g/1000g PET		4.49E-11	g/seatbelt
lead	2.001E-10	g/1000g PET		2.40E-11	g/seatbelt
mercury	2.024E-09	g/1000g PET		2.43E-10	g/seatbelt
mercury	1.516E-10	g/1000g PET		1.82E-11	g/seatbelt
methane	0.0184493	g/1000g PET		2.21E-03	g/seatbelt
nickel	6.579E-06	g/1000g PET		7.89E-07	g/seatbelt
nickel	1.764E-09	g/1000g PET		2.12E-10	g/seatbelt
nitrate	2.069E-06	g/1000g PET		2.48E-07	g/seatbelt
nitrogen dioxide	0.0073936	g/1000g PET		8.87E-04	g/seatbelt
nitrous oxide	4.501E-11	g/1000g PET		5.40E-12	g/seatbelt
phosphate	6.314E-07	g/1000g PET		7.58E-08	g/seatbelt
polycyclic aromatic hydrocarl	6.586E-06	g/1000g PET		7.90E-07	g/seatbelt
sulfur dioxide	0.0100516	g/1000g PET		1.21E-03	g/seatbelt
toluene	1.27E-06	g/1000g PET		1.52E-07	g/seatbelt
zinc	1.583E-10	g/1000g PET		1.90E-11	g/seatbelt
zinc	4.857E-08	g/1000g PET		5.83E-09	g/seatbelt
Chemical waste	7.010087	g/1000g PET		8.41E-01	g/seatbelt
chemical waste inert	2.060253	g/1000g PET		2.47E-01	g/seatbelt
chemical waste, toxic	2.214438	g/1000g PET		2.66E-01	g/seatbelt
demolition waste (unspecifie	0.0533581	g/1000g PET		6.40E-03	g/seatbelt
Industrial waste	1.428247	g/1000g PET		1.71E-01	g/seatbelt
mineral waste	0.396566	g/1000g PET		4.76E-02	g/seatbelt
Municipal waste	6.203781	g/1000g PET		7.44E-01	g/seatbelt
organic waste	2.041E-05	g/1000g PET		2.45E-06	g/seatbelt
overburden (unspecified)	54.381206	g/1000g PET		6.53E+00	g/seatbelt
packaging waste (metal)	6.501E-06	g/1000g PET		7.80E-07	g/seatbelt
packaging waste (plastic)	1.465E-09	g/1000g PET		1.76E-10	g/seatbelt
plastic	2.317022	g/1000g PET		2.78E-01	g/seatbelt
tailings (unspecified)	0.003176	g/1000g PET		3.81E-04	g/seatbelt
waste	1.342454	g/1000g PET		1.61E-01	g/seatbelt
waste paper	2.017E-08	g/1000g PET		2.42E-09	g/seatbelt
wood	0.0001974	g/1000g PET		2.37E-05	g/seatbelt
wooden pallet	7.177E-09	g/1000g PET		8.61E-10	g/seatbelt
Remark:					
Data adapted from PET granulate amorphous					
3.47.21.39 Transportation to plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.40 Production of syringe	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.21.41 Transportation to plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.42 Production of paste lead free	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.468	MJ/1000g	0.0100	4.68E-06	MJ/seatbelt
water	5	l/1000g		5.00E-05	l/seatbelt
flux	870	g/1000g product		8.70E-03	g/seatbelt
alloy	130	g/1000g product		1.30E-03	g/seatbelt
syringe				120	g/part
OUTFLOWS					
paste, lead free				0.01	g/seatbelt
Remark					
Electricity data for France					
3.47.21.42a Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.0655	MJ/1000g of product	0.0100	6.55E-07	MJ/seatbelt
				0.00E+00	
OUTFLOWS				0.00E+00	
CO_2	4.7600	g/1000g of product		4.76E-05	g/seatbelt
NO_x	0.0315	g/1000g of product		3.15E-07	g/seatbelt
HC	0.0042	g/1000g of product		4.20E-08	g/seatbelt
Particulate matter	0.0005	g/1000g of product		5.25E-09	g/seatbelt
CO	0.0042	g/1000g of product		4.20E-08	g/seatbelt
SO_2	0.0012	g/1000g of product		1.19E-08	g/seatbelt
Remark:					
Distance between Paste manufacturer (St Priest, France) and NCS (Survilliers, France) in km		**35**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					

3.47.21.43 Production of flux	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.44 Transportation of flux	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.45 Production of Sn62Pb36Ag2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.1300	2.05E-06	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		4.08E-06	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		9.25E-08	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		1.14E-04	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		2.71E-02	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		2.00E-03	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		5.92E-04	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		6.25E-03	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		1.97E-03	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		2.90E-02	g/seatbelt
iron (in)	215.94651	g/1000g alloy		2.81E-02	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		2.87E-04	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		2.09E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		8.30E-04	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		3.38E-05	g/seatbelt
water	18.985568	l/1000g alloy		2.47E-03	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		1.30E-01	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		2.91E-13	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		7.81E-06	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		1.53E-06	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		7.87E-06	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		2.83E-09	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		4.39E-01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		1.28E-03	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		5.87E-05	g/seatbelt
chloride	3.56E+00	g/1000g alloy		4.62E-04	g/seatbelt
chromium	1.14E-01	g/1000g alloy		1.48E-05	g/seatbelt
chromium	9.22E-04	g/1000g alloy		1.20E-07	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		7.72E-09	g/seatbelt

chromium VI	2.29E-04	g/1000g alloy		2.98E-08	g/seatbelt
copper	1.22E-04	g/1000g alloy		1.59E-08	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		9.00E-06	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		2.83E-06	g/seatbelt
iron	1.31E-01	g/1000g alloy		1.71E-05	g/seatbelt
lead	5.17E-04	g/1000g alloy		6.72E-08	g/seatbelt
manganese	2.83E-03	g/1000g alloy		3.68E-07	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		8.11E-07	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		2.16E-07	g/seatbelt
nickel	2.97E-02	g/1000g alloy		3.86E-06	g/seatbelt
nickel	3.38E-03	g/1000g alloy		4.39E-07	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		2.61E-05	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		1.33E-05	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		9.78E-04	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		3.05E-05	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		5.78E-04	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		3.84E-07	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		1.20E-04	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		1.61E-03	g/seatbelt
tin	1.61E-04	g/1000g alloy		2.09E-08	g/seatbelt
zinc	1.11E-03	g/1000g alloy		1.44E-07	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		3.16E-02	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		1.69E-01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.47.21.46 Transportation to Paste manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.0935	MJ/1000g of product	0.1300	1.22E-05	MJ/seatbelt
OUTFLOWS					
CO2	6.8000	g/1000g of product		8.84E-04	g/seatbelt
NOx	0.0450	g/1000g of product		5.85E-06	g/seatbelt
HC	0.0060	g/1000g of product		7.80E-07	g/seatbelt
Particulate matter	0.0008	g/1000g of product		9.75E-08	g/seatbelt
CO	0.0060	g/1000g of product		7.80E-07	g/seatbelt
SO2	0.0017	g/1000g of product		2.21E-07	g/seatbelt
Remark:					
Distance between the plant and Paste manufacturer no.2 (Cholet, France) in km		**100**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					

3.47.21.47 Production of HDPE	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	4.33E-07	g/1000g HDPE	120.0000	5.19E-08	g/seatbelt
energy (recovered)	-1.40E+03	g/1000g HDPE		-1.68E+02	g/seatbelt
hydrogen; gaseous	1.31E-03	g/1000g HDPE		1.58E-04	g/seatbelt
waste	5.79E+00	g/1000g HDPE		6.95E-01	g/seatbelt
air	2.58E+02	g/1000g HDPE		3.10E+01	g/seatbelt
baryte	5.41E-05	g/1000g HDPE		6.49E-06	g/seatbelt
bauxite	5.04E-03	g/1000g HDPE		6.04E-04	g/seatbelt
bentonite	3.31E-02	g/1000g HDPE		3.97E-03	g/seatbelt
biomass; 14.7 MJ/kg	1.28E-01	MJ/1000g HDPE		1.54E-02	MJ/seatbelt
brown coal; 11.9 MJ/kg	3.80E-05	MJ/1000g HDPE		4.56E-06	MJ/seatbelt
calcium carbonate (in)	1.33E-01	g/1000g HDPE		1.60E-02	g/seatbelt
chromium (in)	1.02E-09	g/1000g HDPE		1.22E-10	g/seatbelt
clay	2.80E-07	g/1000g HDPE		3.37E-08	g/seatbelt
copper (in)	3.20E-06	g/1000g HDPE		3.84E-07	g/seatbelt
crude oil; 42.3 MJ/kg	3.81E+01	MJ/1000g HDPE		4.58E+00	MJ/seatbelt
dolomite	2.13E-03	g/1000g HDPE		2.56E-04	g/seatbelt
feldspar	6.15E-14	g/1000g HDPE		7.38E-15	g/seatbelt
fluorspar	3.16E-04	g/1000g HDPE		3.79E-05	g/seatbelt
granite	4.67E-12	g/1000g HDPE		5.61E-13	g/seatbelt
ground water	9.52E-02	l/1000g HDPE		1.14E-02	l/seatbelt
gypsum	3.30E-03	g/1000g HDPE		3.96E-04	g/seatbelt
hard coal; 26.3 MJ/kg	2.79E+00	MJ/1000g HDPE		3.35E-01	MJ/seatbelt
inert rock	1.11E-05	g/1000g HDPE		1.33E-06	g/seatbelt
iron (in)	1.74E-01	g/1000g HDPE		2.09E-02	g/seatbelt
lead (in)	5.07E-04	g/1000g HDPE		6.08E-05	g/seatbelt
magnesium (in)	1.44E-07	g/1000g HDPE		1.73E-08	g/seatbelt
manganese (in)	1.31E-04	g/1000g HDPE		1.58E-05	g/seatbelt
mercury (in)	7.08E-07	g/1000g HDPE		8.50E-08	g/seatbelt
natural aggregate	6.43E-04	g/1000g HDPE		7.72E-05	g/seatbelt
natural gas; 44.1 MJ/kg	2.74E+01	MJ/1000g HDPE		3.29E+00	MJ/seatbelt
nickel	2.89E-07	g/1000g HDPE		3.47E-08	g/seatbelt
nitrogen (in)	1.69E+02	g/1000g HDPE		2.03E+01	g/seatbelt
olivine	1.63E-03	g/1000g HDPE		1.96E-04	g/seatbelt
oxygen	3.30E-03	g/1000g HDPE		3.96E-04	g/seatbelt
peat; 8.4 MJ/kg	1.50E-02	MJ/1000g HDPE		1.80E-03	MJ/seatbelt
phosphorus (in)	1.09E-09	g/1000g HDPE		1.31E-10	g/seatbelt
potassium chloride	6.31E-06	g/1000g HDPE		7.57E-07	g/seatbelt
primary energy from geother	2.73E-02	MJ/1000g HDPE		3.28E-03	MJ/seatbelt
primary energy from hydro p	5.83E-01	MJ/1000g HDPE		7.00E-02	MJ/seatbelt
primary energy from solar en	1.04E-04	MJ/1000g HDPE		1.25E-05	MJ/seatbelt
primary energy from waves	3.55E-04	MJ/1000g HDPE		4.25E-05	MJ/seatbelt
primary energy from wind po	1.59E-02	MJ/1000g HDPE		1.90E-03	MJ/seatbelt
quartz sand	4.19E-33	g/1000g HDPE		5.02E-34	g/seatbelt
river water	1.03E+03	g/1000g HDPE		1.24E+02	g/seatbelt

sand	8.38E-02	g/1000g HDPE		1.01E-02	g/seatbelt
sea water	1.14E+01	1l/1000g HDPE		1.36E+00	1l/seatbelt
slate	9.35E-03	g/1000g HDPE		1.12E-03	g/seatbelt
sodium chloride	3.51E-01	g/1000g HDPE		4.21E-02	g/seatbelt
sodium nitrate	4.33E-07	g/1000g HDPE		5.19E-08	g/seatbelt
sulfur (in)	5.20E-02	g/1000g HDPE		6.24E-03	g/seatbelt
talc	8.80E-24	g/1000g HDPE		1.06E-24	g/seatbelt
titanium	6.25E-31	g/1000g HDPE		7.50E-32	g/seatbelt
uranium	3.13E+03	g/1000g HDPE		3.75E+02	g/seatbelt
water	1.79E+01	1l/1000g HDPE		2.15E+00	1l/seatbelt
wood; 14.7 MJ/kg	1.81E-05	1MJ/1000g HDPE		2.17E-06	1MJ/seatbelt
zinc (in)	1.51E-02	g/1000g HDPE		1.82E-03	g/seatbelt
OUTFLOWS					
Thermoplastic HDPE; production mix, at plant					
1,2-dichloroethane	2.54E-08	g/1000g HDPE		3.04E-09	g/seatbelt
1,2-dichloroethane	5.06E-10	g/1000g HDPE		6.07E-11	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.17E-29	g/1000g HDPE		3.80E-30	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	9.81E-07	g/1000g HDPE		1.18E-07	g/seatbelt
acid (as H+)	3.68E-14	g/1000g HDPE		4.41E-15	g/seatbelt
acid (as H+)	1.96E-03	g/1000g HDPE		2.35E-04	g/seatbelt
adsorbable organic halogen c	1.05E-09	g/1000g HDPE		1.26E-10	g/seatbelt
aluminium	5.57E-04	g/1000g HDPE		6.68E-05	g/seatbelt
ammonia	2.17E-07	g/1000g HDPE		2.60E-08	g/seatbelt
ammonia	3.11E-03	g/1000g HDPE		3.73E-04	g/seatbelt
antimony	1.98E-08	g/1000g HDPE		2.37E-09	g/seatbelt
arsenic	1.23E-07	g/1000g HDPE		1.48E-08	g/seatbelt
arsenic	1.98E-07	g/1000g HDPE		2.38E-08	g/seatbelt
benzene	2.64E-15	g/1000g HDPE		3.16E-16	g/seatbelt
benzene	5.58E-19	g/1000g HDPE		6.70E-20	g/seatbelt
biological oxygen demand	2.09E-02	g/1000g HDPE		2.51E-03	g/seatbelt
bromate	5.55E-07	g/1000g HDPE		6.66E-08	g/seatbelt
cadmium	5.26E-08	g/1000g HDPE		6.31E-09	g/seatbelt
cadmium	1.11E-08	g/1000g HDPE		1.33E-09	g/seatbelt
calcium	2.89E-03	g/1000g HDPE		3.47E-04	g/seatbelt
carbon dioxide	1.57E+03	g/1000g HDPE		1.88E+02	g/seatbelt
carbon disulfide	1.48E-08	g/1000g HDPE		1.78E-09	g/seatbelt
carbon monoxide	1.24E+01	g/1000g HDPE		1.48E+00	g/seatbelt
carbonate	2.89E-02	g/1000g HDPE		3.47E-03	g/seatbelt
chemical oxygen demand	1.90E-01	g/1000g HDPE		2.28E-02	g/seatbelt
chlorate	9.94E-05	g/1000g HDPE		1.19E-05	g/seatbelt
chloride	1.57E-01	g/1000g HDPE		1.88E-02	g/seatbelt
chlorine	3.64E-08	g/1000g HDPE		4.37E-09	g/seatbelt
chlorine	1.06E-06	g/1000g HDPE		1.27E-07	g/seatbelt
chromium	5.62E-07	g/1000g HDPE		6.74E-08	g/seatbelt
chromium	1.39E-09	g/1000g HDPE		1.66E-10	g/seatbelt
copper	2.26E-09	g/1000g HDPE		2.71E-10	g/seatbelt
copper	1.55E-04	g/1000g HDPE		1.86E-05	g/seatbelt
cyanide	1.65E-08	g/1000g HDPE		1.98E-09	g/seatbelt
decane	5.99E-03	g/1000g HDPE		7.19E-04	g/seatbelt
dichloromethane	2.96E-11	g/1000g HDPE		3.55E-12	g/seatbelt

ethyl benzene	1.55E-16	g/1000g HDPE		1.86E-17	g/seatbelt
ethylene	1.62E-03	g/1000g HDPE		1.95E-04	g/seatbelt
fluoride	1.42E-06	g/1000g HDPE		1.71E-07	g/seatbelt
fluorine	1.65E-08	g/1000g HDPE		1.98E-09	g/seatbelt
hydrocarbons (unspecified)	4.35E-03	g/1000g HDPE		5.22E-04	g/seatbelt
hydrocyanic acid	4.89E-16	g/1000g HDPE		5.86E-17	g/seatbelt
hydrogen	4.14E-02	g/1000g HDPE		4.97E-03	g/seatbelt
hydrogen chloride	6.17E-02	g/1000g HDPE		7.41E-03	g/seatbelt
hydrogen fluoride	1.81E-03	g/1000g HDPE		2.17E-04	g/seatbelt
hydrogen sulfide	5.84E-06	g/1000g HDPE		7.01E-07	g/seatbelt
iron	1.64E-05	g/1000g HDPE		1.97E-06	g/seatbelt
lead	1.17E-06	g/1000g HDPE		1.41E-07	g/seatbelt
lead	1.17E-06	g/1000g HDPE		1.41E-07	g/seatbelt
manganese	1.56E-07	g/1000g HDPE		1.87E-08	g/seatbelt
mercury	2.38E-06	g/1000g HDPE		2.85E-07	g/seatbelt
mercury	2.19E-07	g/1000g HDPE		2.63E-08	g/seatbelt
methane	1.42E+01	g/1000g HDPE		1.70E+00	g/seatbelt
nickel	1.40E-10	g/1000g HDPE		1.68E-11	g/seatbelt
nickel	3.72E-07	g/1000g HDPE		4.47E-08	g/seatbelt
nitrate	2.25E-03	g/1000g HDPE		2.69E-04	g/seatbelt
nitrogen	1.11E-03	g/1000g HDPE		1.33E-04	g/seatbelt
nitrogen dioxide	3.23E+00	g/1000g HDPE		3.88E-01	g/seatbelt
nitrous oxide	7.91E-10	g/1000g HDPE		9.50E-11	g/seatbelt
non-methane volatile organic	4.24E+00	g/1000g HDPE		5.09E-01	g/seatbelt
oxygen	6.28E-21	g/1000g HDPE		7.54E-22	g/seatbelt
particles (> PM10)	1.95E-01	g/1000g HDPE		2.34E-02	g/seatbelt
particles (PM10)	6.45E-01	g/1000g HDPE		7.74E-02	g/seatbelt
particles (PM10)	7.12E-03	g/1000g HDPE		8.54E-04	g/seatbelt
particles (PM2.5)	3.49E-12	g/1000g HDPE		4.19E-13	g/seatbelt
phenol	1.87E-03	g/1000g HDPE		2.24E-04	g/seatbelt
phosphate	2.24E-03	g/1000g HDPE		2.68E-04	g/seatbelt
polycyclic aromatic hydrocarb	1.07E-15	g/1000g HDPE		1.28E-16	g/seatbelt
potassium	6.77E-04	g/1000g HDPE		8.12E-05	g/seatbelt
propene	1.20E-03	g/1000g HDPE		1.44E-04	g/seatbelt
selenium	7.92E-23	g/1000g HDPE		9.50E-24	g/seatbelt
silver	2.29E-21	g/1000g HDPE		2.74E-22	g/seatbelt
sodium	9.84E-02	g/1000g HDPE		1.18E-02	g/seatbelt
strontium	1.06E-08	g/1000g HDPE		1.27E-09	g/seatbelt
styrene	2.18E-17	g/1000g HDPE		2.61E-18	g/seatbelt
sulfate	8.29E-01	g/1000g HDPE		9.94E-02	g/seatbelt
sulfur	5.68E-10	g/1000g HDPE		6.82E-11	g/seatbelt
sulfur dioxide	4.08E+00	g/1000g HDPE		4.89E-01	g/seatbelt
tin	7.49E-08	g/1000g HDPE		8.98E-09	g/seatbelt
toluene	4.42E-16	g/1000g HDPE		5.30E-17	g/seatbelt
total organic carbon	1.11E-02	g/1000g HDPE		1.33E-03	g/seatbelt
vinyl chloride	5.02E-07	g/1000g HDPE		6.02E-08	g/seatbelt
vinyl chloride	9.24E-09	g/1000g HDPE		1.11E-09	g/seatbelt
volatile organic compound	1.46E-01	g/1000g HDPE		1.76E-02	g/seatbelt
volatile organic compound	9.95E-03	g/1000g HDPE		1.19E-03	g/seatbelt
xylene (all isomers)	2.04E-16	g/1000g HDPE		2.45E-17	g/seatbelt

zinc	1.29E-06	g/1000g HDPE		1.55E-07	g/seatbelt
zinc	1.33E-04	g/1000g HDPE		1.60E-05	g/seatbelt
chemical waste	2.94E+00	g/1000g HDPE		3.53E-01	g/seatbelt
chemical waste, inert	7.20E-01	g/1000g HDPE		8.64E-02	g/seatbelt
chemical waste, toxic	2.04E+00	g/1000g HDPE		2.45E-01	g/seatbelt
demolition waste	6.32E-07	g/1000g HDPE		7.59E-08	g/seatbelt
industrial waste	8.56E-01	g/1000g HDPE		1.03E-01	g/seatbelt
mineral waste	1.94E-01	g/1000g HDPE		2.33E-02	g/seatbelt
municipal waste	-5.46E+00	g/1000g HDPE		-6.56E-01	g/seatbelt
organic waste	4.27E-04	g/1000g HDPE		5.13E-05	g/seatbelt
overburden	1.98E+01	g/1000g HDPE		2.38E+00	g/seatbelt
packaging waste (metal)	7.91E-06	g/1000g HDPE		9.49E-07	g/seatbelt
packaging waste (plastic)	1.05E-09	g/1000g HDPE		1.25E-10	g/seatbelt
plastic	6.34E-01	g/1000g HDPE		7.61E-02	g/seatbelt
tailings	6.21E-02	g/1000g HDPE		7.45E-03	g/seatbelt
waste	9.88E-01	g/1000g HDPE		1.19E-01	g/seatbelt
waste paper	5.91E-07	g/1000g HDPE		7.09E-08	g/seatbelt
wood	4.39E-05	g/1000g HDPE		5.27E-06	g/seatbelt
wooden pallet	1.49E-07	g/1000g HDPE		1.79E-08	g/seatbelt
Remark:					
Data for HDPE taken from LCI data for polyethylene high density granulate (ELCD database, 1999)					
3.47.21.48 Transportation to plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.49 Production of cartridge	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.50 Transportation to plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.51 Production of paste lead free	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.

INFLOWS					
gas	465.2	MJ/1000g	1.0000	4.65E-01	MJ/seatbelt
electricity	442.8	MJ/1000g		4.43E-01	MJ/seatbelt
flux	870	g/1000g product		8.70E-01	g/seatbelt
alloy	130	g/1000g product		1.30E-01	g/seatbelt
cartridge				120	g
OUTFLOWS					
paste, lead free				1	g/seatbelt
lead	1.3433668	g/1000g		1.34E-03	g/seatbelt
silver	1.3433668	g/1000g		1.34E-03	g/seatbelt
dust	3.580825	g/1000g		3.58E-03	g/seatbelt
CO2	2587.4805	g/1000g		2.59E+00	g/seatbelt
tin	0.6532887	g/1000g		6.53E-04	g/seatbelt
solid toxic waste	512.82051	g/1000g		5.13E-01	g/seatbelt
Remark					
Electricity data for France					
3.47.21.52 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5526	MJ/1000g of product	1.0000	5.53E-04	MJ/seatbelt
OUTFLOWS					
CO2	1.8200	g/1000g of product		1.82E-03	g/seatbelt
NOx	0.0116	g/1000g of product		1.16E-05	g/seatbelt
HC	0.0016	g/1000g of product		1.65E-06	g/seatbelt
Particulate matter	0.0002	g/1000g of product		2.00E-07	g/seatbelt
CO	0.0016	g/1000g of product		1.61E-06	g/seatbelt
SO2	0.0005	g/1000g of product		4.55E-07	g/seatbelt
Remark:					
Distance between Paste manufacturer (St Priest, France), Paste manufacturer no.2 (Cholet, France) and NCS (Survilliers, France) in km		**767.5**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
		Paste manufacturer	35.0000		
		Paste manufacturer	1500.0000		
3.47.21.53 Production of fuel; potassium-perchlorate (35%) and zirconium (55%)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.21.54 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.55 Production of paste	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
potassium-perchlorate, titani	1000.0000	g/1000g product		0.0170	g/seatbelt
OUTFLOWS					
paste				0.017	g/seatbelt
Lack of data					
3.47.21.56 Production of fuel; potassium-perchlorate, titanium-dihydride	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
OUTFLOWS					
potasium perchlorate	600.0000	g/1000g product	0.0270	0.0270	g/seatbelt
titanium-dihydride	3000.0000	g/1000g product	0.1350	0.1350	g/seatbelt
misc. not to declare	100.0000	g/1000g product	0.0045	0.0045	g/seatbelt
Lack of data					
3.47.21.57 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.58 Production of powder	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
potasium perchlorate	600.0000	g/1000g product	0.0270	0.0270	g/seatbelt
titanium-dihydride	3000.0000	g/1000g product	0.1350	0.1350	g/seatbelt
misc. not to declare	100.0000	g/1000g product	0.0045	0.0045	g/seatbelt
OUTFLOWS					
fuel				0.0450	g/seatbelt
Lack of data					

3.47.21.59 Production of e-plate ZnNi	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0450	7.11E-07	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		1.41E-06	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		3.20E-08	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		3.95E-05	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		9.37E-03	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		6.93E-04	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		2.05E-04	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		2.16E-03	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		6.81E-04	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		1.01E-02	g/seatbelt
iron (in)	215.94651	g/1000g alloy		9.72E-03	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		9.93E-05	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		7.25E-08	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		2.87E-04	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		1.17E-05	g/seatbelt
water	18.985568	l/1000g alloy		8.54E-04	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		4.50E-02	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		1.01E-13	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		2.70E-06	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		5.31E-07	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		2.72E-06	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		9.81E-10	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		1.52E-01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		4.43E-04	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		2.03E-05	g/seatbelt
chloride	3.56E+00	g/1000g alloy		1.60E-04	g/seatbelt
chromium	1.14E-01	g/1000g alloy		5.11E-06	g/seatbelt
chromium	9.22E-04	g/1000g alloy		4.15E-08	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		2.67E-09	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		1.03E-08	g/seatbelt
copper	1.22E-04	g/1000g alloy		5.49E-09	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		3.11E-06	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		9.81E-07	g/seatbelt
iron	1.31E-01	g/1000g alloy		5.91E-06	g/seatbelt
lead	5.17E-04	g/1000g alloy		2.33E-08	g/seatbelt
manganese	2.83E-03	g/1000g alloy		1.27E-07	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		2.81E-07	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		7.47E-08	g/seatbelt
nickel	2.97E-02	g/1000g alloy		1.34E-06	g/seatbelt
nickel	3.38E-03	g/1000g alloy		1.52E-07	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		9.02E-06	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		4.60E-06	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		3.38E-04	g/seatbelt

particles (> PM10)	2.35E-01	g/1000g alloy		1.06E-05	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		2.00E-04	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		1.33E-07	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		4.14E-05	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		5.57E-04	g/seatbelt
tin	1.61E-04	g/1000g alloy		7.25E-09	g/seatbelt
zinc	1.11E-03	g/1000g alloy		5.00E-08	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		1.09E-02	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		5.85E-02	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.47.21.60 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.61 Production of steel DC06	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	0.5300	2.68E-02	g/seatbelt
Chemicals	4.99	g/1000g steel		2.64E-03	g/seatbelt
Coal	0.223	MJ/1000g steel		1.18E-04	MJ/seatbelt
Coal	517	g/1000g steel		1.18E-02	g/seatbelt
Diesel	0.195	MJ/1000g steel		1.03E-04	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		1.74E-03	MJ/seatbelt
Explosives	1.02	g/1000g steel		5.41E-04	g/seatbelt
Gas	4.81	MJ/1000g steel		2.55E-03	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		1.53E-03	MJ/seatbelt
Iron ore	2170	g/1000g steel		1.15E+00	g/seatbelt
Limestone	162	g/1000g steel		8.59E-02	g/seatbelt
Oil	0.00106	MJ/1000g steel		5.62E-07	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		2.77E-02	g/seatbelt
OUTFLOWS					
ammonia	0.000517	g/1000g steel		2.74E-07	g/seatbelt
arsenic	2.08E-06	g/1000g steel		1.10E-09	g/seatbelt
cadmium	0.0000118	g/1000g steel		6.25E-09	g/seatbelt
cadmium	4.46E-08	g/1000g steel		2.36E-11	g/seatbelt
CH4	4.04	g/1000g steel		2.14E-03	g/seatbelt
carbon dioxide	1180	g/1000g steel		6.25E-01	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		1.36E-05	g/seatbelt
chromium	0.00036	g/1000g steel		1.91E-07	g/seatbelt
chromium	0.0000488	g/1000g steel		2.59E-08	g/seatbelt
cobalt	0.0000072	g/1000g steel		3.82E-09	g/seatbelt

cobalt	3.21E-06	g/1000g steel		1.70E-09	g/seatbelt
copper	0.000175	g/1000g steel		9.28E-08	g/seatbelt
copper	0.000101	g/1000g steel		5.35E-08	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		2.22E-05	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		2.98E-05	g/seatbelt
lead	0.000529	g/1000g steel		2.80E-07	g/seatbelt
lead	0.000402	g/1000g steel		2.13E-07	g/seatbelt
mercury	0.0000344	g/1000g steel		1.82E-08	g/seatbelt
nickel	0.0004	g/1000g steel		2.12E-07	g/seatbelt
nickel	0.0000815	g/1000g steel		4.32E-08	g/seatbelt
nitrogen	0.0318	g/1000g steel		1.69E-05	g/seatbelt
nitrous oxide	1.49	g/1000g steel		7.90E-04	g/seatbelt
Phosphorus	0.000372	g/1000g steel		1.97E-07	g/seatbelt
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		7.79E-08	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		8.06E-04	g/seatbelt
zinc	0.00368	g/1000g steel		1.95E-06	g/seatbelt
zinc	0.000997	g/1000g steel		5.28E-07	g/seatbelt
Hazardous waste	1.62	g/1000g steel		8.59E-04	g/seatbelt
Industrial waste	96.4	g/1000g steel		5.11E-02	g/seatbelt
mineral waste	1100	g/1000g steel		5.83E-01	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for France (assumed the same country as client)					
3.47.21.62 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.63 Production of loaded cup	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
oil Norderstedt	0.1308158	MJ/1000g product	0.5750	7.52E-05	MJ/seatbelt
gas Hall 14	0.0845028	MJ/1000g product		4.86E-05	MJ/seatbelt
electricity	3.3747613	MJ/1000g product		1.94E-03	MJ/seatbelt
ZnNi for e-plate	921.73913	g/1000g product		5.30E-01	g/seatbelt
DC06	78.26087	g/1000g product		4.50E-02	g/seatbelt
OUTFLOWS				0.00E+00	
loaded cup				0.575	g/seatbelt
chromium III	0.0044461	g/1000g product		2.56E-06	g/seatbelt
copper	0.0044461	g/1000g product		2.56E-06	g/seatbelt
cyanide	0.0002047	g/1000g product		1.18E-07	g/seatbelt
nickel	0.0044461	g/1000g product		2.56E-06	g/seatbelt
zinc	0.0044461	g/1000g product		2.56E-06	g/seatbelt
used oil	0.003472	g/1000g product		2.00E-06	g/seatbelt

Remark:					
Data given for 1 year					
Total value of production/year		€ 34,580,022.00			
Value of the product		€ 0.00			
Remark:					
Electricity data for France					
Data adapted from production of frame pretensioner. Due to the differences in weight, value of the product was calculated in propotion to the weight.					
3.47.21.64 Production of elastomer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Coal	5.60E+00	MJ/1000g elastomer	0.0327	1.83E-04	MJ/seatbelt
Crude oil	2.10E+01	MJ/1000g elastomer		6.87E-04	MJ/seatbelt
Electricity	5.00E+00	MJ/1000g elastomer		1.64E-04	MJ/seatbelt
OUTFLOWS				0.00E+00	
elastomer				0.00E+00	
CO	0.2081156	g/1000g elastomer		6.81E-06	g/seatbelt
CO2	0.0154044	g/1000g elastomer		5.04E-07	g/seatbelt
COD	4.5500839	g/1000g elastomer		1.49E-04	g/seatbelt
methane	0.0480941	g/1000g elastomer		1.57E-06	g/seatbelt
N total	15.128484	g/1000g elastomer		4.95E-04	g/seatbelt
N2O	0.2234082	g/1000g elastomer		7.31E-06	g/seatbelt
NMVOC	0.2159465	g/1000g elastomer		7.06E-06	g/seatbelt
NOx	0.0022068	g/1000g elastomer		7.22E-08	g/seatbelt
PAH	1.611E-06	g/1000g elastomer		5.27E-11	g/seatbelt
Particles	6.3815832	g/1000g elastomer		2.09E-04	g/seatbelt
SO2	0.0002601	g/1000g elastomer		8.50E-09	g/seatbelt
				0.00E+00	
Remark					
Electricity data for France					
Data adapted from production of EPDM (CPM, 2001)					
3.47.21.65 Transportation to O-ring manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.21.66 Production of o-ring	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					

Elastomer	1000.0000	g/1000g product	0.0327	0.0327	g/seatbelt
OUTFLOWS					
o-ring				0.0327	g/seatbelt
Lack of data					
3.47.21.66a Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2880	MJ/1000g of product	0.0327	9.42E-06	MJ/seatbelt
OUTFLOWS					
CO2	20.8000	g/1000g of product		6.80E-04	g/seatbelt
NOx	0.1320	g/1000g of product		4.32E-06	g/seatbelt
HC	0.0188	g/1000g of product		6.15E-07	g/seatbelt
Particulate matter	0.0023	g/1000g of product		7.46E-08	g/seatbelt
CO	0.0184	g/1000g of product		6.02E-07	g/seatbelt
SO2	0.0052	g/1000g of product		1.70E-07	g/seatbelt
Remark:					
Distance between O-ring manufacturer(Chateau Gontier, France) and NCS (Survilliers, France) in km		**400**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.21.68 Production of PA66-GF20	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	65037.901	g/1000g PA66	0.1000	6.50E+00	g/seatbelt
barium sulfate	2.532E-10	g/1000g PA66		2.53E-14	g/seatbelt
baryte	10.843071	g/1000g PA66		1.08E-03	g/seatbelt
basalt	2.8989118	g/1000g PA66		2.90E-04	g/seatbelt
bauxite	0.0360362	g/1000g PA66		3.60E-06	g/seatbelt
bentonite	4.4823458	g/1000g PA66		4.48E-04	g/seatbelt
biomass; 14.7 MJ/kg	4.21E-08	MJ/1000g PA66		4.21E-12	MJ/seatbelt
brown coal; 11.9 MJ/kg	6.1026615	MJ/1000g PA66		6.10E-04	MJ/seatbelt
calcium carbonate	106.49348	g/1000g PA66		1.06E-02	g/seatbelt
calcium chloride	2.592E-08	g/1000g PA66		2.59E-12	g/seatbelt
carbon dioxide (in)	45.525624	g/1000g PA66		4.55E-03	g/seatbelt
chromium (in)	0.0020571	g/1000g PA66		2.06E-07	g/seatbelt
clay	1.1148825	g/1000g PA66		1.11E-04	g/seatbelt
colemanite	0.0014229	g/1000g PA66		1.42E-07	g/seatbelt
copper (in)	0.0205671	g/1000g PA66		2.06E-06	g/seatbelt
crude oil; 42.3 MJ/kg	94.963275	MJ/1000g PA66		9.50E-03	MJ/seatbelt

dolomite	0.0001163	g/1000g PA66		1.16E-08	g/seatbelt
fluorspar	0.0001352	g/1000g PA66		1.35E-08	g/seatbelt
gold (in)	9.978E-09	g/1000g PA66		9.98E-13	g/seatbelt
ground water	13.636795	l/1000g PA66		1.36E-03	l/seatbelt
gypsum	0.2794838	g/1000g PA66		2.79E-05	g/seatbelt
hard coal; 26.3 MJ/kg	9.8485012	MJ/1000g PA66		9.85E-04	MJ/seatbelt
inert rock	9916.6379	g/1000g PA66		9.92E-01	g/seatbelt
iron (in)	3.9243077	g/1000g PA66		3.92E-04	g/seatbelt
kaolin	0.0025526	g/1000g PA66		2.55E-07	g/seatbelt
lead (in)	0.1874423	g/1000g PA66		1.87E-05	g/seatbelt
magnesite	5.871E-06	g/1000g PA66		5.87E-10	g/seatbelt
magnesium chloride	11.894884	g/1000g PA66		1.19E-03	g/seatbelt
manganese	0.0165722	g/1000g PA66		1.66E-06	g/seatbelt
molybdenum (in)	3.422E-05	g/1000g PA66		3.42E-09	g/seatbelt
natural aggregate	25.722624	g/1000g PA66		2.57E-03	g/seatbelt
natural gas; 44.1 MJ/kg	63.14291	MJ/1000g PA66		6.31E-03	MJ/seatbelt
nickel (in)	0.0031499	g/1000g PA66		3.15E-07	g/seatbelt
nitrogen (in)	1.757E-06	g/1000g PA66		1.76E-10	g/seatbelt
olivine	1.359E-11	g/1000g PA66		1.36E-15	g/seatbelt
oxygen (in)	-30.805547	g/1000g PA66		-3.08E-03	g/seatbelt
palladium	1.997E-07	g/1000g PA66		2.00E-11	g/seatbelt
peat; 8.4 MJ/kg	0.1009196	MJ/1000g PA66		1.01E-05	MJ/seatbelt
phosphorus (in)	0.00024	g/1000g PA66		2.40E-08	g/seatbelt
platinum	2.399E-06	g/1000g PA66		2.40E-10	g/seatbelt
potassium chloride	2.894E-06	g/1000g PA66		2.89E-10	g/seatbelt
primary energy from geother	5.86E+00	MJ/1000g PA66		5.86E-04	MJ/seatbelt
primary energy from hydro p	2.7025393	MJ/1000g PA66		2.70E-04	MJ/seatbelt
primary energy from solar en	439.74948	MJ/1000g PA66		4.40E-02	MJ/seatbelt
primary energy from wind po	0.5377115	MJ/1000g PA66		5.38E-05	MJ/seatbelt
quartz sand	2.9228481	g/1000g PA66		2.92E-04	g/seatbelt
raw pumice	0.0002479	g/1000g PA66		2.48E-08	g/seatbelt
rhodium	6.678E-09	g/1000g PA66		6.68E-13	g/seatbelt
river water	-11.758225	l/1000g PA66		-1.18E-03	l/seatbelt
sea water	0.1040295	l/1000g PA66		1.04E-05	l/seatbelt
silver	1.717E-06	g/1000g PA66		1.72E-10	g/seatbelt
slate	2.285E-11	g/1000g PA66		2.28E-15	g/seatbelt
sodium chloride	55.453276	g/1000g PA66		5.55E-03	g/seatbelt
sodium sulfate	0.1289922	g/1000g PA66		1.29E-05	g/seatbelt
soil	10.598537	g/1000g PA66		1.06E-03	g/seatbelt
sulfur (in)	1.835E-06	g/1000g PA66		1.84E-10	g/seatbelt
surface water	22693.249	g/1000g PA66		2.27E+00	g/seatbelt
talc	4.501E-05	g/1000g PA66		4.50E-09	g/seatbelt
tin (in)	2.196E-14	g/1000g PA66		2.20E-18	g/seatbelt
titanium	0.01209	g/1000g PA66		1.21E-06	g/seatbelt
uranium	21.840667	MJ/1000g PA66		2.18E-03	MJ/seatbelt
water	-14.734131	l/1000g PA66		-1.47E-03	l/seatbelt
wood; 14.7 MJ/kg	0.0005997	MJ/1000g PA66		6.00E-08	MJ/seatbelt
zinc (in)	0.053713	g/1000g PA66		5.37E-06	g/seatbelt
OUTFLOWS				0.00E+00	
polyamide 6.6 fibres (PA 6.6),	1000	g		1.00E-01	g

calcium fluoride; reactor fuel	0.0043676	g/1000g PA66		4.37E-07	g/seatbelt
demolition waste (unspecifie	16.301945	g/1000g PA66		1.63E-03	g/seatbelt
highly radioactive waste; rea	0.0130339	g/1000g PA66		1.30E-06	g/seatbelt
medium and low radioactive	0.0154331	g/1000g PA66		1.54E-06	g/seatbelt
overburden (unspecified)	9635.2185	g/1000g PA66		9.64E-01	g/seatbelt
plutonium as residual produc	2.587E-05	g/1000g PA66		2.59E-09	g/seatbelt
radioactive tailings; reactor fu	7.6508563	g/1000g PA66		7.65E-04	g/seatbelt
slag (unspecified)	0.5697456	g/1000g PA66		5.70E-05	g/seatbelt
slag (uranium conversion); re	0.0289252	g/1000g PA66		2.89E-06	g/seatbelt
spoil (unspecified)	13.17962	g/1000g PA66		1.32E-03	g/seatbelt
tailings (unspecified)	0.0110244	g/1000g PA66		1.10E-06	g/seatbelt
unspecified radioactive waste	0.0259354	g/1000g PA66		2.59E-06	g/seatbelt
uranium depleted; reactor fu	0.029923	g/1000g PA66		2.99E-06	g/seatbelt
1,2-dibromoethane	2.129E-10	g/1000g PA66		2.13E-14	g/seatbelt
1,2-dichloropropane	1.603E-12	g/1000g PA66		1.60E-16	g/seatbelt
1,3,5-trimethylbenzene	1.038E-09	g/1000g PA66		1.04E-13	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.685E-10	g/1000g PA66		2.69E-14	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.402E-17	g/1000g PA66		2.40E-21	g/seatbelt
acenaphthene	2.318E-05	g/1000g PA66		2.32E-09	g/seatbelt
acenaphthene	4.205E-07	g/1000g PA66		4.20E-11	g/seatbelt
acenaphthylene	1.698E-07	g/1000g PA66		1.70E-11	g/seatbelt
acenaphthylene	8.821E-06	g/1000g PA66		8.82E-10	g/seatbelt
acetaldehyde	0.0094645	g/1000g PA66		9.46E-07	g/seatbelt
acetic acid	0.0389753	g/1000g PA66		3.90E-06	g/seatbelt
acetic acid	7.328E-05	g/1000g PA66		7.33E-09	g/seatbelt
acetic acid	0.0012746	g/1000g PA66		1.27E-07	g/seatbelt
acetone	0.0094224	g/1000g PA66		9.42E-07	g/seatbelt
acid (as H+)	1.265E-06	g/1000g PA66		1.27E-10	g/seatbelt
acid (as H+)	0.0001269	g/1000g PA66		1.27E-08	g/seatbelt
acrolein	1.543E-06	g/1000g PA66		1.54E-10	g/seatbelt
acryolonitrile	1.172E-07	g/1000g PA66		1.17E-11	g/seatbelt
adsorbable organic halogen c	1.724E-09	g/1000g PA66		1.72E-13	g/seatbelt
adsorbable organic halogen c	0.0025857	g/1000g PA66		2.59E-07	g/seatbelt
aluminium	0.0003937	g/1000g PA66		3.94E-08	g/seatbelt
aluminium	0.0258018	g/1000g PA66		2.58E-06	g/seatbelt
aluminium	1.942E-08	g/1000g PA66		1.94E-12	g/seatbelt
americium-241	0.0455517	Bq/1000g PA66		4.56E-06	Bq/seatbelt
ammonia	0.058	g/1000g PA66		5.80E-06	g/seatbelt
ammonia	0.1800586	g/1000g PA66		1.80E-05	g/seatbelt
ammonia	0.5783256	g/1000g PA66		5.78E-05	g/seatbelt
ammonia	5.77E-07	g/1000g PA66		5.77E-11	g/seatbelt
ammonium	1.109E-07	g/1000g PA66		1.11E-11	g/seatbelt
anthracene	2.186E-07	g/1000g PA66		2.19E-11	g/seatbelt
anthracene	7.089E-07	g/1000g PA66		7.09E-11	g/seatbelt
anthracene	5.95E-06	g/1000g PA66		5.95E-10	g/seatbelt
antimony	4.987E-05	g/1000g PA66		4.99E-09	g/seatbelt
antimony	2.025E-10	g/1000g PA66		2.02E-14	g/seatbelt
antimony-124	1.597E-05	Bq/1000g PA66		1.60E-09	Bq/seatbelt
antimony-124	0.0004736	Bq/1000g PA66		4.74E-08	Bq/seatbelt
antimony-125	0.0003227	Bq/1000g PA66		3.23E-08	Bq/seatbelt

argon-41	100.75552	Bq/1000g PA66		1.01E-02	Bq/seatbelt
arsenic	0.0002135	g/1000g PA66		2.13E-08	g/seatbelt
arsenic	1.404E-07	g/1000g PA66		1.40E-11	g/seatbelt
arsenic	0.0003981	g/1000g PA66		3.98E-08	g/seatbelt
arsenic	0.0003603	g/1000g PA66		3.60E-08	g/seatbelt
arsenic trioxide	6.042E-10	g/1000g PA66		6.04E-14	g/seatbelt
barium	0.0077146	g/1000g PA66		7.71E-07	g/seatbelt
barium	0.021286	g/1000g PA66		2.13E-06	g/seatbelt
barium	0.0021872	g/1000g PA66		2.19E-07	g/seatbelt
benzene	0.0110453	g/1000g PA66		1.10E-06	g/seatbelt
benzene	0.0043696	g/1000g PA66		4.37E-07	g/seatbelt
benzene	0.0008155	g/1000g PA66		8.15E-08	g/seatbelt
benzo[a]anthracene	1.1E-07	g/1000g PA66		1.10E-11	g/seatbelt
benzo[a]anthracene	5.015E-08	g/1000g PA66		5.02E-12	g/seatbelt
benzo[a]anthracene	5.203E-06	g/1000g PA66		5.20E-10	g/seatbelt
benzo[a]pyrene	1.293E-06	g/1000g PA66		1.29E-10	g/seatbelt
benzo[g,h,i]perylene	9.814E-08	g/1000g PA66		9.81E-12	g/seatbelt
benzo[k]fluoranthene	1.963E-07	g/1000g PA66		1.96E-11	g/seatbelt
benzo[k]fluoranthene	5.789E-06	g/1000g PA66		5.79E-10	g/seatbelt
benzo[k]fluoranthene	1.868E-08	g/1000g PA66		1.87E-12	g/seatbelt
beryllium	4.828E-06	g/1000g PA66		4.83E-10	g/seatbelt
beryllium	3.11E-05	g/1000g PA66		3.11E-09	g/seatbelt
beryllium	1.005E-06	g/1000g PA66		1.01E-10	g/seatbelt
biological oxygen demand	0.069525	g/1000g PA66		6.95E-06	g/seatbelt
biological oxygen demand	0.0019013	g/1000g PA66		1.90E-07	g/seatbelt
boron	0.0065951	g/1000g PA66		6.60E-07	g/seatbelt
boron	3.14E-07	g/1000g PA66		3.14E-11	g/seatbelt
boron	0.0030996	g/1000g PA66		3.10E-07	g/seatbelt
bromide	5.305E-05	g/1000g PA66		5.30E-09	g/seatbelt
bromine	0.0026985	g/1000g PA66		2.70E-07	g/seatbelt
bromine	6.436E-07	g/1000g PA66		6.44E-11	g/seatbelt
butadiene	3.396E-08	g/1000g PA66		3.40E-12	g/seatbelt
cadmium	2.524E-05	g/1000g PA66		2.52E-09	g/seatbelt
cadmium	1.281E-06	g/1000g PA66		1.28E-10	g/seatbelt
cadmium	0.0001785	g/1000g PA66		1.78E-08	g/seatbelt
cadmium	0.0003397	g/1000g PA66		3.40E-08	g/seatbelt
calcium	0.0012607	g/1000g PA66		1.26E-07	g/seatbelt
calcium	2.0086314	g/1000g PA66		2.01E-04	g/seatbelt
calcium	3.429E-05	g/1000g PA66		3.43E-09	g/seatbelt
carbon dioxide	9865.4907	g/1000g PA66		9.87E-01	g/seatbelt
carbon disulfide	3.954E-08	g/1000g PA66		3.95E-12	g/seatbelt
carbon monoxide	3.5594431	g/1000g PA66		3.56E-04	g/seatbelt
carbon-14	46.225954	Bq/1000g PA66		4.62E-03	Bq/seatbelt
carbon-14	2.305559	Bq/1000g PA66		2.31E-04	Bq/seatbelt
carbonate	0.1343343	g/1000g PA66		1.34E-05	g/seatbelt
carbonate	1.3382783	g/1000g PA66		1.34E-04	g/seatbelt
cesium-134	0.0126536	Bq/1000g PA66		1.27E-06	Bq/seatbelt
cesium-134	2.3128284	Bq/1000g PA66		2.31E-04	Bq/seatbelt
cesium-137	0.0258512	Bq/1000g PA66		2.59E-06	Bq/seatbelt
cesium-137	21.409842	Bq/1000g PA66		2.14E-03	Bq/seatbelt

CFC-11	0.0002859	g/1000g PA66		2.86E-08	g/seatbelt
CFC-114	0.0002928	g/1000g PA66		2.93E-08	g/seatbelt
CFC-12	6.146E-05	g/1000g PA66		6.15E-09	g/seatbelt
CFC-13	3.859E-05	g/1000g PA66		3.86E-09	g/seatbelt
chemical oxygen demand	0.1218039	g/1000g PA66		1.22E-05	g/seatbelt
chemical oxygen demand	13.378357	g/1000g PA66		1.34E-03	g/seatbelt
chloride	0.0048838	g/1000g PA66		4.88E-07	g/seatbelt
chloride	0.061964	g/1000g PA66		6.20E-06	g/seatbelt
chloride	105.68389	g/1000g PA66		1.06E-02	g/seatbelt
chloride	33.907648	g/1000g PA66		3.39E-03	g/seatbelt
chlorine	0.0001041	g/1000g PA66		1.04E-08	g/seatbelt
chlorine	0.0360205	g/1000g PA66		3.60E-06	g/seatbelt
chromium	0.000165	g/1000g PA66		1.65E-08	g/seatbelt
chromium	0.0003487	g/1000g PA66		3.49E-08	g/seatbelt
chromium	0.0009128	g/1000g PA66		9.13E-08	g/seatbelt
chromium	0.0008454	g/1000g PA66		8.45E-08	g/seatbelt
chromium III	2.169E-07	g/1000g PA66		2.17E-11	g/seatbelt
chromium III	2.509E-09	g/1000g PA66		2.51E-13	g/seatbelt
chromium III	7.841E-05	g/1000g PA66		7.84E-09	g/seatbelt
chromium VI	0.0003322	g/1000g PA66		3.32E-08	g/seatbelt
chrysene	2.702E-07	g/1000g PA66		2.70E-11	g/seatbelt
chrysene	2.068E-07	g/1000g PA66		2.07E-11	g/seatbelt
chrysene	2.941E-05	g/1000g PA66		2.94E-09	g/seatbelt
cobalt	6.446E-05	g/1000g PA66		6.45E-09	g/seatbelt
cobalt	6.19E-06	g/1000g PA66		6.19E-10	g/seatbelt
cobalt	3.778E-07	g/1000g PA66		3.78E-11	g/seatbelt
cobalt	0.0005443	g/1000g PA66		5.44E-08	g/seatbelt
cobalt-58	7.927E-05	Bq/1000g PA66		7.93E-09	Bq/seatbelt
cobalt-58	0.0177048	Bq/1000g PA66		1.77E-06	Bq/seatbelt
cobalt-60	0.0020105	Bq/1000g PA66		2.01E-07	Bq/seatbelt
cobalt-60	9.9264314	Bq/1000g PA66		9.93E-04	Bq/seatbelt
copper	0.0001605	g/1000g PA66		1.61E-08	g/seatbelt
copper	3.543E-06	g/1000g PA66		3.54E-10	g/seatbelt
copper	0.000623	g/1000g PA66		6.23E-08	g/seatbelt
copper	0.0017204	g/1000g PA66		1.72E-07	g/seatbelt
cresol	4.352E-09	g/1000g PA66		4.35E-13	g/seatbelt
cresol	5.674E-09	g/1000g PA66		5.67E-13	g/seatbelt
curium	0.0603697	Bq/1000g PA66		6.04E-06	Bq/seatbelt
cyanide	9.967E-05	g/1000g PA66		9.97E-09	g/seatbelt
cyanide	0.0008289	g/1000g PA66		8.29E-08	g/seatbelt
cyclohexane	9.063E-07	g/1000g PA66		9.06E-11	g/seatbelt
decane	0.0026307	g/1000g PA66		2.63E-07	g/seatbelt
decane	0.0042715	g/1000g PA66		4.27E-07	g/seatbelt
decane	0.0410303	g/1000g PA66		4.10E-06	g/seatbelt
dibenz[a,h]anthracene	6.117E-08	g/1000g PA66		6.12E-12	g/seatbelt
dichloromethane	1.002E-11	g/1000g PA66		1.00E-15	g/seatbelt
diethylamine	2.738E-12	g/1000g PA66		2.74E-16	g/seatbelt
ethane	0.7715299	g/1000g PA66		7.72E-05	g/seatbelt
ethanol	0.0186245	g/1000g PA66		1.86E-06	g/seatbelt
ethyl benzene	0.0072081	g/1000g PA66		7.21E-07	g/seatbelt

ethyl benzene	0.0005657	g/1000g PA66		5.66E-08	g/seatbelt
ethyl benzene	4.553E-05	g/1000g PA66		4.55E-09	g/seatbelt
ethylene	6.79E-05	g/1000g PA66		6.79E-09	g/seatbelt
FC-14	8.111E-07	g/1000g PA66		8.11E-11	g/seatbelt
fluoranthene	7.121E-07	g/1000g PA66		7.12E-11	g/seatbelt
fluoranthene	6.087E-06	g/1000g PA66		6.09E-10	g/seatbelt
fluoranthene	8.855E-08	g/1000g PA66		8.86E-12	g/seatbelt
fluorene	2.26E-06	g/1000g PA66		2.26E-10	g/seatbelt
fluoride	0.0034329	g/1000g PA66		3.43E-07	g/seatbelt
fluoride	0.0017684	g/1000g PA66		1.77E-07	g/seatbelt
fluoride	1.4130848	g/1000g PA66		1.41E-04	g/seatbelt
fluorine	1.442E-06	g/1000g PA66		1.44E-10	g/seatbelt
fluorine	1.965E-05	g/1000g PA66		1.96E-09	g/seatbelt
formaldehyde	0.0442843	g/1000g PA66		4.43E-06	g/seatbelt
HCFC-22	6.718E-05	g/1000g PA66		6.72E-09	g/seatbelt
helium	4.434E-05	g/1000g PA66		4.43E-09	g/seatbelt
heptane	0.004832	g/1000g PA66		4.83E-07	g/seatbelt
hexamethylene diamine	1.997E-09	g/1000g PA66		2.00E-13	g/seatbelt
hexane	0.0072443	g/1000g PA66		7.24E-07	g/seatbelt
hexane	6.96E-10	g/1000g PA66		6.96E-14	g/seatbelt
hexane	4.751E-10	g/1000g PA66		4.75E-14	g/seatbelt
hydrocarbons (unspecified)	0.2781479	g/1000g PA66		2.78E-05	g/seatbelt
hydrocyanic acid	2.034E-06	g/1000g PA66		2.03E-10	g/seatbelt
hydrogen	0.2527243	g/1000g PA66		2.53E-05	g/seatbelt
hydrogen arsenide	5.015E-08	g/1000g PA66		5.02E-12	g/seatbelt
hydrogen bromide	9.87E-06	g/1000g PA66		9.87E-10	g/seatbelt
hydrogen chloride	0.2809653	g/1000g PA66		2.81E-05	g/seatbelt
hydrogen chloride	4.454E-07	g/1000g PA66		4.45E-11	g/seatbelt
hydrogen fluoride	0.0223994	g/1000g PA66		2.24E-06	g/seatbelt
hydrogen fluoride	8.074E-07	g/1000g PA66		8.07E-11	g/seatbelt
hydrogen iodide	1.075E-08	g/1000g PA66		1.08E-12	g/seatbelt
hydrogen sulfide	0.0577218	g/1000g PA66		5.77E-06	g/seatbelt
hydrogen-3	196.32512	Bq/1000g PA66		1.96E-02	Bq/seatbelt
hydrogen-3	67284.046	Bq/1000g PA66		6.73E+00	Bq/seatbelt
hydroxide	9.082E-06	g/1000g PA66		9.08E-10	g/seatbelt
indeno(1,2,3-cd)pyrene	7.303E-08	g/1000g PA66		7.30E-12	g/seatbelt
iodine-129	0.0987867	Bq/1000g PA66		9.88E-06	Bq/seatbelt
iodine-129	6.5873485	Bq/1000g PA66		6.59E-04	Bq/seatbelt
iodine-131	0.0148459	Bq/1000g PA66		1.48E-06	Bq/seatbelt
iodine-131	0.0003379	Bq/1000g PA66		3.38E-08	Bq/seatbelt
iron	0.0002621	g/1000g PA66		2.62E-08	g/seatbelt
iron	0.0005071	g/1000g PA66		5.07E-08	g/seatbelt
iron	0.0066869	g/1000g PA66		6.69E-07	g/seatbelt
iron	1.1115728	g/1000g PA66		1.11E-04	g/seatbelt
krypton-85	1701784.8	Bq/1000g PA66		1.70E+02	Bq/seatbelt
lead	0.000578	g/1000g PA66		5.78E-08	g/seatbelt
lead	9.591E-08	g/1000g PA66		9.59E-12	g/seatbelt
lead	0.0011071	g/1000g PA66		1.11E-07	g/seatbelt
lead	0.0001275	g/1000g PA66		1.27E-08	g/seatbelt
lead dioxide	1.225E-09	g/1000g PA66		1.22E-13	g/seatbelt

magnesium	0.0001748	g/1000g PA66		1.75E-08	g/seatbelt
magnesium	0.0003402	g/1000g PA66		3.40E-08	g/seatbelt
magnesium	4.977E-08	g/1000g PA66		4.98E-12	g/seatbelt
manganese	0.0003038	g/1000g PA66		3.04E-08	g/seatbelt
manganese	7.512E-05	g/1000g PA66		7.51E-09	g/seatbelt
manganese	0.0006998	g/1000g PA66		7.00E-08	g/seatbelt
manganese	0.003167	g/1000g PA66		3.17E-07	g/seatbelt
manganese-54	1.5389015	Bq/1000g PA66		1.54E-04	Bq/seatbelt
mercury	6.738E-05	g/1000g PA66		6.74E-09	g/seatbelt
mercury	7.014E-09	g/1000g PA66		7.01E-13	g/seatbelt
mercury	4.27E-06	g/1000g PA66		4.27E-10	g/seatbelt
mercury	1.308E-05	g/1000g PA66		1.31E-09	g/seatbelt
methane	19.210793	g/1000g PA66		1.92E-03	g/seatbelt
methanol	0.0184412	g/1000g PA66		1.84E-06	g/seatbelt
methanol	0.5240867	g/1000g PA66		5.24E-05	g/seatbelt
molybdenum	1.99E-05	g/1000g PA66		1.99E-09	g/seatbelt
molybdenum	0.0008012	g/1000g PA66		8.01E-08	g/seatbelt
molybdenum	1.666E-09	g/1000g PA66		1.67E-13	g/seatbelt
naphthalene	2.296E-05	g/1000g PA66		2.30E-09	g/seatbelt
naphthalene	0.0007527	g/1000g PA66		7.53E-08	g/seatbelt
naphthalene	2.418E-05	g/1000g PA66		2.42E-09	g/seatbelt
n-butane	0.2486347	g/1000g PA66		2.49E-05	g/seatbelt
nickel	0.0009331	g/1000g PA66		9.33E-08	g/seatbelt
nickel	0.0001091	g/1000g PA66		1.09E-08	g/seatbelt
nickel	0.000436	g/1000g PA66		4.36E-08	g/seatbelt
nickel	0.001759	g/1000g PA66		1.76E-07	g/seatbelt
nitrate	0.4607264	g/1000g PA66		4.61E-05	g/seatbelt
nitrate	0.0017357	g/1000g PA66		1.74E-07	g/seatbelt
nitrogen	7.7833676	g/1000g PA66		7.78E-04	g/seatbelt
nitrogen	0.07833	g/1000g PA66		7.83E-06	g/seatbelt
nitrogen dioxide	22.555031	g/1000g PA66		2.26E-03	g/seatbelt
nitrogen monoxide	5.768E-08	g/1000g PA66		5.77E-12	g/seatbelt
nitrous oxide	2.5976494	g/1000g PA66		2.60E-04	g/seatbelt
non-methane volatile organic	4.8762577	g/1000g PA66		4.88E-04	g/seatbelt
octane	0.0026582	g/1000g PA66		2.66E-07	g/seatbelt
oxygen	3.287032	g/1000g PA66		3.29E-04	g/seatbelt
palladium	7.175E-13	g/1000g PA66		7.17E-17	g/seatbelt
particles (> PM10)	3.934E-08	g/1000g PA66		3.93E-12	g/seatbelt
particles (> PM10)	1.5131309	g/1000g PA66		1.51E-04	g/seatbelt
particles (> PM10)	10.107467	g/1000g PA66		1.01E-03	g/seatbelt
particles (PM10)	0.1650851	g/1000g PA66		1.65E-05	g/seatbelt
particles (PM10)	5.949E-07	g/1000g PA66		5.95E-11	g/seatbelt
particles (PM2.5 - PM10)	0.4962662	g/1000g PA66		4.96E-05	g/seatbelt
particles (PM2.5)	0.5763009	g/1000g PA66		5.76E-05	g/seatbelt
pentane	0.1175756	g/1000g PA66		1.18E-05	g/seatbelt
phenanthrene	7.212E-06	g/1000g PA66		7.21E-10	g/seatbelt
phenol	8.437E-08	g/1000g PA66		8.44E-12	g/seatbelt
phenol	0.0095167	g/1000g PA66		9.52E-07	g/seatbelt
phenol	0.0020549	g/1000g PA66		2.05E-07	g/seatbelt
phosphate	0.103105	g/1000g PA66		1.03E-05	g/seatbelt

phosphate	0.0096859	g/1000g PA66		9.69E-07	g/seatbelt
phosphine	1.078E-09	g/1000g PA66		1.08E-13	g/seatbelt
plutonium	2.099E-06	Bq/1000g PA66		2.10E-10	Bq/seatbelt
plutonium	0.1812526	Bq/1000g PA66		1.81E-05	Bq/seatbelt
polychlorinated biphenyls	1.104E-07	g/1000g PA66		1.10E-11	g/seatbelt
polycyclic aromatic hydrocarl	0.0010412	g/1000g PA66		1.04E-07	g/seatbelt
polycyclic aromatic hydrocarl	0.0003491	g/1000g PA66		3.49E-08	g/seatbelt
potassium	0.0449683	g/1000g PA66		4.50E-06	g/seatbelt
potassium	0.0003877	g/1000g PA66		3.88E-08	g/seatbelt
propane	0.9461701	g/1000g PA66		9.46E-05	g/seatbelt
propene	0.0006518	g/1000g PA66		6.52E-08	g/seatbelt
propionic acid	9.076E-07	g/1000g PA66		9.08E-11	g/seatbelt
R-40	2.473E-06	g/1000g PA66		2.47E-10	g/seatbelt
radium-226	750.68456	Bq/1000g PA66		7.51E-02	Bq/seatbelt
radon-222	24806.227	Bq/1000g PA66		2.48E+00	Bq/seatbelt
rhodium	6.926E-13	g/1000g PA66		6.93E-17	g/seatbelt
ruthenium-106	0.0455517	Bq/1000g PA66		4.56E-06	Bq/seatbelt
scandium	2.873E-09	g/1000g PA66		2.87E-13	g/seatbelt
selenium	0.0006187	g/1000g PA66		6.19E-08	g/seatbelt
selenium	0.0001613	g/1000g PA66		1.61E-08	g/seatbelt
silver	1.173E-13	g/1000g PA66		1.17E-17	g/seatbelt
silver	7.984E-07	g/1000g PA66		7.98E-11	g/seatbelt
silver	4.944E-09	g/1000g PA66		4.94E-13	g/seatbelt
silver-110	6.921E-05	Bq/1000g PA66		6.92E-09	Bq/seatbelt
sodium	0.0001102	g/1000g PA66		1.10E-08	g/seatbelt
sodium	0.0379689	g/1000g PA66		3.80E-06	g/seatbelt
sodium	8.8102429	g/1000g PA66		8.81E-04	g/seatbelt
strontium	1.115E-07	g/1000g PA66		1.11E-11	g/seatbelt
strontium	0.1138124	g/1000g PA66		1.14E-05	g/seatbelt
strontium	0.0078955	g/1000g PA66		7.90E-07	g/seatbelt
strontium	0.0002174	g/1000g PA66		2.17E-08	g/seatbelt
strontium-90	2.1984411	Bq/1000g PA66		2.20E-04	Bq/seatbelt
styrene	1.004E-09	g/1000g PA66		1.00E-13	g/seatbelt
sulfate	7.494E-07	g/1000g PA66		7.49E-11	g/seatbelt
sulfate	0.0057243	g/1000g PA66		5.72E-07	g/seatbelt
sulfate	5.3080717	g/1000g PA66		5.31E-04	g/seatbelt
sulfate	0.5665133	g/1000g PA66		5.67E-05	g/seatbelt
sulfide	0.0343456	g/1000g PA66		3.43E-06	g/seatbelt
sulfide	0.0255881	g/1000g PA66		2.56E-06	g/seatbelt
sulfide	0.2430917	g/1000g PA66		2.43E-05	g/seatbelt
sulfite	0.0010282	g/1000g PA66		1.03E-07	g/seatbelt
sulfur	2.191E-07	g/1000g PA66		2.19E-11	g/seatbelt
sulfur	1.68E-07	g/1000g PA66		1.68E-11	g/seatbelt
sulfur dioxide	21.809955	g/1000g PA66		2.18E-03	g/seatbelt
sulfur hexafluoride	8.492E-08	g/1000g PA66		8.49E-12	g/seatbelt
tellurium	2.892E-08	g/1000g PA66		2.89E-12	g/seatbelt
thallium	4.255E-05	g/1000g PA66		4.26E-09	g/seatbelt
thallium	5.219E-08	g/1000g PA66		5.22E-12	g/seatbelt
tin	0.0002146	g/1000g PA66		2.15E-08	g/seatbelt
tin	5.922E-09	g/1000g PA66		5.92E-13	g/seatbelt

tin	3.497E-08	g/1000g PA66		3.50E-12	g/seatbelt
tin oxide	1.066E-10	g/1000g PA66		1.07E-14	g/seatbelt
titanium	3.615E-07	g/1000g PA66		3.61E-11	g/seatbelt
titanium	6.032E-10	g/1000g PA66		6.03E-14	g/seatbelt
titanium	8.71E-05	g/1000g PA66		8.71E-09	g/seatbelt
toluene	0.0033733	g/1000g PA66		3.37E-07	g/seatbelt
toluene	0.0004833	g/1000g PA66		4.83E-08	g/seatbelt
toluene	0.00244	g/1000g PA66		2.44E-07	g/seatbelt
total organic carbon	0.0019013	g/1000g PA66		1.90E-07	g/seatbelt
total organic carbon	0.0621927	g/1000g PA66		6.22E-06	g/seatbelt
uranium-234	0.1078405	Bq/1000g PA66		1.08E-05	Bq/seatbelt
uranium-235	0.415605	Bq/1000g PA66		4.16E-05	Bq/seatbelt
uranium-238	0.5595855	Bq/1000g PA66		5.60E-05	Bq/seatbelt
uranium-238	13.295541	Bq/1000g PA66		1.33E-03	Bq/seatbelt
used air	49854.688	g/1000g PA66		4.99E+00	g/seatbelt
vanadium	0.0041691	g/1000g PA66		4.17E-07	g/seatbelt
vanadium	0.0003732	g/1000g PA66		3.73E-08	g/seatbelt
vanadium	0.0002795	g/1000g PA66		2.79E-08	g/seatbelt
vinyl chloride	1.972E-05	g/1000g PA66		1.97E-09	g/seatbelt
vinyl chloride	7.325E-10	g/1000g PA66		7.33E-14	g/seatbelt
volatile organic compound	4.2650923	g/1000g PA66		4.27E-04	g/seatbelt
volatile organic compound	1.901E-05	g/1000g PA66		1.90E-09	g/seatbelt
volatile organic compound	0.0002343	g/1000g PA66		2.34E-08	g/seatbelt
waste heat	37453.179	g/1000g PA66		3.75E+00	g/seatbelt
waste heat	4835.7372	g/1000g PA66		4.84E-01	g/seatbelt
water vapour	25387.969	g/1000g PA66		2.54E+00	g/seatbelt
xenon-131	1.3906	Bq/1000g PA66		1.39E-04	Bq/seatbelt
xenon-133	227.59813	Bq/1000g PA66		2.28E-02	Bq/seatbelt
xenon-135	75.245453	Bq/1000g PA66		7.52E-03	Bq/seatbelt
xenon-137	0.0197242	Bq/1000g PA66		1.97E-06	Bq/seatbelt
xenon-138	2.540723	Bq/1000g PA66		2.54E-04	Bq/seatbelt
xylene (all isomers)	0.0300684	g/1000g PA66		3.01E-06	g/seatbelt
xylene (all isomers)	0.0002839	g/1000g PA66		2.84E-08	g/seatbelt
xylene (all isomers)	0.0028809	g/1000g PA66		2.88E-07	g/seatbelt
zinc	0.0011105	g/1000g PA66		1.11E-07	g/seatbelt
zinc	3.89E-05	g/1000g PA66		3.89E-09	g/seatbelt
zinc	0.0109052	g/1000g PA66		1.09E-06	g/seatbelt
zinc	0.0004391	g/1000g PA66		4.39E-08	g/seatbelt
zinc oxide	2.132E-10	g/1000g PA66		2.13E-14	g/seatbelt
Remark					
Data adapted from Polyamide 6.6 fibres (PA 6.6); from adipic acid and hexamethylene diamine (HMDA); production mix, at plant; PA 6.6 granulate without additives					
3.47.21.69 Transportation to granules manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	#VALUE!	MJ/1000g of product	0.1000		

OUTFLOWS					
CO2	#VALUE!	g/1000g of product			
NOx	#VALUE!	g/1000g of product			
HC	#VALUE!	g/1000g of product			
Particulate matter	#VALUE!	g/1000g of product			
CO	#VALUE!	g/1000g of product			
SO2	#VALUE!	g/1000g of product			
Remark:					
Distance between plant in Italy and granules manufacturer (Plaisir, France) in km		**??**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.47.21.70 Production of cover	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
PA66-GF20	1000	g/1000g product	0.1000	0.1	g
OUTFLOWS					
cover				0.1	g
Lack of data					
3.47.21.71Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4320	MJ/1000g of product	0.1000	0.0000432	MJ/seatbelt
OUTFLOWS					
CO2	31.2000	g/1000g of product		0.00312	g/seatbelt
NOx	0.1980	g/1000g of product		0.0000198	g/seatbelt
HC	0.0282	g/1000g of product		0.00000282	g/seatbelt
Particulate matter	0.0034	g/1000g of product		0.000000342	g/seatbelt
CO	0.0276	g/1000g of product		0.00000276	g/seatbelt
SO2	0.0078	g/1000g of product		0.00000078	g/seatbelt
Remark:					
Distance between Granules manufacturer no.5 (Paris, France) and NCS (Survilliers, France) in km		**600**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.47.21 Production of initiator, serviceable	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	101.05263	MJ/1000g product	4.1248	0.416819368	MJ/seatbelt
water	115.78947	l/1000g product		0.477605526	l/seatbelt
gas	736.84211	MJ/1000g product		3.039307895	MJ/seatbelt
initiator overmoulding	101.33886	g/1000g product		0.418	g/seatbelt
Header	464.8496	g/1000g product		1.9174	g/seatbelt
PCB	2.3455825	g/1000g product		0.009675	g/seatbelt
solder, paste, lead free	2.4243747	g/1000g product		0.01	g/seatbelt
solder, paste, alfafry, 1g	242.43747	g/1000g product		1	g/seatbelt
paste	4.1214369	g/1000g product		0.017	g/seatbelt
powder	10.909686	g/1000g product		0.045	g/seatbelt
loaded cup	139.40154	g/1000g product		0.575	g/seatbelt
o-ring	7.9277051	g/1000g product		0.0327	g/seatbelt
cover	24.243747	g/1000g product		0.1	g/seatbelt
Remark					
Electricity data for France					
3.47.22 Production of aluminium	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	12854.351	g/1000g alluminium	1.8500	23.78054909	
barium sulfate	6.294E-11	g/1000g alluminium		1.16439E-13	g/seatbelt
baryte	2.7440453	g/1000g alluminium		0.005076484	g/seatbelt
basalt	2.1838926	g/1000g alluminium		0.004040201	g/seatbelt
bauxite	1066.376	g/1000g alluminium		1.972795629	g/seatbelt
bentonite	1.143704	g/1000g alluminium		0.002115852	g/seatbelt
biomass; 14.7 MJ/kg	3.07E-09	MJ/1000g alluminium		5.67764E-12	g/seatbelt
brown coal; 11.9 MJ/kg	2.72E+00	MJ/1000g alluminium		0.005039428	MJ/seatbelt
calcium carbonate	71.800124	g/1000g alluminium		0.132830229	MJ/seatbelt
calcium chloride	6.444E-09	g/1000g alluminium		1.19216E-11	g/seatbelt
carbon dioxide (in)	30.444566	g/1000g alluminium		0.056322447	g/seatbelt
chromium (in)	0.002329	g/1000g alluminium		4.30873E-06	g/seatbelt
clay	0.5062414	g/1000g alluminium		0.000936547	g/seatbelt
colemanite	0.0009022	g/1000g alluminium		1.66907E-06	g/seatbelt
copper (in)	0.0060411	g/1000g alluminium		1.1176E-05	g/seatbelt
crude oil; 42.3 MJ/kg	8.7043444	MJ/1000g alluminium		0.016103037	g/seatbelt
dolomite	3.026E-05	g/1000g alluminium		5.59868E-08	MJ/seatbelt
fluorspar	8.0877615	g/1000g alluminium		0.014962359	g/seatbelt
gold (in)	4.333E-08	g/1000g alluminium		8.01525E-11	g/seatbelt
ground water	2239.6363	g/1000g alluminium		4.143327074	g/seatbelt
gypsum	0.2565073	g/1000g alluminium		0.000474539	g/seatbelt
hard coal; 26.3 MJ/kg	7463.4142	g/1000g alluminium		13.80731634	g/seatbelt

inert rock	5024.6715	g/1000g alluminium		9.295642282	g/seatbelt
iron (in)	3.8414211	g/1000g alluminium		0.007106629	g/seatbelt
kaolin	0.0006301	g/1000g alluminium		1.16567E-06	g/seatbelt
lake water	2.977E-09	g/1000g alluminium		5.50725E-12	g/seatbelt
lead (in)	0.024944	g/1000g alluminium		4.61464E-05	g/seatbelt
magnesite	0.0008936	g/1000g alluminium		1.65323E-06	g/seatbelt
magnesium chloride	0.6023253	g/1000g alluminium		0.001114302	g/seatbelt
manganese	0.0244319	g/1000g alluminium		4.51989E-05	g/seatbelt
molybdenum (in)	0.0001476	g/1000g alluminium		2.73065E-07	g/seatbelt
natural aggregate	43.691608	g/1000g alluminium		0.080829474	g/seatbelt
natural gas; 44.1 MJ/kg	15.17285	MJ/1000g alluminium		0.028069772	g/seatbelt
nickel (in)	0.0032477	g/1000g alluminium		6.00816E-06	MJ/seatbelt
nitrogen (in)	-0.000772	g/1000g alluminium		-1.42821E-06	g/seatbelt
olivine	3.377E-12	g/1000g alluminium		6.24794E-15	g/seatbelt
oxygen	-19.546453	g/1000g alluminium		-0.036160939	g/seatbelt
palladium	8.184E-09	g/1000g alluminium		1.51408E-11	g/seatbelt
peat; 8.4 MJ/kg	0.0237263	MJ/1000g alluminium		4.38936E-05	g/seatbelt
phosphorus (in)	0.0007443	g/1000g alluminium		1.37691E-06	MJ/seatbelt
platinum	9.832E-08	g/1000g alluminium		1.81887E-10	g/seatbelt
potassium chloride	0.0009122	g/1000g alluminium		1.68763E-06	g/seatbelt
primary energy from geother	0.0265823	MJ/1000g alluminium		4.91772E-05	g/seatbelt
primary energy from hydro p	9.9935895	MJ/1000g alluminium		0.018488141	MJ/seatbelt
primary energy from solar en	0.2748783	MJ/1000g alluminium		0.000508525	MJ/seatbelt
primary energy from wind po	0.132836	MJ/1000g alluminium		0.000245747	MJ/seatbelt
quartz sand	2.2112572	g/1000g alluminium		0.004090826	MJ/seatbelt
raw pumice	6.118E-05	g/1000g alluminium		1.13183E-07	g/seatbelt
rhodium	2.737E-10	g/1000g alluminium		5.06333E-13	g/seatbelt
river water	-10271.397	g/1000g alluminium		-19.00208458	g/seatbelt
sea water	557.43083	g/1000g alluminium		1.03124704	g/seatbelt
silver (in)	7.456E-06	g/1000g alluminium		1.37938E-08	g/seatbelt
slate	5.68E-12	g/1000g alluminium		1.05079E-14	g/seatbelt
sodium chloride	32.68123	g/1000g alluminium		0.060460275	g/seatbelt
sodium sulfate	0.0008847	g/1000g alluminium		1.63668E-06	g/seatbelt
soil	11.760353	g/1000g alluminium		0.021756653	g/seatbelt
sulfur (in)	8.172E-07	g/1000g alluminium		1.51181E-09	g/seatbelt
surface water	15716.052	g/1000g alluminium		29.07469709	g/seatbelt
talc	0.000376	g/1000g alluminium		6.95615E-07	g/seatbelt
tin (in)	5.458E-15	g/1000g alluminium		1.00978E-17	g/seatbelt
titanium	0.0059578	g/1000g alluminium		1.10219E-05	g/seatbelt
uranium	12.429602	MJ/1000g alluminium		0.022994764	g/seatbelt
water	-1194.2962	g/1000g alluminium		-2.209448061	MJ/seatbelt
wood; 14.7 MJ/kg	0.0002604	MJ/1000g alluminium		4.81698E-07	g/seatbelt
zinc (in)	0.0084099	g/1000g alluminium		1.55584E-05	MJ/seatbelt
OUTFLOWS				0	g/seatbelt
aluminium sheet; primary pro	1000	g		1.85	
1,2-dibromoethane	5.698E-10	g/1000g alluminium		1.05415E-12	g
1,2-dichloropropane	3.956E-13	g/1000g alluminium		7.3186E-16	g/seatbelt
1,3,5-trimethylbenzene	3.797E-09	g/1000g alluminium		7.02373E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	6.771E-07	g/1000g alluminium		1.25268E-09	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	5.974E-18	g/1000g alluminium		1.10517E-20	g/seatbelt

acenaphthene	1.775E-06	g/1000g alluminium		3.28403E-09	g/seatbelt
acenaphthene	4.273E-08	g/1000g alluminium		7.90579E-11	g/seatbelt
acenaphthylene	6.711E-07	g/1000g alluminium		1.24149E-09	g/seatbelt
acenaphthylene	1.689E-08	g/1000g alluminium		3.12537E-11	g/seatbelt
acetaldehyde	0.0008624	g/1000g alluminium		1.59537E-06	g/seatbelt
acetic acid	0.0042731	g/1000g alluminium		7.90518E-06	g/seatbelt
acetic acid	9.917E-05	g/1000g alluminium		1.83456E-07	g/seatbelt
acetic acid	4.104E-06	g/1000g alluminium		7.59229E-09	g/seatbelt
acetone	0.0008285	g/1000g alluminium		1.5327E-06	g/seatbelt
acid (as H+)	3.61E-06	g/1000g alluminium		6.6789E-09	g/seatbelt
acid (as H+)	0.2138551	g/1000g alluminium		0.000395632	g/seatbelt
acrolein	2.287E-07	g/1000g alluminium		4.23133E-10	g/seatbelt
acryolonitrile	2.893E-08	g/1000g alluminium		5.35211E-11	g/seatbelt
adsorbable organic halogen c	5.316E-10	g/1000g alluminium		9.83393E-13	g/seatbelt
adsorbable organic halogen c	0.0004219	g/1000g alluminium		7.80507E-07	g/seatbelt
aluminium	8.501E-05	g/1000g alluminium		1.57267E-07	g/seatbelt
aluminium	0.0147332	g/1000g alluminium		2.72564E-05	g/seatbelt
aluminium	1.191E-07	g/1000g alluminium		2.2026E-10	g/seatbelt
americium-241	0.0261518	Bq/1000g alluminium		4.83808E-05	g/seatbelt
ammonia	0.0116328	g/1000g alluminium		2.15207E-05	Bq/seatbelt
ammonia	0.0316912	g/1000g alluminium		5.86288E-05	g/seatbelt
ammonia	0.0105051	g/1000g alluminium		1.94345E-05	g/seatbelt
ammonia	3.538E-06	g/1000g alluminium		6.54531E-09	g/seatbelt
ammonium	-0.0003422	g/1000g alluminium		-6.33E-07	g/seatbelt
anthracene	3.241E-08	g/1000g alluminium		5.99647E-11	g/seatbelt
anthracene	5.515E-07	g/1000g alluminium		1.02034E-09	g/seatbelt
anthracene	7.411E-08	g/1000g alluminium		1.3711E-10	g/seatbelt
antimony	2.104E-05	g/1000g alluminium		3.89253E-08	g/seatbelt
antimony	7.404E-10	g/1000g alluminium		1.36971E-12	g/seatbelt
antimony-124	9.305E-06	Bq/1000g alluminium		1.72137E-08	g/seatbelt
antimony-124	0.000272	Bq/1000g alluminium		5.03171E-07	Bq/seatbelt
antimony-125	0.0001853	Bq/1000g alluminium		3.42837E-07	Bq/seatbelt
argon-41	57.859899	Bq/1000g alluminium		0.107040814	Bq/seatbelt
arsenic	0.0001831	g/1000g alluminium		3.38696E-07	Bq/seatbelt
arsenic	3.065E-08	g/1000g alluminium		5.67111E-11	g/seatbelt
arsenic	7.317E-05	g/1000g alluminium		1.35362E-07	g/seatbelt
arsenic	3.614E-05	g/1000g alluminium		6.68627E-08	g/seatbelt
arsenic trioxide	1.552E-10	g/1000g alluminium		2.87092E-13	g/seatbelt
barium	0.0021342	g/1000g alluminium		3.94826E-06	g/seatbelt
barium	0.0015596	g/1000g alluminium		2.88527E-06	g/seatbelt
barium	0.0002464	g/1000g alluminium		4.5591E-07	g/seatbelt
benzene	0.0037421	g/1000g alluminium		6.92292E-06	g/seatbelt
benzene	0.0003804	g/1000g alluminium		7.03752E-07	g/seatbelt
benzene	8.417E-05	g/1000g alluminium		1.55706E-07	g/seatbelt
benzo[a]anthracene	1.631E-08	g/1000g alluminium		3.01701E-11	g/seatbelt
benzo[a]anthracene	3.891E-07	g/1000g alluminium		7.19882E-10	g/seatbelt
benzo[a]anthracene	4.793E-09	g/1000g alluminium		8.86783E-12	g/seatbelt
benzo[a]pyrene	0.0005403	g/1000g alluminium		9.99621E-07	g/seatbelt
benzo[g,h,i]perylene	1.455E-08	g/1000g alluminium		2.69153E-11	g/seatbelt
benzo[k]fluoranthene	2.91E-08	g/1000g alluminium		5.38305E-11	g/seatbelt

benzo[k]fluoranthene	4.307E-07	g/1000g alluminium		7.96717E-10	g/seatbelt
benzo[k]fluoranthene	1.673E-09	g/1000g alluminium		3.09458E-12	g/seatbelt
beryllium	4.446E-06	g/1000g alluminium		8.22545E-09	g/seatbelt
beryllium	2.126E-06	g/1000g alluminium		3.9326E-09	g/seatbelt
beryllium	5.715E-07	g/1000g alluminium		1.05719E-09	g/seatbelt
biological oxygen demand	0.0005864	g/1000g alluminium		1.08478E-06	g/seatbelt
biological oxygen demand	0.0078279	g/1000g alluminium		1.44816E-05	g/seatbelt
boron	0.0035109	g/1000g alluminium		6.49507E-06	g/seatbelt
boron	0.0021109	g/1000g alluminium		3.90525E-06	g/seatbelt
boron	1.925E-06	g/1000g alluminium		3.56165E-09	g/seatbelt
bromide	9.262E-06	g/1000g alluminium		1.71339E-08	g/seatbelt
bromine	0.0011943	g/1000g alluminium		2.20942E-06	g/seatbelt
bromine	1.121E-07	g/1000g alluminium		2.07449E-10	g/seatbelt
butadiene	8.379E-09	g/1000g alluminium		1.55006E-11	g/seatbelt
cadmium	1.08E-05	g/1000g alluminium		1.99745E-08	g/seatbelt
cadmium	4.813E-07	g/1000g alluminium		8.90361E-10	g/seatbelt
cadmium	7.529E-05	g/1000g alluminium		1.39282E-07	g/seatbelt
cadmium	2.388E-05	g/1000g alluminium		4.41774E-08	g/seatbelt
calcium	0.004606	g/1000g alluminium		8.52111E-06	g/seatbelt
calcium	1.0312899	g/1000g alluminium		0.001907886	g/seatbelt
calcium	0.0002103	g/1000g alluminium		3.88969E-07	g/seatbelt
carbon dioxide	2865.4404	g/1000g alluminium		5.301064749	g/seatbelt
carbon disulfide	1.058E-07	g/1000g alluminium		1.9577E-10	g/seatbelt
carbon monoxide	1.473391	g/1000g alluminium		0.002725773	g/seatbelt
carbon-14	26.562919	Bq/1000g alluminium		0.0491414	g/seatbelt
carbon-14	1.3250228	Bq/1000g alluminium		0.002451292	Bq/seatbelt
carbonate	0.0979441	g/1000g alluminium		0.000181197	Bq/seatbelt
carbonate	0.0139727	g/1000g alluminium		2.58494E-05	g/seatbelt
cesium-134	0.0072646	Bq/1000g alluminium		1.34395E-05	g/seatbelt
cesium-134	1.3459422	Bq/1000g alluminium		0.002489993	Bq/seatbelt
cesium-137	0.0148427	Bq/1000g alluminium		2.74589E-05	Bq/seatbelt
cesium-137	12.291665	Bq/1000g alluminium		0.022739581	Bq/seatbelt
CFC-11	0.0001628	g/1000g alluminium		3.01168E-07	Bq/seatbelt
CFC-114	0.0001667	g/1000g alluminium		3.08425E-07	g/seatbelt
CFC-12	3.5E-05	g/1000g alluminium		6.47512E-08	g/seatbelt
CFC-13	2.198E-05	g/1000g alluminium		4.06577E-08	g/seatbelt
chemical oxygen demand	0.7894526	g/1000g alluminium		0.001460487	g/seatbelt
chemical oxygen demand	0.0133951	g/1000g alluminium		2.47809E-05	g/seatbelt
chloride	0.0212735	g/1000g alluminium		3.9356E-05	g/seatbelt
chloride	0.0110713	g/1000g alluminium		2.04819E-05	g/seatbelt
chloride	7.6033731	g/1000g alluminium		0.01406624	g/seatbelt
chloride	7.745668	g/1000g alluminium		0.014329486	g/seatbelt
chlorine	0.0052942	g/1000g alluminium		9.79421E-06	g/seatbelt
chlorine	0.0204216	g/1000g alluminium		3.778E-05	g/seatbelt
chromium	7.497E-05	g/1000g alluminium		1.38696E-07	g/seatbelt
chromium	6.773E-05	g/1000g alluminium		1.25299E-07	g/seatbelt
chromium	0.0004045	g/1000g alluminium		7.48344E-07	g/seatbelt
chromium	0.0001267	g/1000g alluminium		2.34337E-07	g/seatbelt
chromium III	1.994E-07	g/1000g alluminium		3.68881E-10	g/seatbelt
chromium III	4.046E-06	g/1000g alluminium		7.48451E-09	g/seatbelt

chromium III	5.795E-05	g/1000g alluminium		1.07214E-07	g/seatbelt
chromium VI	-1.825E-08	g/1000g alluminium		-3.37595E-11	g/seatbelt
chrysene	4.006E-08	g/1000g alluminium		7.41109E-11	g/seatbelt
chrysene	2.193E-06	g/1000g alluminium		4.05674E-09	g/seatbelt
chrysene	1.942E-08	g/1000g alluminium		3.59231E-11	g/seatbelt
cobalt	3.15E-05	g/1000g alluminium		5.82686E-08	g/seatbelt
cobalt	1.081E-06	g/1000g alluminium		1.99924E-09	g/seatbelt
cobalt	3.721E-05	g/1000g alluminium		6.88387E-08	g/seatbelt
cobalt	7.898E-08	g/1000g alluminium		1.46119E-10	g/seatbelt
cobalt-58	4.584E-05	Bq/1000g alluminium		8.48063E-08	g/seatbelt
cobalt-58	0.0101669	Bq/1000g alluminium		1.88088E-05	Bq/seatbelt
cobalt-60	0.0011576	Bq/1000g alluminium		2.14149E-06	Bq/seatbelt
cobalt-60	5.6988961	Bq/1000g alluminium		0.010542958	Bq/seatbelt
copper	4.709E-05	g/1000g alluminium		8.71165E-08	Bq/seatbelt
copper	4.675E-06	g/1000g alluminium		8.64915E-09	g/seatbelt
copper	8.355E-05	g/1000g alluminium		1.54563E-07	g/seatbelt
copper	0.0002256	g/1000g alluminium		4.17423E-07	g/seatbelt
cresol	3.508E-08	g/1000g alluminium		6.4896E-11	g/seatbelt
cresol	2.668E-08	g/1000g alluminium		4.93632E-11	g/seatbelt
curium	0.034659	Bq/1000g alluminium		6.41192E-05	g/seatbelt
cyanide	1.194E-05	g/1000g alluminium		2.20926E-08	Bq/seatbelt
cyanide	3.416E-06	g/1000g alluminium		6.31991E-09	g/seatbelt
cyclohexane	2.426E-06	g/1000g alluminium		4.48765E-09	g/seatbelt
decane	0.0016398	g/1000g alluminium		3.03362E-06	g/seatbelt
decane	0.0366802	g/1000g alluminium		6.78583E-05	g/seatbelt
decane	0.0030586	g/1000g alluminium		5.6584E-06	g/seatbelt
dibenz[a,h]anthracene	9.068E-09	g/1000g alluminium		1.67751E-11	g/seatbelt
dichloromethane	2.492E-12	g/1000g alluminium		4.61034E-15	g/seatbelt
diethylamine	-8.554E-09	g/1000g alluminium		-1.5825E-11	g/seatbelt
ethane	0.1298424	g/1000g alluminium		0.000240208	g/seatbelt
ethanol	0.0017347	g/1000g alluminium		3.20911E-06	g/seatbelt
ethyl benzene	0.0040877	g/1000g alluminium		7.56217E-06	g/seatbelt
ethyl benzene	5.25E-05	g/1000g alluminium		9.71162E-08	g/seatbelt
ethyl benzene	4.652E-06	g/1000g alluminium		8.60658E-09	g/seatbelt
ethylene	1.759E-05	g/1000g alluminium		3.25341E-08	g/seatbelt
FC-14	0.0245494	g/1000g alluminium		4.54165E-05	g/seatbelt
fluoranthene	1.056E-07	g/1000g alluminium		1.95292E-10	g/seatbelt
fluoranthene	4.819E-07	g/1000g alluminium		8.91521E-10	g/seatbelt
fluoranthene	1.019E-08	g/1000g alluminium		1.88488E-11	g/seatbelt
fluorene	3.35E-07	g/1000g alluminium		6.19677E-10	g/seatbelt
fluoride	0.1261086	g/1000g alluminium		0.000233301	g/seatbelt
fluoride	0.0003087	g/1000g alluminium		5.71142E-07	g/seatbelt
fluoride	0.2009033	g/1000g alluminium		0.000371671	g/seatbelt
fluoride	0.9535219	g/1000g alluminium		0.001764016	g/seatbelt
fluorine	4.76E-08	g/1000g alluminium		8.80564E-11	g/seatbelt
fluorine	6.228E-06	g/1000g alluminium		1.15226E-08	g/seatbelt
formaldehyde	0.0106592	g/1000g alluminium		1.97196E-05	g/seatbelt
HCFC-22	3.826E-05	g/1000g alluminium		7.07745E-08	g/seatbelt
helium	9.765E-06	g/1000g alluminium		1.80654E-08	g/seatbelt
heptane	0.0005159	g/1000g alluminium		9.54337E-07	g/seatbelt

hexamethylene diamine	4.929E-10	g/1000g alluminium		9.118E-13	g/seatbelt
hexane	0.0008351	g/1000g alluminium		1.54502E-06	g/seatbelt
hexane	4.11E-09	g/1000g alluminium		7.60298E-12	g/seatbelt
hexane	2.913E-09	g/1000g alluminium		5.38933E-12	g/seatbelt
HFC-116	0.0022621	g/1000g alluminium		4.18492E-06	g/seatbelt
hydrocarbons (unspecified)	0.0002007	g/1000g alluminium		3.71337E-07	g/seatbelt
hydrocyanic acid	2.311E-05	g/1000g alluminium		4.27451E-08	g/seatbelt
hydrogen	0.1272015	g/1000g alluminium		0.000235323	g/seatbelt
hydrogen arsenide	1.288E-08	g/1000g alluminium		2.38286E-11	g/seatbelt
hydrogen bromide	2.196E-06	g/1000g alluminium		4.06201E-09	g/seatbelt
hydrogen chloride	0.1083676	g/1000g alluminium		0.00020048	g/seatbelt
hydrogen chloride	1.141E-06	g/1000g alluminium		2.11053E-09	g/seatbelt
hydrogen fluoride	0.1387968	g/1000g alluminium		0.000256774	g/seatbelt
hydrogen fluoride	1.525E-07	g/1000g alluminium		2.82041E-10	g/seatbelt
hydrogen iodide	2.389E-09	g/1000g alluminium		4.42002E-12	g/seatbelt
hydrogen sulfide	0.0142669	g/1000g alluminium		2.63938E-05	g/seatbelt
hydrogen-3	112.73163	Bq/1000g alluminium		0.20855351	g/seatbelt
hydrogen-3	38650.604	Bq/1000g alluminium		71.50361653	Bq/seatbelt
hydroxide	4.61E-05	g/1000g alluminium		8.52908E-08	Bq/seatbelt
indeno(1,2,3-cd)pyrene	1.083E-08	g/1000g alluminium		2.003E-11	g/seatbelt
iodine-129	0.0567147	Bq/1000g alluminium		0.000104922	g/seatbelt
iodine-129	3.7858956	Bq/1000g alluminium		0.007003907	Bq/seatbelt
iodine-131	0.0085435	Bq/1000g alluminium		1.58055E-05	Bq/seatbelt
iodine-131	0.000194	Bq/1000g alluminium		3.58981E-07	Bq/seatbelt
iron	4.803E-05	g/1000g alluminium		8.88603E-08	Bq/seatbelt
iron	9.214E-05	g/1000g alluminium		1.70466E-07	g/seatbelt
iron	0.5011131	g/1000g alluminium		0.000927059	g/seatbelt
iron	0.0004585	g/1000g alluminium		8.48164E-07	g/seatbelt
krypton-85	978053.59	g/1000g alluminium		1809.39915	g/seatbelt
lead	0.0003306	g/1000g alluminium		6.11563E-07	g/seatbelt
lead	6.086E-06	g/1000g alluminium		1.12592E-08	g/seatbelt
lead	2.061E-05	g/1000g alluminium		3.81198E-08	g/seatbelt
lead	0.000463	g/1000g alluminium		8.56598E-07	g/seatbelt
lead dioxide	4.479E-09	g/1000g alluminium		8.28658E-12	g/seatbelt
magnesium	0.0006366	g/1000g alluminium		1.17765E-06	g/seatbelt
magnesium	1.237E-08	g/1000g alluminium		2.2888E-11	g/seatbelt
magnesium	0.0001531	g/1000g alluminium		2.83238E-07	g/seatbelt
manganese	0.0001948	g/1000g alluminium		3.6041E-07	g/seatbelt
manganese	2.294E-05	g/1000g alluminium		4.24364E-08	g/seatbelt
manganese	0.0018531	g/1000g alluminium		3.42824E-06	g/seatbelt
manganese	4.797E-05	g/1000g alluminium		8.87459E-08	g/seatbelt
manganese-54	0.8835032	Bq/1000g alluminium		0.001634481	g/seatbelt
mercury	0.0001735	g/1000g alluminium		3.20887E-07	Bq/seatbelt
mercury	4.168E-08	g/1000g alluminium		7.70998E-11	g/seatbelt
mercury	3.043E-06	g/1000g alluminium		5.6292E-09	g/seatbelt
mercury	4.517E-07	g/1000g alluminium		8.35717E-10	g/seatbelt
methane	5.2034686	g/1000g alluminium		0.009626417	g/seatbelt
methanol	0.0016293	g/1000g alluminium		3.01412E-06	g/seatbelt
methanol	0.0007436	g/1000g alluminium		1.37566E-06	g/seatbelt
molybdenum	2.399E-06	g/1000g alluminium		4.4375E-09	g/seatbelt

molybdenum	1.022E-08	g/1000g alluminium		1.89017E-11	g/seatbelt
molybdenum	0.0004452	g/1000g alluminium		8.23621E-07	g/seatbelt
naphthalene	3.404E-06	g/1000g alluminium		6.29692E-09	g/seatbelt
naphthalene	2.375E-06	g/1000g alluminium		4.39414E-09	g/seatbelt
naphthalene	5.462E-05	g/1000g alluminium		1.01046E-07	g/seatbelt
n-butane	0.0456323	g/1000g alluminium		8.44198E-05	g/seatbelt
nickel	0.0007838	g/1000g alluminium		1.44997E-06	g/seatbelt
nickel	5.461E-05	g/1000g alluminium		1.01023E-07	g/seatbelt
nickel	0.000121	g/1000g alluminium		2.23876E-07	g/seatbelt
nickel	4.259E-05	g/1000g alluminium		7.87862E-08	g/seatbelt
nitrate	0.0408495	g/1000g alluminium		7.55716E-05	g/seatbelt
nitrate	0.0001272	g/1000g alluminium		2.35284E-07	g/seatbelt
nitrogen	0.2242938	g/1000g alluminium		0.000414944	g/seatbelt
nitrogen	0.0042112	g/1000g alluminium		7.79076E-06	g/seatbelt
nitrogen dioxide	4.6613013	g/1000g alluminium		0.008623407	g/seatbelt
nitrogen monoxide	0.0002396	g/1000g alluminium		4.4335E-07	g/seatbelt
nitrous oxide	0.0515726	g/1000g alluminium		9.54092E-05	g/seatbelt
non-methane volatile organic	0.5522695	g/1000g alluminium		0.001021699	g/seatbelt
octane	0.0002838	g/1000g alluminium		5.25004E-07	g/seatbelt
oxygen	1.845466	g/1000g alluminium		0.003414112	g/seatbelt
palladium	1.784E-13	g/1000g alluminium		3.2998E-16	g/seatbelt
particles (> PM10)	1.439E-07	g/1000g alluminium		2.66126E-10	g/seatbelt
particles (> PM10)	0.4666643	g/1000g alluminium		0.000863329	g/seatbelt
particles (> PM10)	2.9534046	g/1000g alluminium		0.005463799	g/seatbelt
particles (PM10)	0.3542757	g/1000g alluminium		0.00065541	g/seatbelt
particles (PM10)	1.37E-06	g/1000g alluminium		2.53394E-09	g/seatbelt
particles (PM2.5 - PM10)	1.7652676	g/1000g alluminium		0.003265745	g/seatbelt
particles (PM2.5)	0.2290771	g/1000g alluminium		0.000423793	g/seatbelt
pentane	0.0292252	g/1000g alluminium		5.40667E-05	g/seatbelt
phenanthrene	1.069E-06	g/1000g alluminium		1.97796E-09	g/seatbelt
phenol	3.965E-08	g/1000g alluminium		7.33554E-11	g/seatbelt
phenol	0.0007005	g/1000g alluminium		1.2959E-06	g/seatbelt
phenol	0.0001243	g/1000g alluminium		2.30024E-07	g/seatbelt
phosphate	0.0181073	g/1000g alluminium		3.34986E-05	g/seatbelt
phosphate	0.0015812	g/1000g alluminium		2.92522E-06	g/seatbelt
phosphine	0.000131	g/1000g alluminium		2.42299E-07	g/seatbelt
plutonium	6.587E-06	Bq/1000g alluminium		1.21851E-08	g/seatbelt
plutonium	0.1044275	Bq/1000g alluminium		0.000193191	Bq/seatbelt
polychlorinated biphenyls	2.987E-08	g/1000g alluminium		5.52565E-11	Bq/seatbelt
polycyclic aromatic hydrocarb	0.0333393	g/1000g alluminium		6.16778E-05	g/seatbelt
polycyclic aromatic hydrocarb	0.002586	g/1000g alluminium		4.78417E-06	g/seatbelt
potassium	0.009118	g/1000g alluminium		1.68682E-05	g/seatbelt
potassium	0.0005206	g/1000g alluminium		9.63033E-07	g/seatbelt
propane	0.1384006	g/1000g alluminium		0.000256041	g/seatbelt
propene	0.0003709	g/1000g alluminium		6.862E-07	g/seatbelt
propionic acid	2.111E-07	g/1000g alluminium		3.90507E-10	g/seatbelt
R-40	7.131E-07	g/1000g alluminium		1.31931E-09	g/seatbelt
radium-226	431.24453	Bq/1000g alluminium		0.797802385	g/seatbelt
radon-222	14241.921	Bq/1000g alluminium		26.34755381	Bq/seatbelt
rhodium	1.722E-13	g/1000g alluminium		3.18541E-16	Bq/seatbelt

ruthenium-106	0.0261518	Bq/1000g alluminium		4.83808E-05	g/seatbelt
scandium	6.955E-09	g/1000g alluminium		1.28666E-11	Bq/seatbelt
selenium	0.0003444	g/1000g alluminium		6.3707E-07	g/seatbelt
selenium	7.887E-05	g/1000g alluminium		1.45914E-07	g/seatbelt
silver	4.29E-13	g/1000g alluminium		7.93596E-16	g/seatbelt
silver	4.743E-07	g/1000g alluminium		8.77442E-10	g/seatbelt
silver	3.031E-08	g/1000g alluminium		5.60803E-11	g/seatbelt
silver-110	3.975E-05	Bq/1000g alluminium		7.35359E-08	g/seatbelt
sodium	0.0004029	g/1000g alluminium		7.4535E-07	Bq/seatbelt
sodium	0.01171	g/1000g alluminium		2.16635E-05	g/seatbelt
sodium	1.0267995	g/1000g alluminium		0.001899579	g/seatbelt
strontium	2.571E-07	g/1000g alluminium		4.75559E-10	g/seatbelt
strontium	0.0199719	g/1000g alluminium		3.6948E-05	g/seatbelt
strontium	4.613E-05	g/1000g alluminium		8.5334E-08	g/seatbelt
strontium	0.0020719	g/1000g alluminium		3.83296E-06	g/seatbelt
strontium-90	1.2702116	Bq/1000g alluminium		0.002349891	g/seatbelt
styrene	2.686E-09	g/1000g alluminium		4.96955E-12	Bq/seatbelt
sulfate	1.923E-07	g/1000g alluminium		3.558E-10	g/seatbelt
sulfate	0.0012037	g/1000g alluminium		2.22681E-06	g/seatbelt
sulfate	0.0418894	g/1000g alluminium		7.74953E-05	g/seatbelt
sulfate	2.5497808	g/1000g alluminium		0.004717095	g/seatbelt
sulfide	0.0072221	g/1000g alluminium		1.33609E-05	g/seatbelt
sulfide	0.017707	g/1000g alluminium		3.2758E-05	g/seatbelt
sulfide	0.0025142	g/1000g alluminium		4.65119E-06	g/seatbelt
sulfite	0.0006349	g/1000g alluminium		1.17452E-06	g/seatbelt
sulfur	1.354E-06	g/1000g alluminium		2.50548E-09	g/seatbelt
sulfur	1.03E-06	g/1000g alluminium		1.90579E-09	g/seatbelt
sulfur dioxide	9.9927807	g/1000g alluminium		0.018486644	g/seatbelt
sulfur hexafluoride	3.066E-07	g/1000g alluminium		5.67199E-10	g/seatbelt
tellurium	2.659E-08	g/1000g alluminium		4.91826E-11	g/seatbelt
thallium	2.248E-07	g/1000g alluminium		4.15969E-10	g/seatbelt
thallium	5.49E-09	g/1000g alluminium		1.01563E-11	g/seatbelt
tin	0.0001888	g/1000g alluminium		3.49319E-07	g/seatbelt
tin	6.322E-08	g/1000g alluminium		1.16965E-10	g/seatbelt
tin	3.631E-08	g/1000g alluminium		6.71714E-11	g/seatbelt
tin oxide	3.898E-10	g/1000g alluminium		7.21046E-13	g/seatbelt
titanium	8.532E-07	g/1000g alluminium		1.57836E-09	g/seatbelt
titanium	5.138E-05	g/1000g alluminium		9.50585E-08	g/seatbelt
titanium	3.698E-09	g/1000g alluminium		6.84211E-12	g/seatbelt
toluene	0.0018771	g/1000g alluminium		3.4727E-06	g/seatbelt
toluene	0.0002198	g/1000g alluminium		4.06695E-07	g/seatbelt
toluene	4.989E-05	g/1000g alluminium		9.22963E-08	g/seatbelt
total organic carbon	0.0168681	g/1000g alluminium		3.12059E-05	g/seatbelt
total organic carbon	0.0005864	g/1000g alluminium		1.08478E-06	g/seatbelt
uranium-234	0.0619177	Bq/1000g alluminium		0.000114548	g/seatbelt
uranium-235	0.2389141	Bq/1000g alluminium		0.000441991	Bq/seatbelt
uranium-238	0.3304449	Bq/1000g alluminium		0.000611323	Bq/seatbelt
uranium-238	7.6797665	Bq/1000g alluminium		0.014207568	Bq/seatbelt
used air	10648.391	g/1000g alluminium		19.69952307	Bq/seatbelt
vanadium	0.0029129	g/1000g alluminium		5.38893E-06	g/seatbelt

vanadium	2.552E-05	g/1000g alluminium		4.72123E-08	g/seatbelt
vanadium	0.000146	g/1000g alluminium		2.7011E-07	g/seatbelt
vinyl chloride	3.563E-06	g/1000g alluminium		6.59222E-09	g/seatbelt
vinyl chloride	3.181E-09	g/1000g alluminium		5.8843E-12	g/seatbelt
volatile organic compound	0.4092848	g/1000g alluminium		0.000757177	g/seatbelt
volatile organic compound	5.864E-06	g/1000g alluminium		1.08478E-08	g/seatbelt
volatile organic compound	2.857E-05	g/1000g alluminium		5.28506E-08	g/seatbelt
waste heat	17.683259	MJ/1000g alluminium		0.032714028	g/seatbelt
waste heat	2.5123992	MJ/1000g alluminium		0.004647939	MJ/seatbelt
water vapour	6691.8685	g/1000g alluminium		12.37995682	MJ/seatbelt
xenon-131	0.7986146	Bq/1000g alluminium		0.001477437	g/seatbelt
xenon-133	130.70775	Bq/1000g alluminium		0.24180934	Bq/seatbelt
xenon-135	43.226179	Bq/1000g alluminium		0.079968432	Bq/seatbelt
xenon-137	0.0113268	Bq/1000g alluminium		2.09547E-05	Bq/seatbelt
xenon-138	1.4600076	Bq/1000g alluminium		0.002701014	Bq/seatbelt
xylene (all isomers)	0.0170782	g/1000g alluminium		3.15947E-05	Bq/seatbelt
xylene (all isomers)	3.672E-05	g/1000g alluminium		6.79296E-08	g/seatbelt
xylene (all isomers)	0.0002274	g/1000g alluminium		4.20669E-07	g/seatbelt
zinc	0.0005097	g/1000g alluminium		9.42922E-07	g/seatbelt
zinc	2.469E-05	g/1000g alluminium		4.56756E-08	g/seatbelt
zinc	0.0007502	g/1000g alluminium		1.38783E-06	g/seatbelt
zinc	0.0001524	g/1000g alluminium		2.81868E-07	g/seatbelt
zinc oxide	7.795E-10	g/1000g alluminium		1.44209E-12	g/seatbelt
bauxite residue; from alumin	5.6836582	g/1000g alluminium		0.010514768	g/seatbelt
calcium fluoride; reactor fuel	0.0025113	g/1000g alluminium		4.64597E-06	g/seatbelt
demolition waste (unspecifie	6.394179	g/1000g alluminium		0.011829231	g/seatbelt
dross (fines); from aluminium	20.043434	g/1000g alluminium		0.037080353	g/seatbelt
highly radioactive waste; rea	0.0074944	g/1000g alluminium		1.38647E-05	g/seatbelt
medium and low radioactive	0.0088942	g/1000g alluminium		1.64544E-05	g/seatbelt
mineral treatment residue (u	7.4736927	g/1000g alluminium		0.013826331	g/seatbelt
overburden (unspecified)	5037.7323	g/1000g alluminium		9.319804726	g/seatbelt
plutonium as residual produc	1.491E-05	g/1000g alluminium		2.75854E-08	g/seatbelt
radioactive tailings; reactor fu	4.3992128	g/1000g alluminium		0.008138544	g/seatbelt
red mud; from aluminium pro	309.98495	g/1000g alluminium		0.573472163	g/seatbelt
refractory; from aluminium p	5.1734943	g/1000g alluminium		0.009570965	g/seatbelt
slag (unspecified)	50.135887	g/1000g alluminium		0.092751391	g/seatbelt
slag (uranium conversion); re	0.0166317	g/1000g alluminium		3.07686E-05	g/seatbelt
spoil (unspecified)	22.151727	g/1000g alluminium		0.040980694	g/seatbelt
tailings (unspecified)	28.024886	g/1000g alluminium		0.051846039	g/seatbelt
unspecified radioactive waste	0.0149127	g/1000g alluminium		2.75886E-05	g/seatbelt
uranium depleted; reactor fu	0.0172056	g/1000g alluminium		3.18304E-05	g/seatbelt
Remark					
Data adapted from production of Aluminium sheet; primary production; production mix, at plant; aluminium semi-finished sheet product (ELCD, 2005)					
3.47.23 Transportation to Cup manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.

Lack of data					
3.47.24 Production of cup	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
alluminium	1000	g/1000g product	1.85	1.85	g/seatbelt
OUTFLOWS					
cup				1.85	g/seatbelt
Lack of data					
3.47.25 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	1.0080	MJ/1000g of produc	1.8500	0.0018648	MJ/1000g of
OUTFLOWS					
CO2	72.8000	g/1000g of product		0.13468	g/1000g of pı
NOx	0.4620	g/1000g of product		0.0008547	g/1000g of pı
HC	0.0658	g/1000g of product		0.00012173	g/1000g of pı
Particulate matter	0.0080	g/1000g of product		0.000014763	g/1000g of pı
CO	0.0644	g/1000g of product		0.00011914	g/1000g of pı
SO2	0.0182	g/1000g of product		0.00003367	g/1000g of pı
Remark:					
Distance between Cup manufacturer and NCS (Survilliers, France) in km		**1400**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.26.1 Production of diphenylamine	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.26.2 Transportation to Fuel manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.26.3 Production of nitrocellulose	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.26.4 Transportation Fuel manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.26 Production of propellant BTU	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
diphenylamine	10	g/1000g product		2.00E-03	g/product
nitrocellulose	990	g/1000g product		1.98E-01	g/product
OUTFLOWS					
BTU				0.2	g/seatbelt
Lack of data					

3.47.27.1 Production of diphenylamine	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.27.2 Transportation to Fuel manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.27.3 Production of nitrocellulose	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.27.4 Transportation Fuel manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.27 Production of propellant B7T	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
diphenylamine	10	g/1000g product		0.004	g/seatbelt
nitrocellulose	990	g/1000g product		0.396	g/seatbelt
OUTFLOWS					
B7T				0.4	g/seatbelt
Lack of data					
3.47.28 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.8640	MJ/1000g of product	0.6000	0.0005184	MJ/seatbelt
				0	
OUTFLOWS				0	
CO2	62.4000	g/1000g of product		0.03744	g/seatbelt
NOx	0.3960	g/1000g of product		0.0002376	g/seatbelt
HC	0.0564	g/1000g of product		0.00003384	g/seatbelt
Particulate matter	0.0068	g/1000g of product		0.000004104	g/seatbelt
CO	0.0552	g/1000g of product		0.00003312	g/seatbelt
SO2	0.0156	g/1000g of product		0.00000936	g/seatbelt
Remark:					
Distance between Fuel manufacturer (Saint Medard Jalles, France) and NCS (Survilliers, France) in km		**1200**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.47.29 Production of ink	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.47.30 Transportation to NCS	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.47.31 Application of bar code	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
ink	1000.0000	g/1000g product			
Lack of data					
3.47 Production of gas generator	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	51.204096	MJ/1000g product	11.2491	0.576	MJ/seatbelt
water	58.67136	l/1000g product		0.66	l/seatbelt
gas	373.3632	MJ/1000g product		4.2	MJ/seatbelt
holder	277.26663	g/1000g product		3.119	g/seatbelt
shunt ring	40.38572	g/1000g product		0.454303	g/seatbelt
sealant, omnifit	88.896001	g/1000g product		1	g/seatbelt
o-ring	8.8896001	g/1000g product		0.1	g/seatbelt
initiator, serviceable	366.67822	g/1000g product		4.1248	g/seatbelt
cup	164.4576	g/1000g product		1.85	g/seatbelt
propellant	53.3376	g/1000g product		0.6	g/seatbelt
bar code	0.088896	g/1000g product		0.001	g/seatbelt
OUTFLOWS					
gas generator				11.2491	g/seatbelt
Remark					
Electricity data for France					
3.48 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.9590	MJ/1000g of product	11.2491	0.010788337	MJ/seatbelt
OUTFLOWS					
CO2	69.2640	g/1000g of product		0.779157662	g/seatbelt
NOx	0.4396	g/1000g of product		0.004944654	g/seatbelt
HC	0.0626	g/1000g of product		0.000704239	g/seatbelt
Particulate matter	0.0076	g/1000g of product		8.54077E-05	g/seatbelt

CO	0.0613	g/1000g of product		0.000689255	g/seatbelt
SO2	0.0173	g/1000g of product		0.000194789	g/seatbelt
Remark:					
Distance between NCS (Survilliers, France) and ALH (Sopronkövesd, Hungary in km		**1332**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.49 Production of tube, short tube in ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.0513931	MJ/1000g product	136.7791	0.007029498	MJ/seatbelt
natural gas	0.0283824	MJ/1000g product		0.003882119	MJ/seatbelt
water	0.0387782	l/1000g product		0.005304049	l/seatbelt
ball synchronization	46.352111	g/1000g product		6.34	g/seatbelt
snap-in-faster	1.4622117	g/1000g product		0.2	g/seatbelt
label, identification	1.4622117	g/1000g product		0.2	g/seatbelt
Tube	712.8282	g/1000g product		97.5	g/seatbelt
spring, compression	2.7050916	g/1000g product		0.37	g/seatbelt
ball, car sense x 12	144.75896	g/1000g product		19.8	g/seatbelt
piston	6.1412891	g/1000g product		0.84	g/seatbelt
spring, antiretour	2.0470964	g/1000g product		0.28	g/seatbelt
gas generator	82.242828	g/1000g product		11.2491	g/seatbelt
OUTFLOWS					
tube, short tube					
nitrogen oxide	0.0070354	g/1000g product		8.1143E-05	g/seatbelt
particles (> PM10)	7.612E-05	g/1000g product		8.77883E-07	g/seatbelt
sulfur dioxide	0.0005257	g/1000g product		6.06352E-06	g/seatbelt
sludge	459.87795	g/1000g product		5.304049068	kg/seatbelt
Remark:					
Electricity data for Hungary					
Calculation for 1 seatbelt based on data from company: half of total production constitutes retractors and there is 5000000 of retractors produced per year					
3.51.1 Production of iron steel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	12.8900	0.650945	g/seatbelt
Chemicals	4.99	g/1000g steel		0.0643211	g/seatbelt
Coal	0.223	MJ/1000g steel		0.00287447	MJ/seatbelt
Coal	517	g/1000g steel		0.28655759	g/seatbelt
Diesel	0.195	MJ/1000g steel		0.00251355	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.0424081	MJ/seatbelt

Explosives	1.02	g/1000g steel		0.0131478	g/seatbelt
Gas	4.81	MJ/1000g steel		0.0620009	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.0371232	MJ/seatbelt
Iron ore	2170	g/1000g steel		27.9713	g/seatbelt
Limestone	162	g/1000g steel		2.08818	g/seatbelt
Oil	0.00106	MJ/1000g steel		1.36634E-05	g/seatbelt
Scrap (in)	52.2	g/1000g steel		0.672858	g/seatbelt
OUTFLOWS				0	g/seatbelt
ammonia	0.000517	g/1000g steel		6.66413E-06	g/seatbelt
arsenic	2.08E-06	g/1000g steel		2.68112E-08	g/seatbelt
cadmium	0.0000118	g/1000g steel		1.52102E-07	g/seatbelt
cadmium	4.46E-08	g/1000g steel		5.74894E-10	g/seatbelt
CH4	4.04	g/1000g steel		0.0520756	g/seatbelt
carbon dioxide	1180	g/1000g steel		15.2102	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		0.000329984	g/seatbelt
chromium	0.00036	g/1000g steel		4.6404E-06	g/seatbelt
chromium	0.0000488	g/1000g steel		6.29032E-07	g/seatbelt
cobalt	0.0000072	g/1000g steel		9.2808E-08	g/seatbelt
cobalt	3.21E-06	g/1000g steel		4.13769E-08	g/seatbelt
copper	0.000175	g/1000g steel		2.25575E-06	g/seatbelt
copper	0.000101	g/1000g steel		1.30189E-06	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		0.000538802	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.000724418	g/seatbelt
lead	0.000529	g/1000g steel		6.81881E-06	g/seatbelt
lead	0.000402	g/1000g steel		5.18178E-06	g/seatbelt
mercury	0.0000344	g/1000g steel		4.43416E-07	g/seatbelt
nickel	0.0004	g/1000g steel		0.000005156	g/seatbelt
nickel	0.0000815	g/1000g steel		1.05054E-06	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.000409902	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.0192061	g/seatbelt
Phosphorus	0.000372	g/1000g steel		4.79508E-06	g/seatbelt
polycyclic aromatic hydrocarb	0.000147	g/1000g steel		1.89483E-06	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.0195928	g/seatbelt
zinc	0.00368	g/1000g steel		4.74352E-05	g/seatbelt
zinc	0.000997	g/1000g steel		1.28513E-05	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.0208818	g/seatbelt
Industrial waste	96.4	g/1000g steel		1.242596	g/seatbelt
mineral waste	1100	g/1000g steel		14.179	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.51.2 Transportation to plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.51.3 Production of lubricant (I)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INPUTS					
air	267.3181	g/1000g oil	0.2000	0.053463618	g/seatbelt
barium sulfate	0.0000	g/1000g oil		5.85206E-16	g/seatbelt
baryte	2.5003	g/1000g oil		0.000500058	g/seatbelt
basalt	0.0209	g/1000g oil		4.18073E-06	g/seatbelt
bauxite	0.0015	g/1000g oil		3.0648E-07	g/seatbelt
bentonite	1.0336	g/1000g oil		0.000206728	g/seatbelt
brown coal; 11.9 MJ/kg	0.0475	MJ/1000g oil		9.49175E-06	MJ/seatbelt
calcium carbonate	2.1090	g/1000g oil		0.000421806	g/seatbelt
calcium chloride	0.0000	g/1000g oil		5.99163E-14	g/seatbelt
carbon dioxide (in)	0.4977	g/1000g oil		9.95314E-05	g/seatbelt
chromium (in)	0.0000	g/1000g oil		9.78594E-09	g/seatbelt
clay	0.2763	g/1000g oil		5.525E-05	g/seatbelt
colemanite	0.0000	g/1000g oil		2.89288E-09	g/seatbelt
copper (in)	0.0012	g/1000g oil		2.35926E-07	g/seatbelt
crude oil; 42.3 MJ/kg	47.1274	MJ/1000g oil		0.009425488	MJ/seatbelt
dolomite	0.0000	g/1000g oil		9.88218E-10	g/seatbelt
fluorspar	0.0000	g/1000g oil		5.48195E-10	g/seatbelt
ground water	0.0318	l/1000g oil		6.36421E-06	l/seatbelt
gypsum	0.0384	g/1000g oil		7.68281E-06	g/seatbelt
hard coal; 26.3 MJ/kg	0.1285	MJ/1000g oil		2.57096E-05	MJ/seatbelt
inert rock	130.5738	g/1000g oil		0.026114761	g/seatbelt
iron (in)	0.4591	g/1000g oil		9.18266E-05	g/seatbelt
kaolin	0.0000	g/1000g oil		5.14126E-09	g/seatbelt
lead (in)	0.0217	g/1000g oil		4.34704E-06	g/seatbelt
magnesite	0.0000	g/1000g oil		1.49692E-10	g/seatbelt
magnesium chloride	0.0650	g/1000g oil		1.3006E-05	g/seatbelt
manganese	0.0035	g/1000g oil		7.07372E-07	g/seatbelt
molybdenum (in)	0.0000	g/1000g oil		5.521E-13	g/seatbelt
natural aggregate	0.7544	g/1000g oil		0.000150882	g/seatbelt
natural gas; 44.1 MJ/kg	2.6949	MJ/1000g oil		0.000538975	MJ/seatbelt
nickel (in)	0.0004	g/1000g oil		8.84494E-08	g/seatbelt
nitrogen	0.0000	g/1000g oil		7.36622E-12	g/seatbelt
olivine	0.0000	g/1000g oil		3.14013E-17	g/seatbelt
oxygen	0.0000	g/1000g oil		3.71622E-12	g/seatbelt
palladium	0.0000	g/1000g oil		7.50627E-15	g/seatbelt
peat; 8.4 MJ/kg	0.0010	MJ/1000g oil		2.04873E-07	MJ/seatbelt
phosphorus (in)	0.0000	g/1000g oil		6.68261E-11	g/seatbelt
platinum	0.0000	g/1000g oil		9.01727E-14	g/seatbelt
potassium chloride	0.0000	g/1000g oil		8.07446E-11	g/seatbelt
primary energy from geother	0.0012	MJ/1000g oil		2.47155E-07	MJ/seatbelt
primary energy from hydro p	0.0557	MJ/1000g oil		1.1135E-05	MJ/seatbelt
primary energy from solar en	0.0048	MJ/1000g oil		9.58905E-07	MJ/seatbelt
primary energy from wind po	0.0054	MJ/1000g oil		1.08416E-06	MJ/seatbelt
quartz sand	0.3354	g/1000g oil		6.70893E-05	g/seatbelt

raw pumice	0.0000	g/1000g oil		4.99394E-10	g/seatbelt
rhodium	0.0000	g/1000g oil		2.51021E-16	g/seatbelt
river water	-0.5639	l/1000g oil		-0.000112779	l/seatbelt
sea water	0.0523	l/1000g oil		1.04515E-05	l/seatbelt
slate	0.0000	g/1000g oil		5.28113E-17	g/seatbelt
sodium chloride	0.0010	g/1000g oil		2.04639E-07	g/seatbelt
sodium sulfate	0.0000	g/1000g oil		2.56813E-13	g/seatbelt
soil	0.2782	g/1000g oil		5.56472E-05	g/seatbelt
sulfur (in)	0.0000	g/1000g oil		7.6566E-12	g/seatbelt
surface water	0.8502	l/1000g oil		0.000170038	l/seatbelt
talc	0.0000	g/1000g oil		1.47422E-10	g/seatbelt
tin (in)	0.0000	g/1000g oil		5.075E-20	g/seatbelt
titanium	0.0008	g/1000g oil		1.61137E-07	g/seatbelt
uranium	0.2531	MJ/1000g oil		5.06192E-05	MJ/seatbelt
wood; 14.7 MJ/kg	0.0000	MJ/1000g oil		2.49409E-09	MJ/seatbelt
zinc (in)	0.0043	g/1000g oil		8.59148E-07	g/seatbelt
OUTPUTS				0	
light fuel oil; from crude oil; c	1000.0000	g		0.2	g
1,2-dibromoethane	0.0000	g/1000g oil		5.6137E-16	g/seatbelt
1,2-dichloropropane	0.0000	g/1000g oil		3.22917E-18	g/seatbelt
1,3,5-trimethylbenzene	0.0000	g/1000g oil		4.20538E-15	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	0.0000	g/1000g oil		8.19374E-16	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	0.0000	g/1000g oil		5.5527E-23	g/seatbelt
acenaphthene	0.0000	g/1000g oil		2.19489E-09	g/seatbelt
acenaphthene	0.0000	g/1000g oil		3.69298E-11	g/seatbelt
acenaphthylene	0.0000	g/1000g oil		8.36075E-10	g/seatbelt
acenaphthylene	0.0000	g/1000g oil		1.56147E-11	g/seatbelt
acetaldehyde	0.0001	g/1000g oil		1.68668E-08	g/seatbelt
acetic acid	0.0001	g/1000g oil		1.55803E-08	g/seatbelt
acetic acid	0.0000	g/1000g oil		6.91108E-09	g/seatbelt
acetic acid	0.0005	g/1000g oil		1.05697E-07	g/seatbelt
acetone	0.0001	g/1000g oil		1.50826E-08	g/seatbelt
acid (as H+)	0.0000	g/1000g oil		1.85777E-11	g/seatbelt
acid (as H+)	0.0000	g/1000g oil		9.40174E-10	g/seatbelt
acrolein	0.0000	g/1000g oil		1.0419E-10	g/seatbelt
acryolonitrile	0.0000	g/1000g oil		2.3615E-13	g/seatbelt
adsorbable organic halogen c	0.0000	g/1000g oil		9.23538E-14	g/seatbelt
adsorbable organic halogen c	0.0008	g/1000g oil		1.66693E-07	g/seatbelt
aluminium	0.0001	g/1000g oil		2.42936E-08	g/seatbelt
aluminium	0.0000	g/1000g oil		1.09289E-12	g/seatbelt
aluminium	0.0003	g/1000g oil		5.9991E-08	g/seatbelt
americium-241	0.0005	Bq/1000g oil		1.06635E-07	Bq/seatbelt
ammonia	0.0033	g/1000g oil		6.53076E-07	g/seatbelt
ammonia	0.0557	g/1000g oil		1.11445E-05	g/seatbelt
ammonia	0.0000	g/1000g oil		3.24766E-11	g/seatbelt
ammonia	0.0028	g/1000g oil		5.52848E-07	g/seatbelt
ammonium	0.0000	g/1000g oil		7.99339E-14	g/seatbelt
anthracene	0.0000	g/1000g oil		1.47653E-11	g/seatbelt
anthracene	0.0000	g/1000g oil		5.66459E-10	g/seatbelt
anthracene	0.0000	g/1000g oil		6.1492E-11	g/seatbelt

antimony	0.0000	g/1000g oil		8.61593E-11	g/seatbelt
antimony	0.0000	g/1000g oil		8.20097E-16	g/seatbelt
antimony-124	0.0000	Bq/1000g oil		3.74047E-11	Bq/seatbelt
antimony-124	0.0000	Bq/1000g oil		1.10887E-09	Bq/seatbelt
antimony-125	0.0000	Bq/1000g oil		7.55545E-10	Bq/seatbelt
argon-41	1.1793	Bq/1000g oil		0.000235861	Bq/seatbelt
arsenic	0.0000	g/1000g oil		2.12191E-09	g/seatbelt
arsenic	0.0000	g/1000g oil		8.62517E-12	g/seatbelt
arsenic	0.0002	g/1000g oil		3.77967E-08	g/seatbelt
arsenic	0.0002	g/1000g oil		3.06695E-08	g/seatbelt
arsenic trioxide	0.0000	g/1000g oil		2.7818E-14	g/seatbelt
barium	0.0016	g/1000g oil		3.17323E-07	g/seatbelt
barium	0.0106	g/1000g oil		2.12208E-06	g/seatbelt
barium	0.0010	g/1000g oil		2.09426E-07	g/seatbelt
benzene	0.0013	g/1000g oil		2.63833E-07	g/seatbelt
benzene	0.0004	g/1000g oil		7.69193E-08	g/seatbelt
benzene	0.0021	g/1000g oil		4.24278E-07	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		7.4289E-12	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		4.73562E-12	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		4.92773E-10	g/seatbelt
benzo[a]pyrene	0.0000	g/1000g oil		4.03195E-12	g/seatbelt
benzo[g,h,i]perylene	0.0000	g/1000g oil		6.62744E-12	g/seatbelt
benzo[k]fluoranthene	0.0000	g/1000g oil		1.32549E-11	g/seatbelt
benzo[k]fluoranthene	0.0000	g/1000g oil		1.62277E-12	g/seatbelt
benzo[k]fluoranthene	0.0000	g/1000g oil		5.4765E-10	g/seatbelt
beryllium	0.0000	g/1000g oil		2.58022E-11	g/seatbelt
beryllium	0.0000	g/1000g oil		3.07087E-09	g/seatbelt
beryllium	0.0000	g/1000g oil		2.3297E-12	g/seatbelt
biological oxygen demand	0.0039	g/1000g oil		7.77418E-07	g/seatbelt
biological oxygen demand	0.0005	g/1000g oil		1.01875E-07	g/seatbelt
boron	0.0001	g/1000g oil		1.58368E-08	g/seatbelt
boron	0.0000	g/1000g oil		2.41304E-09	g/seatbelt
boron	0.0000	g/1000g oil		1.76722E-11	g/seatbelt
bromide	0.0000	g/1000g oil		3.30398E-09	g/seatbelt
bromine	0.0000	g/1000g oil		4.39905E-09	g/seatbelt
bromine	0.0000	g/1000g oil		4.03519E-11	g/seatbelt
butadiene	0.0000	g/1000g oil		6.83931E-14	g/seatbelt
cadmium	0.0000	g/1000g oil		6.90867E-10	g/seatbelt
cadmium	0.0000	g/1000g oil		7.80912E-11	g/seatbelt
cadmium	0.0001	g/1000g oil		1.71578E-08	g/seatbelt
cadmium	0.0001	g/1000g oil		1.94443E-08	g/seatbelt
calcium	0.0000	g/1000g oil		5.17304E-09	g/seatbelt
calcium	0.0023	g/1000g oil		4.67933E-07	g/seatbelt
calcium	0.0000	g/1000g oil		1.92999E-09	g/seatbelt
carbon dioxide	301.3377	g/1000g oil		0.060267534	g/seatbelt
carbon disulfide	0.0000	g/1000g oil		1.04254E-13	g/seatbelt
carbon monoxide	0.4146	g/1000g oil		8.29189E-05	g/seatbelt
carbon-14	0.5411	Bq/1000g oil		0.000108217	Bq/seatbelt
carbon-14	0.0270	Bq/1000g oil		5.39775E-06	Bq/seatbelt
carbonate	0.0658	g/1000g oil		1.31666E-05	g/seatbelt

carbonate	0.6675	g/1000g oil		0.00013349	g/seatbelt
cesium-134	0.0001	Bq/1000g oil		2.96215E-08	Bq/seatbelt
cesium-134	0.0271	Bq/1000g oil		5.42113E-06	Bq/seatbelt
cesium-137	0.0003	Bq/1000g oil		6.0517E-08	Bq/seatbelt
cesium-137	0.2506	Bq/1000g oil		5.01196E-05	Bq/seatbelt
CFC-11	0.0000	g/1000g oil		6.59773E-10	g/seatbelt
CFC-114	0.0000	g/1000g oil		6.75671E-10	g/seatbelt
CFC-12	0.0000	g/1000g oil		1.41851E-10	g/seatbelt
CFC-13	0.0000	g/1000g oil		8.90693E-11	g/seatbelt
chemical oxygen demand	0.0563	g/1000g oil		1.12664E-05	g/seatbelt
chemical oxygen demand	0.0799	g/1000g oil		1.59755E-05	g/seatbelt
chloride	0.0020	g/1000g oil		3.93169E-07	g/seatbelt
chloride	0.0193	g/1000g oil		3.85494E-06	g/seatbelt
chloride	5.8035	g/1000g oil		0.001160708	g/seatbelt
chloride	52.7046	g/1000g oil		0.010540917	g/seatbelt
chlorine	0.0000	g/1000g oil		2.9064E-13	g/seatbelt
chlorine	0.0004	g/1000g oil		8.54413E-08	g/seatbelt
chromium	0.0000	g/1000g oil		6.25547E-09	g/seatbelt
chromium	0.0001	g/1000g oil		2.16052E-08	g/seatbelt
chromium	0.0003	g/1000g oil		6.01896E-08	g/seatbelt
chromium	0.0002	g/1000g oil		4.86233E-08	g/seatbelt
chromium III	0.0000	g/1000g oil		5.97455E-12	g/seatbelt
chromium III	0.0000	g/1000g oil		5.54073E-14	g/seatbelt
chromium III	0.0000	g/1000g oil		1.92644E-10	g/seatbelt
chromium VI	0.0000	g/1000g oil		3.25063E-18	g/seatbelt
chrysene	0.0000	g/1000g oil		1.82486E-11	g/seatbelt
chrysene	0.0000	g/1000g oil		1.9444E-11	g/seatbelt
chrysene	0.0000	g/1000g oil		2.78447E-09	g/seatbelt
cobalt	0.0000	g/1000g oil		3.15789E-09	g/seatbelt
cobalt	0.0000	g/1000g oil		3.85518E-10	g/seatbelt
cobalt	0.0003	g/1000g oil		5.37402E-08	g/seatbelt
cobalt	0.0000	g/1000g oil		2.36605E-11	g/seatbelt
cobalt-58	0.0000	Bq/1000g oil		1.85591E-10	Bq/seatbelt
cobalt-58	0.0002	Bq/1000g oil		4.14511E-08	Bq/seatbelt
cobalt-60	0.0000	Bq/1000g oil		4.70666E-09	Bq/seatbelt
cobalt-60	0.1162	Bq/1000g oil		2.32374E-05	Bq/seatbelt
copper	0.0000	g/1000g oil		4.3303E-09	g/seatbelt
copper	0.0000	g/1000g oil		2.21019E-10	g/seatbelt
copper	0.0003	g/1000g oil		6.63003E-08	g/seatbelt
copper	0.0003	g/1000g oil		6.01928E-08	g/seatbelt
cresol	0.0000	g/1000g oil		3.18612E-13	g/seatbelt
cresol	0.0000	g/1000g oil		2.44931E-13	g/seatbelt
curium	0.0007	Bq/1000g oil		1.41323E-07	Bq/seatbelt
cyanide	0.0000	g/1000g oil		7.95889E-09	g/seatbelt
cyanide	0.0000	g/1000g oil		2.35382E-09	g/seatbelt
cyclohexane	0.0000	g/1000g oil		2.38983E-12	g/seatbelt
decane	0.0000	g/1000g oil		5.70821E-09	g/seatbelt
decane	0.0200	g/1000g oil		4.00799E-06	g/seatbelt
decane	0.0020	g/1000g oil		3.968E-07	g/seatbelt
dibenz[a,h]anthracene	0.0000	g/1000g oil		4.13059E-12	g/seatbelt

dichloromethane	0.0000	g/1000g oil		2.3171E-17	g/seatbelt
diethylamine	0.0000	g/1000g oil		1.85649E-18	g/seatbelt
ethane	0.1818	g/1000g oil		3.63675E-05	g/seatbelt
ethanol	0.0000	g/1000g oil		5.29316E-09	g/seatbelt
ethyl benzene	0.0001	g/1000g oil		1.69338E-08	g/seatbelt
ethyl benzene	0.0003	g/1000g oil		5.17511E-08	g/seatbelt
ethyl benzene	0.0000	g/1000g oil		4.29493E-09	g/seatbelt
ethylene	0.0000	g/1000g oil		4.00986E-09	g/seatbelt
FC-14	0.0000	g/1000g oil		4.67446E-12	g/seatbelt
fluoranthene	0.0000	g/1000g oil		4.80875E-11	g/seatbelt
fluoranthene	0.0000	g/1000g oil		5.74322E-10	g/seatbelt
fluoranthene	0.0000	g/1000g oil		5.51633E-12	g/seatbelt
fluorene	0.0000	g/1000g oil		1.52585E-10	g/seatbelt
fluoride	0.0010	g/1000g oil		1.98215E-07	g/seatbelt
fluoride	0.0006	g/1000g oil		1.10135E-07	g/seatbelt
fluoride	0.0059	g/1000g oil		1.18792E-06	g/seatbelt
fluorine	0.0000	g/1000g oil		5.02641E-13	g/seatbelt
fluorine	0.0000	g/1000g oil		3.11638E-10	g/seatbelt
formaldehyde	0.0003	g/1000g oil		5.32348E-08	g/seatbelt
HCFC-22	0.0000	g/1000g oil		1.55047E-10	g/seatbelt
helium	0.0000	g/1000g oil		4.65508E-10	g/seatbelt
heptane	0.0024	g/1000g oil		4.77041E-07	g/seatbelt
hexamethylene diamine	0.0000	g/1000g oil		4.02312E-15	g/seatbelt
hexane	0.0035	g/1000g oil		7.0783E-07	g/seatbelt
hexane	0.0000	g/1000g oil		2.67409E-14	g/seatbelt
hexane	0.0000	g/1000g oil		3.50952E-14	g/seatbelt
hydrocarbons (unspecified)	0.0000	g/1000g oil		7.75094E-10	g/seatbelt
hydrocyanic acid	0.0000	g/1000g oil		3.47131E-12	g/seatbelt
hydrogen	0.0009	g/1000g oil		1.73728E-07	g/seatbelt
hydrogen arsenide	0.0000	g/1000g oil		2.3089E-12	g/seatbelt
hydrogen bromide	0.0000	g/1000g oil		1.96448E-11	g/seatbelt
hydrogen chloride	0.0045	g/1000g oil		8.90491E-07	g/seatbelt
hydrogen chloride	0.0000	g/1000g oil		6.043E-12	g/seatbelt
hydrogen fluoride	0.0003	g/1000g oil		6.85137E-08	g/seatbelt
hydrogen fluoride	0.0000	g/1000g oil		4.99098E-11	g/seatbelt
hydrogen iodide	0.0000	g/1000g oil		1.74782E-14	g/seatbelt
hydrogen sulfide	0.0051	g/1000g oil		1.02906E-06	g/seatbelt
hydrogen-3	2.2979	Bq/1000g oil		0.000459589	Bq/seatbelt
hydrogen-3	787.5491	Bq/1000g oil		0.157509821	Bq/seatbelt
hydroxide	0.0000	g/1000g oil		1.5699E-10	g/seatbelt
indeno(1,2,3-cd)pyrene	0.0000	g/1000g oil		4.93205E-12	g/seatbelt
iodine-129	0.0012	Bq/1000g oil		2.31256E-07	Bq/seatbelt
iodine-129	0.0771	Bq/1000g oil		1.54223E-05	Bq/seatbelt
iodine-131	0.0002	Bq/1000g oil		3.47539E-08	Bq/seatbelt
iodine-131	0.0000	Bq/1000g oil		7.91143E-10	Bq/seatbelt
iron	0.0001	g/1000g oil		2.04373E-08	g/seatbelt
iron	0.0002	g/1000g oil		3.15701E-08	g/seatbelt
iron	0.0033	g/1000g oil		6.60249E-07	g/seatbelt
iron	0.0088	g/1000g oil		1.76362E-06	g/seatbelt
krypton-85	19921.0578	Bq/1000g oil		3.98421157	Bq/seatbelt

lead	0.0001	g/1000g oil		1.0665E-08	g/seatbelt
lead	0.0000	g/1000g oil		5.81256E-12	g/seatbelt
lead	0.0001	g/1000g oil		1.78057E-08	g/seatbelt
lead	0.0001	g/1000g oil		1.19678E-08	g/seatbelt
lead dioxide	0.0000	g/1000g oil		4.96149E-15	g/seatbelt
magnesium	0.0000	g/1000g oil		7.50514E-10	g/seatbelt
magnesium	0.0000	g/1000g oil		1.15032E-13	g/seatbelt
magnesium	0.0001	g/1000g oil		1.82488E-08	g/seatbelt
manganese	0.0000	g/1000g oil		9.50921E-10	g/seatbelt
manganese	0.0000	g/1000g oil		4.51428E-09	g/seatbelt
manganese	0.0003	g/1000g oil		6.90958E-08	g/seatbelt
manganese	0.0000	g/1000g oil		7.54463E-09	g/seatbelt
manganese-54	0.0180	Bq/1000g oil		3.60251E-06	Bq/seatbelt
mercury	0.0000	g/1000g oil		6.6064E-10	g/seatbelt
mercury	0.0000	g/1000g oil		4.37145E-13	g/seatbelt
mercury	0.0000	g/1000g oil		2.71521E-10	g/seatbelt
mercury	0.0000	g/1000g oil		4.01268E-10	g/seatbelt
methane	3.3478	g/1000g oil		0.000669564	g/seatbelt
methanol	0.0000	g/1000g oil		4.86788E-09	g/seatbelt
methanol	0.0001	g/1000g oil		1.07473E-08	g/seatbelt
molybdenum	0.0000	g/1000g oil		1.59251E-09	g/seatbelt
molybdenum	0.0000	g/1000g oil		9.37868E-14	g/seatbelt
molybdenum	0.0000	g/1000g oil		4.12637E-09	g/seatbelt
naphthalene	0.0000	g/1000g oil		1.55051E-09	g/seatbelt
naphthalene	0.0000	g/1000g oil		2.39709E-09	g/seatbelt
naphthalene	0.0004	g/1000g oil		7.19959E-08	g/seatbelt
n-butane	0.0682	g/1000g oil		1.36413E-05	g/seatbelt
nickel	0.0002	g/1000g oil		3.90314E-08	g/seatbelt
nickel	0.0000	g/1000g oil		6.2428E-09	g/seatbelt
nickel	0.0002	g/1000g oil		4.31058E-08	g/seatbelt
nickel	0.0001	g/1000g oil		2.23282E-08	g/seatbelt
nitrate	0.0004	g/1000g oil		7.573E-08	g/seatbelt
nitrate	0.0009	g/1000g oil		1.73031E-07	g/seatbelt
nitrogen	0.0563	g/1000g oil		1.12669E-05	g/seatbelt
nitrogen	0.0128	g/1000g oil		2.5577E-06	g/seatbelt
nitrogen dioxide	0.8756	g/1000g oil		0.000175115	g/seatbelt
nitrogen monoxide	0.0000	g/1000g oil		1.50588E-12	g/seatbelt
nitrous oxide	0.0070	g/1000g oil		1.3916E-06	g/seatbelt
non-methane volatile organic	0.2594	g/1000g oil		5.18796E-05	g/seatbelt
octane	0.0013	g/1000g oil		2.62432E-07	g/seatbelt
oxygen	0.3719	g/1000g oil		7.43706E-05	g/seatbelt
palladium	0.0000	g/1000g oil		1.65844E-18	g/seatbelt
particles (> PM10)	0.0000	g/1000g oil		1.5934E-13	g/seatbelt
particles (> PM10)	0.4054	g/1000g oil		8.10782E-05	g/seatbelt
particles (> PM10)	2.1204	g/1000g oil		0.000424087	g/seatbelt
particles (PM10)	0.0197	g/1000g oil		3.93066E-06	g/seatbelt
particles (PM10)	0.0000	g/1000g oil		4.18549E-13	g/seatbelt
particles (PM2.5 - PM10)	0.0141	g/1000g oil		2.81861E-06	g/seatbelt
particles (PM2.5)	0.0129	g/1000g oil		2.57999E-06	g/seatbelt
pentane	0.0232	g/1000g oil		4.63703E-06	g/seatbelt

phenanthrene	0.0000	g/1000g oil		4.8704E-10	g/seatbelt
phenol	0.0000	g/1000g oil		2.04537E-13	g/seatbelt
phenol	0.0047	g/1000g oil		9.33847E-07	g/seatbelt
phenol	0.0006	g/1000g oil		1.11628E-07	g/seatbelt
phosphate	0.0319	g/1000g oil		6.37346E-06	g/seatbelt
phosphate	0.0026	g/1000g oil		5.10612E-07	g/seatbelt
phosphine	0.0000	g/1000g oil		5.53497E-15	g/seatbelt
plutonium	0.0000	Bq/1000g oil		6.94298E-12	Bq/seatbelt
plutonium	0.0021	Bq/1000g oil		4.24446E-07	Bq/seatbelt
polychlorinated biphenyls	0.0000	g/1000g oil		5.06034E-12	g/seatbelt
polycyclic aromatic hydrocarb	0.0002	g/1000g oil		4.94044E-08	g/seatbelt
polycyclic aromatic hydrocarb	0.0000	g/1000g oil		1.75774E-09	g/seatbelt
potassium	0.0139	g/1000g oil		2.78822E-06	g/seatbelt
potassium	0.0001	g/1000g oil		1.74857E-08	g/seatbelt
propane	0.3289	g/1000g oil		6.57738E-05	g/seatbelt
propene	0.0000	g/1000g oil		1.32722E-09	g/seatbelt
propionic acid	0.0000	g/1000g oil		1.99231E-12	g/seatbelt
R-40	0.0000	g/1000g oil		1.6741E-11	g/seatbelt
radium-226	8.7850	Bq/1000g oil		0.001757005	Bq/seatbelt
radon-222	290.3514	Bq/1000g oil		0.058070281	Bq/seatbelt
rhodium	0.0000	g/1000g oil		1.60095E-18	g/seatbelt
ruthenium-106	0.0005	Bq/1000g oil		1.06635E-07	Bq/seatbelt
scandium	0.0000	g/1000g oil		9.69955E-15	g/seatbelt
selenium	0.0000	g/1000g oil		2.79244E-09	g/seatbelt
selenium	0.0000	g/1000g oil		2.67939E-09	g/seatbelt
silver	0.0000	g/1000g oil		4.75158E-19	g/seatbelt
silver	0.0000	g/1000g oil		2.55672E-12	g/seatbelt
silver	0.0000	g/1000g oil		2.7826E-13	g/seatbelt
silver-110	0.0000	Bq/1000g oil		1.62057E-10	Bq/seatbelt
sodium	0.0000	g/1000g oil		4.46464E-10	g/seatbelt
sodium	0.0102	g/1000g oil		2.03449E-06	g/seatbelt
sodium	0.0640	g/1000g oil		1.2793E-05	g/seatbelt
strontium	0.0000	g/1000g oil		3.73502E-13	g/seatbelt
strontium	0.0352	g/1000g oil		7.03561E-06	g/seatbelt
strontium	0.0024	g/1000g oil		4.77527E-07	g/seatbelt
strontium	0.0001	g/1000g oil		1.87547E-08	g/seatbelt
strontium-90	0.0257	Bq/1000g oil		5.14934E-06	Bq/seatbelt
styrene	0.0000	g/1000g oil		2.64646E-15	g/seatbelt
sulfate	0.0000	g/1000g oil		3.45395E-11	g/seatbelt
sulfate	0.0018	g/1000g oil		3.523E-07	g/seatbelt
sulfate	0.3042	g/1000g oil		6.08469E-05	g/seatbelt
sulfate	0.2812	g/1000g oil		5.6232E-05	g/seatbelt
sulfide	0.0106	g/1000g oil		2.1138E-06	g/seatbelt
sulfide	0.0125	g/1000g oil		2.50486E-06	g/seatbelt
sulfide	0.1215	g/1000g oil		2.43032E-05	g/seatbelt
sulfite	0.0000	g/1000g oil		7.26428E-10	g/seatbelt
sulfur	0.0000	g/1000g oil		9.45619E-12	g/seatbelt
sulfur	0.0000	g/1000g oil		1.23008E-11	g/seatbelt
sulfur dioxide	1.7519	g/1000g oil		0.000350387	g/seatbelt
sulfur hexafluoride	0.0000	g/1000g oil		3.41579E-13	g/seatbelt

tellurium	0.0000	g/1000g oil		7.96602E-13	g/seatbelt
thallium	0.0000	g/1000g oil		5.84812E-12	g/seatbelt
thallium	0.0000	g/1000g oil		9.7522E-13	g/seatbelt
tin	0.0000	g/1000g oil		1.26147E-09	g/seatbelt
tin	0.0000	g/1000g oil		3.33292E-13	g/seatbelt
tin	0.0000	g/1000g oil		4.96705E-13	g/seatbelt
tin oxide	0.0000	g/1000g oil		4.31718E-16	g/seatbelt
titanium	0.0000	g/1000g oil		1.12999E-12	g/seatbelt
titanium	0.0000	g/1000g oil		3.39493E-14	g/seatbelt
titanium	0.0000	g/1000g oil		2.12416E-10	g/seatbelt
toluene	0.0001	g/1000g oil		1.33698E-08	g/seatbelt
toluene	0.0012	g/1000g oil		2.32346E-07	g/seatbelt
toluene	0.0002	g/1000g oil		4.6135E-08	g/seatbelt
total organic carbon	0.0201	g/1000g oil		4.01233E-06	g/seatbelt
total organic carbon	0.0005	g/1000g oil		1.01875E-07	g/seatbelt
uranium-234	0.0013	Bq/1000g oil		2.52452E-07	Bq/seatbelt
uranium-235	0.0049	Bq/1000g oil		9.73035E-07	Bq/seatbelt
uranium-238	0.0071	Bq/1000g oil		1.42911E-06	Bq/seatbelt
uranium-238	0.1540	Bq/1000g oil		3.0808E-05	Bq/seatbelt
used air	183.1600	g/1000g oil		0.036631993	g/seatbelt
vanadium	0.0013	g/1000g oil		2.52426E-07	g/seatbelt
vanadium	0.0002	g/1000g oil		3.68505E-08	g/seatbelt
vanadium	0.0000	g/1000g oil		2.96189E-09	g/seatbelt
vinyl chloride	0.0000	g/1000g oil		1.22177E-09	g/seatbelt
volatile organic compound	0.0007	g/1000g oil		1.32529E-07	g/seatbelt
volatile organic compound	0.0000	g/1000g oil		1.01875E-09	g/seatbelt
volatile organic compound	0.0001	g/1000g oil		1.46676E-08	g/seatbelt
waste heat	1290.1994	g/1000g oil		0.258039881	g/seatbelt
waste heat	55.6773	g/1000g oil		0.011135465	g/seatbelt
water vapour	105.8821	g/1000g oil		0.021176416	g/seatbelt
xenon-131	0.0163	Bq/1000g oil		3.25527E-06	Bq/seatbelt
xenon-133	2.6639	Bq/1000g oil		0.000532787	Bq/seatbelt
xenon-135	0.8807	Bq/1000g oil		0.000176148	Bq/seatbelt
xenon-137	0.0002	Bq/1000g oil		4.61724E-08	Bq/seatbelt
xenon-138	0.0297	Bq/1000g oil		5.94796E-06	Bq/seatbelt
xylene (all isomers)	0.0003	g/1000g oil		6.63757E-08	g/seatbelt
xylene (all isomers)	0.0001	g/1000g oil		2.05254E-08	g/seatbelt
xylene (all isomers)	0.0015	g/1000g oil		2.90079E-07	g/seatbelt
zinc	0.0001	g/1000g oil		1.17434E-08	g/seatbelt
zinc	0.0000	g/1000g oil		2.39837E-09	g/seatbelt
zinc	0.0054	g/1000g oil		1.07587E-06	g/seatbelt
zinc	0.0001	g/1000g oil		1.1709E-08	g/seatbelt
zinc oxide	0.0000	g/1000g oil		8.63436E-16	g/seatbelt
calcium fluoride; reactor fuel	0.0001	g/1000g oil		1.01451E-08	g/seatbelt
demolition waste (unspecifie	0.1039	g/1000g oil		2.07702E-05	g/seatbelt
highly radioactive waste; rea	0.0002	g/1000g oil		3.02754E-08	g/seatbelt
medium and low radioactive	0.0002	g/1000g oil		3.59302E-08	g/seatbelt
overburden (unspecified)	124.5947	g/1000g oil		0.024918942	g/seatbelt
plutonium as residual produc	0.0000	g/1000g oil		6.02364E-11	g/seatbelt
radioactive tailings; reactor fu	0.0889	g/1000g oil		1.77716E-05	g/seatbelt

slag (unspecified)	0.0044	g/1000g oil		8.8602E-07	g/seatbelt
slag (uranium conversion); re	0.0003	g/1000g oil		6.7188E-08	g/seatbelt
spoil (unspecified)	1.8927	g/1000g oil		0.000378546	g/seatbelt
unspecified radioactive waste	0.0003	g/1000g oil		6.02432E-08	g/seatbelt
uranium depleted; reactor fu	0.0003	g/1000g oil		6.95058E-08	g/seatbelt
Remark					
Data adapted from Light fuel oil; from crude oil; consumption mix, at refinery (ELCD, 2003)					
3.51.3 Transforming oil to lubrication oil (II)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Additives	123.8870	g/1000g lubrication o	0.2000	0.0247774	g/seatbelt
oil (in)	867.1170	g/1000g lubrication oil		0.1734234	g/seatbelt
paraffin	9.0090	g/1000g lubrication oil		0.001801802	g/seatbelt
OUTFLOWS				0	
lubrication oil	1000.0000	g		0.2	g
hazardous waste	12.9270	g/1000g lubrication oil		0.0025854	g/seatbelt
Remark:					
Data for production of lubricating oil gate-to-gate (CPM, 1997)					
3.51.4 Transportation to production plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.51.5 Production of spring, retraction, slit steel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
iron steel	1051.5582	g/1000g product	12.2582	12.89021031	g/seatbelt
lubricant	16.315875	g/1000g product		0.200003263	g/seatbelt
electricity	22.3784	MJ/1000g product		0.274318903	MJ/seatbelt
OUTFLOWS					
spring, retraction, slit steel				12.2582	g/seatbelt
scrap	52.577908	g/1000g product		0.644510516	g/seatbelt
Remark					
Electricity data for Germany					
Production data adapted from production of spring compression by Metal parts producer no.2					

3.51.6 Transportation to production plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.51.7 Production of iron steel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	50.0000	2.525	g/seatbelt
Chemicals	4.99	g/1000g steel		0.2495	g/seatbelt
Coal	0.223	MJ/1000g steel		0.01115	MJ/seatbelt
Coal	517	g/1000g steel		1.11155	MJ/seatbelt
Diesel	0.195	MJ/1000g steel		0.00975	g/seatbelt
Electricity	3.29	MJ/1000g steel		0.1645	g/seatbelt
Explosives	1.02	g/1000g steel		0.051	g/seatbelt
Gas	4.81	MJ/1000g steel		0.2405	g/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.144	g/seatbelt
Iron ore	2170	g/1000g steel		108.5	g/seatbelt
Limestone	162	g/1000g steel		8.1	g/seatbelt
Oil	0.00106	MJ/1000g steel		0.000053	g/seatbelt
Scrap (in)	52.2	g/1000g steel		2.61	g/seatbelt
OUTFLOWS				0	g/seatbelt
ammonia	0.000517	g/1000g steel		0.00002585	g/seatbelt
arsenic	2.08E-06	g/1000g steel		0.000000104	g/seatbelt
cadmium	0.0000118	g/1000g steel		0.00000059	g/seatbelt
cadmium	4.46E-08	g/1000g steel		2.23E-09	g/seatbelt
CH4	4.04	g/1000g steel		0.202	g/seatbelt
carbon dioxide	1180	g/1000g steel		59	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		0.00128	g/seatbelt
chromium	0.00036	g/1000g steel		0.000018	g/seatbelt
chromium	0.0000488	g/1000g steel		0.00000244	g/seatbelt
cobalt	0.0000072	g/1000g steel		0.00000036	g/seatbelt
cobalt	3.21E-06	g/1000g steel		1.605E-07	g/seatbelt
copper	0.000175	g/1000g steel		0.00000875	g/seatbelt
copper	0.000101	g/1000g steel		0.00000505	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		0.00209	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.00281	g/seatbelt
lead	0.000529	g/1000g steel		0.00002645	g/seatbelt
lead	0.000402	g/1000g steel		0.0000201	g/seatbelt
mercury	0.0000344	g/1000g steel		0.00000172	g/seatbelt
nickel	0.0004	g/1000g steel		0.00002	g/seatbelt
nickel	0.0000815	g/1000g steel		0.000004075	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.00159	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.0745	g/seatbelt
Phosphorus	0.000372	g/1000g steel		0.0000186	g/seatbelt

polycyclic aromatic hydrocarb	0.000147	g/1000g steel		0.00000735	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.076	g/seatbelt
zinc	0.00368	g/1000g steel		0.000184	g/seatbelt
zinc	0.000997	g/1000g steel		0.00004985	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.081	g/seatbelt
Industrial waste	96.4	g/1000g steel		4.82	g/seatbelt
mineral waste	1100	g/1000g steel		55	g/seatbelt
polycyclic aromatic hydrocarb	0.000147	g/1000g steel		0.00000735	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.076	g/seatbelt
zinc	0.00368	g/1000g steel		0.000184	g/seatbelt
zinc	0.000997	g/1000g steel		0.00004985	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.081	g/seatbelt
Industrial waste	96.4	g/1000g steel		4.82	g/seatbelt
mineral waste	1100	g/1000g steel		55	g/seatbelt
Remark:					
Data adapted from ore based steel steelion (CPM, 1996)					
Electricity data for Germany					
3.51.8 Transportation to plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.51.9 Production of spring, retraction, wide steel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
iron steel	1170.9602	g/1000g product	42.7000	50	g/seatbelt
electricity	22.3784	MJ/1000g product		0.95555768	MJ/seatbelt
OUTFLOWS				0	
spring, retraction,wide steel				42.7000	g/seatbelt
scrap	58.548009	g/1000g product		2.5	g/seatbelt
Remark					
Electricity data for Germany					
Production data adapted from production of spring compression by Metal parts producer no.2					
3.51.10 Transportation to production plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.51 Production of spring, retraction	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
spring, retraction, slit steel	223.0755	g/1000g product	54.9500	12.258	g/seatbelt
spring, retraction, wide steel	777.0701	g/1000g product		42.7	g/seatbelt
OUTFLOWS					
spring, retraction				54.9500	g/seatbelt
Lack of data					
3.52 Transportation from Spring manufacturer no.2 to Metal parts manufacturer no.6	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5400	MJ/1000g of product	54.9500	0.029673	MJ/seatbelt
OUTFLOWS					
CO2	39.0000	g/1000g of product		2.14305	g/seatbelt
NOx	0.2475	g/1000g of product		0.013600125	g/seatbelt
HC	0.0353	g/1000g of product		0.001936988	g/seatbelt
Particulate matter	0.0043	g/1000g of product		0.000234911	g/seatbelt
CO	0.0345	g/1000g of product		0.001895775	g/seatbelt
SO2	0.0098	g/1000g of product		0.000535763	g/seatbelt
Remark:					
Distance between Spring manufacturer no.2 and Metal parts manufacturer no.6 (Mörfeden-Walldorf, Germany) in km		**750**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.53.1 Production of alloy AlSi12Cu1(Fe)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	69.0000	1.09E-03	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		2.17E-03	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		4.91E-05	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		6.06E-02	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		1.44E+01	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		1.06E+00	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		3.14E-01	MJ/seatbelt

dolomite	48.094091	g/1000g alloy		3.32E+00	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		1.04E+00	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		1.54E+01	g/seatbelt
iron (in)	215.94651	g/1000g alloy		1.49E+01	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		1.52E-01	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		1.11E-04	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		4.40E-01	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		1.79E-02	g/seatbelt
water	18.985568	l/1000g alloy		1.31E+00	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		6.90E+01	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		1.55E-10	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		4.15E-03	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		8.14E-04	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		4.17E-03	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		1.50E-06	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		2.33E+02	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		6.80E-01	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		3.11E-02	g/seatbelt
chloride	3.56E+00	g/1000g alloy		2.45E-01	g/seatbelt
chromium	1.14E-01	g/1000g alloy		7.84E-03	g/seatbelt
chromium	9.22E-04	g/1000g alloy		6.36E-05	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		4.10E-06	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		1.58E-05	g/seatbelt
copper	1.22E-04	g/1000g alloy		8.42E-06	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		4.77E-03	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		1.50E-03	g/seatbelt
iron	1.31E-01	g/1000g alloy		9.06E-03	g/seatbelt
lead	5.17E-04	g/1000g alloy		3.57E-05	g/seatbelt
manganese	2.83E-03	g/1000g alloy		1.95E-04	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		4.31E-04	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		1.15E-04	g/seatbelt
nickel	2.97E-02	g/1000g alloy		2.05E-03	g/seatbelt
nickel	3.38E-03	g/1000g alloy		2.33E-04	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		1.38E-02	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		7.05E-03	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		5.19E-01	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		1.62E-02	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		3.07E-01	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		2.04E-04	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		6.35E-02	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		8.55E-01	g/seatbelt
tin	1.61E-04	g/1000g alloy		1.11E-05	g/seatbelt
zinc	1.11E-03	g/1000g alloy		7.66E-05	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		1.68E+01	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		8.97E+01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					

3.53.2 Transportation to Spring cover producer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.53 Production of spring cover	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
alloy	1000.0000	g/1000g product	69.0000	69	g/seatbelt
OUTFLOWS					
spring cover				69	g/seatbelt
Lack of data					
3.54 Transportation from Spring cover producer to Metal parts manufacturer no.6	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4680	MJ/1000g of produc	69.0000	3.23E-02	MJ/1000g of
OUTFLOWS					
CO2	33.8000	g/1000g of product		2.33E+00	g/1000g of pr
NOx	0.2145	g/1000g of product		1.48E-02	g/1000g of pr
HC	0.0306	g/1000g of product		2.11E-03	g/1000g of pr
Particulate matter	0.0037	g/1000g of product		2.56E-04	g/1000g of pr
CO	0.0299	g/1000g of product		2.06E-03	g/1000g of pr
SO2	0.0085	g/1000g of product		5.83E-04	g/1000g of pr
Remark:					
Distance between Spring cover producer (Bencovac, Croatia) and Metal parts manufacturer no.6 (Mörfeden-Walldorf, Germany) in km		**650**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.55.1 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.76E-06	g/1000g POM	0.5000	8.79E-10	g/seatbelt
energy (recovered)	-1.91E+03	g/1000g POM		-9.53E-01	g/seatbelt
hydrogen; gaseous	9.80E-04	g/1000g POM		4.90E-07	g/seatbelt

waste	4.88E+00	g/1000g POM		2.44E-03	g/seatbelt
air	2.97E+02	g/1000g POM		1.48E-01	g/seatbelt
baryte	3.53E-05	g/1000g POM		1.77E-08	g/seatbelt
bauxite	2.15E-03	g/1000g POM		1.08E-06	g/seatbelt
bentonite	3.81E-02	g/1000g POM		1.91E-05	g/seatbelt
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		3.77E-05	MJ/seatbelt
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		7.62E-08	MJ/seatbelt
calcium carbonate (in)	1.44E-01	g/1000g POM		7.22E-05	g/seatbelt
chromium (in)	6.46E-10	g/1000g POM		3.23E-13	g/seatbelt
clay	2.04E-07	g/1000g POM		1.02E-10	g/seatbelt
copper (in)	1.29E-05	g/1000g POM		6.45E-09	g/seatbelt
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		2.14E-02	MJ/seatbelt
dolomite	2.02E-03	g/1000g POM		1.01E-06	g/seatbelt
feldspar	7.82E-14	g/1000g POM		3.91E-17	g/seatbelt
fluorspar	3.75E-04	g/1000g POM		1.87E-07	g/seatbelt
granite	2.86E-12	g/1000g POM		1.43E-15	g/seatbelt
ground water	5.52E-02	l/1000g POM		2.76E-05	l/seatbelt
gypsum	3.84E-03	g/1000g POM		1.92E-06	g/seatbelt
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		1.14E-03	MJ/seatbelt
inert rock	1.39E-03	g/1000g POM		6.93E-07	g/seatbelt
iron (in)	1.65E-01	g/1000g POM		8.23E-05	g/seatbelt
lead (in)	3.32E-04	g/1000g POM		1.66E-07	g/seatbelt
magnesium (in)	5.86E-07	g/1000g POM		2.93E-10	g/seatbelt
manganese (in)	1.24E-04	g/1000g POM		6.21E-08	g/seatbelt
mercury (in)	4.86E-07	g/1000g POM		2.43E-10	g/seatbelt
natural aggregate	6.07E-04	g/1000g POM		3.03E-07	g/seatbelt
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		1.07E-02	MJ/seatbelt
nickel	1.17E-06	g/1000g POM		5.86E-10	g/seatbelt
nitrogen (in)	9.44E+01	g/1000g POM		4.72E-02	g/seatbelt
olivine	1.54E-03	g/1000g POM		7.72E-07	g/seatbelt
oxygen	4.87E-03	g/1000g POM		2.43E-06	g/seatbelt
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		4.11E-06	MJ/seatbelt
phosphorus (in)	8.77E-10	g/1000g POM		4.38E-13	g/seatbelt
potassium chloride	9.70E-06	g/1000g POM		4.85E-09	g/seatbelt
primary energy from geother	2.38E-02	MJ/1000g POM		1.19E-05	MJ/seatbelt
primary energy from hydro p	2.95E-01	MJ/1000g POM		1.47E-04	MJ/seatbelt
primary energy from solar en	8.77E-05	MJ/1000g POM		4.39E-08	MJ/seatbelt
primary energy from waves	4.89E-04	MJ/1000g POM		2.44E-07	MJ/seatbelt
primary energy from wind po	1.13E-02	MJ/1000g POM		5.64E-06	MJ/seatbelt
quartz sand	5.31E-33	g/1000g POM		2.66E-36	g/seatbelt
river water	3.20E+03	g/1000g POM		1.60E+00	g/seatbelt
sand	9.51E-02	g/1000g POM		4.76E-05	g/seatbelt
sea water	6.03E+00	1l/1000g POM		3.01E-03	1l/seatbelt
slate	1.09E-02	g/1000g POM		5.43E-06	g/seatbelt
sodium chloride	2.67E-01	g/1000g POM		1.34E-04	g/seatbelt
sodium nitrate	1.76E-06	g/1000g POM		8.79E-10	g/seatbelt
sulfur (in)	3.33E-02	g/1000g POM		1.67E-05	g/seatbelt
talc	7.94E-24	g/1000g POM		3.97E-27	g/seatbelt
titanium	1.82E-03	g/1000g POM		9.12E-07	g/seatbelt
uranium	2.74E+03	g/1000g POM		1.37E+00	g/seatbelt

water	3.11E+01	1l/1000g POM		1.56E-02	1l/seatbelt
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		6.14E-09	1MJ/seatbelt
zinc (in)	6.14E-02	g/1000g POM		3.07E-05	g/seatbelt
OUTFLOWS				0.00E+00	
POM	1000	g		5.00E-01	
1,2-dichloroethane	1.39E-08	g/1000g POM		6.94E-12	g/seatbelt
1,2-dichloroethane	3.16E-10	g/1000g POM		1.58E-13	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p	3.75E-29	g/1000g POM		1.88E-32	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p	1.22E-13	g/1000g POM		6.12E-17	g/seatbelt
acid (as H+)	4.33E-14	g/1000g POM		2.16E-17	g/seatbelt
acid (as H+)	2.01E-03	g/1000g POM		1.01E-06	g/seatbelt
adsorbable organic halogen c	6.94E-10	g/1000g POM		3.47E-13	g/seatbelt
aluminium	4.06E-04	g/1000g POM		2.03E-07	g/seatbelt
ammonia	1.58E-07	g/1000g POM		7.91E-11	g/seatbelt
ammonia	3.39E-03	g/1000g POM		1.69E-06	g/seatbelt
antimony	7.96E-08	g/1000g POM		3.98E-11	g/seatbelt
arsenic	8.41E-08	g/1000g POM		4.20E-11	g/seatbelt
arsenic	1.85E-07	g/1000g POM		9.23E-11	g/seatbelt
benzene	3.35E-15	g/1000g POM		1.67E-18	g/seatbelt
benzene	6.58E-19	g/1000g POM		3.29E-22	g/seatbelt
biological oxygen demand	2.88E-02	g/1000g POM		1.44E-05	g/seatbelt
bromate	4.13E-07	g/1000g POM		2.07E-10	g/seatbelt
cadmium	8.62E-08	g/1000g POM		4.31E-11	g/seatbelt
cadmium	4.36E-08	g/1000g POM		2.18E-11	g/seatbelt
calcium	3.65E-05	g/1000g POM		1.82E-08	g/seatbelt
carbon dioxide	1.67E+03	g/1000g POM		8.35E-01	g/seatbelt
carbon disulfide	1.98E-08	g/1000g POM		9.89E-12	g/seatbelt
carbon monoxide	6.10E+00	g/1000g POM		3.05E-03	g/seatbelt
carbonate	2.83E-02	g/1000g POM		1.42E-05	g/seatbelt
chemical oxygen demand	2.40E-01	g/1000g POM		1.20E-04	g/seatbelt
chlorate	6.77E-05	g/1000g POM		3.39E-08	g/seatbelt
chloride	1.53E-01	g/1000g POM		7.64E-05	g/seatbelt
chlorine	3.71E-07	g/1000g POM		1.85E-10	g/seatbelt
chlorine	8.03E-07	g/1000g POM		4.02E-10	g/seatbelt
chromium	3.83E-07	g/1000g POM		1.91E-10	g/seatbelt
chromium	4.93E-09	g/1000g POM		2.46E-12	g/seatbelt
copper	8.90E-09	g/1000g POM		4.45E-12	g/seatbelt
copper	1.03E-05	g/1000g POM		5.15E-09	g/seatbelt
cyanide	1.56E-08	g/1000g POM		7.80E-12	g/seatbelt
decane	1.39E-02	g/1000g POM		6.94E-06	g/seatbelt
dichloromethane	9.24E-10	g/1000g POM		4.62E-13	g/seatbelt
ethyl benzene	1.97E-16	g/1000g POM		9.83E-20	g/seatbelt
ethylene	1.66E-03	g/1000g POM		8.29E-07	g/seatbelt
fluoride	3.59E-06	g/1000g POM		1.80E-09	g/seatbelt
fluorine	3.23E-08	g/1000g POM		1.61E-11	g/seatbelt
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		2.55E-06	g/seatbelt
hydrocyanic acid	6.21E-16	g/1000g POM		3.11E-19	g/seatbelt
hydrogen	3.02E-02	g/1000g POM		1.51E-05	g/seatbelt
hydrogen chloride	5.13E-02	g/1000g POM		2.57E-05	g/seatbelt
hydrogen fluoride	1.49E-03	g/1000g POM		7.47E-07	g/seatbelt

hydrogen sulfide	5.52E-06	g/1000g POM		2.76E-09	g/seatbelt
iron	1.81E-05	g/1000g POM		9.03E-09	g/seatbelt
lead	1.99E-06	g/1000g POM		9.93E-10	g/seatbelt
lead	3.83E-07	g/1000g POM		1.91E-10	g/seatbelt
manganese	6.28E-07	g/1000g POM		3.14E-10	g/seatbelt
mercury	1.80E-06	g/1000g POM		8.99E-10	g/seatbelt
mercury	1.70E-07	g/1000g POM		8.49E-11	g/seatbelt
methane	1.18E+01	g/1000g POM		5.92E-03	g/seatbelt
nickel	8.73E-11	g/1000g POM		4.36E-14	g/seatbelt
nickel	2.58E-07	g/1000g POM		1.29E-10	g/seatbelt
nitrate	1.20E-01	g/1000g POM		5.99E-05	g/seatbelt
nitrogen	8.77E-04	g/1000g POM		4.39E-07	g/seatbelt
nitrogen dioxide	3.29E+00	g/1000g POM		1.64E-03	g/seatbelt
nitrous oxide	4.82E-10	g/1000g POM		2.41E-13	g/seatbelt
non-methane volatile organic	3.51E+00	g/1000g POM		1.76E-03	g/seatbelt
oxygen	7.98E-21	g/1000g POM		3.99E-24	g/seatbelt
particles (> PM10)	8.64E-02	g/1000g POM		4.32E-05	g/seatbelt
particles (PM10)	5.95E-01	g/1000g POM		2.98E-04	g/seatbelt
particles (PM10)	8.75E-03	g/1000g POM		4.37E-06	g/seatbelt
particles (PM2.5)	3.90E-12	g/1000g POM		1.95E-15	g/seatbelt
phenol	1.99E-03	g/1000g POM		9.96E-07	g/seatbelt
phosphate	5.37E-01	g/1000g POM		2.69E-04	g/seatbelt
polycyclic aromatic hydrocark	1.36E-15	g/1000g POM		6.78E-19	g/seatbelt
potassium	1.18E-06	g/1000g POM		5.88E-10	g/seatbelt
propene	1.23E-03	g/1000g POM		6.14E-07	g/seatbelt
selenium	1.01E-22	g/1000g POM		5.03E-26	g/seatbelt
silver	2.90E-21	g/1000g POM		1.45E-24	g/seatbelt
sodium	8.11E-02	g/1000g POM		4.06E-05	g/seatbelt
strontium	7.15E-09	g/1000g POM		3.57E-12	g/seatbelt
styrene	2.76E-17	g/1000g POM		1.38E-20	g/seatbelt
sulfate	9.30E-01	g/1000g POM		4.65E-04	g/seatbelt
sulfur	3.49E-10	g/1000g POM		1.74E-13	g/seatbelt
sulfur dioxide	3.78E+00	g/1000g POM		1.89E-03	g/seatbelt
tin	1.53E-13	g/1000g POM		7.64E-17	g/seatbelt
toluene	5.61E-16	g/1000g POM		2.80E-19	g/seatbelt
total organic carbon	8.94E-03	g/1000g POM		4.47E-06	g/seatbelt
vinyl chloride	3.11E-07	g/1000g POM		1.56E-10	g/seatbelt
vinyl chloride	5.78E-09	g/1000g POM		2.89E-12	g/seatbelt
volatile organic compound	1.79E-01	g/1000g POM		8.94E-05	g/seatbelt
volatile organic compound	1.06E-02	g/1000g POM		5.30E-06	g/seatbelt
xylene (all isomers)	2.59E-16	g/1000g POM		1.30E-19	g/seatbelt
zinc	4.86E-06	g/1000g POM		2.43E-09	g/seatbelt
zinc	9.69E-05	g/1000g POM		4.85E-08	g/seatbelt
chemical waste	1.91E+00	g/1000g POM		9.56E-04	g/seatbelt
chemical waste, inert	8.15E-01	g/1000g POM		4.07E-04	g/seatbelt
chemical waste, toxic	1.70E+00	g/1000g POM		8.52E-04	g/seatbelt
demolition waste	2.20E-03	g/1000g POM		1.10E-06	g/seatbelt
industrial waste	1.13E+00	g/1000g POM		5.66E-04	g/seatbelt
mineral waste	2.05E-01	g/1000g POM		1.03E-04	g/seatbelt
municipal waste	-4.61E+00	g/1000g POM		-2.30E-03	g/seatbelt

organic waste	1.69E-03	g/1000g POM		8.43E-07	g/seatbelt
overburden	1.63E+01	g/1000g POM		8.15E-03	g/seatbelt
packaging waste (metal)	3.17E-05	g/1000g POM		1.59E-08	g/seatbelt
packaging waste (plastic)	6.63E-10	g/1000g POM		3.31E-13	g/seatbelt
plastic	3.40E-01	g/1000g POM		1.70E-04	g/seatbelt
tailings	2.46E-01	g/1000g POM		1.23E-04	g/seatbelt
waste	9.32E-01	g/1000g POM		4.66E-04	g/seatbelt
waste paper	2.35E-06	g/1000g POM		1.18E-09	g/seatbelt
wood	2.98E-05	g/1000g POM		1.49E-08	g/seatbelt
wooden pallet	5.89E-07	g/1000g POM		2.95E-10	g/seatbelt
Remark:					
Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD					
3.55.2 Transportation to Plastic parts manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1870	MJ/1000g of product	0.5000	0.0000935	MJ/seatbelt
OUTFLOWS					
CO2	13.6000	g/1000g of product		0.0068	g/seatbelt
NOx	0.0900	g/1000g of product		0.000045	g/seatbelt
HC	0.0120	g/1000g of product		0.000006	g/seatbelt
Particulate matter	0.0015	g/1000g of product		0.00000075	g/seatbelt
CO	0.0120	g/1000g of product		0.000006	g/seatbelt
SO2	0.0034	g/1000g of product		0.0000017	g/seatbelt
Remark:					
Distance between Plastics producer no.3 (Hamburg, Germany) and Plastic parts manufacturer no.4, (Mörfeden-Walldorf, Germany) in km		**100**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.55.3 Production of colorbatch	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.55.4 Transportation to Plastic parts manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.

INFLOWS					
Energy (fuel)	0.4320	MJ/1000g of product	0.0010	0.000000432	MJ/seatbelt
OUTFLOWS					
CO2	31.2000	g/1000g of product		0.0000312	g/seatbelt
NOx	0.1980	g/1000g of product		0.000000198	g/seatbelt
HC	0.0282	g/1000g of product		2.82E-08	g/seatbelt
Particulate matter	0.0034	g/1000g of product		3.42E-09	g/seatbelt
CO	0.0276	g/1000g of product		2.76E-08	g/seatbelt
SO2	0.0078	g/1000g of product		7.8E-09	g/seatbelt
Remark:					
Distance between Colorbatch producer (Lichtenfels, Germany) and Plastic parts manufacturer no.4 (Hermannsburg, Germany) in km		**600**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.55.5 Production of bearing, bush	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	65.454545	MJ/1000g product	0.2200	0.0144	MJ/seatbelt
POM	7.2463768	g/1000g product		0.001594203	g/seatbelt
colorbatch	0.0144928	g/1000g product		3.18841E-06	g/seatbelt
OUFLOWS					
bearing bush				0.2200	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.56 Transportation to Plastic parts manufacturer no.6	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.3816	MJ/1000g of product	0.2200	0.000083952	MJ/seatbelt
OUTFLOWS					
CO2	27.5600	g/1000g of product		0.0060632	g/seatbelt
NOx	0.1749	g/1000g of product		0.000038478	g/seatbelt
HC	0.0249	g/1000g of product		5.4802E-06	g/seatbelt
Particulate matter	0.0030	g/1000g of product		6.6462E-07	g/seatbelt
CO	0.0244	g/1000g of product		5.3636E-06	g/seatbelt
SO2	0.0069	g/1000g of product		1.5158E-06	g/seatbelt

Remark:					
Distance between Plastic parts manufacturer no.4 (Hermannsburg, Germany) and Plastic parts manufacturer no.6 (Mörfeden-Walldorf, Germany) in km		**530**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.57.1 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.76E-06	g/1000g POM	0.5000	8.7895E-10	g/seatbelt
energy (recovered)	-1.91E+03	g/1000g POM		-0.953368638	g/seatbelt
hydrogen; gaseous	9.80E-04	g/1000g POM		4.90236E-07	g/seatbelt
waste	4.88E+00	g/1000g POM		0.002441222	g/seatbelt
air	2.97E+02	g/1000g POM		0.1482666	g/seatbelt
baryte	3.53E-05	g/1000g POM		1.76633E-08	g/seatbelt
bauxite	2.15E-03	g/1000g POM		1.07619E-06	g/seatbelt
bentonite	3.81E-02	g/1000g POM		1.90711E-05	g/seatbelt
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		3.76926E-05	MJ/seatbelt
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		7.61903E-08	MJ/seatbelt
calcium carbonate (in)	1.44E-01	g/1000g POM		7.21955E-05	g/seatbelt
chromium (in)	6.46E-10	g/1000g POM		3.23178E-13	g/seatbelt
clay	2.04E-07	g/1000g POM		1.02126E-10	g/seatbelt
copper (in)	1.29E-05	g/1000g POM		6.45435E-09	g/seatbelt
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		0.021420263	MJ/seatbelt
dolomite	2.02E-03	g/1000g POM		1.00817E-06	g/seatbelt
feldspar	7.82E-14	g/1000g POM		3.90878E-17	g/seatbelt
fluorspar	3.75E-04	g/1000g POM		1.87357E-07	g/seatbelt
granite	2.86E-12	g/1000g POM		1.42798E-15	g/seatbelt
ground water	5.52E-02	l/1000g POM		2.75941E-05	l/seatbelt
gypsum	3.84E-03	g/1000g POM		1.91869E-06	g/seatbelt
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		0.001139125	MJ/seatbelt
inert rock	1.39E-03	g/1000g POM		6.93085E-07	g/seatbelt
iron (in)	1.65E-01	g/1000g POM		8.2279E-05	g/seatbelt
lead (in)	3.32E-04	g/1000g POM		1.66167E-07	g/seatbelt
magnesium (in)	5.86E-07	g/1000g POM		2.92983E-10	g/seatbelt
manganese (in)	1.24E-04	g/1000g POM		6.21238E-08	g/seatbelt
mercury (in)	4.86E-07	g/1000g POM		2.43189E-10	g/seatbelt
natural aggregate	6.07E-04	g/1000g POM		3.03437E-07	g/seatbelt
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		0.010742121	MJ/seatbelt
nickel	1.17E-06	g/1000g POM		5.86245E-10	g/seatbelt
nitrogen (in)	9.44E+01	g/1000g POM		0.047204884	g/seatbelt
olivine	1.54E-03	g/1000g POM		7.7183E-07	g/seatbelt
oxygen	4.87E-03	g/1000g POM		2.43326E-06	g/seatbelt
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		4.11226E-06	MJ/seatbelt

phosphorus (in)	8.77E-10	g/1000g POM		4.38318E-13	g/seatbelt
potassium chloride	9.70E-06	g/1000g POM		4.84983E-09	g/seatbelt
primary energy from geother	2.38E-02	MJ/1000g POM		1.19199E-05	MJ/seatbelt
primary energy from hydro p	2.95E-01	MJ/1000g POM		0.000147284	MJ/seatbelt
primary energy from solar en	8.77E-05	MJ/1000g POM		4.38694E-08	MJ/seatbelt
primary energy from waves	4.89E-04	MJ/1000g POM		2.44406E-07	MJ/seatbelt
primary energy from wind po	1.13E-02	MJ/1000g POM		5.63784E-06	MJ/seatbelt
quartz sand	5.31E-33	g/1000g POM		2.65735E-36	g/seatbelt
river water	3.20E+03	g/1000g POM		1.60149494	g/seatbelt
sand	9.51E-02	g/1000g POM		4.75655E-05	g/seatbelt
sea water	6.03E+00	1l/1000g POM		0.003013211	1l/seatbelt
slate	1.09E-02	g/1000g POM		5.43215E-06	g/seatbelt
sodium chloride	2.67E-01	g/1000g POM		0.0001336	g/seatbelt
sodium nitrate	1.76E-06	g/1000g POM		8.7895E-10	g/seatbelt
sulfur (in)	3.33E-02	g/1000g POM		1.66566E-05	g/seatbelt
talc	7.94E-24	g/1000g POM		3.97174E-27	g/seatbelt
titanium	1.82E-03	g/1000g POM		9.11795E-07	g/seatbelt
uranium	2.74E+03	g/1000g POM		1.37168127	g/seatbelt
water	3.11E+01	1l/1000g POM		0.015559529	1l/seatbelt
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		6.14297E-09	1MJ/seatbelt
zinc (in)	6.14E-02	g/1000g POM		3.06973E-05	g/seatbelt
OUTFLOWS					
Polypropylene granulate (PP)	1000	g		0.5	g
1,2-dichloroethane	1.39E-08	g/1000g POM		6.9401E-12	g/seatbelt
1,2-dichloroethane	3.16E-10	g/1000g POM		1.58103E-13	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g POM		1.87576E-32	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g POM		6.11795E-17	g/seatbelt
acid (as H+)	4.33E-14	g/1000g POM		2.16258E-17	g/seatbelt
acid (as H+)	2.01E-03	g/1000g POM		1.0073E-06	g/seatbelt
adsorbable organic halogen c	6.94E-10	g/1000g POM		3.46891E-13	g/seatbelt
aluminium	4.06E-04	g/1000g POM		2.02882E-07	g/seatbelt
ammonia	1.58E-07	g/1000g POM		7.9087E-11	g/seatbelt
ammonia	3.39E-03	g/1000g POM		1.69361E-06	g/seatbelt
antimony	7.96E-08	g/1000g POM		3.98037E-11	g/seatbelt
arsenic	8.41E-08	g/1000g POM		4.20361E-11	g/seatbelt
arsenic	1.85E-07	g/1000g POM		9.22875E-11	g/seatbelt
benzene	3.35E-15	g/1000g POM		1.67427E-18	g/seatbelt
benzene	6.58E-19	g/1000g POM		3.28931E-22	g/seatbelt
biological oxygen demand	2.88E-02	g/1000g POM		1.43852E-05	g/seatbelt
bromate	4.13E-07	g/1000g POM		2.06601E-10	g/seatbelt
cadmium	8.62E-08	g/1000g POM		4.31142E-11	g/seatbelt
cadmium	4.36E-08	g/1000g POM		2.17952E-11	g/seatbelt
calcium	3.65E-05	g/1000g POM		1.824E-08	g/seatbelt
carbon dioxide	1.67E+03	g/1000g POM		0.835010526	g/seatbelt
carbon disulfide	1.98E-08	g/1000g POM		9.8893E-12	g/seatbelt
carbon monoxide	6.10E+00	g/1000g POM		0.003050521	g/seatbelt
carbonate	2.83E-02	g/1000g POM		0.000014174	g/seatbelt
chemical oxygen demand	2.40E-01	g/1000g POM		0.000120233	g/seatbelt
chlorate	6.77E-05	g/1000g POM		3.38684E-08	g/seatbelt

chloride	1.53E-01	g/1000g POM		7.64015E-05	g/seatbelt
chlorine	3.71E-07	g/1000g POM		1.85299E-10	g/seatbelt
chlorine	8.03E-07	g/1000g POM		4.01675E-10	g/seatbelt
chromium	3.83E-07	g/1000g POM		1.91439E-10	g/seatbelt
chromium	4.93E-09	g/1000g POM		2.46465E-12	g/seatbelt
copper	8.90E-09	g/1000g POM		4.44868E-12	g/seatbelt
copper	1.03E-05	g/1000g POM		5.1487E-09	g/seatbelt
cyanide	1.56E-08	g/1000g POM		7.79985E-12	g/seatbelt
decane	1.39E-02	g/1000g POM		6.9435E-06	g/seatbelt
dichloromethane	9.24E-10	g/1000g POM		4.61999E-13	g/seatbelt
ethyl benzene	1.97E-16	g/1000g POM		9.8284E-20	g/seatbelt
ethylene	1.66E-03	g/1000g POM		8.2897E-07	g/seatbelt
fluoride	3.59E-06	g/1000g POM		1.79705E-09	g/seatbelt
fluorine	3.23E-08	g/1000g POM		1.61399E-11	g/seatbelt
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		2.55415E-06	g/seatbelt
hydrocyanic acid	6.21E-16	g/1000g POM		3.10592E-19	g/seatbelt
hydrogen	3.02E-02	g/1000g POM		1.50788E-05	g/seatbelt
hydrogen chloride	5.13E-02	g/1000g POM		0.000025658	g/seatbelt
hydrogen fluoride	1.49E-03	g/1000g POM		7.4701E-07	g/seatbelt
hydrogen sulfide	5.52E-06	g/1000g POM		2.76138E-09	g/seatbelt
iron	1.81E-05	g/1000g POM		9.0254E-09	g/seatbelt
lead	1.99E-06	g/1000g POM		9.9288E-10	g/seatbelt
lead	3.83E-07	g/1000g POM		1.91416E-10	g/seatbelt
manganese	6.28E-07	g/1000g POM		3.13781E-10	g/seatbelt
mercury	1.80E-06	g/1000g POM		8.98795E-10	g/seatbelt
mercury	1.70E-07	g/1000g POM		8.49155E-11	g/seatbelt
methane	1.18E+01	g/1000g POM		0.005916005	g/seatbelt
nickel	8.73E-11	g/1000g POM		4.36448E-14	g/seatbelt
nickel	2.58E-07	g/1000g POM		1.28765E-10	g/seatbelt
nitrate	1.20E-01	g/1000g POM		5.99075E-05	g/seatbelt
nitrogen	8.77E-04	g/1000g POM		4.38703E-07	g/seatbelt
nitrogen dioxide	3.29E+00	g/1000g POM		0.001643406	g/seatbelt
nitrous oxide	4.82E-10	g/1000g POM		2.41164E-13	g/seatbelt
non-methane volatile organic	3.51E+00	g/1000g POM		0.001756672	g/seatbelt
oxygen	7.98E-21	g/1000g POM		3.98979E-24	g/seatbelt
particles (> PM10)	8.64E-02	g/1000g POM		4.32163E-05	g/seatbelt
particles (PM10)	5.95E-01	g/1000g POM		0.000297743	g/seatbelt
particles (PM10)	8.75E-03	g/1000g POM		4.37365E-06	g/seatbelt
particles (PM2.5)	3.90E-12	g/1000g POM		1.94763E-15	g/seatbelt
phenol	1.99E-03	g/1000g POM		9.96095E-07	g/seatbelt
phosphate	5.37E-01	g/1000g POM		0.000268683	g/seatbelt
polycyclic aromatic hydrocarb	1.36E-15	g/1000g POM		6.7755E-19	g/seatbelt
potassium	1.18E-06	g/1000g POM		5.8757E-10	g/seatbelt
propene	1.23E-03	g/1000g POM		6.1405E-07	g/seatbelt
selenium	1.01E-22	g/1000g POM		5.0252E-26	g/seatbelt
silver	2.90E-21	g/1000g POM		1.451E-24	g/seatbelt
sodium	8.11E-02	g/1000g POM		4.05561E-05	g/seatbelt
strontium	7.15E-09	g/1000g POM		3.57429E-12	g/seatbelt
styrene	2.76E-17	g/1000g POM		1.38205E-20	g/seatbelt
sulfate	9.30E-01	g/1000g POM		0.000465109	g/seatbelt

sulfur	3.49E-10	g/1000g POM		1.74443E-13	g/seatbelt
sulfur dioxide	3.78E+00	g/1000g POM		0.001892167	g/seatbelt
tin	1.53E-13	g/1000g POM		7.6398E-17	g/seatbelt
toluene	5.61E-16	g/1000g POM		2.80396E-19	g/seatbelt
total organic carbon	8.94E-03	g/1000g POM		4.47012E-06	g/seatbelt
vinyl chloride	3.11E-07	g/1000g POM		1.55626E-10	g/seatbelt
vinyl chloride	5.78E-09	g/1000g POM		2.88801E-12	g/seatbelt
volatile organic compound	1.79E-01	g/1000g POM		8.93677E-05	g/seatbelt
volatile organic compound	1.06E-02	g/1000g POM		5.29824E-06	g/seatbelt
xylene (all isomers)	2.59E-16	g/1000g POM		1.29615E-19	g/seatbelt
zinc	4.86E-06	g/1000g POM		2.43184E-09	g/seatbelt
zinc	9.69E-05	g/1000g POM		4.84746E-08	g/seatbelt
chemical waste	1.91E+00	g/1000g POM		0.000956346	g/seatbelt
chemical waste, inert	8.15E-01	g/1000g POM		0.000407281	g/seatbelt
chemical waste, toxic	1.70E+00	g/1000g POM		0.000851614	g/seatbelt
demolition waste	2.20E-03	g/1000g POM		1.09804E-06	g/seatbelt
industrial waste	1.13E+00	g/1000g POM		0.000565997	g/seatbelt
mineral waste	2.05E-01	g/1000g POM		0.000102719	g/seatbelt
municipal waste	-4.61E+00	g/1000g POM		-0.002303047	g/seatbelt
organic waste	1.69E-03	g/1000g POM		8.4255E-07	g/seatbelt
overburden	1.63E+01	g/1000g POM		0.008145568	g/seatbelt
packaging waste (metal)	3.17E-05	g/1000g POM		1.58582E-08	g/seatbelt
packaging waste (plastic)	6.63E-10	g/1000g POM		3.31494E-13	g/seatbelt
plastic	3.40E-01	g/1000g POM		0.000170154	g/seatbelt
tailings	2.46E-01	g/1000g POM		0.000122916	g/seatbelt
waste	9.32E-01	g/1000g POM		0.000465946	g/seatbelt
waste paper	2.35E-06	g/1000g POM		1.17641E-09	g/seatbelt
wood	2.98E-05	g/1000g POM		1.4911E-08	g/seatbelt
wooden pallet	5.89E-07	g/1000g POM		2.94608E-10	g/seatbelt
Remark:					

Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD

3.57.2 Transportation to Plastic parts manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2930	MJ/1000g of product	0.5000	0.00014652	MJ/seatbelt
OUTFLOWS					
CO2	21.1640	g/1000g of product		0.010582	g/seatbelt
NOx	0.1343	g/1000g of product		0.000067155	g/seatbelt
HC	0.0191	g/1000g of product		9.5645E-06	g/seatbelt
Particulate matter	0.0023	g/1000g of product		1.15995E-06	g/seatbelt
CO	0.0187	g/1000g of product		0.000009361	g/seatbelt
SO2	0.0053	g/1000g of product		2.6455E-06	g/seatbelt
Remark:					

Distance between Plastics producer no.4 (Hermannsburg, Germany) and Plastic parts manufacturer no.1 (Hodenhagen, Germany) in km		**407**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.57 Production of spring core	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
POM	1000.0000	g/1000g product	0.5000	0.5	g/seatbelt
electricity	9.6000	MJ/1000g product		0.0048	
OUTFLOWS				0	
spring core				0	g/seatbelt
Remark					
Electricity data for Germany					
Production data adapted from production of sleeve, data carrier by Plastic parts manufacturer no.2					
3.58 Transportation to Plastic parts manufacturer no.6	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5760	MJ/1000g of product	0.5000	0.000288	MJ/seatbelt
OUTFLOWS					
CO_2	41.6000	g/1000g of product		0.0208	g/seatbelt
NO_x	0.2640	g/1000g of product		0.000132	g/seatbelt
HC	0.0376	g/1000g of product		0.0000188	g/seatbelt
Particulate matter	0.0046	g/1000g of product		0.00000228	g/seatbelt
CO	0.0368	g/1000g of product		0.0000184	g/seatbelt
SO_2	0.0104	g/1000g of product		0.0000052	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.1 (Hodenhagen, Germany) and Plastic parts manufacturer no.6 (Mörfeden-Walldorf, Germany in km		**800**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.59.1 Production of paper	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.

INFLOWS					
Hardwood	70.0000	g/1000g paper	0.0180	0.00126	g/seatbelt
Softwood	1210.0000	g/1000g paper		0.02178	g/seatbelt
Al2(SO4)3	6.7000	g/1000g paper		0.0001206	g/seatbelt
Bark	6.5000	MJ/1000g paper		0.000117	MJ/seatbelt
biocides	0.0800	g/1000g paper		0.00000144	g/seatbelt
Board	0.0500	g/1000g paper		0.0000009	g/seatbelt
CaCO3	2.9000	g/1000g paper		0.0000522	g/seatbelt
CaO	4.1000	g/1000g paper		0.0000738	g/seatbelt
Core and core plug	1.9100	g/1000g paper		0.00003438	g/seatbelt
Defoamers	0.9500	g/1000g paper		0.0000171	g/seatbelt
Diesel	0.0300	MJ/1000g paper		0.00000054	MJ/seatbelt
Electricity	2.2300	MJ/1000g paper		0.00004014	MJ/seatbelt
H2SO4	14.7000	g/1000g paper		0.0002646	g/seatbelt
Heavy oil	1.6900	MJ/1000g paper		0.00003042	MJ/seatbelt
Hydrochloric acid	0.0700	g/1000g paper		0.00000126	g/seatbelt
Light fuel oil	0.5400	MJ/1000g paper		0.00000972	MJ/seatbelt
Lubricant	0.1800	g/1000g paper		0.00000324	g/seatbelt
Na2CO3	1.9000	g/1000g paper		0.0000342	g/seatbelt
Na2SO4	1.9000	g/1000g paper		0.0000342	g/seatbelt
NaOH	9.3000	g/1000g paper		0.0001674	g/seatbelt
Natural gas	1.0400	MJ/1000g paper		0.00001872	MJ/seatbelt
Peat	0.0600	MJ/1000g paper		0.00000108	MJ/seatbelt
Pitch despergent	0.0200	g/1000g paper		0.00000036	g/seatbelt
Retention aids	0.5700	g/1000g paper		0.00001026	g/seatbelt
S	0.1700	g/1000g paper		0.00000306	g/seatbelt
Sizing agents	1.6000	g/1000g paper		0.0000288	g/seatbelt
Starch	4.2000	g/1000g paper		0.0000756	g/seatbelt
Steel	0.0500	g/1000g paper		0.0000009	g/seatbelt
Waste paper	230.0000	g/1000g paper		0.00414	g/seatbelt
OUTFLOWS					
Electricity	0.0070	MJ/1000g paper		0.000000126	MJ/seatbelt
Tall oil	25.0000	g/1000g paper		0.00045	g/seatbelt
Thermal energy	0.3200	MJ/1000g paper		0.00000576	MJ/seatbelt
Turpentine	1.3000	g/1000g paper		0.0000234	g/seatbelt
BOD	6.7000	g/1000g paper		0.0001206	g/seatbelt
CO2	1580.0000	g/1000g paper		0.02844	g/seatbelt
COD	17.3000	g/1000g paper		0.0003114	g/seatbelt
Dust	1.6000	g/1000g paper		0.0000288	g/seatbelt
H2S	0.1400	g/1000g paper		0.00000252	g/seatbelt
NOx	1.2000	g/1000g paper		0.0000216	g/seatbelt
SOx	0.8600	g/1000g paper		0.00001548	g/seatbelt
Susp solids	2.5000	g/1000g paper		0.000045	g/seatbelt
Kraftliner	1.0000	g/1000g paper		0.000018	g/seatbelt
Ashes	4.3000	g/1000g paper		0.0000774	g/seatbelt
Other rest products	19.8000	g/1000g paper		0.0003564	g/seatbelt
Remark:					
Data adapted from production of Kraftliner gate-to-gate (CPM, 2000)					
Electricity data for Germany					

3.59.2 Transportation to Label manufacturer no.3	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.59 Production of label	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	193.78991	MJ/1000g product	0.0180	0.003488218	MJ/seatbelt
water	137.16814	l/1000g product		0.002469027	l/seatbelt
paper	1000	g/1000g product		0.018	g/seatbelt
OUTFLOWS					
label				0.018	g/seatbelt
Remark:					
Data adapted from label production in Label manufacturer no.2					
Electricity data for Germany					
3.59a Transportation to Plastic parts manufacturer no.6	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4536	MJ/1000g of product	0.0180	8.1648E-06	MJ/seatbelt
OUTFLOWS					
CO2	32.7600	g/1000g of product		0.00058968	g/seatbelt
NOx	0.2079	g/1000g of product		3.7422E-06	g/seatbelt
HC	0.0296	g/1000g of product		5.3298E-07	g/seatbelt
Particulate matter	0.0036	g/1000g of product		6.4638E-08	g/seatbelt
CO	0.0290	g/1000g of product		5.2164E-07	g/seatbelt
SO2	0.0082	g/1000g of product		1.4742E-07	g/seatbelt
Remark:					
Distance between Label manufacturer no.3 Lubrication München (München, Germany) and Plastic parts manufacturer no.6 (Mörfeden-Walldorf, Germany in km		**630**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.60 Production of cover, spring side, green	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.1474841	MJ/1000g product	124.6880	0.018389497	MJ/seatbelt
gas	0.3663004	MJ/1000g product		0.04567326	MJ/seatbelt
emulsion	0.0080329	l/1000g product		0.001001607	l/seatbelt
spring retraction	440.69999	g/1000g product		54.95	g/seatbelt
cover, spring side	553.38124	g/1000g product		69	g/seatbelt
bearing bush	1.764404	g/1000g product		0.22	g/seatbelt
spring core	4.010009	g/1000g product		0.5	g/seatbelt
number label	0.1443603	g/1000g product		0.018	g/seatbelt
OUTFLOWS				0	
cover, spring side, green				124.6880	g/seatbelt
scrap	15	g/1000g product		1.87032	g/seatbelt
CO2	17.672386	g/1000g product		2.203534477	g/seatbelt
used emulsion	0.0080329	l/1000g product		0.001001607	l/seatbelt
Remark:					
Electricity data for Germany					

3.61 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5832	MJ/1000g of product	124.6880	0.072718042	MJ/seatbelt
OUTFLOWS					
CO2	42.1200	g/1000g of product		5.25185856	g/seatbelt
NOx	0.2673	g/1000g of product		0.033329102	g/seatbelt
HC	0.0381	g/1000g of product		0.004746872	g/seatbelt
Particulate matter	0.0046	g/1000g of product		0.000575684	g/seatbelt
CO	0.0373	g/1000g of product		0.004645875	g/seatbelt
SO2	0.0105	g/1000g of product		0.001312965	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.6 (Mörfeden-Walldorf, Germany) and ALH (Sopronkövesd, Hungary), Germany in km		**810**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.62 Production of thermoplastic polypropylene	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.76E-06	g/1000g PP	6.1647	1.08369E-08	g/seatbelt
energy (recovered)	-1.91E+03	g/1000g PP		-11.75446328	g/seatbelt
hydrogen; gaseous	9.80E-04	g/1000g PP		6.04431E-06	g/seatbelt
waste	4.88E+00	g/1000g PP		0.030098799	g/seatbelt
air	2.97E+02	g/1000g PP		1.828038212	g/seatbelt
baryte	3.53E-05	g/1000g PP		2.17777E-07	g/seatbelt
bauxite	2.15E-03	g/1000g PP		1.32687E-05	g/seatbelt
bentonite	3.81E-02	g/1000g PP		0.000235135	g/seatbelt
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g PP		0.000464728	MJ/seatbelt
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g PP		9.39381E-07	MJ/seatbelt
calcium carbonate (in)	1.44E-01	g/1000g PP		0.000890127	g/seatbelt
chromium (in)	6.46E-10	g/1000g PP		3.98459E-12	g/seatbelt
clay	2.04E-07	g/1000g PP		1.25915E-09	g/seatbelt
copper (in)	1.29E-05	g/1000g PP		7.95783E-08	g/seatbelt
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g PP		0.264098987	MJ/seatbelt
dolomite	2.02E-03	g/1000g PP		1.24301E-05	g/seatbelt
feldspar	7.82E-14	g/1000g PP		4.81929E-16	g/seatbelt
fluorspar	3.75E-04	g/1000g PP		2.31E-06	g/seatbelt
granite	2.86E-12	g/1000g PP		1.76061E-14	g/seatbelt
ground water	5.52E-02	l/1000g PP		0.000340218	l/seatbelt
gypsum	3.84E-03	g/1000g PP		2.36563E-05	g/seatbelt
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g PP		0.014044729	MJ/seatbelt
inert rock	1.39E-03	g/1000g PP		8.54532E-06	g/seatbelt
iron (in)	1.65E-01	g/1000g PP		0.001014451	g/seatbelt
lead (in)	3.32E-04	g/1000g PP		2.04874E-06	g/seatbelt
magnesium (in)	5.86E-07	g/1000g PP		3.6123E-09	g/seatbelt
manganese (in)	1.24E-04	g/1000g PP		7.6595E-07	g/seatbelt
mercury (in)	4.86E-07	g/1000g PP		2.99837E-09	g/seatbelt
natural aggregate	6.07E-04	g/1000g PP		3.74119E-06	g/seatbelt
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g PP		0.132443909	MJ/seatbelt
nickel	1.17E-06	g/1000g PP		7.22805E-09	g/seatbelt
nitrogen (in)	9.44E+01	g/1000g PP		0.582007897	g/seatbelt
olivine	1.54E-03	g/1000g PP		9.5162E-06	g/seatbelt
oxygen	4.87E-03	g/1000g PP		3.00006E-05	g/seatbelt
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g PP		5.07017E-05	MJ/seatbelt
phosphorus (in)	8.77E-10	g/1000g PP		5.4042E-12	g/seatbelt
potassium chloride	9.70E-06	g/1000g PP		5.97954E-08	g/seatbelt
primary energy from geother	2.38E-02	MJ/1000g PP		0.000146965	MJ/seatbelt
primary energy from hydro p	2.95E-01	MJ/1000g PP		0.001815929	MJ/seatbelt
primary energy from solar en	8.77E-05	MJ/1000g PP		5.40883E-07	MJ/seatbelt
primary energy from waves	4.89E-04	MJ/1000g PP		3.01337E-06	MJ/seatbelt
primary energy from wind po	1.13E-02	MJ/1000g PP		6.95111E-05	MJ/seatbelt
quartz sand	5.31E-33	g/1000g PP		3.27635E-35	g/seatbelt
river water	3.20E+03	g/1000g PP		19.74547171	g/seatbelt

sand	9.51E-02	g/1000g PP		0.000586454	g/seatbelt
sea water	6.03E+00	1l/1000g PP		0.037151078	1l/seatbelt
slate	1.09E-02	g/1000g PP		6.69752E-05	g/seatbelt
sodium chloride	2.67E-01	g/1000g PP		0.001647208	g/seatbelt
sodium nitrate	1.76E-06	g/1000g PP		1.08369E-08	g/seatbelt
sulfur (in)	3.33E-02	g/1000g PP		0.000205365	g/seatbelt
talc	7.94E-24	g/1000g PP		4.89692E-26	g/seatbelt
titanium	1.82E-03	g/1000g PP		1.12419E-05	g/seatbelt
uranium	2.74E+03	g/1000g PP		16.91200704	g/seatbelt
water	3.11E+01	1l/1000g PP		0.191839653	1l/seatbelt
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g PP		7.57392E-08	1MJ/seatbelt
zinc (in)	6.14E-02	g/1000g PP		0.000378479	g/seatbelt
OUTFLOWS				0	
PP	1000	g		6.1647	g
1,2-dichloroethane	1.39E-08	g/1000g PP		8.55673E-11	g/seatbelt
1,2-dichloroethane	3.16E-10	g/1000g PP		1.94932E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g PP		2.31269E-31	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g PP		7.54307E-16	g/seatbelt
acid (as H+)	4.33E-14	g/1000g PP		2.66633E-16	g/seatbelt
acid (as H+)	2.01E-03	g/1000g PP		1.24193E-05	g/seatbelt
adsorbable organic halogen c	6.94E-10	g/1000g PP		4.27695E-12	g/seatbelt
aluminium	4.06E-04	g/1000g PP		2.50141E-06	g/seatbelt
ammonia	1.58E-07	g/1000g PP		9.75095E-10	g/seatbelt
ammonia	3.39E-03	g/1000g PP		2.08812E-05	g/seatbelt
antimony	7.96E-08	g/1000g PP		4.90755E-10	g/seatbelt
arsenic	8.41E-08	g/1000g PP		5.18279E-10	g/seatbelt
arsenic	1.85E-07	g/1000g PP		1.13785E-09	g/seatbelt
benzene	3.35E-15	g/1000g PP		2.06427E-17	g/seatbelt
benzene	6.58E-19	g/1000g PP		4.05552E-21	g/seatbelt
biological oxygen demand	2.88E-02	g/1000g PP		0.000177361	g/seatbelt
bromate	4.13E-07	g/1000g PP		2.54726E-09	g/seatbelt
cadmium	8.62E-08	g/1000g PP		5.31572E-10	g/seatbelt
cadmium	4.36E-08	g/1000g PP		2.68722E-10	g/seatbelt
calcium	3.65E-05	g/1000g PP		2.24888E-07	g/seatbelt
carbon dioxide	1.67E+03	g/1000g PP		10.29517877	g/seatbelt
carbon disulfide	1.98E-08	g/1000g PP		1.21929E-10	g/seatbelt
carbon monoxide	6.10E+00	g/1000g PP		0.037611087	g/seatbelt
carbonate	2.83E-02	g/1000g PP		0.000174757	g/seatbelt
chemical oxygen demand	2.40E-01	g/1000g PP		0.001482395	g/seatbelt
chlorate	6.77E-05	g/1000g PP		4.17576E-07	g/seatbelt
chloride	1.53E-01	g/1000g PP		0.000941985	g/seatbelt
chlorine	3.71E-07	g/1000g PP		2.28462E-09	g/seatbelt
chlorine	8.03E-07	g/1000g PP		4.95241E-09	g/seatbelt
chromium	3.83E-07	g/1000g PP		2.36032E-09	g/seatbelt
chromium	4.93E-09	g/1000g PP		3.03876E-11	g/seatbelt
copper	8.90E-09	g/1000g PP		5.48495E-11	g/seatbelt
copper	1.03E-05	g/1000g PP		6.34804E-08	g/seatbelt
cyanide	1.56E-08	g/1000g PP		9.61675E-11	g/seatbelt
decane	1.39E-02	g/1000g PP		8.56092E-05	g/seatbelt

dichloromethane	9.24E-10	g/1000g PP		5.69617E-12	g/seatbelt
ethyl benzene	1.97E-16	g/1000g PP		1.21178E-18	g/seatbelt
ethylene	1.66E-03	g/1000g PP		1.02207E-05	g/seatbelt
fluoride	3.59E-06	g/1000g PP		2.21565E-08	g/seatbelt
fluorine	3.23E-08	g/1000g PP		1.98995E-10	g/seatbelt
hydrocarbons (unspecified)	5.11E-03	g/1000g PP		3.14911E-05	g/seatbelt
hydrocyanic acid	6.21E-16	g/1000g PP		3.82941E-18	g/seatbelt
hydrogen	3.02E-02	g/1000g PP		0.000185912	g/seatbelt
hydrogen chloride	5.13E-02	g/1000g PP		0.000316348	g/seatbelt
hydrogen fluoride	1.49E-03	g/1000g PP		9.21019E-06	g/seatbelt
hydrogen sulfide	5.52E-06	g/1000g PP		3.40461E-08	g/seatbelt
iron	1.81E-05	g/1000g PP		1.11278E-07	g/seatbelt
lead	1.99E-06	g/1000g PP		1.22416E-08	g/seatbelt
lead	3.83E-07	g/1000g PP		2.36004E-09	g/seatbelt
manganese	6.28E-07	g/1000g PP		3.86873E-09	g/seatbelt
mercury	1.80E-06	g/1000g PP		1.10816E-08	g/seatbelt
mercury	1.70E-07	g/1000g PP		1.04696E-09	g/seatbelt
methane	1.18E+01	g/1000g PP		0.072940792	g/seatbelt
nickel	8.73E-11	g/1000g PP		5.38114E-13	g/seatbelt
nickel	2.58E-07	g/1000g PP		1.58759E-09	g/seatbelt
nitrate	1.20E-01	g/1000g PP		0.000738624	g/seatbelt
nitrogen	8.77E-04	g/1000g PP		5.40894E-06	g/seatbelt
nitrogen dioxide	3.29E+00	g/1000g PP		0.020262204	g/seatbelt
nitrous oxide	4.82E-10	g/1000g PP		2.97341E-12	g/seatbelt
non-methane volatile organic	3.51E+00	g/1000g PP		0.021658709	g/seatbelt
oxygen	7.98E-21	g/1000g PP		4.91917E-23	g/seatbelt
particles (> PM10)	8.64E-02	g/1000g PP		0.000532831	g/seatbelt
particles (PM10)	5.95E-01	g/1000g PP		0.003670993	g/seatbelt
particles (PM10)	8.75E-03	g/1000g PP		5.39245E-05	g/seatbelt
particles (PM2.5)	3.90E-12	g/1000g PP		2.40131E-14	g/seatbelt
phenol	1.99E-03	g/1000g PP		1.22813E-05	g/seatbelt
phosphate	5.37E-01	g/1000g PP		0.003312706	g/seatbelt
polycyclic aromatic hydrocarb	1.36E-15	g/1000g PP		8.35378E-18	g/seatbelt
potassium	1.18E-06	g/1000g PP		7.24439E-09	g/seatbelt
propene	1.23E-03	g/1000g PP		7.57087E-06	g/seatbelt
selenium	1.01E-22	g/1000g PP		6.19577E-25	g/seatbelt
silver	2.90E-21	g/1000g PP		1.78899E-23	g/seatbelt
sodium	8.11E-02	g/1000g PP		0.000500032	g/seatbelt
strontium	7.15E-09	g/1000g PP		4.40689E-11	g/seatbelt
styrene	2.76E-17	g/1000g PP		1.70398E-19	g/seatbelt
sulfate	9.30E-01	g/1000g PP		0.005734509	g/seatbelt
sulfur	3.49E-10	g/1000g PP		2.15077E-12	g/seatbelt
sulfur dioxide	3.78E+00	g/1000g PP		0.023329278	g/seatbelt
tin	1.53E-13	g/1000g PP		9.41942E-16	g/seatbelt
toluene	5.61E-16	g/1000g PP		3.45711E-18	g/seatbelt
total organic carbon	8.94E-03	g/1000g PP		5.51138E-05	g/seatbelt
vinyl chloride	3.11E-07	g/1000g PP		1.91878E-09	g/seatbelt
vinyl chloride	5.78E-09	g/1000g PP		3.56074E-11	g/seatbelt
volatile organic compound	1.79E-01	g/1000g PP		0.001101851	g/seatbelt
volatile organic compound	1.06E-02	g/1000g PP		6.53241E-05	g/seatbelt

xylene (all isomers)	2.59E-16	g/1000g PP		1.59808E-18	g/seatbelt
zinc	4.86E-06	g/1000g PP		2.99831E-08	g/seatbelt
zinc	9.69E-05	g/1000g PP		5.97663E-07	g/seatbelt
chemical waste	1.91E+00	g/1000g PP		0.011791166	g/seatbelt
chemical waste, inert	8.15E-01	g/1000g PP		0.005021524	g/seatbelt
chemical waste, toxic	1.70E+00	g/1000g PP		0.01049989	g/seatbelt
demolition waste	2.20E-03	g/1000g PP		1.35381E-05	g/seatbelt
industrial waste	1.13E+00	g/1000g PP		0.006978403	g/seatbelt
mineral waste	2.05E-01	g/1000g PP		0.001266464	g/seatbelt
municipal waste	-4.61E+00	g/1000g PP		-0.028395188	g/seatbelt
organic waste	1.69E-03	g/1000g PP		1.03881E-05	g/seatbelt
overburden	1.63E+01	g/1000g PP		0.100429966	g/seatbelt
packaging waste (metal)	3.17E-05	g/1000g PP		1.95522E-07	g/seatbelt
packaging waste (plastic)	6.63E-10	g/1000g PP		4.08712E-12	g/seatbelt
plastic	3.40E-01	g/1000g PP		0.002097891	g/seatbelt
tailings	2.46E-01	g/1000g PP		0.001515481	g/seatbelt
waste	9.32E-01	g/1000g PP		0.005744828	g/seatbelt
waste paper	2.35E-06	g/1000g PP		1.45044E-08	g/seatbelt
wood	2.98E-05	g/1000g PP		1.83844E-07	g/seatbelt
wooden pallet	5.89E-07	g/1000g PP		3.63233E-09	g/seatbelt
Remark:					
Data adapted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD database, 1999)					
3.63 Transportation to Plastic parts manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1964	MJ/1000g of product	6.1647	0.001210439	MJ/seatbelt
OUTFLOWS					
CO2	14.2800	g/1000g of product		0.088031916	g/seatbelt
NOx	0.0945	g/1000g of product		0.000582564	g/seatbelt
HC	0.0126	g/1000g of product		7.76752E-05	g/seatbelt
Particulate matter	0.0016	g/1000g of product		9.7094E-06	g/seatbelt
CO	0.0126	g/1000g of product		7.76752E-05	g/seatbelt
SO2	0.0036	g/1000g of product		2.2008E-05	g/seatbelt
Remark:					
Distance between Plastics producer (Hamburg, Germany) and Plastic parts manufacturer no.1 (Hodenhagen, Germany) in km		**105**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					

3.64 Production of cover, spring side R200	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
PP	1000	g/1000g product	6.1647	6.1647	g/seatbelt
electricity	9.6	MJ/1000g product		0.05918112	
OUTFLOWS				0	
cover, spring side R200				0	g/seatbelt
Remark					
Electricity data for Germany					
Production data adapted from production of sleeve, data carrier by Plastic parts manufacturer no.2					
3.65 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6962	MJ/1000g of product	6.1647	0.004292111	MJ/seatbelt
OUTFLOWS					
CO2	50.2840	g/1000g of product		0.309985775	g/seatbelt
NOx	0.3191	g/1000g of product		0.001967217	g/seatbelt
HC	0.0454	g/1000g of product		0.000280179	g/seatbelt
Particulate matter	0.0055	g/1000g of product		3.39792E-05	g/seatbelt
CO	0.0445	g/1000g of product		0.000274218	g/seatbelt
SO2	0.0126	g/1000g of product		7.74964E-05	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.1 (Hodenhagen, Germany) and ALH (Sopronkövesd, Hungary), Germany in km		**967**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.68 Production of iron steel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	3.1579	0.15947395	g/seatbelt
Chemicals	4.99	g/1000g steel		0.015757921	g/seatbelt
Coal	0.223	MJ/1000g steel		0.000704212	MJ/seatbelt
Coal	517	g/1000g steel		0.070203275	MJ/seatbelt
Diesel	0.195	MJ/1000g steel		0.000615791	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.010389491	MJ/seatbelt

Explosives	1.02	g/1000g steel		0.003221058	g/seatbelt
Gas	4.81	MJ/1000g steel		0.015189499	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.009094752	MJ/seatbelt
Iron ore	2170	g/1000g steel		6.852643	g/seatbelt
Limestone	162	g/1000g steel		0.5115798	g/seatbelt
Oil	0.00106	MJ/1000g steel		3.34737E-06	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		0.16484238	g/seatbelt
OUTFLOWS				0	
ammonia	0.000517	g/1000g steel		1.63263E-06	g/seatbelt
arsenic	2.08E-06	g/1000g steel		6.56843E-09	g/seatbelt
cadmium	0.0000118	g/1000g steel		3.72632E-08	g/seatbelt
cadmium	4.46E-08	g/1000g steel		1.40842E-10	g/seatbelt
CH4	4.04	g/1000g steel		0.012757916	g/seatbelt
carbon dioxide	1180	g/1000g steel		3.726322	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		8.08422E-05	g/seatbelt
chromium	0.00036	g/1000g steel		1.13684E-06	g/seatbelt
chromium	0.0000488	g/1000g steel		1.54106E-07	g/seatbelt
cobalt	0.0000072	g/1000g steel		2.27369E-08	g/seatbelt
cobalt	3.21E-06	g/1000g steel		1.01369E-08	g/seatbelt
copper	0.000175	g/1000g steel		5.52633E-07	g/seatbelt
copper	0.000101	g/1000g steel		3.18948E-07	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		0.000132	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.000177474	g/seatbelt
lead	0.000529	g/1000g steel		1.67053E-06	g/seatbelt
lead	0.000402	g/1000g steel		1.26948E-06	g/seatbelt
mercury	0.0000344	g/1000g steel		1.08632E-07	g/seatbelt
nickel	0.0004	g/1000g steel		1.26316E-06	g/seatbelt
nickel	0.0000815	g/1000g steel		2.57369E-07	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.000100421	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.004705271	g/seatbelt
Phosphorus	0.000372	g/1000g steel		1.17474E-06	g/seatbelt
polycyclic aromatic hydrocarb	0.000147	g/1000g steel		4.64211E-07	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.004800008	g/seatbelt
zinc	0.00368	g/1000g steel		1.16211E-05	g/seatbelt
zinc	0.000997	g/1000g steel		3.14843E-06	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.005115798	g/seatbelt
Industrial waste	96.4	g/1000g steel		0.30442156	g/seatbelt
mineral waste	1100	g/1000g steel		3.47369	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.69 Transportation to Metal parts manufacturer no.7	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1964	MJ/1000g of product	3.1579	0.000620054	MJ/seatbelt

OUTFLOWS					
CO2	14.2800	g/1000g of product		0.045094812	g/seatbelt
NOx	0.0945	g/1000g of product		0.000298422	g/seatbelt
HC	0.0126	g/1000g of product		3.97895E-05	g/seatbelt
Particulate matter	0.0016	g/1000g of product		4.97369E-06	g/seatbelt
CO	0.0126	g/1000g of product		3.97895E-05	g/seatbelt
SO2	0.0036	g/1000g of product		1.12737E-05	g/seatbelt
Remark:					
Distance between Metal producer no.8 (Syke, Germany) and Metal parts manufacturer no.7 (Reinbek, Germany) in km		**105**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.70 Production of zinc for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g zinc	0.0110	0.1485	g/seatbelt
baryte	1.5574821	g/1000g zinc		1.71323E-05	g/seatbelt
basalt	34.801523	g/1000g zinc		0.000382817	g/seatbelt
bauxite	21.142572	g/1000g zinc		0.000232568	g/seatbelt
bentonite	0.648349	g/1000g zinc		7.13184E-06	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		2.35906E-09	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		4.79192E-05	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		0.00093988	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		6.07937E-14	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g zinc		0.000692594	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		2.59843E-08	g/seatbelt
clay	0.2616171	g/1000g zinc		2.87779E-06	g/seatbelt
colemanite	0.9853674	g/1000g zinc		1.0839E-05	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-0.000342166	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		4.58241E-05	MJ/seatbelt
fluorspar	0.1583729	g/1000g zinc		1.7421E-06	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-2.94608E-08	g/seatbelt
ground water	3624.1777	g/1000g zinc		0.039865954	g/seatbelt
gypsum	0.1523604	g/1000g zinc		1.67596E-06	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.000150611	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		0.519676587	g/seatbelt
iron (in)	4.1413625	g/1000g zinc		4.5555E-05	g/seatbelt
kaolin	0.0019158	g/1000g zinc		2.10743E-08	g/seatbelt
lead (in)	120.22987	g/1000g zinc		0.001322529	g/seatbelt
magnesite	0.0012403	g/1000g zinc		1.36438E-08	g/seatbelt
manganese	-11.317555	g/1000g zinc		-0.000124493	g/seatbelt
mercury (in)	4.417E-06	g/1000g zinc		4.85909E-11	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		1.04647E-09	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		0.000288546	g/seatbelt

natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		9.04307E-05	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		4.63748E-08	g/seatbelt
olivine	1.735E-06	g/1000g zinc		1.909E-11	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-0.000466914	g/seatbelt
palladium	3.273E-09	g/1000g zinc		3.59998E-14	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		1.67928E-06	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		6.12305E-10	g/seatbelt
platinum	3.931E-08	g/1000g zinc		4.32465E-13	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		1.03011E-08	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		2.52932E-07	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		7.17894E-05	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		6.3718E-06	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		4.32078E-11	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		3.95127E-06	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-0.000141392	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		1.82196E-09	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		1.20389E-15	g/seatbelt
river water	6.1598962	l/1000g zinc		6.77589E-05	l/seatbelt
sand	0.0001874	g/1000g zinc		2.06102E-09	g/seatbelt
sea water	-0.000147	l/1000g zinc		-1.61731E-09	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		1.33983E-09	g/seatbelt
silver (in)	-0.0161287	g/1000g zinc		-1.77415E-07	g/seatbelt
slate	1.32E-08	g/1000g zinc		1.45174E-13	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-0.000154008	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-8.20487E-09	g/seatbelt
soil	13.199188	g/1000g zinc		0.000145191	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		3.65084E-08	g/seatbelt
surface water	27.074991	l/1000g zinc		0.000297825	l/seatbelt
talc	0.0005357	g/1000g zinc		5.89287E-09	g/seatbelt
titanium	0.0025897	g/1000g zinc		2.84862E-08	g/seatbelt
uranium	11208.633	g/1000g zinc		0.123294961	g/seatbelt
water	372.88334	l/1000g zinc		0.004101717	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		4.70503E-09	MJ/seatbelt
zinc (in)	819.6244	g/1000g zinc		0.009015868	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.000101721	g/seatbelt
zinc dross	31.9	g/1000g zinc		0.0003509	g/seatbelt
zinc dust	3.2163809	g/1000g zinc		3.53802E-05	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.000278795	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		9.07038E-07	g/seatbelt
ammonia	0.0101456	g/1000g zinc		1.11601E-07	g/seatbelt
ammonia	0.0944373	g/1000g zinc		1.03881E-06	g/seatbelt
ammonia	0.0048189	g/1000g zinc		5.30082E-08	g/seatbelt
ammonium	0.0001497	g/1000g zinc		1.64712E-09	g/seatbelt
ammonium	0.0018023	g/1000g zinc		1.9825E-08	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		1.45726E-08	g/seatbelt
arsenic	0.0058028	g/1000g zinc		6.38303E-08	g/seatbelt
arsenic	5.36E-06	g/1000g zinc		5.89499E-11	g/seatbelt
arsenic	0.0310056	g/1000g zinc		3.41062E-07	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		6.32963E-10	g/seatbelt

benzene	0.0011388	g/1000g zinc		1.25263E-08	g/seatbelt
benzene	5.18E-05	g/1000g zinc		5.69489E-10	g/seatbelt
benzene	0.000199	g/1000g zinc		2.18918E-09	g/seatbelt
cadmium	0.0089817	g/1000g zinc		9.87982E-08	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		2.13763E-10	g/seatbelt
cadmium	0.0002277	g/1000g zinc		2.50445E-09	g/seatbelt
cadmium	0.0015242	g/1000g zinc		1.6766E-08	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		0.0334455	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		1.61058E-09	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		1.64939E-09	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		3.46275E-10	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		2.17429E-10	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		1.07651E-05	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		2.33598E-07	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-2.99288E-12	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		1.24552E-11	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		5.53701E-10	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		1.92646E-10	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-4.74842E-11	g/seatbelt
cobalt	0.0018228	g/1000g zinc		2.00504E-08	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		3.26957E-12	g/seatbelt
cobalt	3.29E-07	g/1000g zinc		3.62062E-12	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		1.20738E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		4.54737E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		1.01534E-07	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		1.15309E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		5.69231E-05	g/seatbelt
copper	0.1356498	g/1000g zinc		1.49215E-06	g/seatbelt
copper	0.0049752	g/1000g zinc		5.47267E-08	g/seatbelt
copper	0.0001369	g/1000g zinc		1.50628E-09	g/seatbelt
copper	0.0110447	g/1000g zinc		1.21491E-07	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		1.35777E-10	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		1.96022E-06	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g zinc		7.94228E-12	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		4.47423E-07	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		5.54776E-13	g/seatbelt
lead	0.1242728	g/1000g zinc		1.367E-06	g/seatbelt
lead	4.66E-05	g/1000g zinc		5.12402E-10	g/seatbelt
lead	0.0008935	g/1000g zinc		9.82901E-09	g/seatbelt
lead	0.0044786	g/1000g zinc		4.92643E-08	g/seatbelt
mercury	0.0001779	g/1000g zinc		1.95739E-09	g/seatbelt
mercury	7.93E-07	g/1000g zinc		8.71868E-12	g/seatbelt
mercury	0.0001995	g/1000g zinc		2.19431E-09	g/seatbelt
mercury	5.12E-06	g/1000g zinc		5.63218E-11	g/seatbelt
methane	3.9556308	g/1000g zinc		4.35119E-05	g/seatbelt
nickel	0.0010629	g/1000g zinc		1.16922E-08	g/seatbelt
nickel	4.75E-05	g/1000g zinc		5.22625E-10	g/seatbelt
nickel	0.0001204	g/1000g zinc		1.32449E-09	g/seatbelt
nickel	3.02E-05	g/1000g zinc		3.32628E-10	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		3.97001E-10	g/seatbelt

nitrate	0.0008705	g/1000g zinc		9.57531E-09	g/seatbelt
nitrate	0.2355114	g/1000g zinc		2.59063E-06	g/seatbelt
nitrogen	3.0664234	g/1000g zinc		3.37307E-05	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		4.10335E-08	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		4.2742E-07	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		3.64503E-07	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		0.000187594	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		2.17323E-10	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		1.27472E-06	g/seatbelt
phosphate	0.0051168	g/1000g zinc		5.62844E-08	g/seatbelt
phosphate	0.0030974	g/1000g zinc		3.40717E-08	g/seatbelt
toluene	0.0001184	g/1000g zinc		1.30254E-09	g/seatbelt
toluene	3.15E-05	g/1000g zinc		3.4698E-10	g/seatbelt
vanadium	0.0027262	g/1000g zinc		2.99884E-08	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		8.02746E-11	g/seatbelt
vanadium	0.0001296	g/1000g zinc		1.42532E-09	g/seatbelt
zinc	0.1760723	g/1000g zinc		1.9368E-06	g/seatbelt
zinc	0.0085203	g/1000g zinc		9.37231E-08	g/seatbelt
zinc	0.0090181	g/1000g zinc		9.91995E-08	g/seatbelt
zinc	0.1440723	g/1000g zinc		1.5848E-06	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		2.50354E-08	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g zinc		7.15831E-05	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		0.000303826	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		7.4712E-08	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		0.001953634	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		0.000208088	g/seatbelt
jarosite	123.75866	g/1000g zinc		0.001361345	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		8.86717E-08	g/seatbelt
mineral waste	6.121768	g/1000g zinc		6.73394E-05	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		0.489308825	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		4.38557E-05	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		0.000112373	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		1.65803E-07	g/seatbelt
spoil (unspecified)	14.286476	g/1000g zinc		0.000157151	g/seatbelt
sludge	12.2	g/1000g zinc		0.0001342	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		1.2064E-05	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g zinc		0.055495511	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		1.48665E-07	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g zinc		1.71522E-07	g/seatbelt
used oil	220.9923	g/1000g zinc		0.002430915	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		9.61135E-06	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		0.000177857	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					

3.71 Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.72 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.2000	0.00000316	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		0.00000628	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		1.4237E-07	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		0.000175662	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		0.041623114	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		0.003080889	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		0.000910017	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		0.009618818	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		0.003025697	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		0.044681636	g/seatbelt
iron (in)	215.94651	g/1000g alloy		0.043189303	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		0.000441352	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		3.22215E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		0.001276317	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		5.2014E-05	g/seatbelt
water	18.985568	l/1000g alloy		0.003797114	l/seatbelt
OUTFLOWS				0	
stainless steel hot rolled coil,	1000	g		0.2	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		4.48E-13	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		0.00001202	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		0.00000236	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		0.0000121	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		4.36E-09	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		0.67598592	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		0.001970769	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		9.02853E-05	g/seatbelt
chloride	3.56E+00	g/1000g alloy		0.000711317	g/seatbelt
chromium	1.14E-01	g/1000g alloy		2.2731E-05	g/seatbelt
chromium	9.22E-04	g/1000g alloy		1.844E-07	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		1.188E-08	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		4.58E-08	g/seatbelt
copper	1.22E-04	g/1000g alloy		2.44E-08	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		0.00001384	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		0.00000436	g/seatbelt
iron	1.31E-01	g/1000g alloy		2.62713E-05	g/seatbelt
lead	5.17E-04	g/1000g alloy		1.034E-07	g/seatbelt
manganese	2.83E-03	g/1000g alloy		0.000000566	g/seatbelt

molybdenum	6.24E-03	g/1000g alloy		0.000001248	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		0.000000332	g/seatbelt
nickel	2.97E-02	g/1000g alloy		0.00000594	g/seatbelt
nickel	3.38E-03	g/1000g alloy		0.000000676	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		4.00934E-05	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		2.04233E-05	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		0.001503846	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		4.69602E-05	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		0.000888877	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		5.91534E-07	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		0.0001842	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		0.002476883	g/seatbelt
tin	1.61E-04	g/1000g alloy		3.22E-08	g/seatbelt
zinc	1.11E-03	g/1000g alloy		0.000000222	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		0.048553047	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		0.259921996	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.73 Transportation from metal producer no.2 to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.74 Production of Rivet Nut	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.7644178	MJ/1000g product	6.4220	0.004909091	MJ/seatbelt
electricity (for sorting)	0.1019224	MJ/1000g product		0.000654545	MJ/seatbelt
iron steel	983.4631	g/1000g product		6.3158	g/seatbelt
zinc for e-plate	3.4257241	g/1000g product		0.022	g/seatbelt
alloy for thick layer	62.285892	g/1000g product		0.4	g/seatbelt
OUTFLOWS					
Rivet nut x 2				6.422	g/seatbelt
scrap	49.173155	g/1000g product		0.31579	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
No. of parts in seatbelt - 2					

3.78 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6962	MJ/1000g of product	3.2110	0.002235627	MJ/seatbelt
OUTFLOWS					
CO2	50.2840	g/1000g of product		0.161461924	g/seatbelt
NOx	0.3191	g/1000g of product		0.001024662	g/seatbelt
HC	0.0454	g/1000g of product		0.000145937	g/seatbelt
Particulate matter	0.0055	g/1000g of product		1.76987E-05	g/seatbelt
CO	0.0445	g/1000g of product		0.000142832	g/seatbelt
SO2	0.0126	g/1000g of product		4.03655E-05	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.4 (Reinbek, Germany) and ALH (Sopronkövesd, Hungary), Germany in km		**967**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.79.1 Production of iron steel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	2.0340	0.102717	g/seatbelt
Chemicals	4.99	g/1000g steel		0.01014966	g/seatbelt
Coal	0.223	MJ/1000g steel		0.000453582	MJ/seatbelt
Coal	517	g/1000g steel		0.045217854	MJ/seatbelt
Diesel	0.195	MJ/1000g steel		0.00039663	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.00669186	MJ/seatbelt
Explosives	1.02	g/1000g steel		0.00207468	g/seatbelt
Gas	4.81	MJ/1000g steel		0.00978354	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.00585792	MJ/seatbelt
Iron ore	2170	g/1000g steel		4.41378	g/seatbelt
Limestone	162	g/1000g steel		0.329508	g/seatbelt
Oil	0.00106	MJ/1000g steel		2.15604E-06	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		0.1061748	g/seatbelt
OUTFLOWS				0	
ammonia	0.000517	g/1000g steel		1.05158E-06	g/seatbelt
arsenic	2.08E-06	g/1000g steel		4.23072E-09	g/seatbelt
cadmium	0.0000118	g/1000g steel		2.40012E-08	g/seatbelt
cadmium	4.46E-08	g/1000g steel		9.07164E-11	g/seatbelt
CH4	4.04	g/1000g steel		0.00821736	g/seatbelt
carbon dioxide	1180	g/1000g steel		2.40012	g/seatbelt

chemical oxygen demand	0.0256	g/1000g steel		5.20704E-05	g/seatbelt
chromium	0.00036	g/1000g steel		7.3224E-07	g/seatbelt
chromium	0.0000488	g/1000g steel		9.92592E-08	g/seatbelt
cobalt	0.0000072	g/1000g steel		1.46448E-08	g/seatbelt
cobalt	3.21E-06	g/1000g steel		6.52914E-09	g/seatbelt
copper	0.000175	g/1000g steel		3.5595E-07	g/seatbelt
copper	0.000101	g/1000g steel		2.05434E-07	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		8.50212E-05	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.000114311	g/seatbelt
lead	0.000529	g/1000g steel		1.07599E-06	g/seatbelt
lead	0.000402	g/1000g steel		8.17668E-07	g/seatbelt
mercury	0.0000344	g/1000g steel		6.99696E-08	g/seatbelt
nickel	0.0004	g/1000g steel		8.136E-07	g/seatbelt
nickel	0.0000815	g/1000g steel		1.65771E-07	g/seatbelt
nitrogen	0.0318	g/1000g steel		6.46812E-05	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.00303066	g/seatbelt
Phosphorus	0.000372	g/1000g steel		7.56648E-07	g/seatbelt
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		2.98998E-07	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.00309168	g/seatbelt
zinc	0.00368	g/1000g steel		7.48512E-06	g/seatbelt
zinc	0.000997	g/1000g steel		2.0279E-06	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.00329508	g/seatbelt
Industrial waste	96.4	g/1000g steel		0.1960776	g/seatbelt
mineral waste	1100	g/1000g steel		2.2374	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.79.2 Transportation to Metal parts manufacturer no.8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.79.3 Production of zinc for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g zinc	0.0670	0.9045	g/seatbelt
baryte	1.5574821	g/1000g zinc		0.000104351	g/seatbelt
basalt	34.801523	g/1000g zinc		0.002331702	g/seatbelt
bauxite	21.142572	g/1000g zinc		0.001416552	g/seatbelt
bentonite	0.648349	g/1000g zinc		4.34394E-05	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		1.43688E-08	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		0.000291872	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		0.005724725	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		3.70289E-13	g/seatbelt

carbon dioxide (in)	62.963074	g/1000g zinc		0.004218526	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		1.58268E-07	g/seatbelt
clay	0.2616171	g/1000g zinc		1.75283E-05	g/seatbelt
colemanite	0.9853674	g/1000g zinc		6.60196E-05	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-0.002084102	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		0.00027911	MJ/seatbelt
fluorspar	0.1583729	g/1000g zinc		1.0611E-05	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-1.79443E-07	g/seatbelt
ground water	3624.1777	g/1000g zinc		0.242819903	g/seatbelt
gypsum	0.1523604	g/1000g zinc		1.02081E-05	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.000917361	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		3.165302846	g/seatbelt
iron (in)	4.1413625	g/1000g zinc		0.000277471	g/seatbelt
kaolin	0.0019158	g/1000g zinc		1.28361E-07	g/seatbelt
lead (in)	120.22987	g/1000g zinc		0.008055401	g/seatbelt
magnesite	0.0012403	g/1000g zinc		8.31029E-08	g/seatbelt
manganese	-11.317555	g/1000g zinc		-0.000758276	g/seatbelt
mercury (in)	4.417E-06	g/1000g zinc		2.95963E-10	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		6.37394E-09	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		0.001757506	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		0.000550805	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		2.82465E-07	g/seatbelt
olivine	1.735E-06	g/1000g zinc		1.16275E-10	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-0.002843928	g/seatbelt
palladium	3.273E-09	g/1000g zinc		2.19271E-13	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		1.02284E-05	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		3.72949E-09	g/seatbelt
platinum	3.931E-08	g/1000g zinc		2.6341E-12	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		6.27429E-08	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		1.54059E-06	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		0.000437263	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		3.88101E-05	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		2.63175E-10	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		2.40668E-05	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-0.000861208	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		1.10974E-08	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		7.33277E-15	g/seatbelt
river water	6.1598962	l/1000g zinc		0.000412713	l/seatbelt
sand	0.0001874	g/1000g zinc		1.25535E-08	g/seatbelt
sea water	-0.000147	l/1000g zinc		-9.85087E-09	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		8.16076E-09	g/seatbelt
silver (in)	-0.0161287	g/1000g zinc		-1.08062E-06	g/seatbelt
slate	1.32E-08	g/1000g zinc		8.84245E-13	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-0.00093805	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-4.99751E-08	g/seatbelt
soil	13.199188	g/1000g zinc		0.000884346	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		2.22369E-07	g/seatbelt
surface water	27.074991	l/1000g zinc		0.001814024	l/seatbelt
talc	0.0005357	g/1000g zinc		3.5893E-08	g/seatbelt
titanium	0.0025897	g/1000g zinc		1.73507E-07	g/seatbelt

uranium	11208.633	g/1000g zinc		0.7509784	g/seatbelt
water	372.88334	l/1000g zinc		0.024983184	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		2.86579E-08	MJ/seatbelt
zinc (in)	819.6244	g/1000g zinc		0.054914835	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.000619574	g/seatbelt
zinc dross	31.9	g/1000g zinc		0.0021373	g/seatbelt
zinc dust	3.2163809	g/1000g zinc		0.000215498	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.001698115	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		5.52469E-06	g/seatbelt
ammonia	0.0101456	g/1000g zinc		6.79754E-07	g/seatbelt
ammonia	0.0944373	g/1000g zinc		6.3273E-06	g/seatbelt
ammonia	0.0048189	g/1000g zinc		3.22868E-07	g/seatbelt
ammonium	0.0001497	g/1000g zinc		1.00325E-08	g/seatbelt
ammonium	0.0018023	g/1000g zinc		1.20752E-07	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		8.87605E-08	g/seatbelt
arsenic	0.0058028	g/1000g zinc		3.88785E-07	g/seatbelt
arsenic	5.36E-06	g/1000g zinc		3.59058E-10	g/seatbelt
arsenic	0.0310056	g/1000g zinc		2.07738E-06	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		3.85532E-09	g/seatbelt
benzene	0.0011388	g/1000g zinc		7.62965E-08	g/seatbelt
benzene	5.18E-05	g/1000g zinc		3.46871E-09	g/seatbelt
benzene	0.000199	g/1000g zinc		1.33341E-08	g/seatbelt
cadmium	0.0089817	g/1000g zinc		6.01771E-07	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		1.30201E-09	g/seatbelt
cadmium	0.0002277	g/1000g zinc		1.52544E-08	g/seatbelt
cadmium	0.0015242	g/1000g zinc		1.0212E-07	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		0.2037135	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		9.80991E-09	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		1.00463E-08	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		2.10913E-09	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		1.32434E-09	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		6.5569E-05	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		1.42282E-06	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-1.82294E-11	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		7.58633E-11	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		3.37254E-09	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		1.17339E-09	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-2.89222E-10	g/seatbelt
cobalt	0.0018228	g/1000g zinc		1.22125E-07	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		1.99147E-11	g/seatbelt
cobalt	3.29E-07	g/1000g zinc		2.20529E-11	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		7.35404E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		2.76976E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		6.18433E-07	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		7.02336E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		0.000346713	g/seatbelt
copper	0.1356498	g/1000g zinc		9.08854E-06	g/seatbelt
copper	0.0049752	g/1000g zinc		3.33335E-07	g/seatbelt
copper	0.0001369	g/1000g zinc		9.17461E-09	g/seatbelt

copper	0.0110447	g/1000g zinc		7.39993E-07	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		8.27005E-10	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		1.19395E-05	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g zinc		4.83757E-11	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		2.72521E-06	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		3.37909E-12	g/seatbelt
lead	0.1242728	g/1000g zinc		8.32628E-06	g/seatbelt
lead	4.66E-05	g/1000g zinc		3.121E-09	g/seatbelt
lead	0.0008935	g/1000g zinc		5.98676E-08	g/seatbelt
lead	0.0044786	g/1000g zinc		3.00064E-07	g/seatbelt
mercury	0.0001779	g/1000g zinc		1.19223E-08	g/seatbelt
mercury	7.93E-07	g/1000g zinc		5.31047E-11	g/seatbelt
mercury	0.0001995	g/1000g zinc		1.33653E-08	g/seatbelt
mercury	5.12E-06	g/1000g zinc		3.43051E-10	g/seatbelt
methane	3.9556308	g/1000g zinc		0.000265027	g/seatbelt
nickel	0.0010629	g/1000g zinc		7.12159E-08	g/seatbelt
nickel	4.75E-05	g/1000g zinc		3.18326E-09	g/seatbelt
nickel	0.0001204	g/1000g zinc		8.06737E-09	g/seatbelt
nickel	3.02E-05	g/1000g zinc		2.02601E-09	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		2.4181E-09	g/seatbelt
nitrate	0.0008705	g/1000g zinc		5.83224E-08	g/seatbelt
nitrate	0.2355114	g/1000g zinc		1.57793E-05	g/seatbelt
nitrogen	3.0664234	g/1000g zinc		0.00020545	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		2.49931E-07	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		2.60338E-06	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		2.22016E-06	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		0.001142615	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		1.3237E-09	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		7.76423E-06	g/seatbelt
phosphate	0.0051168	g/1000g zinc		3.42823E-07	g/seatbelt
phosphate	0.0030974	g/1000g zinc		2.07528E-07	g/seatbelt
toluene	0.0001184	g/1000g zinc		7.93364E-09	g/seatbelt
toluene	3.15E-05	g/1000g zinc		2.11342E-09	g/seatbelt
vanadium	0.0027262	g/1000g zinc		1.82657E-07	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		4.88945E-10	g/seatbelt
vanadium	0.0001296	g/1000g zinc		8.68147E-09	g/seatbelt
zinc	0.1760723	g/1000g zinc		1.17968E-05	g/seatbelt
zinc	0.0085203	g/1000g zinc		5.70859E-07	g/seatbelt
zinc	0.0090181	g/1000g zinc		6.04215E-07	g/seatbelt
zinc	0.1440723	g/1000g zinc		9.65284E-06	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		1.52489E-07	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g zinc		0.000436006	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		0.001850579	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		4.55064E-07	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		0.011899408	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		0.001267445	g/seatbelt
jarosite	123.75866	g/1000g zinc		0.00829183	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		5.40092E-07	g/seatbelt
mineral waste	6.121768	g/1000g zinc		0.000410158	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		2.980335571	g/seatbelt

radioactive tailings; reactor fu	3.9868775	g/1000g zinc		0.000267121	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		0.000684457	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		1.00989E-06	g/seatbelt
spoil (unspecified)	14.286476	g/1000g zinc		0.000957194	g/seatbelt
sludge	12.2	g/1000g zinc		0.0008174	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		7.34805E-05	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g zinc		0.338018113	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		9.05504E-07	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g zinc		1.04473E-06	g/seatbelt
used oil	220.9923	g/1000g zinc		0.014806484	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		5.85419E-05	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		0.001083308	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.79.4 Transportation to Metal parts manufacturer no.8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.79.5 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0007	1.106E-08	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		2.198E-08	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		4.98296E-10	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		6.14819E-07	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		0.000145681	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		1.07831E-05	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		3.18506E-06	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		3.36659E-05	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		1.05899E-05	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		0.000156386	g/seatbelt
iron (in)	215.94651	g/1000g alloy		0.000151163	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		1.54473E-06	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		1.12775E-09	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		4.46711E-06	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		1.82049E-07	g/seatbelt
water	18.985568	l/1000g alloy		1.32899E-05	l/seatbelt
OUTFLOWS				0	
stainless steel hot rolled coil,	1000	g		0.0007	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		1.568E-15	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		4.207E-08	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		8.26E-09	g/seatbelt

ammonia	6.05E-02	g/1000g alloy		4.235E-08	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		1.526E-11	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		0.002365951	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		6.89769E-06	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		3.15998E-07	g/seatbelt
chloride	3.56E+00	g/1000g alloy		2.48961E-06	g/seatbelt
chromium	1.14E-01	g/1000g alloy		7.95584E-08	g/seatbelt
chromium	9.22E-04	g/1000g alloy		6.454E-10	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		4.158E-11	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		1.603E-10	g/seatbelt
copper	1.22E-04	g/1000g alloy		8.54E-11	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		4.844E-08	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		1.526E-08	g/seatbelt
iron	1.31E-01	g/1000g alloy		9.19495E-08	g/seatbelt
lead	5.17E-04	g/1000g alloy		3.619E-10	g/seatbelt
manganese	2.83E-03	g/1000g alloy		1.981E-09	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		4.368E-09	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		1.162E-09	g/seatbelt
nickel	2.97E-02	g/1000g alloy		2.079E-08	g/seatbelt
nickel	3.38E-03	g/1000g alloy		2.366E-09	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		1.40327E-07	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		7.14814E-08	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		5.26346E-06	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		1.64361E-07	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		3.11107E-06	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		2.07037E-09	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		6.44701E-07	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		8.66909E-06	g/seatbelt
tin	1.61E-04	g/1000g alloy		1.127E-10	g/seatbelt
zinc	1.11E-03	g/1000g alloy		7.77E-10	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		0.000169936	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		0.000909727	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.79.6 Transportation to Metal parts manufacturer no.8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.79 Production of safety plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
iron steel	1017	g/1000g product	2.0000	2.034	g/seatbelt

zinc for e-plate	33.5	g/1000g product		0.067	g/seatbelt
alloy for passivation layer	0.35	g/1000g product		0.0007	g/seatbelt
oil	0.1308158	MJ/1000g product		0.000261632	MJ/seatbelt
gas	0.0845028	MJ/1000g product		0.000169006	MJ/seatbelt
electricity	3.3747613	MJ/1000g product		0.006749523	MJ/seatbelt
OUTFLOWS				0	
safety plate				2	g/seatbelt
chromium	0.0044461	g/1000g product		8.89214E-06	g/seatbelt
cobalt	0.0044461	g/1000g product		8.89214E-06	g/seatbelt
cyanide	0.0002047	g/1000g product		4.09342E-07	g/seatbelt
nickel	0.0044461	g/1000g product		8.89214E-06	g/seatbelt
zinc	0.0044461	g/1000g product		8.89214E-06	g/seatbelt
used oil	0.003472	g/1000g product		6.9439E-06	g/seatbelt
Remark					
Electricity data for Germany					
3.80 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5285	MJ/1000g of product	2.0000	0.00105696	MJ/seatbelt
OUTFLOWS					
CO_2	38.1680	g/1000g of product		0.076336	g/seatbelt
NO_x	0.2422	g/1000g of product		0.00048444	g/seatbelt
HC	0.0345	g/1000g of product		0.000068996	g/seatbelt
Particulate matter	0.0042	g/1000g of product		8.3676E-06	g/seatbelt
CO	0.0338	g/1000g of product		0.000067528	g/seatbelt
SO_2	0.0095	g/1000g of product		0.000019084	g/seatbelt
Remark:					
Distance between Metal parts manufacturer no.8 (Lichtenstein, Germany) and ALH (Sopronkövesd, Hungary), Germany in km		**734**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.81.1 Production of stainless steel X10CrNi18-8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g stainless ste	0.2200	0.000003476	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g stainless steel		0.000006908	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g stainless steel		1.56607E-07	g/seatbelt

brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g stainless steel	0.000193229	MJ/seatbelt
calcium carbonate	208.11557	g/1000g stainless steel	0.045785426	g/seatbelt
chromium (in)	15.404443	g/1000g stainless steel	0.003388977	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g stainless steel	0.001001018	MJ/seatbelt
dolomite	48.094091	g/1000g stainless steel	0.0105807	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g stainless steel	0.003328267	MJ/seatbelt
inert rock	223.40818	g/1000g stainless steel	0.049149799	g/seatbelt
iron (in)	215.94651	g/1000g stainless steel	0.047508233	g/seatbelt
manganese (in)	2.2067601	g/1000g stainless steel	0.000485487	g/seatbelt
molybdenum (in)	0.0016111	g/1000g stainless steel	3.54436E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g stainless steel	0.001403948	MJ/seatbelt
nickel (in)	0.2600702	g/1000g stainless steel	5.72154E-05	g/seatbelt
water	18.985568	l/1000g stainless steel	0.004176825	l/seatbelt
OUTFLOWS			0	
stainless steel hot rolled coil,	1000	g	0.22	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g stainless steel	4.928E-13	g/seatbelt
acid (as H+)	6.01E-02	g/1000g stainless steel	0.000013222	g/seatbelt
aluminium	1.18E-02	g/1000g stainless steel	0.000002596	g/seatbelt
ammonia	6.05E-02	g/1000g stainless steel	0.00001331	g/seatbelt
cadmium	2.18E-05	g/1000g stainless steel	4.796E-09	g/seatbelt
carbon dioxide	3.38E+03	g/1000g stainless steel	0.743584512	g/seatbelt
carbon monoxide	9.85E+00	g/1000g stainless steel	0.002167846	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g stainless steel	9.93138E-05	g/seatbelt
chloride	3.56E+00	g/1000g stainless steel	0.000782448	g/seatbelt
chromium	1.14E-01	g/1000g stainless steel	2.50041E-05	g/seatbelt
chromium	9.22E-04	g/1000g stainless steel	2.0284E-07	g/seatbelt
chromium VI	5.94E-05	g/1000g stainless steel	1.3068E-08	g/seatbelt
chromium VI	2.29E-04	g/1000g stainless steel	5.038E-08	g/seatbelt
copper	1.22E-04	g/1000g stainless steel	2.684E-08	g/seatbelt
fluoride	6.92E-02	g/1000g stainless steel	0.000015224	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g stainless steel	0.000004796	g/seatbelt
iron	1.31E-01	g/1000g stainless steel	2.88984E-05	g/seatbelt
lead	5.17E-04	g/1000g stainless steel	1.1374E-07	g/seatbelt
manganese	2.83E-03	g/1000g stainless steel	6.226E-07	g/seatbelt
molybdenum	6.24E-03	g/1000g stainless steel	1.3728E-06	g/seatbelt
molybdenum	1.66E-03	g/1000g stainless steel	3.652E-07	g/seatbelt
nickel	2.97E-02	g/1000g stainless steel	0.000006534	g/seatbelt
nickel	3.38E-03	g/1000g stainless steel	7.436E-07	g/seatbelt
nitrate	2.00E-01	g/1000g stainless steel	4.41028E-05	g/seatbelt
nitrogen	1.02E-01	g/1000g stainless steel	2.24656E-05	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g stainless steel	0.001654231	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g stainless steel	5.16562E-05	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g stainless steel	0.000977764	g/seatbelt
phosphate	2.96E-03	g/1000g stainless steel	6.50687E-07	g/seatbelt
sulfur	9.21E-01	g/1000g stainless steel	0.00020262	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g stainless steel	0.002724571	g/seatbelt
tin	1.61E-04	g/1000g stainless steel	3.542E-08	g/seatbelt
zinc	1.11E-03	g/1000g stainless steel	2.442E-07	g/seatbelt
waste from steel production	2.43E+02	g/1000g stainless steel	0.053408352	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g stainless steel	0.285914195	g/seatbelt

Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.81.2 Transportation to Spring manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	1.2384	MJ/1000g of product	0.2200	0.000272448	MJ/seatbelt
OUTFLOWS					
CO2	89.4400	g/1000g of product		0.0196768	g/seatbelt
NOx	0.5676	g/1000g of product		0.000124872	g/seatbelt
HC	0.0808	g/1000g of product		1.77848E-05	g/seatbelt
Particulate matter	0.0098	g/1000g of product		2.15688E-06	g/seatbelt
CO	0.0791	g/1000g of product		1.74064E-05	g/seatbelt
SO2	0.0224	g/1000g of product		4.9192E-06	g/seatbelt
Remark:					
Distance between plant (Sandviken, Sweden) and Spring manufacturer no.2 (Beuren, Germany) in km		**1720**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
distance based on Google Map					
3.81 Production of spring, wire	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	13.7143	MJ/1000g product	0.2100	0.00288	MJ/seatbelt
stainless steel	1047.6190	g/1000g product		0.22	g/seatbelt
OUTFLOWS				0	
spring, wire				0.2100	g/seatbelt
scrap	52.3810	g/1000g product		0.01152381	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.82 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5227	MJ/1000g of product	0.2100	0.000109771	MJ/seatbelt

OUTFLOWS					
CO2	37.7520	g/1000g of product		0.00792792	g/seatbelt
NOx	0.2396	g/1000g of product		5.03118E-05	g/seatbelt
HC	0.0341	g/1000g of product		7.16562E-06	g/seatbelt
Particulate matter	0.0041	g/1000g of product		8.69022E-07	g/seatbelt
CO	0.0334	g/1000g of product		7.01316E-06	g/seatbelt
SO2	0.0094	g/1000g of product		1.98198E-06	g/seatbelt
Remark:					
Distance between Spring manufacturer no.2 (Beuren, Germany) and ALH (Sopronkövesd, Hungary), Germany in km		**726**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.83.1 Production of steel C60E	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	8.3613	0.42224565	g/seatbelt
Chemicals	4.99	g/1000g steel		0.041722887	g/seatbelt
Coal	0.223	MJ/1000g steel		0.00186457	MJ/seatbelt
Coal	517	g/1000g steel		0.18588006	MJ/seatbelt
Diesel	0.195	MJ/1000g steel		0.001630454	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.027508677	MJ/seatbelt
Explosives	1.02	g/1000g steel		0.008528526	g/seatbelt
Gas	4.81	MJ/1000g steel		0.040217853	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.024080544	MJ/seatbelt
Iron ore	2170	g/1000g steel		18.144021	g/seatbelt
Limestone	162	g/1000g steel		1.3545306	g/seatbelt
Oil	0.00106	MJ/1000g steel		8.86298E-06	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		0.43645986	g/seatbelt
OUTFLOWS				0	
ammonia	0.000517	g/1000g steel		4.32279E-06	g/seatbelt
arsenic	2.08E-06	g/1000g steel		1.73915E-08	g/seatbelt
cadmium	0.0000118	g/1000g steel		9.86633E-08	g/seatbelt
cadmium	4.46E-08	g/1000g steel		3.72914E-10	g/seatbelt
CH4	4.04	g/1000g steel		0.033779652	g/seatbelt
carbon dioxide	1180	g/1000g steel		9.866334	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		0.000214049	g/seatbelt
chromium	0.00036	g/1000g steel		3.01007E-06	g/seatbelt
chromium	0.0000488	g/1000g steel		4.08031E-07	g/seatbelt
cobalt	0.0000072	g/1000g steel		6.02014E-08	g/seatbelt
cobalt	3.21E-06	g/1000g steel		2.68398E-08	g/seatbelt
copper	0.000175	g/1000g steel		1.46323E-06	g/seatbelt
copper	0.000101	g/1000g steel		8.44491E-07	g/seatbelt

hydrogen chloride	0.0418	g/1000g steel		0.000349502	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.000469905	g/seatbelt
lead	0.000529	g/1000g steel		4.42313E-06	g/seatbelt
lead	0.000402	g/1000g steel		3.36124E-06	g/seatbelt
mercury	0.0000344	g/1000g steel		2.87629E-07	g/seatbelt
nickel	0.0004	g/1000g steel		3.34452E-06	g/seatbelt
nickel	0.0000815	g/1000g steel		6.81446E-07	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.000265889	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.012458337	g/seatbelt
Phosphorus	0.000372	g/1000g steel		3.1104E-06	g/seatbelt
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		1.22911E-06	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.012709176	g/seatbelt
zinc	0.00368	g/1000g steel		3.07696E-05	g/seatbelt
zinc	0.000997	g/1000g steel		8.33622E-06	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.013545306	g/seatbelt
Industrial waste	96.4	g/1000g steel		0.80602932	g/seatbelt
mineral waste	1100	g/1000g steel		9.19743	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Italy					
Location of supplier assumed to be the same as client					
3.83.2 Transportation to Metal parts manufacturer no.9	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.83.3 Production of zinc for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g zinc	0.0560	0.756	g/seatbelt
baryte	1.5574821	g/1000g zinc		8.7219E-05	g/seatbelt
basalt	34.801523	g/1000g zinc		0.001948885	g/seatbelt
bauxite	21.142572	g/1000g zinc		0.001183984	g/seatbelt
bentonite	0.648349	g/1000g zinc		3.63075E-05	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		1.20098E-08	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		0.000243952	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		0.004784845	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		3.09495E-13	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g zinc		0.003525932	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		1.32284E-07	g/seatbelt
clay	0.2616171	g/1000g zinc		1.46506E-05	g/seatbelt
colemanite	0.9853674	g/1000g zinc		5.51806E-05	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-0.001741936	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		0.000233286	MJ/seatbelt

fluorspar	0.1583729	g/1000g zinc		8.86888E-06	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-1.49982E-07	g/seatbelt
ground water	3624.1777	g/1000g zinc		0.202953949	g/seatbelt
gypsum	0.1523604	g/1000g zinc		8.53218E-06	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.000766749	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		2.645626259	g/seatbelt
iron (in)	4.1413625	g/1000g zinc		0.000231916	g/seatbelt
kaolin	0.0019158	g/1000g zinc		1.07287E-07	g/seatbelt
lead (in)	120.22987	g/1000g zinc		0.006732873	g/seatbelt
magnesite	0.0012403	g/1000g zinc		6.94591E-08	g/seatbelt
manganese	-11.317555	g/1000g zinc		-0.000633783	g/seatbelt
mercury (in)	4.417E-06	g/1000g zinc		2.47372E-10	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		5.32747E-09	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		0.00146896	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		0.000460374	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		2.3609E-07	g/seatbelt
olivine	1.735E-06	g/1000g zinc		9.71854E-11	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-0.002377015	g/seatbelt
palladium	3.273E-09	g/1000g zinc		1.83272E-13	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		8.54908E-06	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		3.11719E-09	g/seatbelt
platinum	3.931E-08	g/1000g zinc		2.20164E-12	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		5.24418E-08	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		1.28765E-06	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		0.000365473	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		3.24383E-05	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		2.19967E-10	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		2.01155E-05	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-0.000719816	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		9.27545E-09	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		6.12889E-15	g/seatbelt
river water	6.1598962	l/1000g zinc		0.000344954	l/seatbelt
sand	0.0001874	g/1000g zinc		1.04925E-08	g/seatbelt
sea water	-0.000147	l/1000g zinc		-8.23356E-09	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		6.82093E-09	g/seatbelt
silver (in)	-0.0161287	g/1000g zinc		-9.03206E-07	g/seatbelt
slate	1.32E-08	g/1000g zinc		7.3907E-13	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-0.000784042	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-4.17702E-08	g/seatbelt
soil	13.199188	g/1000g zinc		0.000739155	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		1.85861E-07	g/seatbelt
surface water	27.074991	l/1000g zinc		0.001516199	l/seatbelt
talc	0.0005357	g/1000g zinc		3.00001E-08	g/seatbelt
titanium	0.0025897	g/1000g zinc		1.4502E-07	g/seatbelt
uranium	11208.633	g/1000g zinc		0.627683439	g/seatbelt
water	372.88334	l/1000g zinc		0.020881467	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		2.39529E-08	MJ/seatbelt
zinc (in)	819.6244	g/1000g zinc		0.045898966	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.000517853	g/seatbelt
zinc dross	31.9	g/1000g zinc		0.0017864	g/seatbelt

zinc dust	3.2163809	g/1000g zinc		0.000180117	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.00141932	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		4.61765E-06	g/seatbelt
ammonia	0.0101456	g/1000g zinc		5.68152E-07	g/seatbelt
ammonia	0.0944373	g/1000g zinc		5.28849E-06	g/seatbelt
ammonia	0.0048189	g/1000g zinc		2.6986E-07	g/seatbelt
ammonium	0.0001497	g/1000g zinc		8.38534E-09	g/seatbelt
ammonium	0.0018023	g/1000g zinc		1.00927E-07	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		7.41879E-08	g/seatbelt
arsenic	0.0058028	g/1000g zinc		3.24954E-07	g/seatbelt
arsenic	5.36E-06	g/1000g zinc		3.00108E-10	g/seatbelt
arsenic	0.0310056	g/1000g zinc		1.73632E-06	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		3.22236E-09	g/seatbelt
benzene	0.0011388	g/1000g zinc		6.37702E-08	g/seatbelt
benzene	5.18E-05	g/1000g zinc		2.89922E-09	g/seatbelt
benzene	0.000199	g/1000g zinc		1.11449E-08	g/seatbelt
cadmium	0.0089817	g/1000g zinc		5.02973E-07	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		1.08825E-09	g/seatbelt
cadmium	0.0002277	g/1000g zinc		1.27499E-08	g/seatbelt
cadmium	0.0015242	g/1000g zinc		8.53543E-08	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		0.170268	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		8.19933E-09	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		8.3969E-09	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		1.76286E-09	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		1.10691E-09	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		5.48039E-05	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		1.18923E-06	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-1.52365E-11	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		6.34081E-11	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		2.81884E-09	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		9.80744E-10	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-2.41738E-10	g/seatbelt
cobalt	0.0018228	g/1000g zinc		1.02075E-07	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		1.66451E-11	g/seatbelt
cobalt	3.29E-07	g/1000g zinc		1.84323E-11	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		6.14666E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		2.31503E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		5.16899E-07	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		5.87027E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		0.00028979	g/seatbelt
copper	0.1356498	g/1000g zinc		7.59639E-06	g/seatbelt
copper	0.0049752	g/1000g zinc		2.78609E-07	g/seatbelt
copper	0.0001369	g/1000g zinc		7.66833E-09	g/seatbelt
copper	0.0110447	g/1000g zinc		6.18502E-07	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		6.91228E-10	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		9.97929E-06	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g zinc		4.04334E-11	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		2.27779E-06	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		2.82431E-12	g/seatbelt

lead	0.1242728	g/1000g zinc		6.95928E-06	g/seatbelt
lead	4.66E-05	g/1000g zinc		2.60859E-09	g/seatbelt
lead	0.0008935	g/1000g zinc		5.00386E-08	g/seatbelt
lead	0.0044786	g/1000g zinc		2.508E-07	g/seatbelt
mercury	0.0001779	g/1000g zinc		9.96489E-09	g/seatbelt
mercury	7.93E-07	g/1000g zinc		4.4386E-11	g/seatbelt
mercury	0.0001995	g/1000g zinc		1.1171E-08	g/seatbelt
mercury	5.12E-06	g/1000g zinc		2.86729E-10	g/seatbelt
methane	3.9556308	g/1000g zinc		0.000221515	g/seatbelt
nickel	0.0010629	g/1000g zinc		5.95237E-08	g/seatbelt
nickel	4.75E-05	g/1000g zinc		2.66064E-09	g/seatbelt
nickel	0.0001204	g/1000g zinc		6.74287E-09	g/seatbelt
nickel	3.02E-05	g/1000g zinc		1.69338E-09	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		2.0211E-09	g/seatbelt
nitrate	0.0008705	g/1000g zinc		4.8747E-08	g/seatbelt
nitrate	0.2355114	g/1000g zinc		1.31886E-05	g/seatbelt
nitrogen	3.0664234	g/1000g zinc		0.00017172	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		2.08898E-07	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		2.17596E-06	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		1.85565E-06	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		0.000955022	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		1.10637E-09	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		6.48951E-06	g/seatbelt
phosphate	0.0051168	g/1000g zinc		2.86539E-07	g/seatbelt
phosphate	0.0030974	g/1000g zinc		1.73456E-07	g/seatbelt
toluene	0.0001184	g/1000g zinc		6.6311E-09	g/seatbelt
toluene	3.15E-05	g/1000g zinc		1.76644E-09	g/seatbelt
vanadium	0.0027262	g/1000g zinc		1.52668E-07	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		4.08671E-10	g/seatbelt
vanadium	0.0001296	g/1000g zinc		7.25615E-09	g/seatbelt
zinc	0.1760723	g/1000g zinc		9.86005E-06	g/seatbelt
zinc	0.0085203	g/1000g zinc		4.77136E-07	g/seatbelt
zinc	0.0090181	g/1000g zinc		5.05016E-07	g/seatbelt
zinc	0.1440723	g/1000g zinc		8.06805E-06	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		1.27453E-07	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g zinc		0.000364423	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		0.001546753	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		3.80352E-07	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		0.009945774	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		0.001059357	g/seatbelt
jarosite	123.75866	g/1000g zinc		0.006930485	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		4.5142E-07	g/seatbelt
mineral waste	6.121768	g/1000g zinc		0.000342819	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		2.491026746	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		0.000223265	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		0.000572083	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		8.44087E-07	g/seatbelt
spoil (unspecified)	14.286476	g/1000g zinc		0.000800043	g/seatbelt
sludge	12.2	g/1000g zinc		0.0006832	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		6.14165E-05	g/seatbelt

tailings (unspecified)	5045.0465	g/1000g zinc		0.282522602	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		7.56839E-07	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g zinc		8.73205E-07	g/seatbelt
used oil	220.9923	g/1000g zinc		0.012375569	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		4.89305E-05	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		0.000905452	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.83.4 Transportation to Metal parts manufacturer no.9	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.83.5 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0080	1.264E-07	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		2.512E-07	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		5.69481E-09	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		7.0265E-06	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		0.001664925	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		0.000123236	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		3.64007E-05	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		0.000384753	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		0.000121028	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		0.001787265	g/seatbelt
iron (in)	215.94651	g/1000g alloy		0.001727572	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		1.76541E-05	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		1.28886E-08	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		5.10527E-05	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		2.08056E-06	g/seatbelt
water	18.985568	l/1000g alloy		0.000151885	l/seatbelt
OUTFLOWS				0	
stainless steel hot rolled coil,	1000	g		0.008	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		1.792E-14	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		4.808E-07	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		9.44E-08	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		0.000000484	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		1.744E-10	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		0.027039437	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		7.88308E-05	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		3.61141E-06	g/seatbelt
chloride	3.56E+00	g/1000g alloy		2.84527E-05	g/seatbelt

chromium	1.14E-01	g/1000g alloy		9.09239E-07	g/seatbelt
chromium	9.22E-04	g/1000g alloy		7.376E-09	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		4.752E-10	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		1.832E-09	g/seatbelt
copper	1.22E-04	g/1000g alloy		9.76E-10	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		5.536E-07	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		1.744E-07	g/seatbelt
iron	1.31E-01	g/1000g alloy		1.05085E-06	g/seatbelt
lead	5.17E-04	g/1000g alloy		4.136E-09	g/seatbelt
manganese	2.83E-03	g/1000g alloy		2.264E-08	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		4.992E-08	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		1.328E-08	g/seatbelt
nickel	2.97E-02	g/1000g alloy		2.376E-07	g/seatbelt
nickel	3.38E-03	g/1000g alloy		2.704E-08	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		1.60374E-06	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		8.1693E-07	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		6.01539E-05	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		1.87841E-06	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		3.55551E-05	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		2.36614E-08	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		7.36801E-06	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		9.90753E-05	g/seatbelt
tin	1.61E-04	g/1000g alloy		1.288E-09	g/seatbelt
zinc	1.11E-03	g/1000g alloy		8.88E-09	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		0.001942122	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		0.01039688	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.83.6 Transportation to Metal parts manufacturer no.9	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.83 Production of Gear wheel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
steel C60E	1044.2227	g/1000g product	8.0072	8.3613	g/seatbelt
zinc for coating	6.9937057	g/1000g product		0.056	g/seatbelt
alloy for layer	0.9991008	g/1000g product		0.008	g/seatbelt
oil	0.1308158	MJ/1000g product		0.001047468	MJ/seatbelt
gas	0.0845028	MJ/1000g product		0.000676631	MJ/seatbelt
electricity	3.3747613	MJ/1000g product		0.027022389	MJ/seatbelt
OUTFLOWS				0	

Gear wheel				8.0072	g
scrap	52.240494	g/1000g product		0.418300082	g/seatbelt
chromium	0.0044461	g/1000g product		3.56006E-05	g/seatbelt
cobalt	0.0044461	g/1000g product		3.56006E-05	g/seatbelt
cyanide	0.0002047	g/1000g product		1.63884E-06	g/seatbelt
nickel	0.0044461	g/1000g product		3.56006E-05	g/seatbelt
zinc	0.0044461	g/1000g product		3.56006E-05	g/seatbelt
used oil	0.003472	g/1000g product		2.78006E-05	g/seatbelt
Remark					
Electricity data for Italy					
Production data adapted from production of frame pretensioner by STA					
3.84 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6559	MJ/1000g of product	8.0072	0.005252083	MJ/seatbelt
OUTFLOWS					
CO2	47.3720	g/1000g of product		0.379317078	g/seatbelt
NOx	0.3006	g/1000g of product		0.002407205	g/seatbelt
HC	0.0428	g/1000g of product		0.000342844	g/seatbelt
Particulate matter	0.0052	g/1000g of product		4.1579E-05	g/seatbelt
CO	0.0419	g/1000g of product		0.00033555	g/seatbelt
SO2	0.0118	g/1000g of product		9.48293E-05	g/seatbelt
Remark:					
Distance between Metal parts manufacturer no.9 (Bianze, Italy) and ALH (Sopronkövesd, Hungary) in km		**911**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.85.1 Production of alloy ZnAl4Cu1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	40.8000	0.00064464	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		0.00128112	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		2.90435E-05	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		0.035835139	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		8.491115321	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		0.62850127	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		0.185643424	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		1.96223893	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		0.617242152	MJ/seatbelt

inert rock	223.40818	g/1000g alloy		9.115053643	g/seatbelt
iron (in)	215.94651	g/1000g alloy		8.81061777	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		0.090035813	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		6.57318E-05	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		0.260368595	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		0.010610865	g/seatbelt
water	18.985568	l/1000g alloy		0.774611165	l/seatbelt
OUTFLOWS				0	
stainless steel hot rolled coil,	1000	g		40.8	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		9.1392E-11	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		0.00245208	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		0.00048144	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		0.0024684	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		8.8944E-07	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		137.9011276	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		0.402036906	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		0.018418198	g/seatbelt
chloride	3.56E+00	g/1000g alloy		0.145108622	g/seatbelt
chromium	1.14E-01	g/1000g alloy		0.004637119	g/seatbelt
chromium	9.22E-04	g/1000g alloy		3.76176E-05	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		2.42352E-06	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		9.3432E-06	g/seatbelt
copper	1.22E-04	g/1000g alloy		4.9776E-06	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		0.00282336	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		0.00088944	g/seatbelt
iron	1.31E-01	g/1000g alloy		0.005359344	g/seatbelt
lead	5.17E-04	g/1000g alloy		2.10936E-05	g/seatbelt
manganese	2.83E-03	g/1000g alloy		0.000115464	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		0.000254592	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		0.000067728	g/seatbelt
nickel	2.97E-02	g/1000g alloy		0.00121176	g/seatbelt
nickel	3.38E-03	g/1000g alloy		0.000137904	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		0.008179061	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		0.004166345	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		0.306784645	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		0.009579886	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		0.181330832	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		0.000120673	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		0.037576867	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		0.505284043	g/seatbelt
tin	1.61E-04	g/1000g alloy		6.5688E-06	g/seatbelt
zinc	1.11E-03	g/1000g alloy		0.000045288	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		9.904821645	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		53.0240871	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					

3.85.2 Transportation to Metal parts manufacturer no.10	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.85 Production of tread head	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
alloy	1000.0000	g/1000g product	40.8000	40.800	g/seatbelt
OUTFLOWS					
tread head				40.8000	g/seatbelt
Lack of data					
3.86 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.7394	MJ/1000g of product	40.8000	0.030169152	MJ/seatbelt
OUTFLOWS					
CO2	53.4040	g/1000g of product		2.1788832	g/seatbelt
NOx	0.3389	g/1000g of product		0.013827528	g/seatbelt
HC	0.0483	g/1000g of product		0.001969375	g/seatbelt
Particulate matter	0.0059	g/1000g of product		0.000238839	g/seatbelt
CO	0.0472	g/1000g of product		0.001927474	g/seatbelt
SO2	0.0134	g/1000g of product		0.000544721	g/seatbelt
Remark:					
Distance between Metal parts manufacturer no.10 (Velbert, Germany) and ALH (Sopronkövesd, Hungary) in km		**1027**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.87.1 Production of steel C4C	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	39.8100	2.010405	g/seatbelt
Chemicals	4.99	g/1000g steel		0.1986519	g/seatbelt
Coal	0.223	MJ/1000g steel		0.00887763	MJ/seatbelt
Coal	517	g/1000g steel		0.88501611	MJ/seatbelt

Diesel	0.195	MJ/1000g steel		0.00776295	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.1309749	MJ/seatbelt
Explosives	1.02	g/1000g steel		0.0406062	MJ/seatbelt
Gas	4.81	MJ/1000g steel		0.1914861	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.1146528	MJ/seatbelt
Iron ore	2170	g/1000g steel		86.3877	MJ/seatbelt
Limestone	162	g/1000g steel		6.44922	g/seatbelt
Oil	0.00106	MJ/1000g steel		4.21986E-05	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		2.078082	MJ/seatbelt
OUTFLOWS				0	g/seatbelt
ammonia	0.000517	g/1000g steel		2.05818E-05	MJ/seatbelt
arsenic	2.08E-06	g/1000g steel		8.28048E-08	MJ/seatbelt
cadmium	0.0000118	g/1000g steel		4.69758E-07	g/seatbelt
cadmium	4.46E-08	g/1000g steel		1.77553E-09	g/seatbelt
CH4	4.04	g/1000g steel		0.1608324	MJ/seatbelt
carbon dioxide	1180	g/1000g steel		46.9758	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		0.001019136	
chromium	0.00036	g/1000g steel		1.43316E-05	g/seatbelt
chromium	0.0000488	g/1000g steel		1.94273E-06	g/seatbelt
cobalt	0.0000072	g/1000g steel		2.86632E-07	g/seatbelt
cobalt	3.21E-06	g/1000g steel		1.2779E-07	g/seatbelt
copper	0.000175	g/1000g steel		6.96675E-06	g/seatbelt
copper	0.000101	g/1000g steel		4.02081E-06	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		0.001664058	g/seatbelt
hydrogen fluoride	0.0562	g/1000g steel		0.002237322	g/seatbelt
lead	0.000529	g/1000g steel		2.10595E-05	g/seatbelt
lead	0.000402	g/1000g steel		1.60036E-05	g/seatbelt
mercury	0.0000344	g/1000g steel		1.36946E-06	g/seatbelt
nickel	0.0004	g/1000g steel		0.000015924	g/seatbelt
nickel	0.0000815	g/1000g steel		3.24452E-06	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.001265958	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.0593169	g/seatbelt
Phosphorus	0.000372	g/1000g steel		1.48093E-05	g/seatbelt
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		5.85207E-06	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.0605112	g/seatbelt
zinc	0.00368	g/1000g steel		0.000146501	g/seatbelt
zinc	0.000997	g/1000g steel		3.96906E-05	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.0644922	g/seatbelt
Industrial waste	96.4	g/1000g steel		3.837684	g/seatbelt
mineral waste	1100	g/1000g steel		43.791	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.87.2 Transportation to Metal parts manufacturer no.11	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					

Energy (fuel)	0.1728	MJ/1000g of product	39.8100	0.006879168	MJ/seatbelt
OUTFLOWS					
CO2	12.4800	g/1000g of product		0.4968288	g/seatbelt
NOx	0.0792	g/1000g of product		0.003152952	g/seatbelt
HC	0.0113	g/1000g of product		0.000449057	g/seatbelt
Particulate matter	0.0014	g/1000g of product		5.44601E-05	g/seatbelt
CO	0.0110	g/1000g of product		0.000439502	g/seatbelt
SO2	0.0031	g/1000g of product		0.000124207	g/seatbelt
Remark:					
Distance between Metal producer no.10 (Hagen, Germany) and Metal parts manufacturer no.11 (Kosice, Czech Republic) in km		**240**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.87.3 Production of zinc for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g zinc	0.1790	2.4165	g/seatbelt
baryte	1.5574821	g/1000g zinc		0.000278789	g/seatbelt
basalt	34.801523	g/1000g zinc		0.006229473	g/seatbelt
bauxite	21.142572	g/1000g zinc		0.00378452	g/seatbelt
bentonite	0.648349	g/1000g zinc		0.000116054	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		3.83883E-08	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		0.000779776	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		0.015294415	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		9.89279E-13	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g zinc		0.01127039	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		4.22836E-07	g/seatbelt
clay	0.2616171	g/1000g zinc		4.68295E-05	g/seatbelt
colemanite	0.9853674	g/1000g zinc		0.000176381	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-0.005567974	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		0.000745683	MJ/seatbelt
fluorspar	0.1583729	g/1000g zinc		2.83487E-05	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-4.79407E-07	g/seatbelt
ground water	3624.1777	g/1000g zinc		0.6487278	g/seatbelt
gypsum	0.1523604	g/1000g zinc		2.72725E-05	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.00245086	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		8.456555365	g/seatbelt
iron (in)	4.1413625	g/1000g zinc		0.000741304	g/seatbelt
kaolin	0.0019158	g/1000g zinc		3.42936E-07	g/seatbelt
lead (in)	120.22987	g/1000g zinc		0.021521147	g/seatbelt
magnesite	0.0012403	g/1000g zinc		2.22021E-07	g/seatbelt
manganese	-11.317555	g/1000g zinc		-0.002025842	g/seatbelt

mercury (in)	4.417E-06	g/1000g zinc		7.90706E-10	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		1.70289E-08	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		0.004695425	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		0.001471554	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		7.54645E-07	g/seatbelt
olivine	1.735E-06	g/1000g zinc		3.10646E-10	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-0.007597958	g/seatbelt
palladium	3.273E-09	g/1000g zinc		5.85814E-13	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		2.73265E-05	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		9.96387E-09	g/seatbelt
platinum	3.931E-08	g/1000g zinc		7.03738E-12	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		1.67627E-07	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		4.1159E-06	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		0.001168209	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		0.000103687	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		7.03108E-10	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		6.42979E-05	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-0.00230084	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		2.96483E-08	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		1.95905E-14	g/seatbelt
river water	6.1598962	l/1000g zinc		0.001102621	l/seatbelt
sand	0.0001874	g/1000g zinc		3.35384E-08	g/seatbelt
sea water	-0.000147	l/1000g zinc		-2.6318E-08	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		2.18026E-08	g/seatbelt
silver (in)	-0.0161287	g/1000g zinc		-2.88703E-06	g/seatbelt
slate	1.32E-08	g/1000g zinc		2.36238E-12	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-0.002506134	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-1.33516E-07	g/seatbelt
soil	13.199188	g/1000g zinc		0.002362655	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		5.94091E-07	g/seatbelt
surface water	27.074991	l/1000g zinc		0.004846423	l/seatbelt
talc	0.0005357	g/1000g zinc		9.58931E-08	g/seatbelt
titanium	0.0025897	g/1000g zinc		4.63548E-07	g/seatbelt
uranium	11208.633	g/1000g zinc		2.006345279	g/seatbelt
water	372.88334	l/1000g zinc		0.066746118	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		7.65637E-08	MJ/seatbelt
zinc (in)	819.6244	g/1000g zinc		0.146712768	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.001655279	g/seatbelt
zinc dross	31.9	g/1000g zinc		0.0057101	g/seatbelt
zinc dust	3.2163809	g/1000g zinc		0.000575732	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.004536755	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		1.476E-05	g/seatbelt
ammonia	0.0101456	g/1000g zinc		1.81606E-06	g/seatbelt
ammonia	0.0944373	g/1000g zinc		1.69043E-05	g/seatbelt
ammonia	0.0048189	g/1000g zinc		8.62589E-07	g/seatbelt
ammonium	0.0001497	g/1000g zinc		2.68031E-08	g/seatbelt
ammonium	0.0018023	g/1000g zinc		3.22607E-07	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		2.37136E-07	g/seatbelt
arsenic	0.0058028	g/1000g zinc		1.03869E-06	g/seatbelt

arsenic	5.36E-06	g/1000g zinc		9.59275E-10	g/seatbelt
arsenic	0.0310056	g/1000g zinc		5.55001E-06	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		1.03E-08	g/seatbelt
benzene	0.0011388	g/1000g zinc		2.03837E-07	g/seatbelt
benzene	5.18E-05	g/1000g zinc		9.26714E-09	g/seatbelt
benzene	0.000199	g/1000g zinc		3.56239E-08	g/seatbelt
cadmium	0.0089817	g/1000g zinc		1.60772E-06	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		3.4785E-09	g/seatbelt
cadmium	0.0002277	g/1000g zinc		4.07542E-08	g/seatbelt
cadmium	0.0015242	g/1000g zinc		2.72829E-07	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		0.5442495	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		2.62086E-08	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		2.68401E-08	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		5.63484E-09	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		3.53816E-09	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		0.000175177	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		3.80128E-06	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-4.87023E-11	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		2.02679E-10	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		9.01022E-09	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		3.13488E-09	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-7.72698E-10	g/seatbelt
cobalt	0.0018228	g/1000g zinc		3.26274E-07	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		5.32049E-11	g/seatbelt
cobalt	3.29E-07	g/1000g zinc		5.89174E-11	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		1.96474E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		7.39981E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		1.65223E-06	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		1.87639E-07	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		0.000926294	g/seatbelt
copper	0.1356498	g/1000g zinc		2.42813E-05	g/seatbelt
copper	0.0049752	g/1000g zinc		8.90552E-07	g/seatbelt
copper	0.0001369	g/1000g zinc		2.45113E-08	g/seatbelt
copper	0.0110447	g/1000g zinc		1.977E-06	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		2.20946E-09	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		3.18981E-05	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g zinc		1.29243E-10	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		7.28079E-06	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		9.02771E-12	g/seatbelt
lead	0.1242728	g/1000g zinc		2.22448E-05	g/seatbelt
lead	4.66E-05	g/1000g zinc		8.33818E-09	g/seatbelt
lead	0.0008935	g/1000g zinc		1.59945E-07	g/seatbelt
lead	0.0044786	g/1000g zinc		8.01664E-07	g/seatbelt
mercury	0.0001779	g/1000g zinc		3.1852E-08	g/seatbelt
mercury	7.93E-07	g/1000g zinc		1.41877E-10	g/seatbelt
mercury	0.0001995	g/1000g zinc		3.57074E-08	g/seatbelt
mercury	5.12E-06	g/1000g zinc		9.16509E-10	g/seatbelt
methane	3.9556308	g/1000g zinc		0.000708058	g/seatbelt
nickel	0.0010629	g/1000g zinc		1.90263E-07	g/seatbelt
nickel	4.75E-05	g/1000g zinc		8.50453E-09	g/seatbelt

nickel	0.0001204	g/1000g zinc		2.15531E-08	g/seatbelt
nickel	3.02E-05	g/1000g zinc		5.41276E-09	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		6.46029E-09	g/seatbelt
nitrate	0.0008705	g/1000g zinc		1.55816E-07	g/seatbelt
nitrate	0.2355114	g/1000g zinc		4.21565E-05	g/seatbelt
nitrogen	3.0664234	g/1000g zinc		0.00054889	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		6.67726E-07	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		6.95529E-06	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		5.93146E-06	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		0.003052659	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		3.53644E-09	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		2.07432E-05	g/seatbelt
phosphate	0.0051168	g/1000g zinc		9.15901E-07	g/seatbelt
phosphate	0.0030974	g/1000g zinc		5.5444E-07	g/seatbelt
toluene	0.0001184	g/1000g zinc		2.11958E-08	g/seatbelt
toluene	3.15E-05	g/1000g zinc		5.64631E-09	g/seatbelt
vanadium	0.0027262	g/1000g zinc		4.87993E-07	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		1.30629E-09	g/seatbelt
vanadium	0.0001296	g/1000g zinc		2.31938E-08	g/seatbelt
zinc	0.1760723	g/1000g zinc		3.15169E-05	g/seatbelt
zinc	0.0085203	g/1000g zinc		1.52513E-06	g/seatbelt
zinc	0.0090181	g/1000g zinc		1.61425E-06	g/seatbelt
zinc	0.1440723	g/1000g zinc		2.57889E-05	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		4.07395E-07	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g zinc		0.001164853	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		0.004944084	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		1.21577E-06	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		0.031790955	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		0.003386158	g/seatbelt
jarosite	123.75866	g/1000g zinc		0.0221528	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		1.44293E-06	g/seatbelt
mineral waste	6.121768	g/1000g zinc		0.001095796	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		7.962389064	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		0.000713651	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		0.001828623	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		2.69806E-06	g/seatbelt
spoil (unspecified)	14.286476	g/1000g zinc		0.002557279	g/seatbelt
sludge	12.2	g/1000g zinc		0.0021838	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		0.000196313	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g zinc		0.903063316	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		2.41918E-06	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g zinc		2.79114E-06	g/seatbelt
used oil	220.9923	g/1000g zinc		0.039557621	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		0.000156403	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		0.002894212	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					

3.87.4 Transportation to Metal parts manufacturer no.11	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.87.5 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0020	3.16E-08	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		6.28E-08	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		1.4237E-09	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		1.75662E-06	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		0.000416231	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		3.08089E-05	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		9.10017E-06	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		9.61882E-05	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		3.0257E-05	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		0.000446816	g/seatbelt
iron (in)	215.94651	g/1000g alloy		0.000431893	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		4.41352E-06	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		3.22215E-09	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		1.27632E-05	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		5.2014E-07	g/seatbelt
water	18.985568	l/1000g alloy		3.79711E-05	l/seatbelt
OUTFLOWS				0	
stainless steel hot rolled coil,	1000	g		0.002	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		4.48E-15	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		1.202E-07	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		2.36E-08	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		0.000000121	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		4.36E-11	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		0.006759859	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		1.97077E-05	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		9.02853E-07	g/seatbelt
chloride	3.56E+00	g/1000g alloy		7.11317E-06	g/seatbelt
chromium	1.14E-01	g/1000g alloy		2.2731E-07	g/seatbelt
chromium	9.22E-04	g/1000g alloy		1.844E-09	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		1.188E-10	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		4.58E-10	g/seatbelt
copper	1.22E-04	g/1000g alloy		2.44E-10	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		1.384E-07	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		4.36E-08	g/seatbelt
iron	1.31E-01	g/1000g alloy		2.62713E-07	g/seatbelt
lead	5.17E-04	g/1000g alloy		1.034E-09	g/seatbelt
manganese	2.83E-03	g/1000g alloy		5.66E-09	g/seatbelt

molybdenum	6.24E-03	g/1000g alloy		1.248E-08	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		3.32E-09	g/seatbelt
nickel	2.97E-02	g/1000g alloy		5.94E-08	g/seatbelt
nickel	3.38E-03	g/1000g alloy		6.76E-09	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		4.00934E-07	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		2.04233E-07	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		1.50385E-05	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		4.69602E-07	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		8.88877E-06	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		5.91534E-09	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		1.842E-06	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		2.47688E-05	g/seatbelt
tin	1.61E-04	g/1000g alloy		3.22E-10	g/seatbelt
zinc	1.11E-03	g/1000g alloy		2.22E-09	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		0.00048553	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		0.00259922	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.87.6 Transportation to Metal parts manufacturer no.11	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.87 Production of bar torsion	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	4.7368421	MJ/1000g product	38.0000	0.18	MJ/seatbelt
steel c4c	1047.6316	g/1000g product		39.81	g/seatbelt
zinc for e plate	4.7105263	g/1000g product		0.179	g/seatbelt
alloy for layer	0.0526316	g/1000g product		0.002	g/seatbelt
OUTFLOWS				0	
bar torsion				38.0000	g/seatbelt
scrap	52.381579	g/1000g product		1.9905	g/seatbelt
Remark:					
Electricity data for Check Republic					
3.88 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.3298	MJ/1000g of product	38.0000	0.01253088	MJ/seatbelt

OUTFLOWS					
CO2	23.8160	g/1000g of product		0.905008	g/seatbelt
NOx	0.1511	g/1000g of product		0.00574332	g/seatbelt
HC	0.0215	g/1000g of product		0.000817988	g/seatbelt
Particulate matter	0.0026	g/1000g of product		9.92028E-05	g/seatbelt
CO	0.0211	g/1000g of product		0.000800584	g/seatbelt
SO2	0.0060	g/1000g of product		0.000226252	g/seatbelt
Remark:					
Distance between Metal parts manufacturer no.11 (Kosice, Czech Republic) and ALH (Sopronkövesd, Hungary) in km		**458**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.89.1 Production of AlSi12Cu1(Fe)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	101.0000	0.0015958	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		0.0031714	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		7.1897E-05	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		0.088709535	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		21.01967273	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		1.555848732	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		0.459558477	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		4.857503234	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		1.527976896	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		22.56422593	g/seatbelt
iron (in)	215.94651	g/1000g alloy		21.81059791	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		0.222882771	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		0.000162718	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		0.644539904	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		0.026267093	g/seatbelt
water	18.985568	l/1000g alloy		1.917542346	l/seatbelt
OUTFLOWS				0	
stainless steel hot rolled coil,	1000	g		101	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		2.2624E-10	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		0.0060701	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		0.0011918	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		0.0061105	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		2.2018E-06	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		341.3728895	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		0.995238418	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		0.045594069	g/seatbelt
chloride	3.56E+00	g/1000g alloy		0.359214972	g/seatbelt
chromium	1.14E-01	g/1000g alloy		0.011479143	g/seatbelt

chromium	9.22E-04	g/1000g alloy		0.000093122	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		5.9994E-06	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		0.000023129	g/seatbelt
copper	1.22E-04	g/1000g alloy		0.000012322	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		0.0069892	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		0.0022018	g/seatbelt
iron	1.31E-01	g/1000g alloy		0.013267003	g/seatbelt
lead	5.17E-04	g/1000g alloy		0.000052217	g/seatbelt
manganese	2.83E-03	g/1000g alloy		0.00028583	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		0.00063024	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		0.00016766	g/seatbelt
nickel	2.97E-02	g/1000g alloy		0.0029997	g/seatbelt
nickel	3.38E-03	g/1000g alloy		0.00034138	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		0.020247185	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		0.010313746	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		0.759442381	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		0.023714914	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		0.448882697	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		0.000298725	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		0.093021166	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		1.250825696	g/seatbelt
tin	1.61E-04	g/1000g alloy		0.000016261	g/seatbelt
zinc	1.11E-03	g/1000g alloy		0.00011211	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		24.51928888	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		131.2606078	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.89.2 Transportation to Metal parts manufacturer no.12	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1216	MJ/1000g of product	101.0000	0.01227655	MJ/seatbelt
OUTFLOWS					
CO2	8.8400	g/1000g of product		0.89284	g/seatbelt
NOx	0.0585	g/1000g of product		0.0059085	g/seatbelt
HC	0.0078	g/1000g of product		0.0007878	g/seatbelt
Particulate matter	0.0010	g/1000g of product		0.000098475	g/seatbelt
CO	0.0078	g/1000g of product		0.0007878	g/seatbelt
SO2	0.0022	g/1000g of product		0.00022321	g/seatbelt
Remark:					
Distance between Metal producer no.10 (ShangHai) Co. and Metal parts manufacturer no.12 (Changshu-Jiangsu, China) in km		**65**			

Medium sized distribution truck, regional distribution, Euro 3					
3.89 Production of bobbin, mirror, wise	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Electricity	14.1475	MJ/1000g product	101.0000	1.428895975	MJ/seatbelt
Gas	67.9418	MJ/1000g product		6.862125211	MJ/seatbelt
Water	3.3620	l/1000g product		0.339559394	l/seatbelt
alloy	1000.0000	g/1000g product		101	g/seatbelt
OUTFLOWS				0	
bobbin, mirror, wise				101	g/seatbelt
CO2	334.1067	g/1000g product		33.74477678	g/seatbelt
SO2	121.5049	g/1000g product		12.2719994	g/seatbelt
NOx	87.3543	g/1000g product		8.822781504	g/seatbelt
waste water	3.3620	l/1000g product		0.339559394	l/seatbelt
Remark:					
Electricity data for China					
carbon dioxide 1m3=1964g					
nitrogen oxide 1m3=2054g					
sulfur dioxide 1m3=2857g					
3.90 Transportation to ALH (truck)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.7200	MJ/1000g of product	101.0000	0.07272	MJ/seatbelt
OUTFLOWS					
CO2	52.0000	g/1000g of product		5.252	g/seatbelt
NOx	0.3300	g/1000g of product		0.03333	g/seatbelt
HC	0.0470	g/1000g of product		0.004747	g/seatbelt
Particulate matter	0.0057	g/1000g of product		0.0005757	g/seatbelt
CO	0.0460	g/1000g of product		0.004646	g/seatbelt
SO2	0.0130	g/1000g of product		0.001313	g/seatbelt
Remark:					
Distance between Metal parts		**1000**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
		19700	ship		
		1000	truck		

3.90 Transportation from Synchronization ball manufacturer no.2 to ALH (ship)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	2.1276	MJ/1000g of product	101.0000	0.2148876	MJ/seatbelt
OUTFLOWS					
CO2	151.6900	g/1000g of product		15.32069	g/seatbelt
NOx	4.2257	g/1000g of product		0.42679065	g/seatbelt
HC	0.1970	g/1000g of product		0.019897	g/seatbelt
Particulate matter	0.2009	g/1000g of product		0.02029494	g/seatbelt
CO	0.0857	g/1000g of product		0.008655195	g/seatbelt
SO2	2.5807	g/1000g of product		0.2606507	g/seatbelt
3.91.1 Production of steel DC04	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Alloy materials	50.5	g/1000g steel	37.7090	1.9043045	g/seatbelt
Chemicals	4.99	g/1000g steel		0.18816791	g/seatbelt
Coal	0.223	MJ/1000g steel		0.008409107	MJ/seatbelt
Coal	517	g/1000g steel		0.838308779	g/seatbelt
Diesel	0.195	MJ/1000g steel		0.007353255	MJ/seatbelt
Electricity	3.29	MJ/1000g steel		0.12406261	MJ/seatbelt
Explosives	1.02	g/1000g steel		0.03846318	g/seatbelt
Gas	4.81	MJ/1000g steel		0.18138029	MJ/seatbelt
Heavy oil	2.88	MJ/1000g steel		0.10860192	MJ/seatbelt
Iron ore	2170	g/1000g steel		81.82853	g/seatbelt
Limestone	162	g/1000g steel		6.108858	g/seatbelt
Oil	0.00106	MJ/1000g steel		3.99715E-05	MJ/seatbelt
Scrap (in)	52.2	g/1000g steel		1.9684098	g/seatbelt
OUTFLOWS				0	
ammonia	0.000517	g/1000g steel		1.94956E-05	g/seatbelt
arsenic	2.08E-06	g/1000g steel		7.84347E-08	g/seatbelt
cadmium	0.0000118	g/1000g steel		4.44966E-07	g/seatbelt
cadmium	4.46E-08	g/1000g steel		1.68182E-09	g/seatbelt
CH4	4.04	g/1000g steel		0.15234436	g/seatbelt
carbon dioxide	1180	g/1000g steel		44.49662	g/seatbelt
chemical oxygen demand	0.0256	g/1000g steel		0.00096535	g/seatbelt
chromium	0.00036	g/1000g steel		1.35752E-05	g/seatbelt
chromium	0.0000488	g/1000g steel		1.8402E-06	g/seatbelt
cobalt	0.0000072	g/1000g steel		2.71505E-07	g/seatbelt
cobalt	3.21E-06	g/1000g steel		1.21046E-07	g/seatbelt
copper	0.000175	g/1000g steel		6.59908E-06	g/seatbelt
copper	0.000101	g/1000g steel		3.80861E-06	g/seatbelt
hydrogen chloride	0.0418	g/1000g steel		0.001576236	g/seatbelt

hydrogen fluoride	0.0562	g/1000g steel		0.002119246	g/seatbelt
lead	0.000529	g/1000g steel		1.99481E-05	g/seatbelt
lead	0.000402	g/1000g steel		1.5159E-05	g/seatbelt
mercury	0.0000344	g/1000g steel		1.29719E-06	g/seatbelt
nickel	0.0004	g/1000g steel		1.50836E-05	g/seatbelt
nickel	0.0000815	g/1000g steel		3.07328E-06	g/seatbelt
nitrogen	0.0318	g/1000g steel		0.001199146	g/seatbelt
nitrous oxide	1.49	g/1000g steel		0.05618641	g/seatbelt
Phosphorus	0.000372	g/1000g steel		1.40277E-05	g/seatbelt
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		5.54322E-06	g/seatbelt
sulfur dioxide	1.52	g/1000g steel		0.05731768	g/seatbelt
zinc	0.00368	g/1000g steel		0.000138769	g/seatbelt
zinc	0.000997	g/1000g steel		3.75959E-05	g/seatbelt
Hazardous waste	1.62	g/1000g steel		0.06108858	g/seatbelt
Industrial waste	96.4	g/1000g steel		3.6351476	g/seatbelt
mineral waste	1100	g/1000g steel		41.4799	g/seatbelt
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
3.91.2 Transportation to Metal parts manufacturer no.11	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1728	MJ/1000g of product	37.7090	0.006516115	MJ/seatbelt
OUTFLOWS					
CO2	12.4800	g/1000g of product		0.47060832	g/seatbelt
NOx	0.0792	g/1000g of product		0.002986553	g/seatbelt
HC	0.0113	g/1000g of product		0.000425358	g/seatbelt
Particulate matter	0.0014	g/1000g of product		5.15859E-05	g/seatbelt
CO	0.0110	g/1000g of product		0.000416307	g/seatbelt
SO2	0.0031	g/1000g of product		0.000117652	g/seatbelt
Remark:					
Distance between Metal producer no.10 (Hagen, Germany) and Metal parts manufacturer no.11 (Kosice, Czech Republic) in km		**240**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.91.3 Production of zinc for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					

air	13500	g/1000g zinc	0.1740	2.349	g/seatbelt
baryte	1.5574821	g/1000g zinc		0.000271002	g/seatbelt
basalt	34.801523	g/1000g zinc		0.006055465	g/seatbelt
bauxite	21.142572	g/1000g zinc		0.003678808	g/seatbelt
bentonite	0.648349	g/1000g zinc		0.000112813	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		3.7316E-08	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		0.000757995	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		0.014867197	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		9.61646E-13	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g zinc		0.010955575	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		4.11025E-07	g/seatbelt
clay	0.2616171	g/1000g zinc		4.55214E-05	g/seatbelt
colemanite	0.9853674	g/1000g zinc		0.000171454	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-0.005412444	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		0.000724854	MJ/seatbelt
fluorspar	0.1583729	g/1000g zinc		2.75569E-05	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-4.66016E-07	g/seatbelt
ground water	3624.1777	g/1000g zinc		0.630606912	g/seatbelt
gypsum	0.1523604	g/1000g zinc		2.65107E-05	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.0023824	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		8.220338735	g/seatbelt
iron (in)	4.1413625	g/1000g zinc		0.000720597	g/seatbelt
kaolin	0.0019158	g/1000g zinc		3.33356E-07	g/seatbelt
lead (in)	120.22987	g/1000g zinc		0.020919998	g/seatbelt
magnesite	0.0012403	g/1000g zinc		2.15819E-07	g/seatbelt
manganese	-11.317555	g/1000g zinc		-0.001969254	g/seatbelt
mercury (in)	4.417E-06	g/1000g zinc		7.6862E-10	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		1.65532E-08	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		0.004564268	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		0.001430449	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		7.33565E-07	g/seatbelt
olivine	1.735E-06	g/1000g zinc		3.01969E-10	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-0.007385724	g/seatbelt
palladium	3.273E-09	g/1000g zinc		5.69451E-13	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		2.65632E-05	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		9.68555E-09	g/seatbelt
platinum	3.931E-08	g/1000g zinc		6.84081E-12	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		1.62944E-07	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		4.00093E-06	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		0.001135578	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		0.00010079	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		6.83469E-10	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		6.25019E-05	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-0.002236571	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		2.88202E-08	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		1.90433E-14	g/seatbelt
river water	6.1598962	l/1000g zinc		0.001071822	l/seatbelt
sand	0.0001874	g/1000g zinc		3.26016E-08	g/seatbelt
sea water	-0.000147	l/1000g zinc		-2.55829E-08	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		2.11936E-08	g/seatbelt

silver (in)	-0.0161287	g/1000g zinc		-2.80639E-06	g/seatbelt
slate	1.32E-08	g/1000g zinc		2.2964E-12	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-0.00243613	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-1.29786E-07	g/seatbelt
soil	13.199188	g/1000g zinc		0.002296659	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		5.77496E-07	g/seatbelt
surface water	27.074991	l/1000g zinc		0.004711048	l/seatbelt
talc	0.0005357	g/1000g zinc		9.32145E-08	g/seatbelt
titanium	0.0025897	g/1000g zinc		4.50599E-07	g/seatbelt
uranium	11208.633	g/1000g zinc		1.950302115	g/seatbelt
water	372.88334	l/1000g zinc		0.064881702	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		7.4425E-08	MJ/seatbelt
zinc (in)	819.6244	g/1000g zinc		0.142614646	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.001609042	g/seatbelt
zinc dross	31.9	g/1000g zinc		0.0055506	g/seatbelt
zinc dust	3.2163809	g/1000g zinc		0.00055965	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.00441003	g/seatbelt
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		1.43477E-05	g/seatbelt
ammonia	0.0101456	g/1000g zinc		1.76533E-06	g/seatbelt
ammonia	0.0944373	g/1000g zinc		1.64321E-05	g/seatbelt
ammonia	0.0048189	g/1000g zinc		8.38494E-07	g/seatbelt
ammonium	0.0001497	g/1000g zinc		2.60544E-08	g/seatbelt
ammonium	0.0018023	g/1000g zinc		3.13596E-07	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		2.30512E-07	g/seatbelt
arsenic	0.0058028	g/1000g zinc		1.00968E-06	g/seatbelt
arsenic	5.36E-06	g/1000g zinc		9.3248E-10	g/seatbelt
arsenic	0.0310056	g/1000g zinc		5.39498E-06	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		1.00123E-08	g/seatbelt
benzene	0.0011388	g/1000g zinc		1.98143E-07	g/seatbelt
benzene	5.18E-05	g/1000g zinc		9.00828E-09	g/seatbelt
benzene	0.000199	g/1000g zinc		3.46288E-08	g/seatbelt
cadmium	0.0089817	g/1000g zinc		1.56281E-06	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		3.38134E-09	g/seatbelt
cadmium	0.0002277	g/1000g zinc		3.96159E-08	g/seatbelt
cadmium	0.0015242	g/1000g zinc		2.65208E-07	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		0.529047	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		2.54765E-08	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		2.60904E-08	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		5.47744E-09	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		3.43932E-09	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		0.000170284	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		3.6951E-06	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-4.73419E-11	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		1.97018E-10	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		8.75854E-09	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		3.04731E-09	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-7.51114E-10	g/seatbelt
cobalt	0.0018228	g/1000g zinc		3.17161E-07	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		5.17187E-11	g/seatbelt

cobalt	3.29E-07	g/1000g zinc		5.72716E-11	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		1.90985E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		7.19311E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		1.60608E-06	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		1.82398E-07	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		0.00090042	g/seatbelt
copper	0.1356498	g/1000g zinc		2.36031E-05	g/seatbelt
copper	0.0049752	g/1000g zinc		8.65677E-07	g/seatbelt
copper	0.0001369	g/1000g zinc		2.38266E-08	g/seatbelt
copper	0.0110447	g/1000g zinc		1.92177E-06	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		2.14774E-09	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		3.10071E-05	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g zinc		1.25632E-10	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		7.07741E-06	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		8.77554E-12	g/seatbelt
lead	0.1242728	g/1000g zinc		2.16235E-05	g/seatbelt
lead	4.66E-05	g/1000g zinc		8.10527E-09	g/seatbelt
lead	0.0008935	g/1000g zinc		1.55477E-07	g/seatbelt
lead	0.0044786	g/1000g zinc		7.79272E-07	g/seatbelt
mercury	0.0001779	g/1000g zinc		3.09623E-08	g/seatbelt
mercury	7.93E-07	g/1000g zinc		1.37914E-10	g/seatbelt
mercury	0.0001995	g/1000g zinc		3.471E-08	g/seatbelt
mercury	5.12E-06	g/1000g zinc		8.90909E-10	g/seatbelt
methane	3.9556308	g/1000g zinc		0.00068828	g/seatbelt
nickel	0.0010629	g/1000g zinc		1.84949E-07	g/seatbelt
nickel	4.75E-05	g/1000g zinc		8.26697E-09	g/seatbelt
nickel	0.0001204	g/1000g zinc		2.09511E-08	g/seatbelt
nickel	3.02E-05	g/1000g zinc		5.26157E-09	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		6.27983E-09	g/seatbelt
nitrate	0.0008705	g/1000g zinc		1.51464E-07	g/seatbelt
nitrate	0.2355114	g/1000g zinc		4.0979E-05	g/seatbelt
nitrogen	3.0664234	g/1000g zinc		0.000533558	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		6.49075E-07	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		6.76101E-06	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		5.76578E-06	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		0.002967389	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		3.43766E-09	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		2.01638E-05	g/seatbelt
phosphate	0.0051168	g/1000g zinc		8.90318E-07	g/seatbelt
phosphate	0.0030974	g/1000g zinc		5.38953E-07	g/seatbelt
toluene	0.0001184	g/1000g zinc		2.06038E-08	g/seatbelt
toluene	3.15E-05	g/1000g zinc		5.4886E-09	g/seatbelt
vanadium	0.0027262	g/1000g zinc		4.74362E-07	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		1.2698E-09	g/seatbelt
vanadium	0.0001296	g/1000g zinc		2.25459E-08	g/seatbelt
zinc	0.1760723	g/1000g zinc		3.06366E-05	g/seatbelt
zinc	0.0085203	g/1000g zinc		1.48253E-06	g/seatbelt
zinc	0.0090181	g/1000g zinc		1.56916E-06	g/seatbelt
zinc	0.1440723	g/1000g zinc		2.50686E-05	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		3.96015E-07	g/seatbelt

demolition waste (unspecifie	6.5075571	g/1000g zinc		0.001132315	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		0.004805981	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		1.18181E-06	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		0.030902939	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		0.003291572	g/seatbelt
jarosite	123.75866	g/1000g zinc		0.021534007	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		1.40263E-06	g/seatbelt
mineral waste	6.121768	g/1000g zinc		0.001065188	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		7.739975961	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		0.000693717	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		0.001777544	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		2.6227E-06	g/seatbelt
spoil (unspecified)	14.286476	g/1000g zinc		0.002485847	g/seatbelt
sludge	12.2	g/1000g zinc		0.0021228	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		0.00019083	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g zinc		0.877838084	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		2.35161E-06	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g zinc		2.71317E-06	g/seatbelt
used oil	220.9923	g/1000g zinc		0.03845266	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		0.000152034	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		0.002813368	g/seatbelt
Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.91.4 Transportation to Metal parts manufacturer no.11	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.91.5 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0184	2.9072E-07	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		5.7776E-07	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		1.30981E-08	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		1.61609E-05	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		0.003829327	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		0.000283442	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		8.37215E-05	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		0.000884931	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		0.000278364	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		0.00411071	g/seatbelt
iron (in)	215.94651	g/1000g alloy		0.003973416	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		4.06044E-05	g/seatbelt

molybdenum (in)	0.0016111	g/1000g alloy		2.96438E-08	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		0.000117421	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		4.78529E-06	g/seatbelt
water	18.985568	l/1000g alloy		0.000349334	l/seatbelt
OUTFLOWS				0	
stainless steel hot rolled coil,	1000	g		0.0184	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		4.1216E-14	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		1.10584E-06	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		2.1712E-07	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		1.1132E-06	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		4.0112E-10	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		0.062190705	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		0.000181311	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		8.30625E-06	g/seatbelt
chloride	3.56E+00	g/1000g alloy		6.54411E-05	g/seatbelt
chromium	1.14E-01	g/1000g alloy		2.09125E-06	g/seatbelt
chromium	9.22E-04	g/1000g alloy		1.69648E-08	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		1.09296E-09	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		4.2136E-09	g/seatbelt
copper	1.22E-04	g/1000g alloy		2.2448E-09	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		1.27328E-06	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		4.0112E-07	g/seatbelt
iron	1.31E-01	g/1000g alloy		2.41696E-06	g/seatbelt
lead	5.17E-04	g/1000g alloy		9.5128E-09	g/seatbelt
manganese	2.83E-03	g/1000g alloy		5.2072E-08	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		1.14816E-07	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		3.0544E-08	g/seatbelt
nickel	2.97E-02	g/1000g alloy		5.4648E-07	g/seatbelt
nickel	3.38E-03	g/1000g alloy		6.2192E-08	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		3.6886E-06	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		1.87894E-06	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		0.000138354	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		4.32034E-06	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		8.17766E-05	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		5.44211E-08	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		1.69464E-05	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		0.000227873	g/seatbelt
tin	1.61E-04	g/1000g alloy		2.9624E-09	g/seatbelt
zinc	1.11E-03	g/1000g alloy		2.0424E-08	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		0.00446688	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		0.023912824	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.91.6 Transportation to Metal parts manufacturer no.11	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.

Lack of data					
3.91 Production of bar torsion	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	7.5	MJ/1000g product	36.0000	0.27	MJ/seatbelt
steel DC04	1047.4722	g/1000g product		37.709	g/seatbelt
zinc for e-plate	4.8333333	g/1000g product		0.174	g/seatbelt
alloy	0.0511111	g/1000g product		0.00184	g/seatbelt
OUTFLOWS				0	
bar torsion				36.0000	g/seatbelt
scrap	52.373611	g/1000g product		1.88545	g/seatbelt
Remark:					
Electricity data for Czech Republic					
3.92 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.3298	MJ/1000g of product	36.0000	0.01187136	MJ/seatbelt
OUTFLOWS					
CO2	23.8160	g/1000g of product		0.857376	g/seatbelt
NOx	0.1511	g/1000g of product		0.00544104	g/seatbelt
HC	0.0215	g/1000g of product		0.000774936	g/seatbelt
Particulate matter	0.0026	g/1000g of product		9.39816E-05	g/seatbelt
CO	0.0211	g/1000g of product		0.000758448	g/seatbelt
SO2	0.0060	g/1000g of product		0.000214344	g/seatbelt
Remark:					
Distance between Metal parts		**458**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.93.1. Production of acrylic resin	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	3.59E-08	g/1000g acrylic resin	0.2250	8.08E-12	g/seatbelt
energy (recovered)	-1.72E+04	g/1000g acrylic resin		-3.86E+00	g/seatbelt
hydrogen; gaseous	1.48E-01	g/1000g acrylic resin		3.32E-05	g/seatbelt
waste	7.66E+00	g/1000g acrylic resin		1.72E-03	g/seatbelt
air	-1.51E+02	g/1000g acrylic resin		-3.41E-02	g/seatbelt
baryte	7.02E-02	g/1000g acrylic resin		1.58E-05	g/seatbelt

bauxite	5.15E-01	g/1000g acrylic resin	1.16E-04	g/seatbelt
bentonite	4.14E-02	g/1000g acrylic resin	9.31E-06	g/seatbelt
biomass; 14.7 MJ/kg	1.05E-01	MJ/1000g acrylic resin	2.37E-05	MJ/seatbelt
brown coal; 11.9 MJ/kg	6.72E-05	MJ/1000g acrylic resin	1.51E-08	MJ/seatbelt
calcium carbonate (in)	6.76E+00	g/1000g acrylic resin	1.52E-03	g/seatbelt
chromium (in)	1.45E-07	g/1000g acrylic resin	3.26E-11	g/seatbelt
clay	8.01E-06	g/1000g acrylic resin	1.80E-09	g/seatbelt
copper (in)	1.11E-03	g/1000g acrylic resin	2.50E-07	g/seatbelt
crude oil; 42.3 MJ/kg	4.87E+01	MJ/1000g acrylic resin	1.10E-02	MJ/seatbelt
dolomite	7.39E-03	g/1000g acrylic resin	1.66E-06	g/seatbelt
feldspar	7.18E-12	g/1000g acrylic resin	1.62E-15	g/seatbelt
fluorspar	1.17E-02	g/1000g acrylic resin	2.62E-06	g/seatbelt
granite	3.53E-11	g/1000g acrylic resin	7.94E-15	g/seatbelt
ground water	1.95E-01	l/1000g acrylic resin	4.39E-05	l/seatbelt
gypsum	4.09E-03	g/1000g acrylic resin	9.21E-07	g/seatbelt
hard coal; 26.3 MJ/kg	8.00E+00	MJ/1000g acrylic resin	1.80E-03	MJ/seatbelt
inert rock	3.84E-05	g/1000g acrylic resin	8.65E-09	g/seatbelt
iron (in)	6.04E-01	g/1000g acrylic resin	1.36E-04	g/seatbelt
lead (in)	3.63E-03	g/1000g acrylic resin	8.17E-07	g/seatbelt
magnesium (in)	2.60E-13	g/1000g acrylic resin	5.84E-17	g/seatbelt
manganese (in)	4.56E-04	g/1000g acrylic resin	1.03E-07	g/seatbelt
mercury (in)	3.47E-05	g/1000g acrylic resin	7.80E-09	g/seatbelt
natural aggregate	2.23E-03	g/1000g acrylic resin	5.02E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.00E+01	MJ/1000g acrylic resin	1.35E-02	MJ/seatbelt
nickel	1.32E-07	g/1000g acrylic resin	2.97E-11	g/seatbelt
nitrogen (in)	1.09E+02	g/1000g acrylic resin	2.45E-02	g/seatbelt
olivine	5.67E-03	g/1000g acrylic resin	1.28E-06	g/seatbelt
oxygen	1.31E+02	g/1000g acrylic resin	2.95E-02	g/seatbelt
peat; 8.4 MJ/kg	1.18E-03	MJ/1000g acrylic resin	2.65E-07	MJ/seatbelt
phosphorus (in)	8.42E-01	g/1000g acrylic resin	1.89E-04	g/seatbelt
potassium chloride	3.64E-03	g/1000g acrylic resin	8.19E-07	g/seatbelt
primary energy from geother	1.69E-02	MJ/1000g acrylic resin	3.79E-06	MJ/seatbelt
primary energy from hydro p	4.80E-01	MJ/1000g acrylic resin	1.08E-04	MJ/seatbelt
primary energy from solar en	7.23E-04	MJ/1000g acrylic resin	1.63E-07	MJ/seatbelt
primary energy from waves	9.37E-04	MJ/1000g acrylic resin	2.11E-07	MJ/seatbelt
primary energy from wind po	4.61E-02	MJ/1000g acrylic resin	1.04E-05	MJ/seatbelt
quartz sand	1.10E-20	g/1000g acrylic resin	2.48E-24	g/seatbelt
river water	1.37E+04	g/1000g acrylic resin	3.08E+00	g/seatbelt
sand	3.32E+00	g/1000g acrylic resin	7.48E-04	g/seatbelt
sea water	4.91E+00	1l/1000g acrylic resin	1.11E-03	1l/seatbelt
slate	1.16E-02	g/1000g acrylic resin	2.61E-06	g/seatbelt
sodium chloride	3.20E+01	g/1000g acrylic resin	7.20E-03	g/seatbelt
sodium nitrate	7.80E-13	g/1000g acrylic resin	1.76E-16	g/seatbelt
sulfur (in)	4.28E+01	g/1000g acrylic resin	9.64E-03	g/seatbelt
talc	9.96E-24	g/1000g acrylic resin	2.24E-27	g/seatbelt
titanium	6.91E-30	g/1000g acrylic resin	1.56E-33	g/seatbelt
uranium	5.18E+03	g/1000g acrylic resin	1.16E+00	g/seatbelt
water	5.53E+01	1l/1000g acrylic resin	1.24E-02	1l/seatbelt
wood; 14.7 MJ/kg	8.10E-04	1MJ/1000g acrylic resin	1.82E-07	1MJ/seatbelt
zinc (in)	1.33E-04	g/1000g acrylic resin	2.99E-08	g/seatbelt

OUTFLOWS				0.00E+00	
acrylic resin	1000	g		2.25E-01	g
1,2-dichloroethane	2.99E-07	g/1000g acrylic resin		6.73E-11	g/seatbelt
1,2-dichloroethane	5.11E-09	g/1000g acrylic resin		1.15E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.39E-27	g/1000g acrylic resin		3.13E-31	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.23E-10	g/1000g acrylic resin		5.02E-14	g/seatbelt
acid (as H+)	2.09E-07	g/1000g acrylic resin		4.70E-11	g/seatbelt
acid (as H+)	7.77E-02	g/1000g acrylic resin		1.75E-05	g/seatbelt
adsorbable organic halogen c	1.45E-08	g/1000g acrylic resin		3.27E-12	g/seatbelt
aluminium	5.38E-04	g/1000g acrylic resin		1.21E-07	g/seatbelt
ammonia	9.33E-03	g/1000g acrylic resin		2.10E-06	g/seatbelt
ammonia	1.13E+00	g/1000g acrylic resin		2.55E-04	g/seatbelt
antimony	2.37E-09	g/1000g acrylic resin		5.33E-13	g/seatbelt
arsenic	8.97E-08	g/1000g acrylic resin		2.02E-11	g/seatbelt
arsenic	2.63E-07	g/1000g acrylic resin		5.91E-11	g/seatbelt
benzene	5.77E-03	g/1000g acrylic resin		1.30E-06	g/seatbelt
benzene	1.04E-09	g/1000g acrylic resin		2.34E-13	g/seatbelt
biological oxygen demand	5.12E-01	g/1000g acrylic resin		1.15E-04	g/seatbelt
bromate	3.27E-06	g/1000g acrylic resin		7.37E-10	g/seatbelt
cadmium	6.44E-08	g/1000g acrylic resin		1.45E-11	g/seatbelt
cadmium	5.11E-09	g/1000g acrylic resin		1.15E-12	g/seatbelt
calcium	1.13E-01	g/1000g acrylic resin		2.54E-05	g/seatbelt
carbon dioxide	5.86E+03	g/1000g acrylic resin		1.32E+00	g/seatbelt
carbon disulfide	5.29E-08	g/1000g acrylic resin		1.19E-11	g/seatbelt
carbon monoxide	5.53E+00	g/1000g acrylic resin		1.25E-03	g/seatbelt
carbonate	5.52E-02	g/1000g acrylic resin		1.24E-05	g/seatbelt
chemical oxygen demand	1.69E+00	g/1000g acrylic resin		3.80E-04	g/seatbelt
chlorate	4.45E-03	g/1000g acrylic resin		1.00E-06	g/seatbelt
chloride	8.69E+00	g/1000g acrylic resin		1.95E-03	g/seatbelt
chlorine	4.35E-04	g/1000g acrylic resin		9.79E-08	g/seatbelt
chlorine	1.35E-05	g/1000g acrylic resin		3.05E-09	g/seatbelt
chromium	9.52E-04	g/1000g acrylic resin		2.14E-07	g/seatbelt
chromium	3.48E-08	g/1000g acrylic resin		7.83E-12	g/seatbelt
copper	1.83E-06	g/1000g acrylic resin		4.11E-10	g/seatbelt
copper	5.16E-05	g/1000g acrylic resin		1.16E-08	g/seatbelt
cyanide	3.66E-03	g/1000g acrylic resin		8.24E-07	g/seatbelt
decane	1.20E-02	g/1000g acrylic resin		2.71E-06	g/seatbelt
dichloromethane	9.60E-07	g/1000g acrylic resin		2.16E-10	g/seatbelt
ethyl benzene	3.26E-04	g/1000g acrylic resin		7.34E-08	g/seatbelt
ethylene	2.90E-03	g/1000g acrylic resin		6.51E-07	g/seatbelt
fluoride	6.64E-03	g/1000g acrylic resin		1.49E-06	g/seatbelt
fluorine	7.13E-06	g/1000g acrylic resin		1.60E-09	g/seatbelt
hydrocarbons (unspecified)	5.45E-03	g/1000g acrylic resin		1.23E-06	g/seatbelt
hydrocyanic acid	2.80E-03	g/1000g acrylic resin		6.30E-07	g/seatbelt
hydrogen	1.14E-01	g/1000g acrylic resin		2.58E-05	g/seatbelt
hydrogen chloride	1.60E-01	g/1000g acrylic resin		3.59E-05	g/seatbelt
hydrogen fluoride	6.87E-03	g/1000g acrylic resin		1.55E-06	g/seatbelt
hydrogen sulfide	2.02E-05	g/1000g acrylic resin		4.55E-09	g/seatbelt
iron	3.09E-05	g/1000g acrylic resin		6.95E-09	g/seatbelt
lead	2.29E-06	g/1000g acrylic resin		5.16E-10	g/seatbelt

lead	1.83E-03	g/1000g acrylic resin	4.12E-07	g/seatbelt
manganese	2.27E-08	g/1000g acrylic resin	5.11E-12	g/seatbelt
mercury	1.71E-05	g/1000g acrylic resin	3.84E-09	g/seatbelt
mercury	3.25E-06	g/1000g acrylic resin	7.32E-10	g/seatbelt
methane	4.77E+01	g/1000g acrylic resin	1.07E-02	g/seatbelt
nickel	1.73E-03	g/1000g acrylic resin	3.89E-07	g/seatbelt
nickel	3.57E-05	g/1000g acrylic resin	8.03E-09	g/seatbelt
nitrate	9.47E-03	g/1000g acrylic resin	2.13E-06	g/seatbelt
nitrogen	1.68E-03	g/1000g acrylic resin	3.79E-07	g/seatbelt
nitrogen dioxide	1.24E+01	g/1000g acrylic resin	2.78E-03	g/seatbelt
nitrous oxide	7.64E-06	g/1000g acrylic resin	1.72E-09	g/seatbelt
non-methane volatile organic	1.21E+01	g/1000g acrylic resin	2.71E-03	g/seatbelt
oxygen	3.28E-09	g/1000g acrylic resin	7.38E-13	g/seatbelt
particles (> PM10)	1.68E+00	g/1000g acrylic resin	3.79E-04	g/seatbelt
particles (PM10)	2.00E+00	g/1000g acrylic resin	4.51E-04	g/seatbelt
particles (PM10)	5.82E-02	g/1000g acrylic resin	1.31E-05	g/seatbelt
particles (PM2.5)	9.56E-10	g/1000g acrylic resin	2.15E-13	g/seatbelt
phenol	5.12E-04	g/1000g acrylic resin	1.15E-07	g/seatbelt
phosphate	4.92E+00	g/1000g acrylic resin	1.11E-03	g/seatbelt
polycyclic aromatic hydrocarb	1.73E-03	g/1000g acrylic resin	3.89E-07	g/seatbelt
potassium	1.14E-04	g/1000g acrylic resin	2.58E-08	g/seatbelt
propene	2.14E-03	g/1000g acrylic resin	4.83E-07	g/seatbelt
selenium	2.09E-10	g/1000g acrylic resin	4.69E-14	g/seatbelt
silver	6.02E-09	g/1000g acrylic resin	1.36E-12	g/seatbelt
sodium	1.85E+01	g/1000g acrylic resin	4.17E-03	g/seatbelt
strontium	4.89E-07	g/1000g acrylic resin	1.10E-10	g/seatbelt
styrene	5.78E-05	g/1000g acrylic resin	1.30E-08	g/seatbelt
sulfate	2.73E+01	g/1000g acrylic resin	6.14E-03	g/seatbelt
sulfur	1.08E-06	g/1000g acrylic resin	2.43E-10	g/seatbelt
sulfur dioxide	2.89E+01	g/1000g acrylic resin	6.50E-03	g/seatbelt
tin	2.81E-10	g/1000g acrylic resin	6.32E-14	g/seatbelt
toluene	9.78E-04	g/1000g acrylic resin	2.20E-07	g/seatbelt
total organic carbon	1.69E-02	g/1000g acrylic resin	3.81E-06	g/seatbelt
vinyl chloride	3.61E-06	g/1000g acrylic resin	8.11E-10	g/seatbelt
vinyl chloride	6.61E-08	g/1000g acrylic resin	1.49E-11	g/seatbelt
volatile organic compound	2.02E+00	g/1000g acrylic resin	4.55E-04	g/seatbelt
volatile organic compound	1.08E+00	g/1000g acrylic resin	2.43E-04	g/seatbelt
xylene (all isomers)	4.04E-04	g/1000g acrylic resin	9.09E-08	g/seatbelt
zinc	9.90E-07	g/1000g acrylic resin	2.23E-10	g/seatbelt
zinc	8.95E-05	g/1000g acrylic resin	2.01E-08	g/seatbelt
chemical waste	1.56E+01	g/1000g acrylic resin	3.51E-03	g/seatbelt
chemical waste, inert	6.29E+00	g/1000g acrylic resin	1.42E-03	g/seatbelt
chemical waste, toxic	8.95E+00	g/1000g acrylic resin	2.01E-03	g/seatbelt
demolition waste	1.52E-02	g/1000g acrylic resin	3.43E-06	g/seatbelt
industrial waste	1.21E+01	g/1000g acrylic resin	2.73E-03	g/seatbelt
mineral waste	3.22E+00	g/1000g acrylic resin	7.24E-04	g/seatbelt
municipal waste	-7.23E+00	g/1000g acrylic resin	-1.63E-03	g/seatbelt
organic waste	1.06E-04	g/1000g acrylic resin	2.38E-08	g/seatbelt
overburden	5.72E+01	g/1000g acrylic resin	1.29E-02	g/seatbelt
packaging waste (metal)	8.95E-07	g/1000g acrylic resin	2.01E-10	g/seatbelt

packaging waste (plastic)	7.60E-09	g/1000g acrylic resin		1.71E-12	g/seatbelt
plastic	1.86E-02	g/1000g acrylic resin		4.19E-06	g/seatbelt
tailings	6.31E-02	g/1000g acrylic resin		1.42E-05	g/seatbelt
waste	6.71E+00	g/1000g acrylic resin		1.51E-03	g/seatbelt
waste paper	1.08E-07	g/1000g acrylic resin		2.43E-11	g/seatbelt
wood	1.97E-03	g/1000g acrylic resin		4.43E-07	g/seatbelt
wooden pallet	3.72E-08	g/1000g acrylic resin		8.38E-12	g/seatbelt
Remark:					
Data for acrylic resin interpreted from LCI data for Polymethyl methacrylate (PMMA) beads; production mix, at plant (ELCD database, 1999)					
3.93.2 Transportation to Label manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.93.3 Production of paper for labels	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Hardwood	70.0000	g/1000g paper	0.6750	4.73E-02	g/seatbelt
Softwood	1210.0000	g/1000g paper		8.17E-01	g/seatbelt
Al2(SO4)3	6.7000	g/1000g paper		4.52E-03	g/seatbelt
Bark	6.5000	MJ/1000g paper		4.39E-03	MJ/seatbelt
biocides	0.0800	g/1000g paper		5.40E-05	g/seatbelt
Board	0.0500	g/1000g paper		3.38E-05	g/seatbelt
CaCO3	2.9000	g/1000g paper		1.96E-03	g/seatbelt
CaO	4.1000	g/1000g paper		2.77E-03	g/seatbelt
Core and core plug	1.9100	g/1000g paper		1.29E-03	g/seatbelt
Defoamers	0.9500	g/1000g paper		6.41E-04	g/seatbelt
Diesel	0.0300	MJ/1000g paper		2.03E-05	MJ/seatbelt
Electricity	2.2300	MJ/1000g paper		1.51E-03	MJ/seatbelt
H2SO4	14.7000	g/1000g paper		9.92E-03	g/seatbelt
Heavy oil	1.6900	MJ/1000g paper		1.14E-03	MJ/seatbelt
Hydrochloric acid	0.0700	g/1000g paper		4.73E-05	g/seatbelt
Light fuel oil	0.5400	MJ/1000g paper		3.65E-04	MJ/seatbelt
Lubricant	0.1800	g/1000g paper		1.22E-04	g/seatbelt
Na2CO3	1.9000	g/1000g paper		1.28E-03	g/seatbelt
Na2SO4	1.9000	g/1000g paper		1.28E-03	g/seatbelt
NaOH	9.3000	g/1000g paper		6.28E-03	g/seatbelt
Natural gas	1.0400	MJ/1000g paper		7.02E-04	MJ/seatbelt
Peat	0.0600	MJ/1000g paper		4.05E-05	MJ/seatbelt
Pitch despergent	0.0200	g/1000g paper		1.35E-05	g/seatbelt
Retention aids	0.5700	g/1000g paper		3.85E-04	g/seatbelt
S	0.1700	g/1000g paper		1.15E-04	g/seatbelt
Sizing agents	1.6000	g/1000g paper		1.08E-03	g/seatbelt

Starch	4.2000	g/1000g paper		2.84E-03	g/seatbelt
Steel	0.0500	g/1000g paper		3.38E-05	g/seatbelt
Waste paper	230.0000	g/1000g paper		1.55E-01	g/seatbelt
				0.00E+00	
OUTFLOWS				0.00E+00	
Electricity	0.0070	MJ/1000g paper		4.73E-06	MJ/seatbelt
Tall oil	25.0000	g/1000g paper		1.69E-02	g/seatbelt
Thermal energy	0.3200	MJ/1000g paper		2.16E-04	MJ/seatbelt
Turpentine	1.3000	g/1000g paper		8.78E-04	g/seatbelt
BOD	6.7000	g/1000g paper		4.52E-03	g/seatbelt
CO2	1580.0000	g/1000g paper		1.07E+00	g/seatbelt
COD	17.3000	g/1000g paper		1.17E-02	g/seatbelt
Dust	1.6000	g/1000g paper		1.08E-03	g/seatbelt
H2S	0.1400	g/1000g paper		9.45E-05	g/seatbelt
NOx	1.2000	g/1000g paper		8.10E-04	g/seatbelt
SOx	0.8600	g/1000g paper		5.81E-04	g/seatbelt
Susp solids	2.5000	g/1000g paper		1.69E-03	g/seatbelt
Kraftliner	1.0000	g/1000g paper		6.75E-04	g/seatbelt
Ashes	4.3000	g/1000g paper		2.90E-03	g/seatbelt
Other rest products	19.8000	g/1000g paper		1.34E-02	g/seatbelt
Remark:					
Data adapted from production of Kraftliner gate-to-gate (CPM, 2000)					
Electricity data for Germany					
3.93.4 Transportation to Label manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.93 Production of label identification in Label manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	43.064425	MJ/1000g product	0.9000	3.88E-02	MJ/seatbelt
water	30.481809	l/1000g product		2.74E-02	l/seatbelt
acrylic resin	250	g/1000g product		2.25E-01	g/seatbelt
paper	750	g/1000g product		6.75E-01	g/seatbelt
OUTFLOWS					
label identification				0.900	g/seatbelt
Remark:					
Data adapted from label production in Label manufacturer no.2					
Electricity data for Germany					

3.94 Transportation from Label manufacturer no.4 to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.7200	MJ/1000g of product	0.9000	6.48E-04	MJ/seatbelt
OUTFLOWS					
CO2	52.0000	g/1000g of product		4.68E-02	g/seatbelt
NOx	0.3300	g/1000g of product		2.97E-04	g/seatbelt
HC	0.0470	g/1000g of product		4.23E-05	g/seatbelt
Particulate matter	0.0057	g/1000g of product		5.13E-06	g/seatbelt
CO	0.0460	g/1000g of product		4.14E-05	g/seatbelt
SO2	0.0130	g/1000g of product		1.17E-05	g/seatbelt
Remark:					
Distance between Label manufacturer no.4 (Salzgitter, Germany) and ALH (Sopronkövesd, Hungary) in km		**1000**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.95 Production of spindle in ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.0591085	MJ/1000g product	229.9182	1.36E-02	MJ/seatbelt
natural gas	0.0326433	MJ/1000g product		7.51E-03	MJ/seatbelt
water	0.0445998	l/1000g product		1.03E-02	l/seatbelt
safety plate	8.6987459	g/1000g product		2.00E+00	g/seatbelt
spring wire	13.965837	g/1000g product		3.21E+00	g/seatbelt
gear wheel	34.806727	g/1000g product		8.00E+00	g/seatbelt
tread head	177.45442	g/1000g product		4.08E+01	g/seatbelt
bar torsion	165.27617	g/1000g product		3.80E+01	g/seatbelt
bobbin mirror	439.28667	g/1000g product		1.01E+02	g/seatbelt
gear ring	156.57743	g/1000g product		3.60E+01	g/seatbelt
bar code	3.9144357	g/1000g product		9.00E-01	g/seatbelt
OUTFLOWS					g/seatbelt
spindle				229.9182	g/seatbelt
nitrogen oxide	0.0070801	g/1000g product		1.63E-03	g/seatbelt
particles (> PM10)	7.66E-05	g/1000g product		1.76E-05	g/seatbelt
sulfur dioxide	0.0005291	g/1000g product		1.22E-04	g/seatbelt
sludge	462.80256	g/1000g product		1.06E+02	g/seatbelt
Remark:					
Electricity data for Hungary					
Calculation for 1 seatbelt based on data from company: half of total production constitutes retractors and there is 5000000 of retractors produced per year					

3.97.1 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.76E-06	g/1000g POM	5.7000	1.00E-08	g/seatbelt
energy (recovered)	-1.91E+03	g/1000g POM		-1.09E+01	g/seatbelt
hydrogen; gaseous	9.80E-04	g/1000g POM		5.59E-06	g/seatbelt
waste	4.88E+00	g/1000g POM		2.78E-02	g/seatbelt
air	2.97E+02	g/1000g POM		1.69E+00	g/seatbelt
baryte	3.53E-05	g/1000g POM		2.01E-07	g/seatbelt
bauxite	2.15E-03	g/1000g POM		1.23E-05	g/seatbelt
bentonite	3.81E-02	g/1000g POM		2.17E-04	g/seatbelt
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		4.30E-04	MJ/seatbelt
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		8.69E-07	MJ/seatbelt
calcium carbonate (in)	1.44E-01	g/1000g POM		8.23E-04	g/seatbelt
chromium (in)	6.46E-10	g/1000g POM		3.68E-12	g/seatbelt
clay	2.04E-07	g/1000g POM		1.16E-09	g/seatbelt
copper (in)	1.29E-05	g/1000g POM		7.36E-08	g/seatbelt
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		2.44E-01	MJ/seatbelt
dolomite	2.02E-03	g/1000g POM		1.15E-05	g/seatbelt
feldspar	7.82E-14	g/1000g POM		4.46E-16	g/seatbelt
fluorspar	3.75E-04	g/1000g POM		2.14E-06	g/seatbelt
granite	2.86E-12	g/1000g POM		1.63E-14	g/seatbelt
ground water	5.52E-02	l/1000g POM		3.15E-04	l/seatbelt
gypsum	3.84E-03	g/1000g POM		2.19E-05	g/seatbelt
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		1.30E-02	MJ/seatbelt
inert rock	1.39E-03	g/1000g POM		7.90E-06	g/seatbelt
iron (in)	1.65E-01	g/1000g POM		9.38E-04	g/seatbelt
lead (in)	3.32E-04	g/1000g POM		1.89E-06	g/seatbelt
magnesium (in)	5.86E-07	g/1000g POM		3.34E-09	g/seatbelt
manganese (in)	1.24E-04	g/1000g POM		7.08E-07	g/seatbelt
mercury (in)	4.86E-07	g/1000g POM		2.77E-09	g/seatbelt
natural aggregate	6.07E-04	g/1000g POM		3.46E-06	g/seatbelt
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		1.22E-01	MJ/seatbelt
nickel	1.17E-06	g/1000g POM		6.68E-09	g/seatbelt
nitrogen (in)	9.44E+01	g/1000g POM		5.38E-01	g/seatbelt
olivine	1.54E-03	g/1000g POM		8.80E-06	g/seatbelt
oxygen	4.87E-03	g/1000g POM		2.77E-05	g/seatbelt
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		4.69E-05	MJ/seatbelt
phosphorus (in)	8.77E-10	g/1000g POM		5.00E-12	g/seatbelt
potassium chloride	9.70E-06	g/1000g POM		5.53E-08	g/seatbelt
primary energy from geother	2.38E-02	MJ/1000g POM		1.36E-04	MJ/seatbelt
primary energy from hydro p	2.95E-01	MJ/1000g POM		1.68E-03	MJ/seatbelt
primary energy from solar en	8.77E-05	MJ/1000g POM		5.00E-07	MJ/seatbelt
primary energy from waves	4.89E-04	MJ/1000g POM		2.79E-06	MJ/seatbelt
primary energy from wind po	1.13E-02	MJ/1000g POM		6.43E-05	MJ/seatbelt
quartz sand	5.31E-33	g/1000g POM		3.03E-35	g/seatbelt

river water	3.20E+03	g/1000g POM		1.83E+01	g/seatbelt
sand	9.51E-02	g/1000g POM		5.42E-04	g/seatbelt
sea water	6.03E+00	1l/1000g POM		3.44E-02	1l/seatbelt
slate	1.09E-02	g/1000g POM		6.19E-05	g/seatbelt
sodium chloride	2.67E-01	g/1000g POM		1.52E-03	g/seatbelt
sodium nitrate	1.76E-06	g/1000g POM		1.00E-08	g/seatbelt
sulfur (in)	3.33E-02	g/1000g POM		1.90E-04	g/seatbelt
talc	7.94E-24	g/1000g POM		4.53E-26	g/seatbelt
titanium	1.82E-03	g/1000g POM		1.04E-05	g/seatbelt
uranium	2.74E+03	g/1000g POM		1.56E+01	g/seatbelt
water	3.11E+01	1l/1000g POM		1.77E-01	1l/seatbelt
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		7.00E-08	1MJ/seatbelt
zinc (in)	6.14E-02	g/1000g POM		3.50E-04	g/seatbelt
OUTFLOWS				0.00E+00	
Polypropylene granulate (PP)	1000	g		5.70E+00	g
1,2-dichloroethane	1.39E-08	g/1000g POM		7.91E-11	g/seatbelt
1,2-dichloroethane	3.16E-10	g/1000g POM		1.80E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g POM		2.14E-31	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g POM		6.97E-16	g/seatbelt
acid (as H+)	4.33E-14	g/1000g POM		2.47E-16	g/seatbelt
acid (as H+)	2.01E-03	g/1000g POM		1.15E-05	g/seatbelt
adsorbable organic halogen c	6.94E-10	g/1000g POM		3.95E-12	g/seatbelt
aluminium	4.06E-04	g/1000g POM		2.31E-06	g/seatbelt
ammonia	1.58E-07	g/1000g POM		9.02E-10	g/seatbelt
ammonia	3.39E-03	g/1000g POM		1.93E-05	g/seatbelt
antimony	7.96E-08	g/1000g POM		4.54E-10	g/seatbelt
arsenic	8.41E-08	g/1000g POM		4.79E-10	g/seatbelt
arsenic	1.85E-07	g/1000g POM		1.05E-09	g/seatbelt
benzene	3.35E-15	g/1000g POM		1.91E-17	g/seatbelt
benzene	6.58E-19	g/1000g POM		3.75E-21	g/seatbelt
biological oxygen demand	2.88E-02	g/1000g POM		1.64E-04	g/seatbelt
bromate	4.13E-07	g/1000g POM		2.36E-09	g/seatbelt
cadmium	8.62E-08	g/1000g POM		4.92E-10	g/seatbelt
cadmium	4.36E-08	g/1000g POM		2.48E-10	g/seatbelt
calcium	3.65E-05	g/1000g POM		2.08E-07	g/seatbelt
carbon dioxide	1.67E+03	g/1000g POM		9.52E+00	g/seatbelt
carbon disulfide	1.98E-08	g/1000g POM		1.13E-10	g/seatbelt
carbon monoxide	6.10E+00	g/1000g POM		3.48E-02	g/seatbelt
carbonate	2.83E-02	g/1000g POM		1.62E-04	g/seatbelt
chemical oxygen demand	2.40E-01	g/1000g POM		1.37E-03	g/seatbelt
chlorate	6.77E-05	g/1000g POM		3.86E-07	g/seatbelt
chloride	1.53E-01	g/1000g POM		8.71E-04	g/seatbelt
chlorine	3.71E-07	g/1000g POM		2.11E-09	g/seatbelt
chlorine	8.03E-07	g/1000g POM		4.58E-09	g/seatbelt
chromium	3.83E-07	g/1000g POM		2.18E-09	g/seatbelt
chromium	4.93E-09	g/1000g POM		2.81E-11	g/seatbelt
copper	8.90E-09	g/1000g POM		5.07E-11	g/seatbelt
copper	1.03E-05	g/1000g POM		5.87E-08	g/seatbelt
cyanide	1.56E-08	g/1000g POM		8.89E-11	g/seatbelt
decane	1.39E-02	g/1000g POM		7.92E-05	g/seatbelt

dichloromethane	9.24E-10	g/1000g POM		5.27E-12	g/seatbelt
ethyl benzene	1.97E-16	g/1000g POM		1.12E-18	g/seatbelt
ethylene	1.66E-03	g/1000g POM		9.45E-06	g/seatbelt
fluoride	3.59E-06	g/1000g POM		2.05E-08	g/seatbelt
fluorine	3.23E-08	g/1000g POM		1.84E-10	g/seatbelt
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		2.91E-05	g/seatbelt
hydrocyanic acid	6.21E-16	g/1000g POM		3.54E-18	g/seatbelt
hydrogen	3.02E-02	g/1000g POM		1.72E-04	g/seatbelt
hydrogen chloride	5.13E-02	g/1000g POM		2.93E-04	g/seatbelt
hydrogen fluoride	1.49E-03	g/1000g POM		8.52E-06	g/seatbelt
hydrogen sulfide	5.52E-06	g/1000g POM		3.15E-08	g/seatbelt
iron	1.81E-05	g/1000g POM		1.03E-07	g/seatbelt
lead	1.99E-06	g/1000g POM		1.13E-08	g/seatbelt
lead	3.83E-07	g/1000g POM		2.18E-09	g/seatbelt
manganese	6.28E-07	g/1000g POM		3.58E-09	g/seatbelt
mercury	1.80E-06	g/1000g POM		1.02E-08	g/seatbelt
mercury	1.70E-07	g/1000g POM		9.68E-10	g/seatbelt
methane	1.18E+01	g/1000g POM		6.74E-02	g/seatbelt
nickel	8.73E-11	g/1000g POM		4.98E-13	g/seatbelt
nickel	2.58E-07	g/1000g POM		1.47E-09	g/seatbelt
nitrate	1.20E-01	g/1000g POM		6.83E-04	g/seatbelt
nitrogen	8.77E-04	g/1000g POM		5.00E-06	g/seatbelt
nitrogen dioxide	3.29E+00	g/1000g POM		1.87E-02	g/seatbelt
nitrous oxide	4.82E-10	g/1000g POM		2.75E-12	g/seatbelt
non-methane volatile organic	3.51E+00	g/1000g POM		2.00E-02	g/seatbelt
oxygen	7.98E-21	g/1000g POM		4.55E-23	g/seatbelt
particles (> PM10)	8.64E-02	g/1000g POM		4.93E-04	g/seatbelt
particles (PM10)	5.95E-01	g/1000g POM		3.39E-03	g/seatbelt
particles (PM10)	8.75E-03	g/1000g POM		4.99E-05	g/seatbelt
particles (PM2.5)	3.90E-12	g/1000g POM		2.22E-14	g/seatbelt
phenol	1.99E-03	g/1000g POM		1.14E-05	g/seatbelt
phosphate	5.37E-01	g/1000g POM		3.06E-03	g/seatbelt
polycyclic aromatic hydrocarb	1.36E-15	g/1000g POM		7.72E-18	g/seatbelt
potassium	1.18E-06	g/1000g POM		6.70E-09	g/seatbelt
propene	1.23E-03	g/1000g POM		7.00E-06	g/seatbelt
selenium	1.01E-22	g/1000g POM		5.73E-25	g/seatbelt
silver	2.90E-21	g/1000g POM		1.65E-23	g/seatbelt
sodium	8.11E-02	g/1000g POM		4.62E-04	g/seatbelt
strontium	7.15E-09	g/1000g POM		4.07E-11	g/seatbelt
styrene	2.76E-17	g/1000g POM		1.58E-19	g/seatbelt
sulfate	9.30E-01	g/1000g POM		5.30E-03	g/seatbelt
sulfur	3.49E-10	g/1000g POM		1.99E-12	g/seatbelt
sulfur dioxide	3.78E+00	g/1000g POM		2.16E-02	g/seatbelt
tin	1.53E-13	g/1000g POM		8.71E-16	g/seatbelt
toluene	5.61E-16	g/1000g POM		3.20E-18	g/seatbelt
total organic carbon	8.94E-03	g/1000g POM		5.10E-05	g/seatbelt
vinyl chloride	3.11E-07	g/1000g POM		1.77E-09	g/seatbelt
vinyl chloride	5.78E-09	g/1000g POM		3.29E-11	g/seatbelt
volatile organic compound	1.79E-01	g/1000g POM		1.02E-03	g/seatbelt
volatile organic compound	1.06E-02	g/1000g POM		6.04E-05	g/seatbelt

xylene (all isomers)	2.59E-16	g/1000g POM		1.48E-18	g/seatbelt
zinc	4.86E-06	g/1000g POM		2.77E-08	g/seatbelt
zinc	9.69E-05	g/1000g POM		5.53E-07	g/seatbelt
chemical waste	1.91E+00	g/1000g POM		1.09E-02	g/seatbelt
chemical waste, inert	8.15E-01	g/1000g POM		4.64E-03	g/seatbelt
chemical waste, toxic	1.70E+00	g/1000g POM		9.71E-03	g/seatbelt
demolition waste	2.20E-03	g/1000g POM		1.25E-05	g/seatbelt
industrial waste	1.13E+00	g/1000g POM		6.45E-03	g/seatbelt
mineral waste	2.05E-01	g/1000g POM		1.17E-03	g/seatbelt
municipal waste	-4.61E+00	g/1000g POM		-2.63E-02	g/seatbelt
organic waste	1.69E-03	g/1000g POM		9.61E-06	g/seatbelt
overburden	1.63E+01	g/1000g POM		9.29E-02	g/seatbelt
packaging waste (metal)	3.17E-05	g/1000g POM		1.81E-07	g/seatbelt
packaging waste (plastic)	6.63E-10	g/1000g POM		3.78E-12	g/seatbelt
plastic	3.40E-01	g/1000g POM		1.94E-03	g/seatbelt
tailings	2.46E-01	g/1000g POM		1.40E-03	g/seatbelt
waste	9.32E-01	g/1000g POM		5.31E-03	g/seatbelt
waste paper	2.35E-06	g/1000g POM		1.34E-08	g/seatbelt
wood	2.98E-05	g/1000g POM		1.70E-07	g/seatbelt
wooden pallet	5.89E-07	g/1000g POM		3.36E-09	g/seatbelt
Remark:					
Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD					

3.97.2 Transportation to Plastic parts manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.3636	MJ/1000g of product	5.7000	2.07E-03	MJ/seatbelt
OUTFLOWS					
CO2	26.2600	g/1000g of product		1.50E-01	g/seatbelt
NOx	0.1667	g/1000g of product		9.50E-04	g/seatbelt
HC	0.0237	g/1000g of product		1.35E-04	g/seatbelt
Particulate matter	0.0029	g/1000g of product		1.64E-05	g/seatbelt
CO	0.0232	g/1000g of product		1.32E-04	g/seatbelt
SO2	0.0066	g/1000g of product		3.74E-05	g/seatbelt
Remark:					
Distance between Plastics producer no.1 (de Nemours Belgium NV) and Plastic parts manufacturer no.1 (Hodenhagen, Germany) in km		**505**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.97 Production of ratchet wheel	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
POM	1000.0000	g/1000g product	5.7000	5.70E+00	g/seatbelt
electricity	9.6000	MJ/1000g of product		5.47E-02	MJ/seatbelt
OUTFLOWS				0.00E+00	
ratchet wheel				5.7000	g/seatbelt
Remark					
Electricity data for Germany					
Production data adapted from production sleeve, data carrier by Plastic parts manufacturer no.2					
3.98 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6962	MJ/1000g of product	5.7000	3.97E-03	MJ/seatbelt
OUTFLOWS					
CO2	50.2840	g/1000g of product		2.87E-01	g/seatbelt
NOx	0.3191	g/1000g of product		1.82E-03	g/seatbelt
HC	0.0454	g/1000g of product		2.59E-04	g/seatbelt
Particulate matter	0.0055	g/1000g of product		3.14E-05	g/seatbelt
CO	0.0445	g/1000g of product		2.54E-04	g/seatbelt
SO2	0.0126	g/1000g of product		7.17E-05	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.1 (Hodenhagen, Germany) and ALH (Sopronkövesd, Hungary) in km		**967**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.99.1 Production of alloy ZnAl4Cu1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	11.8370	1.87E-04	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		3.72E-04	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		8.43E-06	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		1.04E-02	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		2.46E+00	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		1.82E-01	g/seatbelt

crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		5.39E-02	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		5.69E-01	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		1.79E-01	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		2.64E+00	g/seatbelt
iron (in)	215.94651	g/1000g alloy		2.56E+00	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		2.61E-02	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		1.91E-05	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		7.55E-02	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		3.08E-03	g/seatbelt
water	18.985568	l/1000g alloy		2.25E-01	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		1.18E+01	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		2.65E-11	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		7.11E-04	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		1.40E-04	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		7.16E-04	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		2.58E-07	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		4.00E+01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		1.17E-01	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		5.34E-03	g/seatbelt
chloride	3.56E+00	g/1000g alloy		4.21E-02	g/seatbelt
chromium	1.14E-01	g/1000g alloy		1.35E-03	g/seatbelt
chromium	9.22E-04	g/1000g alloy		1.09E-05	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		7.03E-07	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		2.71E-06	g/seatbelt
copper	1.22E-04	g/1000g alloy		1.44E-06	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		8.19E-04	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		2.58E-04	g/seatbelt
iron	1.31E-01	g/1000g alloy		1.55E-03	g/seatbelt
lead	5.17E-04	g/1000g alloy		6.12E-06	g/seatbelt
manganese	2.83E-03	g/1000g alloy		3.35E-05	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		7.39E-05	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		1.96E-05	g/seatbelt
nickel	2.97E-02	g/1000g alloy		3.52E-04	g/seatbelt
nickel	3.38E-03	g/1000g alloy		4.00E-05	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		2.37E-03	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		1.21E-03	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		8.90E-02	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		2.78E-03	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		5.26E-02	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		3.50E-05	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		1.09E-02	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		1.47E-01	g/seatbelt
tin	1.61E-04	g/1000g alloy		1.91E-06	g/seatbelt
zinc	1.11E-03	g/1000g alloy		1.31E-05	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		2.87E+00	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		1.54E+01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					

3.99.2 Transportation to Metal parts manufacturer no.14	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.0221	MJ/1000g of product	11.8370	2.61E-04	MJ/seatbelt
Electricity	0.0136	MJ/1000g of product		1.61E-04	MJ/seatbelt
OUTFLOWS					
CO2	1.6200	g/1000g of product		1.92E-02	g/seatbelt
NOx	0.0324	g/1000g of product		3.84E-04	g/seatbelt
HC	0.0021	g/1000g of product		2.45E-05	g/seatbelt
Particulate matter	0.0007	g/1000g of product		8.52E-06	g/seatbelt
CO	0.0017	g/1000g of product		2.02E-05	g/seatbelt
SO2	0.0000	g/1000g of product		1.49E-07	g/seatbelt
Remark:					
Distance between alloy producer and Metal parts manufacturer no.14 (Grosso, Italy)		**90**			
Transportation type: Train					
3.99.3 Production of zinc for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
air	13500	g/1000g zinc	0.0830	1.12E+00	g/seatbelt
baryte	1.5574821	g/1000g zinc		1.29E-04	g/seatbelt
basalt	34.801523	g/1000g zinc		2.89E-03	g/seatbelt
bauxite	21.142572	g/1000g zinc		1.75E-03	g/seatbelt
bentonite	0.648349	g/1000g zinc		5.38E-05	g/seatbelt
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		1.78E-08	MJ/seatbelt
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		3.62E-04	MJ/seatbelt
calcium carbonate	85.44366	g/1000g zinc		7.09E-03	g/seatbelt
calcium chloride	5.527E-09	g/1000g zinc		4.59E-13	g/seatbelt
carbon dioxide (in)	62.963074	g/1000g zinc		5.23E-03	g/seatbelt
nickel (in)	0.0023622	g/1000g zinc		1.96E-07	g/seatbelt
clay	0.2616171	g/1000g zinc		2.17E-05	g/seatbelt
colemanite	0.9853674	g/1000g zinc		8.18E-05	g/seatbelt
copper (in)	-31.106001	g/1000g zinc		-2.58E-03	g/seatbelt
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		3.46E-04	MJ/seatbelt
fluorspar	0.1583729	g/1000g zinc		1.31E-05	g/seatbelt
gold (in)	-0.0026783	g/1000g zinc		-2.22E-07	g/seatbelt
ground water	3624.1777	g/1000g zinc		3.01E-01	g/seatbelt
gypsum	0.1523604	g/1000g zinc		1.26E-05	g/seatbelt
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		1.14E-03	MJ/seatbelt
inert rock	47243.326	g/1000g zinc		3.92E+00	g/seatbelt

iron (in)	4.1413625	g/1000g zinc		3.44E-04	g/seatbelt
kaolin	0.0019158	g/1000g zinc		1.59E-07	g/seatbelt
lead (in)	120.22987	g/1000g zinc		9.98E-03	g/seatbelt
magnesite	0.0012403	g/1000g zinc		1.03E-07	g/seatbelt
manganese	-11.317555	g/1000g zinc		-9.39E-04	g/seatbelt
mercury (in)	4.417E-06	g/1000g zinc		3.67E-10	g/seatbelt
molybdenum (in)	9.513E-05	g/1000g zinc		7.90E-09	g/seatbelt
natural aggregate	26.231425	g/1000g zinc		2.18E-03	g/seatbelt
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		6.82E-04	MJ/seatbelt
nickel (in)	0.0042159	g/1000g zinc		3.50E-07	g/seatbelt
olivine	1.735E-06	g/1000g zinc		1.44E-10	g/seatbelt
oxygen	-42.44669	g/1000g zinc		-3.52E-03	g/seatbelt
palladium	3.273E-09	g/1000g zinc		2.72E-13	g/seatbelt
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		1.27E-05	MJ/seatbelt
phosphorus (in)	5.566E-05	g/1000g zinc		4.62E-09	g/seatbelt
platinum	3.931E-08	g/1000g zinc		3.26E-12	g/seatbelt
potassium chloride	0.0009365	g/1000g zinc		7.77E-08	g/seatbelt
primary energy from geother	0.0229938	MJ/1000g zinc		1.91E-06	MJ/seatbelt
primary energy from hydro p	6.52631	MJ/1000g zinc		5.42E-04	MJ/seatbelt
primary energy from solar en	0.5792547	MJ/1000g zinc		4.81E-05	MJ/seatbelt
primary energy from waves	3.928E-06	MJ/1000g zinc		3.26E-10	MJ/seatbelt
primary energy from wind po	0.3592062	MJ/1000g zinc		2.98E-05	MJ/seatbelt
quartz sand	-12.853854	g/1000g zinc		-1.07E-03	g/seatbelt
raw pumice	0.0001656	g/1000g zinc		1.37E-08	g/seatbelt
rhodium	1.094E-10	g/1000g zinc		9.08E-15	g/seatbelt
river water	6.1598962	l/1000g zinc		5.11E-04	l/seatbelt
sand	0.0001874	g/1000g zinc		1.56E-08	g/seatbelt
sea water	-0.000147	l/1000g zinc		-1.22E-08	l/seatbelt
silicon (in)	0.0001218	g/1000g zinc		1.01E-08	g/seatbelt
silver (in)	-0.0161287	g/1000g zinc		-1.34E-06	g/seatbelt
slate	1.32E-08	g/1000g zinc		1.10E-12	g/seatbelt
sodium chloride (in)	-14.000746	g/1000g zinc		-1.16E-03	g/seatbelt
sodium sulfate (in)	-0.0007459	g/1000g zinc		-6.19E-08	g/seatbelt
soil	13.199188	g/1000g zinc		1.10E-03	g/seatbelt
sulfur (in)	0.0033189	g/1000g zinc		2.75E-07	g/seatbelt
surface water	27.074991	l/1000g zinc		2.25E-03	l/seatbelt
talc	0.0005357	g/1000g zinc		4.45E-08	g/seatbelt
titanium	0.0025897	g/1000g zinc		2.15E-07	g/seatbelt
uranium	11208.633	g/1000g zinc		9.30E-01	g/seatbelt
water	372.88334	l/1000g zinc		3.09E-02	l/seatbelt
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		3.55E-08	MJ/seatbelt
zinc (in)	819.6244	g/1000g zinc		6.80E-02	g/seatbelt
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		7.68E-04	g/seatbelt
zinc dross	31.9	g/1000g zinc		2.65E-03	g/seatbelt
zinc dust	3.2163809	g/1000g zinc		2.67E-04	g/seatbelt
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		2.10E-03	g/seatbelt
OUTFLOWS				0.00E+00	
ammonia	0.082458	g/1000g zinc		6.84E-06	g/seatbelt
ammonia	0.0101456	g/1000g zinc		8.42E-07	g/seatbelt
ammonia	0.0944373	g/1000g zinc		7.84E-06	g/seatbelt

ammonia	0.0048189	g/1000g zinc		4.00E-07	g/seatbelt
ammonium	0.0001497	g/1000g zinc		1.24E-08	g/seatbelt
ammonium	0.0018023	g/1000g zinc		1.50E-07	g/seatbelt
ammonium to sea water	0.0013248	g/1000g zinc		1.10E-07	g/seatbelt
arsenic	0.0058028	g/1000g zinc		4.82E-07	g/seatbelt
arsenic	5.36E-06	g/1000g zinc		4.45E-10	g/seatbelt
arsenic	0.0310056	g/1000g zinc		2.57E-06	g/seatbelt
arsenic	5.75E-05	g/1000g zinc		4.78E-09	g/seatbelt
benzene	0.0011388	g/1000g zinc		9.45E-08	g/seatbelt
benzene	5.18E-05	g/1000g zinc		4.30E-09	g/seatbelt
benzene	0.000199	g/1000g zinc		1.65E-08	g/seatbelt
cadmium	0.0089817	g/1000g zinc		7.45E-07	g/seatbelt
cadmium	1.94E-05	g/1000g zinc		1.61E-09	g/seatbelt
cadmium	0.0002277	g/1000g zinc		1.89E-08	g/seatbelt
cadmium	0.0015242	g/1000g zinc		1.27E-07	g/seatbelt
carbon dioxide	3040.5	g/1000g zinc		2.52E-01	g/seatbelt
CFC-11	0.0001464	g/1000g zinc		1.22E-08	g/seatbelt
CFC-114	0.0001499	g/1000g zinc		1.24E-08	g/seatbelt
CFC-12	3.15E-05	g/1000g zinc		2.61E-09	g/seatbelt
CFC-13	1.98E-05	g/1000g zinc		1.64E-09	g/seatbelt
chemical oxygen demand	0.9786417	g/1000g zinc		8.12E-05	g/seatbelt
chemical oxygen demand	0.0212362	g/1000g zinc		1.76E-06	g/seatbelt
nickel III	-2.72E-07	g/1000g zinc		-2.26E-11	g/seatbelt
nickel III	1.13E-06	g/1000g zinc		9.40E-11	g/seatbelt
nickel III	5.03E-05	g/1000g zinc		4.18E-09	g/seatbelt
nickel VI	1.75E-05	g/1000g zinc		1.45E-09	g/seatbelt
nickel VI	-4.32E-06	g/1000g zinc		-3.58E-10	g/seatbelt
cobalt	0.0018228	g/1000g zinc		1.51E-07	g/seatbelt
cobalt	2.97E-07	g/1000g zinc		2.47E-11	g/seatbelt
cobalt	3.29E-07	g/1000g zinc		2.73E-11	g/seatbelt
cobalt	1.10E-05	g/1000g zinc		9.11E-10	g/seatbelt
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		3.43E-09	g/seatbelt
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		7.66E-07	g/seatbelt
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		8.70E-08	g/seatbelt
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		4.30E-04	g/seatbelt
copper	0.1356498	g/1000g zinc		1.13E-05	g/seatbelt
copper	0.0049752	g/1000g zinc		4.13E-07	g/seatbelt
copper	0.0001369	g/1000g zinc		1.14E-08	g/seatbelt
copper	0.0110447	g/1000g zinc		9.17E-07	g/seatbelt
ethylene	1.23E-05	g/1000g zinc		1.02E-09	g/seatbelt
hydrogen chloride	0.1782016	g/1000g zinc		1.48E-05	g/seatbelt
hydrogen chloride	7.22E-07	g/1000g zinc		5.99E-11	g/seatbelt
hydrogen fluoride	0.0406748	g/1000g zinc		3.38E-06	g/seatbelt
hydrogen fluoride	5.04E-08	g/1000g zinc		4.19E-12	g/seatbelt
lead	0.1242728	g/1000g zinc		1.03E-05	g/seatbelt
lead	4.66E-05	g/1000g zinc		3.87E-09	g/seatbelt
lead	0.0008935	g/1000g zinc		7.42E-08	g/seatbelt
lead	0.0044786	g/1000g zinc		3.72E-07	g/seatbelt
mercury	0.0001779	g/1000g zinc		1.48E-08	g/seatbelt
mercury	7.93E-07	g/1000g zinc		6.58E-11	g/seatbelt

mercury	0.0001995	g/1000g zinc		1.66E-08	g/seatbelt
mercury	5.12E-06	g/1000g zinc		4.25E-10	g/seatbelt
methane	3.9556308	g/1000g zinc		3.28E-04	g/seatbelt
nickel	0.0010629	g/1000g zinc		8.82E-08	g/seatbelt
nickel	4.75E-05	g/1000g zinc		3.94E-09	g/seatbelt
nickel	0.0001204	g/1000g zinc		9.99E-09	g/seatbelt
nickel	3.02E-05	g/1000g zinc		2.51E-09	g/seatbelt
nitrate	3.61E-05	g/1000g zinc		3.00E-09	g/seatbelt
nitrate	0.0008705	g/1000g zinc		7.23E-08	g/seatbelt
nitrate	0.2355114	g/1000g zinc		1.95E-05	g/seatbelt
nitrogen	3.0664234	g/1000g zinc		2.55E-04	g/seatbelt
nitrogen	0.0037303	g/1000g zinc		3.10E-07	g/seatbelt
nitrogen	0.0388564	g/1000g zinc		3.23E-06	g/seatbelt
nitrogen	0.0331367	g/1000g zinc		2.75E-06	g/seatbelt
nitrogen dioxide	17.053961	g/1000g zinc		1.42E-03	g/seatbelt
nitrogen monoxide	1.98E-05	g/1000g zinc		1.64E-09	g/seatbelt
nitrous oxide	0.1158841	g/1000g zinc		9.62E-06	g/seatbelt
phosphate	0.0051168	g/1000g zinc		4.25E-07	g/seatbelt
phosphate	0.0030974	g/1000g zinc		2.57E-07	g/seatbelt
toluene	0.0001184	g/1000g zinc		9.83E-09	g/seatbelt
toluene	3.15E-05	g/1000g zinc		2.62E-09	g/seatbelt
vanadium	0.0027262	g/1000g zinc		2.26E-07	g/seatbelt
vanadium	7.30E-06	g/1000g zinc		6.06E-10	g/seatbelt
vanadium	0.0001296	g/1000g zinc		1.08E-08	g/seatbelt
zinc	0.1760723	g/1000g zinc		1.46E-05	g/seatbelt
zinc	0.0085203	g/1000g zinc		7.07E-07	g/seatbelt
zinc	0.0090181	g/1000g zinc		7.49E-07	g/seatbelt
zinc	0.1440723	g/1000g zinc		1.20E-05	g/seatbelt
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		1.89E-07	g/seatbelt
demolition waste (unspecifie	6.5075571	g/1000g zinc		5.40E-04	g/seatbelt
Hazardous waste	27.620581	g/1000g zinc		2.29E-03	g/seatbelt
highly radioactive waste; rea	0.006792	g/1000g zinc		5.64E-07	g/seatbelt
Industrial waste	177.6031	g/1000g zinc		1.47E-02	g/seatbelt
Iron scrap	18.917083	g/1000g zinc		1.57E-03	g/seatbelt
jarosite	123.75866	g/1000g zinc		1.03E-02	g/seatbelt
medium and low radioactive	0.0080611	g/1000g zinc		6.69E-07	g/seatbelt
mineral waste	6.121768	g/1000g zinc		5.08E-04	g/seatbelt
overburden (unspecified)	44482.62	g/1000g zinc		3.69E+00	g/seatbelt
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		3.31E-04	g/seatbelt
slag (unspecified)	10.21577	g/1000g zinc		8.48E-04	g/seatbelt
slag (uranium conversion); re	0.015073	g/1000g zinc		1.25E-06	g/seatbelt
spoil (unspecified)	14.286476	g/1000g zinc		1.19E-03	g/seatbelt
sludge	12.2	g/1000g zinc		1.01E-03	g/seatbelt
steel scrap	1.0967234	g/1000g zinc		9.10E-05	g/seatbelt
tailings (unspecified)	5045.0465	g/1000g zinc		4.19E-01	g/seatbelt
unspecified radioactive waste	0.013515	g/1000g zinc		1.12E-06	g/seatbelt
uranium depleted; reactor fu	0.0155929	g/1000g zinc		1.29E-06	g/seatbelt
used oil	220.9923	g/1000g zinc		1.83E-02	g/seatbelt
zinc slag	0.8737593	g/1000g zinc		7.25E-05	g/seatbelt
zinc scrab	16.168781	g/1000g zinc		1.34E-03	g/seatbelt

Remark:					
Data adapted from special high grade zinc (ELCD database, 2005)					
3.99.4 Transportation to Metal parts manufacturer no.14	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.0935	MJ/1000g of product	0.0830	7.76E-06	MJ/seatbelt
OUTFLOWS					
CO2	6.8000	g/1000g of product		5.64E-04	g/seatbelt
NOx	0.0450	g/1000g of product		3.74E-06	g/seatbelt
HC	0.0060	g/1000g of product		4.98E-07	g/seatbelt
Particulate matter	0.0008	g/1000g of product		6.23E-08	g/seatbelt
CO	0.0060	g/1000g of product		4.98E-07	g/seatbelt
SO2	0.0017	g/1000g of product		1.41E-07	g/seatbelt
Remark:					
Distance between Metal producer no.11 and Metal parts manufacturer no.14 (Grosso, Italy) in km		**50**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.99.5 Production of alloy for passivation layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g alloy	0.0800	1.26E-06	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g alloy		2.51E-06	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g alloy		5.69E-08	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g alloy		7.03E-05	MJ/seatbelt
calcium carbonate	208.11557	g/1000g alloy		1.66E-02	g/seatbelt
chromium (in)	15.404443	g/1000g alloy		1.23E-03	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g alloy		3.64E-04	MJ/seatbelt
dolomite	48.094091	g/1000g alloy		3.85E-03	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g alloy		1.21E-03	MJ/seatbelt
inert rock	223.40818	g/1000g alloy		1.79E-02	g/seatbelt
iron (in)	215.94651	g/1000g alloy		1.73E-02	g/seatbelt
manganese (in)	2.2067601	g/1000g alloy		1.77E-04	g/seatbelt
molybdenum (in)	0.0016111	g/1000g alloy		1.29E-07	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g alloy		5.11E-04	MJ/seatbelt
nickel (in)	0.2600702	g/1000g alloy		2.08E-05	g/seatbelt
water	18.985568	l/1000g alloy		1.52E-03	l/seatbelt
OUTFLOWS					

stainless steel hot rolled coil,	1000	g		8.00E-02	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g alloy		1.79E-13	g/seatbelt
acid (as H+)	6.01E-02	g/1000g alloy		4.81E-06	g/seatbelt
aluminium	1.18E-02	g/1000g alloy		9.44E-07	g/seatbelt
ammonia	6.05E-02	g/1000g alloy		4.84E-06	g/seatbelt
cadmium	2.18E-05	g/1000g alloy		1.74E-09	g/seatbelt
carbon dioxide	3.38E+03	g/1000g alloy		2.70E-01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g alloy		7.88E-04	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g alloy		3.61E-05	g/seatbelt
chloride	3.56E+00	g/1000g alloy		2.85E-04	g/seatbelt
chromium	1.14E-01	g/1000g alloy		9.09E-06	g/seatbelt
chromium	9.22E-04	g/1000g alloy		7.38E-08	g/seatbelt
chromium VI	5.94E-05	g/1000g alloy		4.75E-09	g/seatbelt
chromium VI	2.29E-04	g/1000g alloy		1.83E-08	g/seatbelt
copper	1.22E-04	g/1000g alloy		9.76E-09	g/seatbelt
fluoride	6.92E-02	g/1000g alloy		5.54E-06	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g alloy		1.74E-06	g/seatbelt
iron	1.31E-01	g/1000g alloy		1.05E-05	g/seatbelt
lead	5.17E-04	g/1000g alloy		4.14E-08	g/seatbelt
manganese	2.83E-03	g/1000g alloy		2.26E-07	g/seatbelt
molybdenum	6.24E-03	g/1000g alloy		4.99E-07	g/seatbelt
molybdenum	1.66E-03	g/1000g alloy		1.33E-07	g/seatbelt
nickel	2.97E-02	g/1000g alloy		2.38E-06	g/seatbelt
nickel	3.38E-03	g/1000g alloy		2.70E-07	g/seatbelt
nitrate	2.00E-01	g/1000g alloy		1.60E-05	g/seatbelt
nitrogen	1.02E-01	g/1000g alloy		8.17E-06	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g alloy		6.02E-04	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g alloy		1.88E-05	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g alloy		3.56E-04	g/seatbelt
phosphate	2.96E-03	g/1000g alloy		2.37E-07	g/seatbelt
sulfur	9.21E-01	g/1000g alloy		7.37E-05	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g alloy		9.91E-04	g/seatbelt
tin	1.61E-04	g/1000g alloy		1.29E-08	g/seatbelt
zinc	1.11E-03	g/1000g alloy		8.88E-08	g/seatbelt
waste from steel production	2.43E+02	g/1000g alloy		1.94E-02	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g alloy		1.04E-01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.99.6 Transportation to Metal parts manufacturer no.14	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.0935	MJ/1000g of product	0.0800	7.48E-06	MJ/seatbelt
OUTFLOWS					
CO2	6.8000	g/1000g of product		5.44E-04	g/seatbelt

NOx	0.0450	g/1000g of product		3.60E-06	g/seatbelt
HC	0.0060	g/1000g of product		4.80E-07	g/seatbelt
Particulate matter	0.0008	g/1000g of product		6.00E-08	g/seatbelt
CO	0.0060	g/1000g of product		4.80E-07	g/seatbelt
SO2	0.0017	g/1000g of product		1.36E-07	g/seatbelt
Remark:					
Distance between Metal producer no.11 and Metal parts manufacturer no.14 (Grosso, Italy) in km		**50**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.99 Production of mass, web sens	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
alloy	986.4167	g/1000g product	12.0000	1.18E+01	g/seatbelt
zinc for e-plate	6.9167	g/1000g product		8.30E-02	g/seatbelt
alloy for layer	6.6667	g/1000g product		8.00E-02	g/seatbelt
electricity	6.6667	MJ/1000g product		8.00E-02	MJ/seatbelt
OUTFLOWS					
mass, web sens				12.0000	g/seatbelt
Remark					
Electricity data for Italy					
3.100 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6934	MJ/1000g of product	12.0000	8.32E-03	MJ/seatbelt
OUTFLOWS					
CO2	50.0760	g/1000g of product		6.01E-01	g/seatbelt
NOx	0.3178	g/1000g of product		3.81E-03	g/seatbelt
HC	0.0453	g/1000g of product		5.43E-04	g/seatbelt
Particulate matter	0.0055	g/1000g of product		6.59E-05	g/seatbelt
CO	0.0443	g/1000g of product		5.32E-04	g/seatbelt
SO2	0.0125	g/1000g of product		1.50E-04	g/seatbelt
Remark:					
Distance between Metal parts manufacturer no.14 (Grosso, Italy) and ALH (Sopronkövesd, Hungary) in km		**963**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.101.1 Production of stainless steel X10CrNi18-8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g stainless ste	0.0368	5.81E-07	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g stainless steel		1.16E-06	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g stainless steel		2.62E-08	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g stainless steel		3.23E-05	MJ/seatbelt
calcium carbonate	208.11557	g/1000g stainless steel		7.66E-03	g/seatbelt
chromium (in)	15.404443	g/1000g stainless steel		5.67E-04	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g stainless steel		1.67E-04	MJ/seatbelt
dolomite	48.094091	g/1000g stainless steel		1.77E-03	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g stainless steel		5.57E-04	MJ/seatbelt
inert rock	223.40818	g/1000g stainless steel		8.22E-03	g/seatbelt
iron (in)	215.94651	g/1000g stainless steel		7.95E-03	g/seatbelt
manganese (in)	2.2067601	g/1000g stainless steel		8.12E-05	g/seatbelt
molybdenum (in)	0.0016111	g/1000g stainless steel		5.93E-08	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g stainless steel		2.35E-04	MJ/seatbelt
nickel (in)	0.2600702	g/1000g stainless steel		9.57E-06	g/seatbelt
water	18.985568	l/1000g stainless steel		6.99E-04	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		3.68E-02	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g stainless steel		8.24E-14	g/seatbelt
acid (as H+)	6.01E-02	g/1000g stainless steel		2.21E-06	g/seatbelt
aluminium	1.18E-02	g/1000g stainless steel		4.34E-07	g/seatbelt
ammonia	6.05E-02	g/1000g stainless steel		2.23E-06	g/seatbelt
cadmium	2.18E-05	g/1000g stainless steel		8.02E-10	g/seatbelt
carbon dioxide	3.38E+03	g/1000g stainless steel		1.24E-01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g stainless steel		3.63E-04	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g stainless steel		1.66E-05	g/seatbelt
chloride	3.56E+00	g/1000g stainless steel		1.31E-04	g/seatbelt
chromium	1.14E-01	g/1000g stainless steel		4.18E-06	g/seatbelt
chromium	9.22E-04	g/1000g stainless steel		3.39E-08	g/seatbelt
chromium VI	5.94E-05	g/1000g stainless steel		2.19E-09	g/seatbelt
chromium VI	2.29E-04	g/1000g stainless steel		8.43E-09	g/seatbelt
copper	1.22E-04	g/1000g stainless steel		4.49E-09	g/seatbelt
fluoride	6.92E-02	g/1000g stainless steel		2.55E-06	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g stainless steel		8.02E-07	g/seatbelt
iron	1.31E-01	g/1000g stainless steel		4.83E-06	g/seatbelt
lead	5.17E-04	g/1000g stainless steel		1.90E-08	g/seatbelt
manganese	2.83E-03	g/1000g stainless steel		1.04E-07	g/seatbelt
molybdenum	6.24E-03	g/1000g stainless steel		2.30E-07	g/seatbelt
molybdenum	1.66E-03	g/1000g stainless steel		6.11E-08	g/seatbelt
nickel	2.97E-02	g/1000g stainless steel		1.09E-06	g/seatbelt
nickel	3.38E-03	g/1000g stainless steel		1.24E-07	g/seatbelt
nitrate	2.00E-01	g/1000g stainless steel		7.38E-06	g/seatbelt
nitrogen	1.02E-01	g/1000g stainless steel		3.76E-06	g/seatbelt

nitrogen dioxide	7.52E+00	g/1000g stainless steel		2.77E-04	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g stainless steel		8.64E-06	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g stainless steel		1.64E-04	g/seatbelt
phosphate	2.96E-03	g/1000g stainless steel		1.09E-07	g/seatbelt
sulfur	9.21E-01	g/1000g stainless steel		3.39E-05	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g stainless steel		4.56E-04	g/seatbelt
tin	1.61E-04	g/1000g stainless steel		5.92E-09	g/seatbelt
zinc	1.11E-03	g/1000g stainless steel		4.08E-08	g/seatbelt
waste from steel production	2.43E+02	g/1000g stainless steel		8.93E-03	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g stainless steel		4.78E-02	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.101.2 Transportation to spring manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.101 Production of spring, web sense	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel	1051.4286	g/1000g product	0.0350	3.68E-02	g/seatbelt
electricity	22.3784	MJ/1000g product		7.83E-04	MJ/seatbelt
OUTFLOWS					
spring, web sense				0.0350	g/seatbelt
scrap	52.5714	g/1000g product		1.84E-03	g/seatbelt
Remark					
Electricity data for Singapure					
Production data for production of spring compression by Metal parts producer no.2					
3.102 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2431	MJ/1000g of product	0.0350	8.51E-06	MJ/seatbelt
OUTFLOWS					
CO2	17.6800	g/1000g of product		6.19E-04	g/seatbelt
NOx	0.1170	g/1000g of product		4.10E-06	g/seatbelt
HC	0.0156	g/1000g of product		5.46E-07	g/seatbelt
Particulate matter	0.0020	g/1000g of product		6.83E-08	g/seatbelt
CO	0.0156	g/1000g of product		5.46E-07	g/seatbelt

SO2	0.0044	g/1000g of product		1.55E-07	g/seatbelt
Remark:					
Distance between spring manufacturer (Jurorg, Singapure) and ALH (Sopronkövesd, Hungary) in km		**130**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
Distance between spring manufacturer (Jurorg, Singapure) and ALH (Sopronkövesd, Hungary) in km					
		14870			
		130			
3.102 Transportation to ALH (airplane)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (MJ/tkm)					
Energy	669.1500	MJ/1000g of product	0.0350	2.34E-02	MJ/seatbelt
OUTFLOWS					
Emissions (g/tkm)					
CO2	46899.9800	g/1000g of product		1.64E+00	g/seatbelt
NO2	237.9200	g/1000g of product		8.33E-03	g/seatbelt
PM 2.5	2.9740	g/1000g of product		1.04E-04	g/seatbelt
CO	15.1674	g/1000g of product		5.31E-04	g/seatbelt
SO2	0.7435	g/1000g of product		2.60E-05	g/seatbelt
methane	0.0422	g/1000g of product		1.48E-06	g/seatbelt
N2O	14.8700	g/1000g of product		5.20E-04	g/seatbelt
3.103.1 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.76E-06	g/1000g POM	0.5000	8.79E-10	g/seatbelt
energy (recovered)	-1.91E+03	g/1000g POM		-9.53E-01	g/seatbelt
hydrogen; gaseous	9.80E-04	g/1000g POM		4.90E-07	g/seatbelt
waste	4.88E+00	g/1000g POM		2.44E-03	g/seatbelt
air	2.97E+02	g/1000g POM		1.48E-01	g/seatbelt
baryte	3.53E-05	g/1000g POM		1.77E-08	g/seatbelt
bauxite	2.15E-03	g/1000g POM		1.08E-06	g/seatbelt
bentonite	3.81E-02	g/1000g POM		1.91E-05	g/seatbelt
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		3.77E-05	MJ/seatbelt
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		7.62E-08	MJ/seatbelt
calcium carbonate (in)	1.44E-01	g/1000g POM		7.22E-05	g/seatbelt
chromium (in)	6.46E-10	g/1000g POM		3.23E-13	g/seatbelt
clay	2.04E-07	g/1000g POM		1.02E-10	g/seatbelt

copper (in)	1.29E-05	g/1000g POM		6.45E-09	g/seatbelt
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		2.14E-02	MJ/seatbelt
dolomite	2.02E-03	g/1000g POM		1.01E-06	g/seatbelt
feldspar	7.82E-14	g/1000g POM		3.91E-17	g/seatbelt
fluorspar	3.75E-04	g/1000g POM		1.87E-07	g/seatbelt
granite	2.86E-12	g/1000g POM		1.43E-15	g/seatbelt
ground water	5.52E-02	l/1000g POM		2.76E-05	l/seatbelt
gypsum	3.84E-03	g/1000g POM		1.92E-06	g/seatbelt
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		1.14E-03	MJ/seatbelt
inert rock	1.39E-03	g/1000g POM		6.93E-07	g/seatbelt
iron (in)	1.65E-01	g/1000g POM		8.23E-05	g/seatbelt
lead (in)	3.32E-04	g/1000g POM		1.66E-07	g/seatbelt
magnesium (in)	5.86E-07	g/1000g POM		2.93E-10	g/seatbelt
manganese (in)	1.24E-04	g/1000g POM		6.21E-08	g/seatbelt
mercury (in)	4.86E-07	g/1000g POM		2.43E-10	g/seatbelt
natural aggregate	6.07E-04	g/1000g POM		3.03E-07	g/seatbelt
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		1.07E-02	MJ/seatbelt
nickel	1.17E-06	g/1000g POM		5.86E-10	g/seatbelt
nitrogen (in)	9.44E+01	g/1000g POM		4.72E-02	g/seatbelt
olivine	1.54E-03	g/1000g POM		7.72E-07	g/seatbelt
oxygen	4.87E-03	g/1000g POM		2.43E-06	g/seatbelt
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		4.11E-06	MJ/seatbelt
phosphorus (in)	8.77E-10	g/1000g POM		4.38E-13	g/seatbelt
potassium chloride	9.70E-06	g/1000g POM		4.85E-09	g/seatbelt
primary energy from geother	2.38E-02	MJ/1000g POM		1.19E-05	MJ/seatbelt
primary energy from hydro p	2.95E-01	MJ/1000g POM		1.47E-04	MJ/seatbelt
primary energy from solar en	8.77E-05	MJ/1000g POM		4.39E-08	MJ/seatbelt
primary energy from waves	4.89E-04	MJ/1000g POM		2.44E-07	MJ/seatbelt
primary energy from wind po	1.13E-02	MJ/1000g POM		5.64E-06	MJ/seatbelt
quartz sand	5.31E-33	g/1000g POM		2.66E-36	g/seatbelt
river water	3.20E+03	g/1000g POM		1.60E+00	g/seatbelt
sand	9.51E-02	g/1000g POM		4.76E-05	g/seatbelt
sea water	6.03E+00	1l/1000g POM		3.01E-03	1l/seatbelt
slate	1.09E-02	g/1000g POM		5.43E-06	g/seatbelt
sodium chloride	2.67E-01	g/1000g POM		1.34E-04	g/seatbelt
sodium nitrate	1.76E-06	g/1000g POM		8.79E-10	g/seatbelt
sulfur (in)	3.33E-02	g/1000g POM		1.67E-05	g/seatbelt
talc	7.94E-24	g/1000g POM		3.97E-27	g/seatbelt
titanium	1.82E-03	g/1000g POM		9.12E-07	g/seatbelt
uranium	2.74E+03	g/1000g POM		1.37E+00	g/seatbelt
water	3.11E+01	1l/1000g POM		1.56E-02	1l/seatbelt
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		6.14E-09	1MJ/seatbelt
zinc (in)	6.14E-02	g/1000g POM		3.07E-05	g/seatbelt
OUTFLOWS				0.00E+00	
POM	1000	g		5.00E-01	g
1,2-dichloroethane	1.39E-08	g/1000g POM		6.94E-12	g/seatbelt
1,2-dichloroethane	3.16E-10	g/1000g POM		1.58E-13	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g POM		1.88E-32	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g POM		6.12E-17	g/seatbelt
acid (as H+)	4.33E-14	g/1000g POM		2.16E-17	g/seatbelt

acid (as H+)	2.01E-03	g/1000g POM		1.01E-06	g/seatbelt
adsorbable organic halogen c	6.94E-10	g/1000g POM		3.47E-13	g/seatbelt
aluminium	4.06E-04	g/1000g POM		2.03E-07	g/seatbelt
ammonia	1.58E-07	g/1000g POM		7.91E-11	g/seatbelt
ammonia	3.39E-03	g/1000g POM		1.69E-06	g/seatbelt
antimony	7.96E-08	g/1000g POM		3.98E-11	g/seatbelt
arsenic	8.41E-08	g/1000g POM		4.20E-11	g/seatbelt
arsenic	1.85E-07	g/1000g POM		9.23E-11	g/seatbelt
benzene	3.35E-15	g/1000g POM		1.67E-18	g/seatbelt
benzene	6.58E-19	g/1000g POM		3.29E-22	g/seatbelt
biological oxygen demand	2.88E-02	g/1000g POM		1.44E-05	g/seatbelt
bromate	4.13E-07	g/1000g POM		2.07E-10	g/seatbelt
cadmium	8.62E-08	g/1000g POM		4.31E-11	g/seatbelt
cadmium	4.36E-08	g/1000g POM		2.18E-11	g/seatbelt
calcium	3.65E-05	g/1000g POM		1.82E-08	g/seatbelt
carbon dioxide	1.67E+03	g/1000g POM		8.35E-01	g/seatbelt
carbon disulfide	1.98E-08	g/1000g POM		9.89E-12	g/seatbelt
carbon monoxide	6.10E+00	g/1000g POM		3.05E-03	g/seatbelt
carbonate	2.83E-02	g/1000g POM		1.42E-05	g/seatbelt
chemical oxygen demand	2.40E-01	g/1000g POM		1.20E-04	g/seatbelt
chlorate	6.77E-05	g/1000g POM		3.39E-08	g/seatbelt
chloride	1.53E-01	g/1000g POM		7.64E-05	g/seatbelt
chlorine	3.71E-07	g/1000g POM		1.85E-10	g/seatbelt
chlorine	8.03E-07	g/1000g POM		4.02E-10	g/seatbelt
chromium	3.83E-07	g/1000g POM		1.91E-10	g/seatbelt
chromium	4.93E-09	g/1000g POM		2.46E-12	g/seatbelt
copper	8.90E-09	g/1000g POM		4.45E-12	g/seatbelt
copper	1.03E-05	g/1000g POM		5.15E-09	g/seatbelt
cyanide	1.56E-08	g/1000g POM		7.80E-12	g/seatbelt
decane	1.39E-02	g/1000g POM		6.94E-06	g/seatbelt
dichloromethane	9.24E-10	g/1000g POM		4.62E-13	g/seatbelt
ethyl benzene	1.97E-16	g/1000g POM		9.83E-20	g/seatbelt
ethylene	1.66E-03	g/1000g POM		8.29E-07	g/seatbelt
fluoride	3.59E-06	g/1000g POM		1.80E-09	g/seatbelt
fluorine	3.23E-08	g/1000g POM		1.61E-11	g/seatbelt
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		2.55E-06	g/seatbelt
hydrocyanic acid	6.21E-16	g/1000g POM		3.11E-19	g/seatbelt
hydrogen	3.02E-02	g/1000g POM		1.51E-05	g/seatbelt
hydrogen chloride	5.13E-02	g/1000g POM		2.57E-05	g/seatbelt
hydrogen fluoride	1.49E-03	g/1000g POM		7.47E-07	g/seatbelt
hydrogen sulfide	5.52E-06	g/1000g POM		2.76E-09	g/seatbelt
iron	1.81E-05	g/1000g POM		9.03E-09	g/seatbelt
lead	1.99E-06	g/1000g POM		9.93E-10	g/seatbelt
lead	3.83E-07	g/1000g POM		1.91E-10	g/seatbelt
manganese	6.28E-07	g/1000g POM		3.14E-10	g/seatbelt
mercury	1.80E-06	g/1000g POM		8.99E-10	g/seatbelt
mercury	1.70E-07	g/1000g POM		8.49E-11	g/seatbelt
methane	1.18E+01	g/1000g POM		5.92E-03	g/seatbelt
nickel	8.73E-11	g/1000g POM		4.36E-14	g/seatbelt
nickel	2.58E-07	g/1000g POM		1.29E-10	g/seatbelt

nitrate	1.20E-01	g/1000g POM		5.99E-05	g/seatbelt
nitrogen	8.77E-04	g/1000g POM		4.39E-07	g/seatbelt
nitrogen dioxide	3.29E+00	g/1000g POM		1.64E-03	g/seatbelt
nitrous oxide	4.82E-10	g/1000g POM		2.41E-13	g/seatbelt
non-methane volatile organic	3.51E+00	g/1000g POM		1.76E-03	g/seatbelt
oxygen	7.98E-21	g/1000g POM		3.99E-24	g/seatbelt
particles (> PM10)	8.64E-02	g/1000g POM		4.32E-05	g/seatbelt
particles (PM10)	5.95E-01	g/1000g POM		2.98E-04	g/seatbelt
particles (PM10)	8.75E-03	g/1000g POM		4.37E-06	g/seatbelt
particles (PM2.5)	3.90E-12	g/1000g POM		1.95E-15	g/seatbelt
phenol	1.99E-03	g/1000g POM		9.96E-07	g/seatbelt
phosphate	5.37E-01	g/1000g POM		2.69E-04	g/seatbelt
polycyclic aromatic hydrocarb	1.36E-15	g/1000g POM		6.78E-19	g/seatbelt
potassium	1.18E-06	g/1000g POM		5.88E-10	g/seatbelt
propene	1.23E-03	g/1000g POM		6.14E-07	g/seatbelt
selenium	1.01E-22	g/1000g POM		5.03E-26	g/seatbelt
silver	2.90E-21	g/1000g POM		1.45E-24	g/seatbelt
sodium	8.11E-02	g/1000g POM		4.06E-05	g/seatbelt
strontium	7.15E-09	g/1000g POM		3.57E-12	g/seatbelt
styrene	2.76E-17	g/1000g POM		1.38E-20	g/seatbelt
sulfate	9.30E-01	g/1000g POM		4.65E-04	g/seatbelt
sulfur	3.49E-10	g/1000g POM		1.74E-13	g/seatbelt
sulfur dioxide	3.78E+00	g/1000g POM		1.89E-03	g/seatbelt
tin	1.53E-13	g/1000g POM		7.64E-17	g/seatbelt
toluene	5.61E-16	g/1000g POM		2.80E-19	g/seatbelt
total organic carbon	8.94E-03	g/1000g POM		4.47E-06	g/seatbelt
vinyl chloride	3.11E-07	g/1000g POM		1.56E-10	g/seatbelt
vinyl chloride	5.78E-09	g/1000g POM		2.89E-12	g/seatbelt
volatile organic compound	1.79E-01	g/1000g POM		8.94E-05	g/seatbelt
volatile organic compound	1.06E-02	g/1000g POM		5.30E-06	g/seatbelt
xylene (all isomers)	2.59E-16	g/1000g POM		1.30E-19	g/seatbelt
zinc	4.86E-06	g/1000g POM		2.43E-09	g/seatbelt
zinc	9.69E-05	g/1000g POM		4.85E-08	g/seatbelt
chemical waste	1.91E+00	g/1000g POM		9.56E-04	g/seatbelt
chemical waste, inert	8.15E-01	g/1000g POM		4.07E-04	g/seatbelt
chemical waste, toxic	1.70E+00	g/1000g POM		8.52E-04	g/seatbelt
demolition waste	2.20E-03	g/1000g POM		1.10E-06	g/seatbelt
industrial waste	1.13E+00	g/1000g POM		5.66E-04	g/seatbelt
mineral waste	2.05E-01	g/1000g POM		1.03E-04	g/seatbelt
municipal waste	-4.61E+00	g/1000g POM		-2.30E-03	g/seatbelt
organic waste	1.69E-03	g/1000g POM		8.43E-07	g/seatbelt
overburden	1.63E+01	g/1000g POM		8.15E-03	g/seatbelt
packaging waste (metal)	3.17E-05	g/1000g POM		1.59E-08	g/seatbelt
packaging waste (plastic)	6.63E-10	g/1000g POM		3.31E-13	g/seatbelt
plastic	3.40E-01	g/1000g POM		1.70E-04	g/seatbelt
tailings	2.46E-01	g/1000g POM		1.23E-04	g/seatbelt
waste	9.32E-01	g/1000g POM		4.66E-04	g/seatbelt
waste paper	2.35E-06	g/1000g POM		1.18E-09	g/seatbelt
wood	2.98E-05	g/1000g POM		1.49E-08	g/seatbelt
wooden pallet	5.89E-07	g/1000g POM		2.95E-10	g/seatbelt

Remark:					
Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD database, 1999)					
3.103.2 Transportation to Plastic parts manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1870	MJ/1000g of product	0.5000	9.35E-05	MJ/seatbelt
OUTFLOWS					
CO2	13.6000	g/1000g of product		6.80E-03	g/seatbelt
NOx	0.0900	g/1000g of product		4.50E-05	g/seatbelt
HC	0.0120	g/1000g of product		6.00E-06	g/seatbelt
Particulate matter	0.0015	g/1000g of product		7.50E-07	g/seatbelt
CO	0.0120	g/1000g of product		6.00E-06	g/seatbelt
SO2	0.0034	g/1000g of product		1.70E-06	g/seatbelt
Remark:					
Distance between Plastics producer no.3 (Hamburg, Germany) and Plastic parts manufacturer no.6, (Mörfeden-Walldorf, Germany) in km		**100**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.103.3 Production of colorbatch	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.103.4 Transportation to Plastic parts manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4320	MJ/1000g of product	0.0010	4.32E-07	MJ/seatbelt
OUTFLOWS					
CO2	31.2000	g/1000g of product		3.12E-05	g/seatbelt
NOx	0.1980	g/1000g of product		1.98E-07	g/seatbelt
HC	0.0282	g/1000g of product		2.82E-08	g/seatbelt
Particulate matter	0.0034	g/1000g of product		3.42E-09	g/seatbelt
CO	0.0276	g/1000g of product		2.76E-08	g/seatbelt

SO2	0.0078	g/1000g of product		7.80E-09	g/seatbelt
Remark:					
Distance between Colorbatch producer (Lichtenfels, Germany) and Plastic parts manufacturer no.4 (Hermannsburg, Germany) in km		**600**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.103 Production of lever, web sense	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	78	MJ/1000g product	0.3000	2.34E-02	MJ/seatbelt
POM	1666.6667	g/1000g product		5.00E-01	g/seatbelt
colorbatch	3.3333333	g/1000g product		1.00E-03	g/seatbelt
OUTFLOWS				0.00E+00	
lever, web sense				0.3	g/seatbelt
plastic scrap	666.66667	g/1000g product		2.00E-01	g/seatbelt
Remark:					
Electricity data for Germany					
3.104 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6934	MJ/1000g of product	0.3000	2.08E-04	MJ/seatbelt
OUTFLOWS					
CO2	50.0760	g/1000g of product		1.50E-02	g/seatbelt
NOx	0.3178	g/1000g of product		9.53E-05	g/seatbelt
HC	0.0453	g/1000g of product		1.36E-05	g/seatbelt
Particulate matter	0.0055	g/1000g of product		1.65E-06	g/seatbelt
CO	0.0443	g/1000g of product		1.33E-05	g/seatbelt
SO2	0.0125	g/1000g of product		3.76E-06	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.4 (Hermannsburg, Germany) and ALH (Sopronkövesd, Hungary) in km		**963**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.105 Production of sensor, web sensor in ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.0422203	MJ/1000g product	18.0350	7.61E-04	MJ/seatbelt
natural gas	0.0233167	MJ/1000g product		4.21E-04	MJ/seatbelt
water	0.031857	l/1000g product		5.75E-04	l/seatbelt
ratchet wheel	316.05212	g/1000g of product		5.70E+00	g/seatbelt
mass, web sense	665.37289	g/1000g of product		1.20E+01	g/seatbelt
spring, web sens	1.9406709	g/1000g of product		3.50E-02	g/seatbelt
lever, web sense	16.634322	g/1000g of product		3.00E-01	g/seatbelt
OUTFLOWS					
sensor, web sensor				18.0350	g/seatbelt
nitrogen oxide	0.0004874	g/1000g product		8.79E-06	g/seatbelt
particles (> PM10)	5.273E-06	g/1000g product		9.51E-08	g/seatbelt
sulfur dioxide	3.642E-05	g/1000g product		6.57E-07	g/seatbelt
sludge	31.856999	g/1000g product		5.75E-01	g/seatbelt
Remark:					
Electricity data for Hungary					
Calculation for 1 seatbelt based on data from company: half of total production constitutes retractors and there is 5000000 of retractors produced per year; time of producing 1 web sense 0,4s and all the processes					
3.107 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	1.76E-06	g/1000g POM	10.0000	1.76E-08	g/seatbelt
energy (recovered)	-1.91E+03	g/1000g POM		-1.91E+01	g/seatbelt
hydrogen; gaseous	9.80E-04	g/1000g POM		9.80E-06	g/seatbelt
waste	4.88E+00	g/1000g POM		4.88E-02	g/seatbelt
air	2.97E+02	g/1000g POM		2.97E+00	g/seatbelt
baryte	3.53E-05	g/1000g POM		3.53E-07	g/seatbelt
bauxite	2.15E-03	g/1000g POM		2.15E-05	g/seatbelt
bentonite	3.81E-02	g/1000g POM		3.81E-04	g/seatbelt
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		7.54E-04	MJ/seatbelt
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		1.52E-06	MJ/seatbelt
calcium carbonate (in)	1.44E-01	g/1000g POM		1.44E-03	g/seatbelt
chromium (in)	6.46E-10	g/1000g POM		6.46E-12	g/seatbelt
clay	2.04E-07	g/1000g POM		2.04E-09	g/seatbelt
copper (in)	1.29E-05	g/1000g POM		1.29E-07	g/seatbelt
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		4.28E-01	MJ/seatbelt
dolomite	2.02E-03	g/1000g POM		2.02E-05	g/seatbelt
feldspar	7.82E-14	g/1000g POM		7.82E-16	g/seatbelt
fluorspar	3.75E-04	g/1000g POM		3.75E-06	g/seatbelt
granite	2.86E-12	g/1000g POM		2.86E-14	g/seatbelt

ground water	5.52E-02	l/1000g POM		5.52E-04	l/seatbelt
gypsum	3.84E-03	g/1000g POM		3.84E-05	g/seatbelt
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		2.28E-02	MJ/seatbelt
inert rock	1.39E-03	g/1000g POM		1.39E-05	g/seatbelt
iron (in)	1.65E-01	g/1000g POM		1.65E-03	g/seatbelt
lead (in)	3.32E-04	g/1000g POM		3.32E-06	g/seatbelt
magnesium (in)	5.86E-07	g/1000g POM		5.86E-09	g/seatbelt
manganese (in)	1.24E-04	g/1000g POM		1.24E-06	g/seatbelt
mercury (in)	4.86E-07	g/1000g POM		4.86E-09	g/seatbelt
natural aggregate	6.07E-04	g/1000g POM		6.07E-06	g/seatbelt
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		2.15E-01	MJ/seatbelt
nickel	1.17E-06	g/1000g POM		1.17E-08	g/seatbelt
nitrogen (in)	9.44E+01	g/1000g POM		9.44E-01	g/seatbelt
olivine	1.54E-03	g/1000g POM		1.54E-05	g/seatbelt
oxygen	4.87E-03	g/1000g POM		4.87E-05	g/seatbelt
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		8.22E-05	MJ/seatbelt
phosphorus (in)	8.77E-10	g/1000g POM		8.77E-12	g/seatbelt
potassium chloride	9.70E-06	g/1000g POM		9.70E-08	g/seatbelt
primary energy from geother	2.38E-02	MJ/1000g POM		2.38E-04	MJ/seatbelt
primary energy from hydro p	2.95E-01	MJ/1000g POM		2.95E-03	MJ/seatbelt
primary energy from solar en	8.77E-05	MJ/1000g POM		8.77E-07	MJ/seatbelt
primary energy from waves	4.89E-04	MJ/1000g POM		4.89E-06	MJ/seatbelt
primary energy from wind po	1.13E-02	MJ/1000g POM		1.13E-04	MJ/seatbelt
quartz sand	5.31E-33	g/1000g POM		5.31E-35	g/seatbelt
river water	3.20E+03	g/1000g POM		3.20E+01	g/seatbelt
sand	9.51E-02	g/1000g POM		9.51E-04	g/seatbelt
sea water	6.03E+00	1l/1000g POM		6.03E-02	1l/seatbelt
slate	1.09E-02	g/1000g POM		1.09E-04	g/seatbelt
sodium chloride	2.67E-01	g/1000g POM		2.67E-03	g/seatbelt
sodium nitrate	1.76E-06	g/1000g POM		1.76E-08	g/seatbelt
sulfur (in)	3.33E-02	g/1000g POM		3.33E-04	g/seatbelt
talc	7.94E-24	g/1000g POM		7.94E-26	g/seatbelt
titanium	1.82E-03	g/1000g POM		1.82E-05	g/seatbelt
uranium	2.74E+03	g/1000g POM		2.74E+01	g/seatbelt
water	3.11E+01	1l/1000g POM		3.11E-01	1l/seatbelt
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		1.23E-07	1MJ/seatbelt
zinc (in)	6.14E-02	g/1000g POM		6.14E-04	g/seatbelt
OUTFLOWS				0.00E+00	
POM	1000	g		1.00E+01	g
1,2-dichloroethane	1.39E-08	g/1000g POM		1.39E-10	g/seatbelt
1,2-dichloroethane	3.16E-10	g/1000g POM		3.16E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g POM		3.75E-31	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g POM		1.22E-15	g/seatbelt
acid (as H+)	4.33E-14	g/1000g POM		4.33E-16	g/seatbelt
acid (as H+)	2.01E-03	g/1000g POM		2.01E-05	g/seatbelt
adsorbable organic halogen c	6.94E-10	g/1000g POM		6.94E-12	g/seatbelt
aluminium	4.06E-04	g/1000g POM		4.06E-06	g/seatbelt
ammonia	1.58E-07	g/1000g POM		1.58E-09	g/seatbelt
ammonia	3.39E-03	g/1000g POM		3.39E-05	g/seatbelt
antimony	7.96E-08	g/1000g POM		7.96E-10	g/seatbelt

arsenic	8.41E-08	g/1000g POM		8.41E-10	g/seatbelt
arsenic	1.85E-07	g/1000g POM		1.85E-09	g/seatbelt
benzene	3.35E-15	g/1000g POM		3.35E-17	g/seatbelt
benzene	6.58E-19	g/1000g POM		6.58E-21	g/seatbelt
biological oxygen demand	2.88E-02	g/1000g POM		2.88E-04	g/seatbelt
bromate	4.13E-07	g/1000g POM		4.13E-09	g/seatbelt
cadmium	8.62E-08	g/1000g POM		8.62E-10	g/seatbelt
cadmium	4.36E-08	g/1000g POM		4.36E-10	g/seatbelt
calcium	3.65E-05	g/1000g POM		3.65E-07	g/seatbelt
carbon dioxide	1.67E+03	g/1000g POM		1.67E+01	g/seatbelt
carbon disulfide	1.98E-08	g/1000g POM		1.98E-10	g/seatbelt
carbon monoxide	6.10E+00	g/1000g POM		6.10E-02	g/seatbelt
carbonate	2.83E-02	g/1000g POM		2.83E-04	g/seatbelt
chemical oxygen demand	2.40E-01	g/1000g POM		2.40E-03	g/seatbelt
chlorate	6.77E-05	g/1000g POM		6.77E-07	g/seatbelt
chloride	1.53E-01	g/1000g POM		1.53E-03	g/seatbelt
chlorine	3.71E-07	g/1000g POM		3.71E-09	g/seatbelt
chlorine	8.03E-07	g/1000g POM		8.03E-09	g/seatbelt
chromium	3.83E-07	g/1000g POM		3.83E-09	g/seatbelt
chromium	4.93E-09	g/1000g POM		4.93E-11	g/seatbelt
copper	8.90E-09	g/1000g POM		8.90E-11	g/seatbelt
copper	1.03E-05	g/1000g POM		1.03E-07	g/seatbelt
cyanide	1.56E-08	g/1000g POM		1.56E-10	g/seatbelt
decane	1.39E-02	g/1000g POM		1.39E-04	g/seatbelt
dichloromethane	9.24E-10	g/1000g POM		9.24E-12	g/seatbelt
ethyl benzene	1.97E-16	g/1000g POM		1.97E-18	g/seatbelt
ethylene	1.66E-03	g/1000g POM		1.66E-05	g/seatbelt
fluoride	3.59E-06	g/1000g POM		3.59E-08	g/seatbelt
fluorine	3.23E-08	g/1000g POM		3.23E-10	g/seatbelt
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		5.11E-05	g/seatbelt
hydrocyanic acid	6.21E-16	g/1000g POM		6.21E-18	g/seatbelt
hydrogen	3.02E-02	g/1000g POM		3.02E-04	g/seatbelt
hydrogen chloride	5.13E-02	g/1000g POM		5.13E-04	g/seatbelt
hydrogen fluoride	1.49E-03	g/1000g POM		1.49E-05	g/seatbelt
hydrogen sulfide	5.52E-06	g/1000g POM		5.52E-08	g/seatbelt
iron	1.81E-05	g/1000g POM		1.81E-07	g/seatbelt
lead	1.99E-06	g/1000g POM		1.99E-08	g/seatbelt
lead	3.83E-07	g/1000g POM		3.83E-09	g/seatbelt
manganese	6.28E-07	g/1000g POM		6.28E-09	g/seatbelt
mercury	1.80E-06	g/1000g POM		1.80E-08	g/seatbelt
mercury	1.70E-07	g/1000g POM		1.70E-09	g/seatbelt
methane	1.18E+01	g/1000g POM		1.18E-01	g/seatbelt
nickel	8.73E-11	g/1000g POM		8.73E-13	g/seatbelt
nickel	2.58E-07	g/1000g POM		2.58E-09	g/seatbelt
nitrate	1.20E-01	g/1000g POM		1.20E-03	g/seatbelt
nitrogen	8.77E-04	g/1000g POM		8.77E-06	g/seatbelt
nitrogen dioxide	3.29E+00	g/1000g POM		3.29E-02	g/seatbelt
nitrous oxide	4.82E-10	g/1000g POM		4.82E-12	g/seatbelt
non-methane volatile organic	3.51E+00	g/1000g POM		3.51E-02	g/seatbelt
oxygen	7.98E-21	g/1000g POM		7.98E-23	g/seatbelt

particles (> PM10)	8.64E-02	g/1000g POM		8.64E-04	g/seatbelt
particles (PM10)	5.95E-01	g/1000g POM		5.95E-03	g/seatbelt
particles (PM10)	8.75E-03	g/1000g POM		8.75E-05	g/seatbelt
particles (PM2.5)	3.90E-12	g/1000g POM		3.90E-14	g/seatbelt
phenol	1.99E-03	g/1000g POM		1.99E-05	g/seatbelt
phosphate	5.37E-01	g/1000g POM		5.37E-03	g/seatbelt
polycyclic aromatic hydrocarb	1.36E-15	g/1000g POM		1.36E-17	g/seatbelt
potassium	1.18E-06	g/1000g POM		1.18E-08	g/seatbelt
propene	1.23E-03	g/1000g POM		1.23E-05	g/seatbelt
selenium	1.01E-22	g/1000g POM		1.01E-24	g/seatbelt
silver	2.90E-21	g/1000g POM		2.90E-23	g/seatbelt
sodium	8.11E-02	g/1000g POM		8.11E-04	g/seatbelt
strontium	7.15E-09	g/1000g POM		7.15E-11	g/seatbelt
styrene	2.76E-17	g/1000g POM		2.76E-19	g/seatbelt
sulfate	9.30E-01	g/1000g POM		9.30E-03	g/seatbelt
sulfur	3.49E-10	g/1000g POM		3.49E-12	g/seatbelt
sulfur dioxide	3.78E+00	g/1000g POM		3.78E-02	g/seatbelt
tin	1.53E-13	g/1000g POM		1.53E-15	g/seatbelt
toluene	5.61E-16	g/1000g POM		5.61E-18	g/seatbelt
total organic carbon	8.94E-03	g/1000g POM		8.94E-05	g/seatbelt
vinyl chloride	3.11E-07	g/1000g POM		3.11E-09	g/seatbelt
vinyl chloride	5.78E-09	g/1000g POM		5.78E-11	g/seatbelt
volatile organic compound	1.79E-01	g/1000g POM		1.79E-03	g/seatbelt
volatile organic compound	1.06E-02	g/1000g POM		1.06E-04	g/seatbelt
xylene (all isomers)	2.59E-16	g/1000g POM		2.59E-18	g/seatbelt
zinc	4.86E-06	g/1000g POM		4.86E-08	g/seatbelt
zinc	9.69E-05	g/1000g POM		9.69E-07	g/seatbelt
chemical waste	1.91E+00	g/1000g POM		1.91E-02	g/seatbelt
chemical waste, inert	8.15E-01	g/1000g POM		8.15E-03	g/seatbelt
chemical waste, toxic	1.70E+00	g/1000g POM		1.70E-02	g/seatbelt
demolition waste	2.20E-03	g/1000g POM		2.20E-05	g/seatbelt
industrial waste	1.13E+00	g/1000g POM		1.13E-02	g/seatbelt
mineral waste	2.05E-01	g/1000g POM		2.05E-03	g/seatbelt
municipal waste	-4.61E+00	g/1000g POM		-4.61E-02	g/seatbelt
organic waste	1.69E-03	g/1000g POM		1.69E-05	g/seatbelt
overburden	1.63E+01	g/1000g POM		1.63E-01	g/seatbelt
packaging waste (metal)	3.17E-05	g/1000g POM		3.17E-07	g/seatbelt
packaging waste (plastic)	6.63E-10	g/1000g POM		6.63E-12	g/seatbelt
plastic	3.40E-01	g/1000g POM		3.40E-03	g/seatbelt
tailings	2.46E-01	g/1000g POM		2.46E-03	g/seatbelt
waste	9.32E-01	g/1000g POM		9.32E-03	g/seatbelt
waste paper	2.35E-06	g/1000g POM		2.35E-08	g/seatbelt
wood	2.98E-05	g/1000g POM		2.98E-07	g/seatbelt
wooden pallet	5.89E-07	g/1000g POM		5.89E-09	g/seatbelt
Remark:					
Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD database, 1999)					

3.108 Transportation to Plastic parts manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1870	MJ/1000g of product	10.0000	1.87E-03	MJ/seatbelt
OUTFLOWS					
CO2	13.6000	g/1000g of product		1.36E-01	g/seatbelt
NOx	0.0900	g/1000g of product		9.00E-04	g/seatbelt
HC	0.0120	g/1000g of product		1.20E-04	g/seatbelt
Particulate matter	0.0015	g/1000g of product		1.50E-05	g/seatbelt
CO	0.0120	g/1000g of product		1.20E-04	g/seatbelt
SO2	0.0034	g/1000g of product		3.40E-05	g/seatbelt
Remark:					
Distance between Plastics producer no.3 (Hamburg, Germany) and Metal parts manufacturer no.6, (Mörfeden-Walldorf, Germany) in km		**100**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
3.109 Production of colorbatch	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.110 Transportation to Plastic parts manufacturer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4320	MJ/1000g of product	0.0200	8.64E-06	MJ/seatbelt
OUTFLOWS					
CO2	31.2000	g/1000g of product		6.24E-04	g/seatbelt
NOx	0.1980	g/1000g of product		3.96E-06	g/seatbelt
HC	0.0282	g/1000g of product		5.64E-07	g/seatbelt
Particulate matter	0.0034	g/1000g of product		6.84E-08	g/seatbelt
CO	0.0276	g/1000g of product		5.52E-07	g/seatbelt
SO2	0.0078	g/1000g of product		1.56E-07	g/seatbelt
Remark:					

Distance between Colorbatch producer (Lichtenfels, Germany) and Plastic parts manufacturer no.4 (Hermannsburg, Germany) in km		**600**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.111 Production of bearing plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	4.9090909	MJ/1000g product	10.0000	4.91E-02	MJ/seatbelt
POM	1000	g/1000g product		1.00E+01	g/seatbelt
colorbatch	2	g/1000g product		2.00E-02	g/seatbelt
OUTFLOWS				0.00E+00	
bearing plate				10	g/seatbelt
plastic scrap	2	g/1000g product		2.00E-02	g/seatbelt
Remark:					
Electricity data for Germany					
3.112 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6934	MJ/1000g of product	10.0000	6.93E-03	MJ/seatbelt
OUTFLOWS					
CO_2	50.0760	g/1000g of product		5.01E-01	g/seatbelt
NO_x	0.3178	g/1000g of product		3.18E-03	g/seatbelt
HC	0.0453	g/1000g of product		4.53E-04	g/seatbelt
Particulate matter	0.0055	g/1000g of product		5.49E-05	g/seatbelt
CO	0.0443	g/1000g of product		4.43E-04	g/seatbelt
SO_2	0.0125	g/1000g of product		1.25E-04	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.4 (Hermannsburg, Germany) and ALH (Sopronkövesd, Hungary) in km		**963**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.113.1 Production of stainless steel X10CrNi18-8	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g stainless ste	1.0500	1.66E-05	g/seatbelt
stainless steel scrap (430, fro	3.14E-02	g/1000g stainless steel		3.30E-05	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g stainless steel		7.47E-07	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g stainless steel		9.22E-04	MJ/seatbelt
calcium carbonate	208.11557	g/1000g stainless steel		2.19E-01	g/seatbelt
chromium (in)	15.404443	g/1000g stainless steel		1.62E-02	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g stainless steel		4.78E-03	MJ/seatbelt
dolomite	48.094091	g/1000g stainless steel		5.05E-02	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g stainless steel		1.59E-02	MJ/seatbelt
inert rock	223.40818	g/1000g stainless steel		2.35E-01	g/seatbelt
iron (in)	215.94651	g/1000g stainless steel		2.27E-01	g/seatbelt
manganese (in)	2.2067601	g/1000g stainless steel		2.32E-03	g/seatbelt
molybdenum (in)	0.0016111	g/1000g stainless steel		1.69E-06	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g stainless steel		6.70E-03	MJ/seatbelt
nickel (in)	0.2600702	g/1000g stainless steel		2.73E-04	g/seatbelt
water	18.985568	l/1000g stainless steel		1.99E-02	l/seatbelt
OUTFLOWS				0.00E+00	
stainless steel hot rolled coil,	1000	g		1.05E+00	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g stainless steel		2.35E-12	g/seatbelt
acid (as H+)	6.01E-02	g/1000g stainless steel		6.31E-05	g/seatbelt
aluminium	1.18E-02	g/1000g stainless steel		1.24E-05	g/seatbelt
ammonia	6.05E-02	g/1000g stainless steel		6.35E-05	g/seatbelt
cadmium	2.18E-05	g/1000g stainless steel		2.29E-08	g/seatbelt
carbon dioxide	3.38E+03	g/1000g stainless steel		3.55E+00	g/seatbelt
carbon monoxide	9.85E+00	g/1000g stainless steel		1.03E-02	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g stainless steel		4.74E-04	g/seatbelt
chloride	3.56E+00	g/1000g stainless steel		3.73E-03	g/seatbelt
chromium	1.14E-01	g/1000g stainless steel		1.19E-04	g/seatbelt
chromium	9.22E-04	g/1000g stainless steel		9.68E-07	g/seatbelt
chromium VI	5.94E-05	g/1000g stainless steel		6.24E-08	g/seatbelt
chromium VI	2.29E-04	g/1000g stainless steel		2.40E-07	g/seatbelt
copper	1.22E-04	g/1000g stainless steel		1.28E-07	g/seatbelt
fluoride	6.92E-02	g/1000g stainless steel		7.27E-05	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g stainless steel		2.29E-05	g/seatbelt
iron	1.31E-01	g/1000g stainless steel		1.38E-04	g/seatbelt
lead	5.17E-04	g/1000g stainless steel		5.43E-07	g/seatbelt
manganese	2.83E-03	g/1000g stainless steel		2.97E-06	g/seatbelt
molybdenum	6.24E-03	g/1000g stainless steel		6.55E-06	g/seatbelt
molybdenum	1.66E-03	g/1000g stainless steel		1.74E-06	g/seatbelt
nickel	2.97E-02	g/1000g stainless steel		3.12E-05	g/seatbelt
nickel	3.38E-03	g/1000g stainless steel		3.55E-06	g/seatbelt
nitrate	2.00E-01	g/1000g stainless steel		2.10E-04	g/seatbelt
nitrogen	1.02E-01	g/1000g stainless steel		1.07E-04	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g stainless steel		7.90E-03	g/seatbelt

particles (> PM10)	2.35E-01	g/1000g stainless steel		2.47E-04	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g stainless steel		4.67E-03	g/seatbelt
phosphate	2.96E-03	g/1000g stainless steel		3.11E-06	g/seatbelt
sulfur	9.21E-01	g/1000g stainless steel		9.67E-04	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g stainless steel		1.30E-02	g/seatbelt
tin	1.61E-04	g/1000g stainless steel		1.69E-07	g/seatbelt
zinc	1.11E-03	g/1000g stainless steel		1.17E-06	g/seatbelt
waste from steel production	2.43E+02	g/1000g stainless steel		2.55E-01	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g stainless steel		1.36E+00	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.113.2 Transportation to Plastic parts manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.113 Production of spindle, achse	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel	1050.0000	g/1000g product	1.0000	1.05E+00	g/seatbelt
oil	0.1308158	MJ/1000g product		1.31E-04	MJ/seatbelt
gas	0.0845028	MJ/1000g product		8.45E-05	MJ/seatbelt
electricity	3.3747613	MJ/1000g product		3.37E-03	MJ/seatbelt
OUTFLOWS					
spindle, achse					
scrap	52.5000	g/1000g product		5.25E-02	g/seatbelt
chromium	0.0044461	g/1000g product		4.45E-06	g/seatbelt
cobalt	0.0044461	g/1000g product		4.45E-06	g/seatbelt
cyanide	0.0002047	g/1000g product		2.05E-07	g/seatbelt
nickel	0.0044461	g/1000g product		4.45E-06	g/seatbelt
zinc	0.0044461	g/1000g product		4.45E-06	g/seatbelt
used oil	0.003472	g/1000g product		3.47E-06	g/seatbelt
Remark:					
Electricity data for Germany					
Production data adapted from production of frame, pretensioner by STA					
3.115.1 Production of TPC-ET	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Coal	5.60E+00	MJ/1000g TPC-ET	1.0000	5.60E-03	MJ/seatbelt

Crude oil	2.10E+01	MJ/1000g TPC-ET		2.10E-02	MJ/seatbelt
Electricity	5.00E+00	MJ/1000g TPC-ET		5.00E-03	MJ/seatbelt
OUTFLOWS					
TPC-ET					
CO	0.2081156	g/1000g TPC-ET		2.08E-04	g/seatbelt
CO2	0.0154044	g/1000g TPC-ET		1.54E-05	g/seatbelt
COD	4.5500839	g/1000g TPC-ET		4.55E-03	g/seatbelt
methane	0.0480941	g/1000g TPC-ET		4.81E-05	g/seatbelt
N total	15.128484	g/1000g TPC-ET		1.51E-02	g/seatbelt
N2O	0.2234082	g/1000g TPC-ET		2.23E-04	g/seatbelt
NMVOC	0.2159465	g/1000g TPC-ET		2.16E-04	g/seatbelt
NOx	0.0022068	g/1000g TPC-ET		2.21E-06	g/seatbelt
PAH	1.611E-06	g/1000g TPC-ET		1.61E-09	g/seatbelt
Particles	6.3815832	g/1000g TPC-ET		6.38E-03	g/seatbelt
SO2	0.0002601	g/1000g TPC-ET		2.60E-07	g/seatbelt
Remark					
Electricity data for Germany					
Data adapted from production of EPDM (CPM, 2001)					
3.115.2 Transportation to plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.115 Production of housing, ball	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
TPC-ET	1000.0000	g/1000g product	1.0000	1.00E+00	g/seatbelt
electricity	9.6000	MJ/1000g product		9.60E-03	MJ/seatbelt
OUTFLOWS					
housing ball					g/seatbelt
Remark					
Electricity data for Germany					
Production data for production of sleeve, data carrier by Plastic parts manufacturer no.2					
3.116 Transportation to Plastic parts manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					

3.117.1 Production of TPC-ET	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Coal	5.60E+00	MJ/1000g TPC-ET	0.5600	3.14E-03	MJ/seatbelt
Crude oil	2.10E+01	MJ/1000g TPC-ET		1.18E-02	MJ/seatbelt
Electricity	5.00E+00	MJ/1000g TPC-ET		2.80E-03	MJ/seatbelt
OUTFLOWS					
TPC-ET					
CO	0.2081156	g/1000g TPC-ET		1.17E-04	g/seatbelt
CO2	0.0154044	g/1000g TPC-ET		8.63E-06	g/seatbelt
COD	4.5500839	g/1000g TPC-ET		2.55E-03	g/seatbelt
methane	0.0480941	g/1000g TPC-ET		2.69E-05	g/seatbelt
N total	15.128484	g/1000g TPC-ET		8.47E-03	g/seatbelt
N2O	0.2234082	g/1000g TPC-ET		1.25E-04	g/seatbelt
NMVOC	0.2159465	g/1000g TPC-ET		1.21E-04	g/seatbelt
NOx	0.0022068	g/1000g TPC-ET		1.24E-06	g/seatbelt
PAH	1.611E-06	g/1000g TPC-ET		9.02E-10	g/seatbelt
Particles	6.3815832	g/1000g TPC-ET		3.57E-03	g/seatbelt
SO2	0.0002601	g/1000g TPC-ET		1.46E-07	g/seatbelt
Remark					
Electricity data for Germany					
Data adapted from production of EPDM (CPM, 2001)					
3.117.2 Transportation to plant	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.117 Production of lever, car sense	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
TPC-ET	1000.0000	g/1000g product	0.5600	5.60E-01	g/seatbelt
electricity	9.6000	MJ/1000g product		5.38E-03	MJ/seatbelt
OUTFLOWS					
lever, car sense				5.60E-01	g/seatbelt
Remark					
Electricity data for Germany					
Production data for production of sleeve, data carrier by Plastic parts manufacturer no.2					

3.118 Transportation to Plastic parts manufacturer no.1	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.119 Production of sensor, car	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
spindle, achse	390.6250	g/1000g product	2.5600	1.00E+00	g/seatbelt
housing,ball	390.6250	g/1000g product		1.00E+00	g/seatbelt
lever, car sense	218.7500	g/1000g product		5.60E-01	g/seatbelt
OUTPUTS					
sensor, car				2.5600	g/seatbelt
Lack of data					
3.120 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.6962	MJ/1000g of product	2.5600	1.78E-03	MJ/seatbelt
OUTFLOWS					
CO2	50.2840	g/1000g of product		1.29E-01	g/seatbelt
NOx	0.3191	g/1000g of product		8.17E-04	g/seatbelt
HC	0.0454	g/1000g of product		1.16E-04	g/seatbelt
Particulate matter	0.0055	g/1000g of product		1.41E-05	g/seatbelt
CO	0.0445	g/1000g of product		1.14E-04	g/seatbelt
SO2	0.0126	g/1000g of product		3.22E-05	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.1 (Hodenhagen, Germany) and ALH (Sopronkövesd, Hungary) in km		**967**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.121 Production of stainless steel X46Cr13	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
stainless steel scrap (316, fro	1.58E-02	g/1000g stainless ste	9.3700	1.48E-04	g/seatbelt

stainless steel scrap (430, fro	3.14E-02	g/1000g stainless steel	2.94E-04	g/seatbelt
steel scrap (in)	7.12E-04	g/1000g stainless steel	6.67E-06	g/seatbelt
brown coal; 11.9 MJ/kg	0.8783122	MJ/1000g stainless steel	8.23E-03	MJ/seatbelt
calcium carbonate	208.11557	g/1000g stainless steel	1.95E+00	g/seatbelt
chromium (in)	15.404443	g/1000g stainless steel	1.44E-01	g/seatbelt
crude oil; 42.3 MJ/kg	4.5500839	MJ/1000g stainless steel	4.26E-02	MJ/seatbelt
dolomite	48.094091	g/1000g stainless steel	4.51E-01	g/seatbelt
hard coal; 26.3 MJ/kg	15.128484	MJ/1000g stainless steel	1.42E-01	MJ/seatbelt
inert rock	223.40818	g/1000g stainless steel	2.09E+00	g/seatbelt
iron (in)	215.94651	g/1000g stainless steel	2.02E+00	g/seatbelt
manganese (in)	2.2067601	g/1000g stainless steel	2.07E-02	g/seatbelt
molybdenum (in)	0.0016111	g/1000g stainless steel	1.51E-05	g/seatbelt
natural gas; 44.1 MJ/kg	6.3815832	MJ/1000g stainless steel	5.98E-02	MJ/seatbelt
nickel (in)	0.2600702	g/1000g stainless steel	2.44E-03	g/seatbelt
water	18.985568	l/1000g stainless steel	1.78E-01	l/seatbelt
OUTFLOWS			0.00E+00	
stainless steel hot rolled coil,	1000	g	9.37E+00	g
2,3,7,8-tetrachlorodibenzo-p-	2.24E-09	g/1000g stainless steel	2.10E-11	g/seatbelt
acid (as H+)	6.01E-02	g/1000g stainless steel	5.63E-04	g/seatbelt
aluminium	1.18E-02	g/1000g stainless steel	1.11E-04	g/seatbelt
ammonia	6.05E-02	g/1000g stainless steel	5.67E-04	g/seatbelt
cadmium	2.18E-05	g/1000g stainless steel	2.04E-07	g/seatbelt
carbon dioxide	3.38E+03	g/1000g stainless steel	3.17E+01	g/seatbelt
carbon monoxide	9.85E+00	g/1000g stainless steel	9.23E-02	g/seatbelt
chemical oxygen demand	4.51E-01	g/1000g stainless steel	4.23E-03	g/seatbelt
chloride	3.56E+00	g/1000g stainless steel	3.33E-02	g/seatbelt
chromium	1.14E-01	g/1000g stainless steel	1.06E-03	g/seatbelt
chromium	9.22E-04	g/1000g stainless steel	8.64E-06	g/seatbelt
chromium VI	5.94E-05	g/1000g stainless steel	5.57E-07	g/seatbelt
chromium VI	2.29E-04	g/1000g stainless steel	2.15E-06	g/seatbelt
copper	1.22E-04	g/1000g stainless steel	1.14E-06	g/seatbelt
fluoride	6.92E-02	g/1000g stainless steel	6.48E-04	g/seatbelt
hydrocarbons (unspecified)	2.18E-02	g/1000g stainless steel	2.04E-04	g/seatbelt
iron	1.31E-01	g/1000g stainless steel	1.23E-03	g/seatbelt
lead	5.17E-04	g/1000g stainless steel	4.84E-06	g/seatbelt
manganese	2.83E-03	g/1000g stainless steel	2.65E-05	g/seatbelt
molybdenum	6.24E-03	g/1000g stainless steel	5.85E-05	g/seatbelt
molybdenum	1.66E-03	g/1000g stainless steel	1.56E-05	g/seatbelt
nickel	2.97E-02	g/1000g stainless steel	2.78E-04	g/seatbelt
nickel	3.38E-03	g/1000g stainless steel	3.17E-05	g/seatbelt
nitrate	2.00E-01	g/1000g stainless steel	1.88E-03	g/seatbelt
nitrogen	1.02E-01	g/1000g stainless steel	9.57E-04	g/seatbelt
nitrogen dioxide	7.52E+00	g/1000g stainless steel	7.05E-02	g/seatbelt
particles (> PM10)	2.35E-01	g/1000g stainless steel	2.20E-03	g/seatbelt
particles (PM2.5 - PM10)	4.44E+00	g/1000g stainless steel	4.16E-02	g/seatbelt
phosphate	2.96E-03	g/1000g stainless steel	2.77E-05	g/seatbelt
sulfur	9.21E-01	g/1000g stainless steel	8.63E-03	g/seatbelt
sulfur dioxide	1.24E+01	g/1000g stainless steel	1.16E-01	g/seatbelt
tin	1.61E-04	g/1000g stainless steel	1.51E-06	g/seatbelt
zinc	1.11E-03	g/1000g stainless steel	1.04E-05	g/seatbelt

waste from steel production	2.43E+02	g/1000g stainless steel		2.27E+00	g/seatbelt
waste (unspecified)	1.30E+03	g/1000g stainless steel		1.22E+01	g/seatbelt
Remark:					
Data adapted from Stainless Steel Hot Rolled Coil (ELCD database, 2000)					
3.122 Transportation to Metal parts producer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2160	MJ/1000g of product	9.3700	2.02E-03	MJ/seatbelt
OUTFLOWS					
CO2	15.6000	g/1000g of product		1.46E-01	g/seatbelt
NOx	0.0990	g/1000g of product		9.28E-04	g/seatbelt
HC	0.0141	g/1000g of product		1.32E-04	g/seatbelt
Particulate matter	0.0017	g/1000g of product		1.60E-05	g/seatbelt
CO	0.0138	g/1000g of product		1.29E-04	g/seatbelt
SO2	0.0039	g/1000g of product		3.65E-05	g/seatbelt
Remark:					
Distance between plant and Metal parts producer no.4 (Fulda, Germany) in km		**300**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.123 Production of lubricant (I)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INPUTS					
air	267.3181	g/1000g oil	0.1000	2.67E-02	g/seatbelt
barium sulfate	0.0000	g/1000g oil		2.93E-16	g/seatbelt
baryte	2.5003	g/1000g oil		2.50E-04	g/seatbelt
basalt	0.0209	g/1000g oil		2.09E-06	g/seatbelt
bauxite	0.0015	g/1000g oil		1.53E-07	g/seatbelt
bentonite	1.0336	g/1000g oil		1.03E-04	g/seatbelt
brown coal; 11.9 MJ/kg	0.0475	MJ/1000g oil		4.75E-06	MJ/seatbelt
calcium carbonate (in)	2.1090	g/1000g oil		2.11E-04	g/seatbelt
calcium chloride (in)	0.0000	g/1000g oil		3.00E-14	g/seatbelt
carbon dioxide (in)	0.4977	g/1000g oil		4.98E-05	g/seatbelt
chromium (in)	0.0000	g/1000g oil		4.89E-09	g/seatbelt
clay	0.2763	g/1000g oil		2.76E-05	g/seatbelt
colemanite	0.0000	g/1000g oil		1.45E-09	g/seatbelt
copper (in)	0.0012	g/1000g oil		1.18E-07	g/seatbelt
crude oil; 42.3 MJ/kg	47.1274	MJ/1000g oil		4.71E-03	MJ/seatbelt
dolomite	0.0000	g/1000g oil		4.94E-10	g/seatbelt

fluorspar	0.0000	g/1000g oil		2.74E-10	g/seatbelt
ground water	0.0318	l/1000g oil		3.18E-06	l/seatbelt
gypsum	0.0384	g/1000g oil		3.84E-06	g/seatbelt
hard coal; 26.3 MJ/kg	0.1285	MJ/1000g oil		1.29E-05	MJ/seatbelt
inert rock	130.5738	g/1000g oil		1.31E-02	g/seatbelt
iron (in)	0.4591	g/1000g oil		4.59E-05	g/seatbelt
kaolin	0.0000	g/1000g oil		2.57E-09	g/seatbelt
lead (in)	0.0217	g/1000g oil		2.17E-06	g/seatbelt
magnesite (in)	0.0000	g/1000g oil		7.48E-11	g/seatbelt
magnesium chloride (in)	0.0650	g/1000g oil		6.50E-06	g/seatbelt
manganese (in)	0.0035	g/1000g oil		3.54E-07	g/seatbelt
molybdenum (in)	0.0000	g/1000g oil		2.76E-13	g/seatbelt
natural aggregate	0.7544	g/1000g oil		7.54E-05	g/seatbelt
natural gas; 44.1 MJ/kg	2.6949	MJ/1000g oil		2.69E-04	MJ/seatbelt
nickel (in)	0.0004	g/1000g oil		4.42E-08	g/seatbelt
nitrogen (in)	0.0000	g/1000g oil		3.68E-12	g/seatbelt
olivine	0.0000	g/1000g oil		1.57E-17	g/seatbelt
oxygen (in)	0.0000	g/1000g oil		1.86E-12	g/seatbelt
palladium	0.0000	g/1000g oil		3.75E-15	g/seatbelt
peat; 8.4 MJ/kg	0.0010	MJ/1000g oil		1.02E-07	MJ/seatbelt
phosphorus (in)	0.0000	g/1000g oil		3.34E-11	g/seatbelt
platinum (in)	0.0000	g/1000g oil		4.51E-14	g/seatbelt
potassium chloride (in)	0.0000	g/1000g oil		4.04E-11	g/seatbelt
primary energy from geother	0.0012	MJ/1000g oil		1.24E-07	MJ/seatbelt
primary energy from hydro p	0.0557	MJ/1000g oil		5.57E-06	MJ/seatbelt
primary energy from solar en	0.0048	MJ/1000g oil		4.79E-07	MJ/seatbelt
primary energy from wind po	0.0054	MJ/1000g oil		5.42E-07	MJ/seatbelt
quartz sand	0.3354	g/1000g oil		3.35E-05	g/seatbelt
raw pumice	0.0000	g/1000g oil		2.50E-10	g/seatbelt
rhodium	0.0000	g/1000g oil		1.26E-16	g/seatbelt
river water	-0.5639	l/1000g oil		-5.64E-05	l/seatbelt
sea water	0.0523	l/1000g oil		5.23E-06	l/seatbelt
slate	0.0000	g/1000g oil		2.64E-17	g/seatbelt
sodium chloride	0.0010	g/1000g oil		1.02E-07	g/seatbelt
sodium sulfate	0.0000	g/1000g oil		1.28E-13	g/seatbelt
soil	0.2782	g/1000g oil		2.78E-05	g/seatbelt
sulfur (in)	0.0000	g/1000g oil		3.83E-12	g/seatbelt
surface water	0.8502	l/1000g oil		8.50E-05	l/seatbelt
talc (in)	0.0000	g/1000g oil		7.37E-11	g/seatbelt
tin (in)	0.0000	g/1000g oil		2.54E-20	g/seatbelt
titanium	0.0008	g/1000g oil		8.06E-08	g/seatbelt
uranium	0.2531	MJ/1000g oil		2.53E-05	MJ/seatbelt
wood; 14.7 MJ/kg	0.0000	MJ/1000g oil		1.25E-09	MJ/seatbelt
zinc (in)	0.0043	g/1000g oil		4.30E-07	g/seatbelt
OUTPUTS				0.00E+00	
light fuel oil; from crude oil; c	1000.0000	g		1.00E-01	g
1,2-dibromoethane	0.0000	g/1000g oil		2.81E-16	g/seatbelt
1,2-dichloropropane	0.0000	g/1000g oil		1.61E-18	g/seatbelt
1,3,5-trimethylbenzene	0.0000	g/1000g oil		2.10E-15	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	0.0000	g/1000g oil		4.10E-16	g/seatbelt

2,3,7,8-tetrachlorodibenzo-p-	0.0000	g/1000g oil		2.78E-23	g/seatbelt
acenaphthene	0.0000	g/1000g oil		1.10E-09	g/seatbelt
acenaphthene	0.0000	g/1000g oil		1.85E-11	g/seatbelt
acenaphthylene	0.0000	g/1000g oil		4.18E-10	g/seatbelt
acenaphthylene	0.0000	g/1000g oil		7.81E-12	g/seatbelt
acetaldehyde	0.0001	g/1000g oil		8.43E-09	g/seatbelt
acetic acid	0.0001	g/1000g oil		7.79E-09	g/seatbelt
acetic acid	0.0000	g/1000g oil		3.46E-09	g/seatbelt
acetic acid	0.0005	g/1000g oil		5.28E-08	g/seatbelt
acetone	0.0001	g/1000g oil		7.54E-09	g/seatbelt
acid (as H+)	0.0000	g/1000g oil		9.29E-12	g/seatbelt
acid (as H+)	0.0000	g/1000g oil		4.70E-10	g/seatbelt
acrolein	0.0000	g/1000g oil		5.21E-11	g/seatbelt
acryolonitrile	0.0000	g/1000g oil		1.18E-13	g/seatbelt
adsorbable organic halogen c	0.0000	g/1000g oil		4.62E-14	g/seatbelt
adsorbable organic halogen c	0.0008	g/1000g oil		8.33E-08	g/seatbelt
aluminium	0.0001	g/1000g oil		1.21E-08	g/seatbelt
aluminium	0.0000	g/1000g oil		5.46E-13	g/seatbelt
aluminium	0.0003	g/1000g oil		3.00E-08	g/seatbelt
americium-241	0.0005	Bq/1000g oil		5.33E-08	Bq/seatbelt
ammonia	0.0033	g/1000g oil		3.27E-07	g/seatbelt
ammonia	0.0557	g/1000g oil		5.57E-06	g/seatbelt
ammonia	0.0000	g/1000g oil		1.62E-11	g/seatbelt
ammonia	0.0028	g/1000g oil		2.76E-07	g/seatbelt
ammonium	0.0000	g/1000g oil		4.00E-14	g/seatbelt
anthracene	0.0000	g/1000g oil		7.38E-12	g/seatbelt
anthracene	0.0000	g/1000g oil		2.83E-10	g/seatbelt
anthracene	0.0000	g/1000g oil		3.07E-11	g/seatbelt
antimony	0.0000	g/1000g oil		4.31E-11	g/seatbelt
antimony	0.0000	g/1000g oil		4.10E-16	g/seatbelt
antimony-124	0.0000	Bq/1000g oil		1.87E-11	Bq/seatbelt
antimony-124	0.0000	Bq/1000g oil		5.54E-10	Bq/seatbelt
antimony-125	0.0000	Bq/1000g oil		3.78E-10	Bq/seatbelt
argon-41	1.1793	Bq/1000g oil		1.18E-04	Bq/seatbelt
arsenic	0.0000	g/1000g oil		1.06E-09	g/seatbelt
arsenic	0.0000	g/1000g oil		4.31E-12	g/seatbelt
arsenic	0.0002	g/1000g oil		1.89E-08	g/seatbelt
arsenic	0.0002	g/1000g oil		1.53E-08	g/seatbelt
arsenic trioxide	0.0000	g/1000g oil		1.39E-14	g/seatbelt
barium	0.0016	g/1000g oil		1.59E-07	g/seatbelt
barium	0.0106	g/1000g oil		1.06E-06	g/seatbelt
barium	0.0010	g/1000g oil		1.05E-07	g/seatbelt
benzene	0.0013	g/1000g oil		1.32E-07	g/seatbelt
benzene	0.0004	g/1000g oil		3.85E-08	g/seatbelt
benzene	0.0021	g/1000g oil		2.12E-07	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		3.71E-12	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		2.37E-12	g/seatbelt
benzo[a]anthracene	0.0000	g/1000g oil		2.46E-10	g/seatbelt
benzo[a]pyrene	0.0000	g/1000g oil		2.02E-12	g/seatbelt
benzo[g,h,i]perylene	0.0000	g/1000g oil		3.31E-12	g/seatbelt

benzo[k]fluoranthene	0.0000	g/1000g oil		6.63E-12	g/seatbelt
benzo[k]fluoranthene	0.0000	g/1000g oil		8.11E-13	g/seatbelt
benzo[k]fluoranthene	0.0000	g/1000g oil		2.74E-10	g/seatbelt
beryllium	0.0000	g/1000g oil		1.29E-11	g/seatbelt
beryllium	0.0000	g/1000g oil		1.54E-09	g/seatbelt
beryllium	0.0000	g/1000g oil		1.16E-12	g/seatbelt
biological oxygen demand	0.0039	g/1000g oil		3.89E-07	g/seatbelt
biological oxygen demand	0.0005	g/1000g oil		5.09E-08	g/seatbelt
boron	0.0001	g/1000g oil		7.92E-09	g/seatbelt
boron	0.0000	g/1000g oil		1.21E-09	g/seatbelt
boron	0.0000	g/1000g oil		8.84E-12	g/seatbelt
bromide	0.0000	g/1000g oil		1.65E-09	g/seatbelt
bromine	0.0000	g/1000g oil		2.20E-09	g/seatbelt
bromine	0.0000	g/1000g oil		2.02E-11	g/seatbelt
butadiene	0.0000	g/1000g oil		3.42E-14	g/seatbelt
cadmium	0.0000	g/1000g oil		3.45E-10	g/seatbelt
cadmium	0.0000	g/1000g oil		3.90E-11	g/seatbelt
cadmium	0.0001	g/1000g oil		8.58E-09	g/seatbelt
cadmium	0.0001	g/1000g oil		9.72E-09	g/seatbelt
calcium	0.0000	g/1000g oil		2.59E-09	g/seatbelt
calcium	0.0023	g/1000g oil		2.34E-07	g/seatbelt
calcium	0.0000	g/1000g oil		9.65E-10	g/seatbelt
carbon dioxide	301.3377	g/1000g oil		3.01E-02	g/seatbelt
carbon disulfide	0.0000	g/1000g oil		5.21E-14	g/seatbelt
carbon monoxide	0.4146	g/1000g oil		4.15E-05	g/seatbelt
carbon-14	0.5411	Bq/1000g oil		5.41E-05	Bq/seatbelt
carbon-14	0.0270	Bq/1000g oil		2.70E-06	Bq/seatbelt
carbonate	0.0658	g/1000g oil		6.58E-06	g/seatbelt
carbonate	0.6675	g/1000g oil		6.67E-05	g/seatbelt
cesium-134	0.0001	Bq/1000g oil		1.48E-08	Bq/seatbelt
cesium-134	0.0271	Bq/1000g oil		2.71E-06	Bq/seatbelt
cesium-137	0.0003	Bq/1000g oil		3.03E-08	Bq/seatbelt
cesium-137	0.2506	Bq/1000g oil		2.51E-05	Bq/seatbelt
CFC-11	0.0000	g/1000g oil		3.30E-10	g/seatbelt
CFC-114	0.0000	g/1000g oil		3.38E-10	g/seatbelt
CFC-12	0.0000	g/1000g oil		7.09E-11	g/seatbelt
CFC-13	0.0000	g/1000g oil		4.45E-11	g/seatbelt
chemical oxygen demand	0.0563	g/1000g oil		5.63E-06	g/seatbelt
chemical oxygen demand	0.0799	g/1000g oil		7.99E-06	g/seatbelt
chloride	0.0020	g/1000g oil		1.97E-07	g/seatbelt
chloride	0.0193	g/1000g oil		1.93E-06	g/seatbelt
chloride	5.8035	g/1000g oil		5.80E-04	g/seatbelt
chloride	52.7046	g/1000g oil		5.27E-03	g/seatbelt
chlorine	0.0000	g/1000g oil		1.45E-13	g/seatbelt
chlorine	0.0004	g/1000g oil		4.27E-08	g/seatbelt
chromium	0.0000	g/1000g oil		3.13E-09	g/seatbelt
chromium	0.0001	g/1000g oil		1.08E-08	g/seatbelt
chromium	0.0003	g/1000g oil		3.01E-08	g/seatbelt
chromium	0.0002	g/1000g oil		2.43E-08	g/seatbelt
chromium III	0.0000	g/1000g oil		2.99E-12	g/seatbelt

chromium III	0.0000	g/1000g oil		2.77E-14	g/seatbelt
chromium III	0.0000	g/1000g oil		9.63E-11	g/seatbelt
chromium VI	0.0000	g/1000g oil		1.63E-18	g/seatbelt
chrysene	0.0000	g/1000g oil		9.12E-12	g/seatbelt
chrysene	0.0000	g/1000g oil		9.72E-12	g/seatbelt
chrysene	0.0000	g/1000g oil		1.39E-09	g/seatbelt
cobalt	0.0000	g/1000g oil		1.58E-09	g/seatbelt
cobalt	0.0000	g/1000g oil		1.93E-10	g/seatbelt
cobalt	0.0003	g/1000g oil		2.69E-08	g/seatbelt
cobalt	0.0000	g/1000g oil		1.18E-11	g/seatbelt
cobalt-58	0.0000	Bq/1000g oil		9.28E-11	Bq/seatbelt
cobalt-58	0.0002	Bq/1000g oil		2.07E-08	Bq/seatbelt
cobalt-60	0.0000	Bq/1000g oil		2.35E-09	Bq/seatbelt
cobalt-60	0.1162	Bq/1000g oil		1.16E-05	Bq/seatbelt
copper	0.0000	g/1000g oil		2.17E-09	g/seatbelt
copper	0.0000	g/1000g oil		1.11E-10	g/seatbelt
copper	0.0003	g/1000g oil		3.32E-08	g/seatbelt
copper	0.0003	g/1000g oil		3.01E-08	g/seatbelt
cresol	0.0000	g/1000g oil		1.59E-13	g/seatbelt
cresol	0.0000	g/1000g oil		1.22E-13	g/seatbelt
curium	0.0007	Bq/1000g oil		7.07E-08	Bq/seatbelt
cyanide	0.0000	g/1000g oil		3.98E-09	g/seatbelt
cyanide	0.0000	g/1000g oil		1.18E-09	g/seatbelt
cyclohexane	0.0000	g/1000g oil		1.19E-12	g/seatbelt
decane	0.0000	g/1000g oil		2.85E-09	g/seatbelt
decane	0.0200	g/1000g oil		2.00E-06	g/seatbelt
decane	0.0020	g/1000g oil		1.98E-07	g/seatbelt
dibenz[a,h]anthracene	0.0000	g/1000g oil		2.07E-12	g/seatbelt
dichloromethane	0.0000	g/1000g oil		1.16E-17	g/seatbelt
diethylamine	0.0000	g/1000g oil		9.28E-19	g/seatbelt
ethane	0.1818	g/1000g oil		1.82E-05	g/seatbelt
ethanol	0.0000	g/1000g oil		2.65E-09	g/seatbelt
ethyl benzene	0.0001	g/1000g oil		8.47E-09	g/seatbelt
ethyl benzene	0.0003	g/1000g oil		2.59E-08	g/seatbelt
ethyl benzene	0.0000	g/1000g oil		2.15E-09	g/seatbelt
ethylene	0.0000	g/1000g oil		2.00E-09	g/seatbelt
FC-14	0.0000	g/1000g oil		2.34E-12	g/seatbelt
fluoranthene	0.0000	g/1000g oil		2.40E-11	g/seatbelt
fluoranthene	0.0000	g/1000g oil		2.87E-10	g/seatbelt
fluoranthene	0.0000	g/1000g oil		2.76E-12	g/seatbelt
fluorene	0.0000	g/1000g oil		7.63E-11	g/seatbelt
fluoride	0.0010	g/1000g oil		9.91E-08	g/seatbelt
fluoride	0.0006	g/1000g oil		5.51E-08	g/seatbelt
fluoride	0.0059	g/1000g oil		5.94E-07	g/seatbelt
fluorine	0.0000	g/1000g oil		2.51E-13	g/seatbelt
fluorine	0.0000	g/1000g oil		1.56E-10	g/seatbelt
formaldehyde	0.0003	g/1000g oil		2.66E-08	g/seatbelt
HCFC-22	0.0000	g/1000g oil		7.75E-11	g/seatbelt
helium	0.0000	g/1000g oil		2.33E-10	g/seatbelt
heptane	0.0024	g/1000g oil		2.39E-07	g/seatbelt

hexamethylene diamine	0.0000	g/1000g oil		2.01E-15	g/seatbelt
hexane	0.0035	g/1000g oil		3.54E-07	g/seatbelt
hexane	0.0000	g/1000g oil		1.34E-14	g/seatbelt
hexane	0.0000	g/1000g oil		1.75E-14	g/seatbelt
hydrocarbons (unspecified)	0.0000	g/1000g oil		3.88E-10	g/seatbelt
hydrocyanic acid	0.0000	g/1000g oil		1.74E-12	g/seatbelt
hydrogen	0.0009	g/1000g oil		8.69E-08	g/seatbelt
hydrogen arsenide	0.0000	g/1000g oil		1.15E-12	g/seatbelt
hydrogen bromide	0.0000	g/1000g oil		9.82E-12	g/seatbelt
hydrogen chloride	0.0045	g/1000g oil		4.45E-07	g/seatbelt
hydrogen chloride	0.0000	g/1000g oil		3.02E-12	g/seatbelt
hydrogen fluoride	0.0003	g/1000g oil		3.43E-08	g/seatbelt
hydrogen fluoride	0.0000	g/1000g oil		2.50E-11	g/seatbelt
hydrogen iodide	0.0000	g/1000g oil		8.74E-15	g/seatbelt
hydrogen sulfide	0.0051	g/1000g oil		5.15E-07	g/seatbelt
hydrogen-3	2.2979	Bq/1000g oil		2.30E-04	Bq/seatbelt
hydrogen-3	787.5491	Bq/1000g oil		7.88E-02	Bq/seatbelt
hydroxide	0.0000	g/1000g oil		7.85E-11	g/seatbelt
indeno(1,2,3-cd)pyrene	0.0000	g/1000g oil		2.47E-12	g/seatbelt
iodine-129	0.0012	Bq/1000g oil		1.16E-07	Bq/seatbelt
iodine-129	0.0771	Bq/1000g oil		7.71E-06	Bq/seatbelt
iodine-131	0.0002	Bq/1000g oil		1.74E-08	Bq/seatbelt
iodine-131	0.0000	Bq/1000g oil		3.96E-10	Bq/seatbelt
iron	0.0001	g/1000g oil		1.02E-08	g/seatbelt
iron	0.0002	g/1000g oil		1.58E-08	g/seatbelt
iron	0.0033	g/1000g oil		3.30E-07	g/seatbelt
iron	0.0088	g/1000g oil		8.82E-07	g/seatbelt
krypton-85	19921.0578	Bq/1000g oil		1.99E+00	Bq/seatbelt
lead	0.0001	g/1000g oil		5.33E-09	g/seatbelt
lead	0.0000	g/1000g oil		2.91E-12	g/seatbelt
lead	0.0001	g/1000g oil		8.90E-09	g/seatbelt
lead	0.0001	g/1000g oil		5.98E-09	g/seatbelt
lead dioxide	0.0000	g/1000g oil		2.48E-15	g/seatbelt
magnesium	0.0000	g/1000g oil		3.75E-10	g/seatbelt
magnesium	0.0000	g/1000g oil		5.75E-14	g/seatbelt
magnesium	0.0001	g/1000g oil		9.12E-09	g/seatbelt
manganese	0.0000	g/1000g oil		4.75E-10	g/seatbelt
manganese	0.0000	g/1000g oil		2.26E-09	g/seatbelt
manganese	0.0003	g/1000g oil		3.45E-08	g/seatbelt
manganese	0.0000	g/1000g oil		3.77E-09	g/seatbelt
manganese-54	0.0180	Bq/1000g oil		1.80E-06	Bq/seatbelt
mercury	0.0000	g/1000g oil		3.30E-10	g/seatbelt
mercury	0.0000	g/1000g oil		2.19E-13	g/seatbelt
mercury	0.0000	g/1000g oil		1.36E-10	g/seatbelt
mercury	0.0000	g/1000g oil		2.01E-10	g/seatbelt
methane	3.3478	g/1000g oil		3.35E-04	g/seatbelt
methanol	0.0000	g/1000g oil		2.43E-09	g/seatbelt
methanol	0.0001	g/1000g oil		5.37E-09	g/seatbelt
molybdenum	0.0000	g/1000g oil		7.96E-10	g/seatbelt
molybdenum	0.0000	g/1000g oil		4.69E-14	g/seatbelt

molybdenum	0.0000	g/1000g oil		2.06E-09	g/seatbelt
naphthalene	0.0000	g/1000g oil		7.75E-10	g/seatbelt
naphthalene	0.0000	g/1000g oil		1.20E-09	g/seatbelt
naphthalene	0.0004	g/1000g oil		3.60E-08	g/seatbelt
n-butane	0.0682	g/1000g oil		6.82E-06	g/seatbelt
nickel	0.0002	g/1000g oil		1.95E-08	g/seatbelt
nickel	0.0000	g/1000g oil		3.12E-09	g/seatbelt
nickel	0.0002	g/1000g oil		2.16E-08	g/seatbelt
nickel	0.0001	g/1000g oil		1.12E-08	g/seatbelt
nitrate	0.0004	g/1000g oil		3.79E-08	g/seatbelt
nitrate	0.0009	g/1000g oil		8.65E-08	g/seatbelt
nitrogen	0.0563	g/1000g oil		5.63E-06	g/seatbelt
nitrogen	0.0128	g/1000g oil		1.28E-06	g/seatbelt
nitrogen dioxide	0.8756	g/1000g oil		8.76E-05	g/seatbelt
nitrogen monoxide	0.0000	g/1000g oil		7.53E-13	g/seatbelt
nitrous oxide	0.0070	g/1000g oil		6.96E-07	g/seatbelt
non-methane volatile organic	0.2594	g/1000g oil		2.59E-05	g/seatbelt
octane	0.0013	g/1000g oil		1.31E-07	g/seatbelt
oxygen	0.3719	g/1000g oil		3.72E-05	g/seatbelt
palladium	0.0000	g/1000g oil		8.29E-19	g/seatbelt
particles (> PM10)	0.0000	g/1000g oil		7.97E-14	g/seatbelt
particles (> PM10)	0.4054	g/1000g oil		4.05E-05	g/seatbelt
particles (> PM10)	2.1204	g/1000g oil		2.12E-04	g/seatbelt
particles (PM10)	0.0197	g/1000g oil		1.97E-06	g/seatbelt
particles (PM10)	0.0000	g/1000g oil		2.09E-13	g/seatbelt
particles (PM2.5 - PM10)	0.0141	g/1000g oil		1.41E-06	g/seatbelt
particles (PM2.5)	0.0129	g/1000g oil		1.29E-06	g/seatbelt
pentane	0.0232	g/1000g oil		2.32E-06	g/seatbelt
phenanthrene	0.0000	g/1000g oil		2.44E-10	g/seatbelt
phenol	0.0000	g/1000g oil		1.02E-13	g/seatbelt
phenol	0.0047	g/1000g oil		4.67E-07	g/seatbelt
phenol	0.0006	g/1000g oil		5.58E-08	g/seatbelt
phosphate	0.0319	g/1000g oil		3.19E-06	g/seatbelt
phosphate	0.0026	g/1000g oil		2.55E-07	g/seatbelt
phosphine	0.0000	g/1000g oil		2.77E-15	g/seatbelt
plutonium	0.0000	Bq/1000g oil		3.47E-12	Bq/seatbelt
plutonium	0.0021	Bq/1000g oil		2.12E-07	Bq/seatbelt
polychlorinated biphenyls	0.0000	g/1000g oil		2.53E-12	g/seatbelt
polycyclic aromatic hydrocarb	0.0002	g/1000g oil		2.47E-08	g/seatbelt
polycyclic aromatic hydrocarb	0.0000	g/1000g oil		8.79E-10	g/seatbelt
potassium	0.0139	g/1000g oil		1.39E-06	g/seatbelt
potassium	0.0001	g/1000g oil		8.74E-09	g/seatbelt
propane	0.3289	g/1000g oil		3.29E-05	g/seatbelt
propene	0.0000	g/1000g oil		6.64E-10	g/seatbelt
propionic acid	0.0000	g/1000g oil		9.96E-13	g/seatbelt
R-40	0.0000	g/1000g oil		8.37E-12	g/seatbelt
radium-226	8.7850	Bq/1000g oil		8.79E-04	Bq/seatbelt
radon-222	290.3514	Bq/1000g oil		2.90E-02	Bq/seatbelt
rhodium	0.0000	g/1000g oil		8.00E-19	g/seatbelt
ruthenium-106	0.0005	Bq/1000g oil		5.33E-08	Bq/seatbelt

scandium	0.0000	g/1000g oil		4.85E-15	g/seatbelt
selenium	0.0000	g/1000g oil		1.40E-09	g/seatbelt
selenium	0.0000	g/1000g oil		1.34E-09	g/seatbelt
silver	0.0000	g/1000g oil		2.38E-19	g/seatbelt
silver	0.0000	g/1000g oil		1.28E-12	g/seatbelt
silver	0.0000	g/1000g oil		1.39E-13	g/seatbelt
silver-110	0.0000	Bq/1000g oil		8.10E-11	Bq/seatbelt
sodium	0.0000	g/1000g oil		2.23E-10	g/seatbelt
sodium	0.0102	g/1000g oil		1.02E-06	g/seatbelt
sodium	0.0640	g/1000g oil		6.40E-06	g/seatbelt
strontium	0.0000	g/1000g oil		1.87E-13	g/seatbelt
strontium	0.0352	g/1000g oil		3.52E-06	g/seatbelt
strontium	0.0024	g/1000g oil		2.39E-07	g/seatbelt
strontium	0.0001	g/1000g oil		9.38E-09	g/seatbelt
strontium-90	0.0257	Bq/1000g oil		2.57E-06	Bq/seatbelt
styrene	0.0000	g/1000g oil		1.32E-15	g/seatbelt
sulfate	0.0000	g/1000g oil		1.73E-11	g/seatbelt
sulfate	0.0018	g/1000g oil		1.76E-07	g/seatbelt
sulfate	0.3042	g/1000g oil		3.04E-05	g/seatbelt
sulfate	0.2812	g/1000g oil		2.81E-05	g/seatbelt
sulfide	0.0106	g/1000g oil		1.06E-06	g/seatbelt
sulfide	0.0125	g/1000g oil		1.25E-06	g/seatbelt
sulfide	0.1215	g/1000g oil		1.22E-05	g/seatbelt
sulfite	0.0000	g/1000g oil		3.63E-10	g/seatbelt
sulfur	0.0000	g/1000g oil		4.73E-12	g/seatbelt
sulfur	0.0000	g/1000g oil		6.15E-12	g/seatbelt
sulfur dioxide	1.7519	g/1000g oil		1.75E-04	g/seatbelt
sulfur hexafluoride	0.0000	g/1000g oil		1.71E-13	g/seatbelt
tellurium	0.0000	g/1000g oil		3.98E-13	g/seatbelt
thallium	0.0000	g/1000g oil		2.92E-12	g/seatbelt
thallium	0.0000	g/1000g oil		4.88E-13	g/seatbelt
tin	0.0000	g/1000g oil		6.31E-10	g/seatbelt
tin	0.0000	g/1000g oil		1.67E-13	g/seatbelt
tin	0.0000	g/1000g oil		2.48E-13	g/seatbelt
tin oxide	0.0000	g/1000g oil		2.16E-16	g/seatbelt
titanium	0.0000	g/1000g oil		5.65E-13	g/seatbelt
titanium	0.0000	g/1000g oil		1.70E-14	g/seatbelt
titanium	0.0000	g/1000g oil		1.06E-10	g/seatbelt
toluene	0.0001	g/1000g oil		6.68E-09	g/seatbelt
toluene	0.0012	g/1000g oil		1.16E-07	g/seatbelt
toluene	0.0002	g/1000g oil		2.31E-08	g/seatbelt
total organic carbon	0.0201	g/1000g oil		2.01E-06	g/seatbelt
total organic carbon	0.0005	g/1000g oil		5.09E-08	g/seatbelt
uranium-234	0.0013	Bq/1000g oil		1.26E-07	Bq/seatbelt
uranium-235	0.0049	Bq/1000g oil		4.87E-07	Bq/seatbelt
uranium-238	0.0071	Bq/1000g oil		7.15E-07	Bq/seatbelt
uranium-238	0.1540	Bq/1000g oil		1.54E-05	Bq/seatbelt
used air	183.1600	g/1000g oil		1.83E-02	g/seatbelt
vanadium	0.0013	g/1000g oil		1.26E-07	g/seatbelt
vanadium	0.0002	g/1000g oil		1.84E-08	g/seatbelt

vanadium	0.0000	g/1000g oil		1.48E-09	g/seatbelt
vinyl chloride	0.0000	g/1000g oil		6.11E-10	g/seatbelt
volatile organic compound	0.0007	g/1000g oil		6.63E-08	g/seatbelt
volatile organic compound	0.0000	g/1000g oil		5.09E-10	g/seatbelt
volatile organic compound	0.0001	g/1000g oil		7.33E-09	g/seatbelt
waste heat	1290.1994	g/1000g oil		1.29E-01	g/seatbelt
waste heat	55.6773	g/1000g oil		5.57E-03	g/seatbelt
water vapour	105.8821	g/1000g oil		1.06E-02	g/seatbelt
xenon-131	0.0163	Bq/1000g oil		1.63E-06	Bq/seatbelt
xenon-133	2.6639	Bq/1000g oil		2.66E-04	Bq/seatbelt
xenon-135	0.8807	Bq/1000g oil		8.81E-05	Bq/seatbelt
xenon-137	0.0002	Bq/1000g oil		2.31E-08	Bq/seatbelt
xenon-138	0.0297	Bq/1000g oil		2.97E-06	Bq/seatbelt
xylene (all isomers)	0.0003	g/1000g oil		3.32E-08	g/seatbelt
xylene (all isomers)	0.0001	g/1000g oil		1.03E-08	g/seatbelt
xylene (all isomers)	0.0015	g/1000g oil		1.45E-07	g/seatbelt
zinc	0.0001	g/1000g oil		5.87E-09	g/seatbelt
zinc	0.0000	g/1000g oil		1.20E-09	g/seatbelt
zinc	0.0054	g/1000g oil		5.38E-07	g/seatbelt
zinc	0.0001	g/1000g oil		5.85E-09	g/seatbelt
zinc oxide	0.0000	g/1000g oil		4.32E-16	g/seatbelt
calcium fluoride; reactor fuel	0.0001	g/1000g oil		5.07E-09	g/seatbelt
demolition waste (unspecifie	0.1039	g/1000g oil		1.04E-05	g/seatbelt
highly radioactive waste; rea	0.0002	g/1000g oil		1.51E-08	g/seatbelt
medium and low radioactive	0.0002	g/1000g oil		1.80E-08	g/seatbelt
overburden (unspecified)	124.5947	g/1000g oil		1.25E-02	g/seatbelt
plutonium as residual produc	0.0000	g/1000g oil		3.01E-11	g/seatbelt
radioactive tailings; reactor fu	0.0889	g/1000g oil		8.89E-06	g/seatbelt
slag (unspecified)	0.0044	g/1000g oil		4.43E-07	g/seatbelt
slag (uranium conversion); re	0.0003	g/1000g oil		3.36E-08	g/seatbelt
spoil (unspecified)	1.8927	g/1000g oil		1.89E-04	g/seatbelt
unspecified radioactive waste	0.0003	g/1000g oil		3.01E-08	g/seatbelt
uranium depleted; reactor fu	0.0003	g/1000g oil		3.48E-08	g/seatbelt
Remark					
Data adapted from Light fuel oil; from crude oil; consumption mix, at refinery (ELCD, 2003)					
3.123 Transforming oil to lubrication oil (II)	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Additives	123.8870	g/1000g lubrication o	0.1000	1.24E-02	g/seatbelt
oil (in)	867.1170	g/1000g lubrication oil		8.67E-02	g/seatbelt
paraffin	9.0090	g/1000g lubrication oil		9.01E-04	g/seatbelt
OUTFLOWS					
lubrication oil	1000.0000	g		1.00E-01	g/seatbelt
hazardous waste	12.9270	g/1000g lubrication oil		1.29E-03	g/seatbelt
Remark:					

Data for production of lubricating oil gate-to-gate (CPM, 1997)					
3.124 Transportation to Metal parts producer no.4	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2520	MJ/1000g of product	0.1000	2.52E-05	MJ/seatbelt
OUTFLOWS					
CO2	18.2000	g/1000g of product		1.82E-03	g/seatbelt
NOx	0.1155	g/1000g of product		1.16E-05	g/seatbelt
HC	0.0165	g/1000g of product		1.65E-06	g/seatbelt
Particulate matter	0.0020	g/1000g of product		2.00E-07	g/seatbelt
CO	0.0161	g/1000g of product		1.61E-06	g/seatbelt
SO2	0.0046	g/1000g of product		4.55E-07	g/seatbelt
Remark:					
Distance between plant and Metal parts producer no.4 (Fulda, Germany) in km		**350**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.125 Production of ball, car sense	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	6.07E-01	MJ/1000g product	9.0000	5.46E-03	MJ/seatbelt
gas	3.74E-01	MJ/1000g product		3.37E-03	MJ/seatbelt
water	4.79E-04	l/1000g product		4.31E-06	l/seatbelt
stainless steel	1.05E+03	g/1000g product		9.48E+00	g/seatbelt
lubricant	1.12E+01	g/1000g product		1.01E-01	g/seatbelt
OUTFLOWS					
ball, car sense				9.00E+00	g/seatbelt
scrap	4.16E+01	g/1000g product		3.74E-01	g/seatbelt
Remark:					
Electricity data for Germany					
3.126 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.5630	MJ/1000g of product	9.0000	5.07E-03	MJ/seatbelt
OUTFLOWS					

CO2	40.6640	g/1000g of product		3.66E-01	g/seatbelt
NOx	0.2581	g/1000g of product		2.32E-03	g/seatbelt
HC	0.0368	g/1000g of product		3.31E-04	g/seatbelt
Particulate matter	0.0045	g/1000g of product		4.01E-05	g/seatbelt
CO	0.0360	g/1000g of product		3.24E-04	g/seatbelt
SO2	0.0102	g/1000g of product		9.15E-05	g/seatbelt
Remark:					
Distance Metal parts producer no.4 (Fulda, Germany) and ALH (Sopronkövesd, Hungary) in km		**782**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.127 Production of thermoplastic E/P	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	4.33E-07	g/1000g E/P	9.0000	3.89E-09	g/seatbelt
energy (recovered)	-1.40E+03	g/1000g E/P		-1.26E+01	g/seatbelt
hydrogen; gaseous	1.31E-03	g/1000g E/P		1.18E-05	g/seatbelt
waste	5.79E+00	g/1000g E/P		5.21E-02	g/seatbelt
air	2.58E+02	g/1000g E/P		2.33E+00	g/seatbelt
baryte	5.41E-05	g/1000g E/P		4.87E-07	g/seatbelt
bauxite	5.04E-03	g/1000g E/P		4.53E-05	g/seatbelt
bentonite	3.31E-02	g/1000g E/P		2.98E-04	g/seatbelt
biomass; 14.7 MJ/kg	1.28E-01	MJ/1000g E/P		1.15E-03	MJ/seatbelt
brown coal; 11.9 MJ/kg	3.80E-05	MJ/1000g E/P		3.42E-07	MJ/seatbelt
calcium carbonate (in)	1.33E-01	g/1000g E/P		1.20E-03	g/seatbelt
chromium (in)	1.02E-09	g/1000g E/P		9.18E-12	g/seatbelt
clay	2.80E-07	g/1000g E/P		2.52E-09	g/seatbelt
copper (in)	3.20E-06	g/1000g E/P		2.88E-08	g/seatbelt
crude oil; 42.3 MJ/kg	3.81E+01	MJ/1000g E/P		3.43E-01	MJ/seatbelt
dolomite	2.13E-03	g/1000g E/P		1.92E-05	g/seatbelt
feldspar	6.15E-14	g/1000g E/P		5.53E-16	g/seatbelt
fluorspar	3.16E-04	g/1000g E/P		2.84E-06	g/seatbelt
granite	4.67E-12	g/1000g E/P		4.21E-14	g/seatbelt
ground water	9.52E-02	l/1000g E/P		8.57E-04	l/seatbelt
gypsum	3.30E-03	g/1000g E/P		2.97E-05	g/seatbelt
hard coal; 26.3 MJ/kg	2.79E+00	MJ/1000g E/P		2.51E-02	MJ/seatbelt
inert rock	1.11E-05	g/1000g E/P		9.98E-08	g/seatbelt
iron (in)	1.74E-01	g/1000g E/P		1.57E-03	g/seatbelt
lead (in)	5.07E-04	g/1000g E/P		4.56E-06	g/seatbelt
magnesium (in)	1.44E-07	g/1000g E/P		1.30E-09	g/seatbelt
manganese (in)	1.31E-04	g/1000g E/P		1.18E-06	g/seatbelt
mercury (in)	7.08E-07	g/1000g E/P		6.38E-09	g/seatbelt
natural aggregate	6.43E-04	g/1000g E/P		5.79E-06	g/seatbelt
natural gas; 44.1 MJ/kg	2.74E+01	MJ/1000g E/P		2.47E-01	MJ/seatbelt
nickel	2.89E-07	g/1000g E/P		2.60E-09	g/seatbelt

nitrogen (in)	1.69E+02	g/1000g E/P		1.52E+00	g/seatbelt
olivine	1.63E-03	g/1000g E/P		1.47E-05	g/seatbelt
oxygen	3.30E-03	g/1000g E/P		2.97E-05	g/seatbelt
peat; 8.4 MJ/kg	1.50E-02	MJ/1000g E/P		1.35E-04	MJ/seatbelt
phosphorus (in)	1.09E-09	g/1000g E/P		9.82E-12	g/seatbelt
potassium chloride	6.31E-06	g/1000g E/P		5.67E-08	g/seatbelt
primary energy from geother	2.73E-02	MJ/1000g E/P		2.46E-04	MJ/seatbelt
primary energy from hydro p	5.83E-01	MJ/1000g E/P		5.25E-03	MJ/seatbelt
primary energy from solar en	1.04E-04	MJ/1000g E/P		9.36E-07	MJ/seatbelt
primary energy from waves	3.55E-04	MJ/1000g E/P		3.19E-06	MJ/seatbelt
primary energy from wind po	1.59E-02	MJ/1000g E/P		1.43E-04	MJ/seatbelt
quartz sand	4.19E-33	g/1000g E/P		3.77E-35	g/seatbelt
river water	1.03E+03	g/1000g E/P		9.27E+00	g/seatbelt
sand	8.38E-02	g/1000g E/P		7.54E-04	g/seatbelt
sea water	1.14E+01	1l/1000g E/P		1.02E-01	1l/seatbelt
slate	9.35E-03	g/1000g E/P		8.41E-05	g/seatbelt
sodium chloride	3.51E-01	g/1000g E/P		3.16E-03	g/seatbelt
sodium nitrate	4.33E-07	g/1000g E/P		3.89E-09	g/seatbelt
sulfur (in)	5.20E-02	g/1000g E/P		4.68E-04	g/seatbelt
talc	8.80E-24	g/1000g E/P		7.92E-26	g/seatbelt
titanium	6.25E-31	g/1000g E/P		5.62E-33	g/seatbelt
uranium	3.13E+03	g/1000g E/P		2.81E+01	g/seatbelt
water	1.79E+01	1l/1000g E/P		1.61E-01	1l/seatbelt
wood; 14.7 MJ/kg	1.81E-05	1MJ/1000g E/P		1.63E-07	1MJ/seatbelt
zinc (in)	1.51E-02	g/1000g E/P		1.36E-04	g/seatbelt
OUTFLOWS				0.00E+00	
Thermoplastic E/P; production mix, at plant				0.00E+00	
1,2-dichloroethane	2.54E-08	g/1000g E/P		2.28E-10	g/seatbelt
1,2-dichloroethane	5.06E-10	g/1000g E/P		4.55E-12	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	3.17E-29	g/1000g E/P		2.85E-31	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	9.81E-07	g/1000g E/P		8.83E-09	g/seatbelt
acid (as H+)	3.68E-14	g/1000g E/P		3.31E-16	g/seatbelt
acid (as H+)	1.96E-03	g/1000g E/P		1.76E-05	g/seatbelt
adsorbable organic halogen c	1.05E-09	g/1000g E/P		9.45E-12	g/seatbelt
aluminium	5.57E-04	g/1000g E/P		5.01E-06	g/seatbelt
ammonia	2.17E-07	g/1000g E/P		1.95E-09	g/seatbelt
ammonia	3.11E-03	g/1000g E/P		2.79E-05	g/seatbelt
antimony	1.98E-08	g/1000g E/P		1.78E-10	g/seatbelt
arsenic	1.23E-07	g/1000g E/P		1.11E-09	g/seatbelt
arsenic	1.98E-07	g/1000g E/P		1.79E-09	g/seatbelt
benzene	2.64E-15	g/1000g E/P		2.37E-17	g/seatbelt
benzene	5.58E-19	g/1000g E/P		5.02E-21	g/seatbelt
biological oxygen demand	2.09E-02	g/1000g E/P		1.88E-04	g/seatbelt
bromate	5.55E-07	g/1000g E/P		5.00E-09	g/seatbelt
cadmium	5.26E-08	g/1000g E/P		4.74E-10	g/seatbelt
cadmium	1.11E-08	g/1000g E/P		9.97E-11	g/seatbelt
calcium	2.89E-03	g/1000g E/P		2.60E-05	g/seatbelt
carbon dioxide	1.57E+03	g/1000g E/P		1.41E+01	g/seatbelt
carbon disulfide	1.48E-08	g/1000g E/P		1.34E-10	g/seatbelt
carbon monoxide	1.24E+01	g/1000g E/P		1.11E-01	g/seatbelt

carbonate	2.89E-02	g/1000g E/P		2.60E-04	g/seatbelt
chemical oxygen demand	1.90E-01	g/1000g E/P		1.71E-03	g/seatbelt
chlorate	9.94E-05	g/1000g E/P		8.94E-07	g/seatbelt
chloride	1.57E-01	g/1000g E/P		1.41E-03	g/seatbelt
chlorine	3.64E-08	g/1000g E/P		3.27E-10	g/seatbelt
chlorine	1.06E-06	g/1000g E/P		9.56E-09	g/seatbelt
chromium	5.62E-07	g/1000g E/P		5.05E-09	g/seatbelt
chromium	1.39E-09	g/1000g E/P		1.25E-11	g/seatbelt
copper	2.26E-09	g/1000g E/P		2.03E-11	g/seatbelt
copper	1.55E-04	g/1000g E/P		1.40E-06	g/seatbelt
cyanide	1.65E-08	g/1000g E/P		1.49E-10	g/seatbelt
decane	5.99E-03	g/1000g E/P		5.39E-05	g/seatbelt
dichloromethane	2.96E-11	g/1000g E/P		2.66E-13	g/seatbelt
ethyl benzene	1.55E-16	g/1000g E/P		1.39E-18	g/seatbelt
ethylene	1.62E-03	g/1000g E/P		1.46E-05	g/seatbelt
fluoride	1.42E-06	g/1000g E/P		1.28E-08	g/seatbelt
fluorine	1.65E-08	g/1000g E/P		1.49E-10	g/seatbelt
hydrocarbons (unspecified)	4.35E-03	g/1000g E/P		3.91E-05	g/seatbelt
hydrocyanic acid	4.89E-16	g/1000g E/P		4.40E-18	g/seatbelt
hydrogen	4.14E-02	g/1000g E/P		3.73E-04	g/seatbelt
hydrogen chloride	6.17E-02	g/1000g E/P		5.56E-04	g/seatbelt
hydrogen fluoride	1.81E-03	g/1000g E/P		1.63E-05	g/seatbelt
hydrogen sulfide	5.84E-06	g/1000g E/P		5.26E-08	g/seatbelt
iron	1.64E-05	g/1000g E/P		1.48E-07	g/seatbelt
lead	1.17E-06	g/1000g E/P		1.06E-08	g/seatbelt
lead	1.17E-06	g/1000g E/P		1.06E-08	g/seatbelt
manganese	1.56E-07	g/1000g E/P		1.40E-09	g/seatbelt
mercury	2.38E-06	g/1000g E/P		2.14E-08	g/seatbelt
mercury	2.19E-07	g/1000g E/P		1.97E-09	g/seatbelt
methane	1.42E+01	g/1000g E/P		1.28E-01	g/seatbelt
nickel	1.40E-10	g/1000g E/P		1.26E-12	g/seatbelt
nickel	3.72E-07	g/1000g E/P		3.35E-09	g/seatbelt
nitrate	2.25E-03	g/1000g E/P		2.02E-05	g/seatbelt
nitrogen	1.11E-03	g/1000g E/P		9.95E-06	g/seatbelt
nitrogen dioxide	3.23E+00	g/1000g E/P		2.91E-02	g/seatbelt
nitrous oxide	7.91E-10	g/1000g E/P		7.12E-12	g/seatbelt
non-methane volatile organic	4.24E+00	g/1000g E/P		3.82E-02	g/seatbelt
oxygen	6.28E-21	g/1000g E/P		5.65E-23	g/seatbelt
particles (> PM10)	1.95E-01	g/1000g E/P		1.76E-03	g/seatbelt
particles (PM10)	6.45E-01	g/1000g E/P		5.80E-03	g/seatbelt
particles (PM10)	7.12E-03	g/1000g E/P		6.41E-05	g/seatbelt
particles (PM2.5)	3.49E-12	g/1000g E/P		3.14E-14	g/seatbelt
phenol	1.87E-03	g/1000g E/P		1.68E-05	g/seatbelt
phosphate	2.24E-03	g/1000g E/P		2.01E-05	g/seatbelt
polycyclic aromatic hydrocarb	1.07E-15	g/1000g E/P		9.60E-18	g/seatbelt
potassium	6.77E-04	g/1000g E/P		6.09E-06	g/seatbelt
propene	1.20E-03	g/1000g E/P		1.08E-05	g/seatbelt
selenium	7.92E-23	g/1000g E/P		7.13E-25	g/seatbelt
silver	2.29E-21	g/1000g E/P		2.06E-23	g/seatbelt
sodium	9.84E-02	g/1000g E/P		8.86E-04	g/seatbelt

strontium	1.06E-08	g/1000g E/P		9.50E-11	g/seatbelt
styrene	2.18E-17	g/1000g E/P		1.96E-19	g/seatbelt
sulfate	8.29E-01	g/1000g E/P		7.46E-03	g/seatbelt
sulfur	5.68E-10	g/1000g E/P		5.11E-12	g/seatbelt
sulfur dioxide	4.08E+00	g/1000g E/P		3.67E-02	g/seatbelt
tin	7.49E-08	g/1000g E/P		6.74E-10	g/seatbelt
toluene	4.42E-16	g/1000g E/P		3.97E-18	g/seatbelt
total organic carbon	1.11E-02	g/1000g E/P		9.98E-05	g/seatbelt
vinyl chloride	5.02E-07	g/1000g E/P		4.52E-09	g/seatbelt
vinyl chloride	9.24E-09	g/1000g E/P		8.32E-11	g/seatbelt
volatile organic compound	1.46E-01	g/1000g E/P		1.32E-03	g/seatbelt
volatile organic compound	9.95E-03	g/1000g E/P		8.95E-05	g/seatbelt
xylene (all isomers)	2.04E-16	g/1000g E/P		1.84E-18	g/seatbelt
zinc	1.29E-06	g/1000g E/P		1.16E-08	g/seatbelt
zinc	1.33E-04	g/1000g E/P		1.20E-06	g/seatbelt
chemical waste	2.94E+00	g/1000g E/P		2.65E-02	g/seatbelt
chemical waste, inert	7.20E-01	g/1000g E/P		6.48E-03	g/seatbelt
chemical waste, toxic	2.04E+00	g/1000g E/P		1.84E-02	g/seatbelt
demolition waste	6.32E-07	g/1000g E/P		5.69E-09	g/seatbelt
industrial waste	8.56E-01	g/1000g E/P		7.70E-03	g/seatbelt
mineral waste	1.94E-01	g/1000g E/P		1.74E-03	g/seatbelt
municipal waste	-5.46E+00	g/1000g E/P		-4.92E-02	g/seatbelt
organic waste	4.27E-04	g/1000g E/P		3.84E-06	g/seatbelt
overburden	1.98E+01	g/1000g E/P		1.78E-01	g/seatbelt
packaging waste (metal)	7.91E-06	g/1000g E/P		7.12E-08	g/seatbelt
packaging waste (plastic)	1.05E-09	g/1000g E/P		9.41E-12	g/seatbelt
plastic	6.34E-01	g/1000g E/P		5.71E-03	g/seatbelt
tailings	6.21E-02	g/1000g E/P		5.59E-04	g/seatbelt
waste	9.88E-01	g/1000g E/P		8.89E-03	g/seatbelt
waste paper	5.91E-07	g/1000g E/P		5.32E-09	g/seatbelt
wood	4.39E-05	g/1000g E/P		3.95E-07	g/seatbelt
wooden pallet	1.49E-07	g/1000g E/P		1.34E-09	g/seatbelt
Remark:					
Data for E/P taken from LCI data for polyethylene high density granulate (ELCD database, 1999)					
3.128 Transportation to Oplast	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.129 Production of CAP	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
E/P	1000.0000	g/1000g product	9.0000	9.00E+00	g/seatbelt

electricity	9.6000	MJ/1000g product		8.64E-02	MJ/seatbelt
OUTFLOWS					
cap				9.0000	g/seatbelt
Remark					
Electricity data for Slovenia					
Production data for production of sleeve, data carrier by Plastic parts manufacturer no.2					
3.130 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2196	MJ/1000g of product	9.0000	1.98E-03	MJ/seatbelt
OUTFLOWS					
CO2	15.8600	g/1000g of product		1.43E-01	g/seatbelt
NOx	0.1007	g/1000g of product		9.06E-04	g/seatbelt
HC	0.0143	g/1000g of product		1.29E-04	g/seatbelt
Particulate matter	0.0017	g/1000g of product		1.56E-05	g/seatbelt
CO	0.0140	g/1000g of product		1.26E-04	g/seatbelt
SO2	0.0040	g/1000g of product		3.57E-05	g/seatbelt
Remark:					
Distance between Plastic parts manufacturer no.5 (Konjice, Slovenia) and ALH (Sopronkövesd, Hungary) in km		**305**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.131 Production of acrylic resin	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	3.59E-08	g/1000g acrylic resin	0.0200	7.18E-13	g/seatbelt
energy (recovered)	-1.72E+04	g/1000g acrylic resin		-3.44E-01	g/seatbelt
hydrogen; gaseous	1.48E-01	g/1000g acrylic resin		2.95E-06	g/seatbelt
waste	7.66E+00	g/1000g acrylic resin		1.53E-04	g/seatbelt
air	-1.51E+02	g/1000g acrylic resin		-3.03E-03	g/seatbelt
baryte	7.02E-02	g/1000g acrylic resin		1.40E-06	g/seatbelt
bauxite	5.15E-01	g/1000g acrylic resin		1.03E-05	g/seatbelt
bentonite	4.14E-02	g/1000g acrylic resin		8.27E-07	g/seatbelt
biomass; 14.7 MJ/kg	1.05E-01	MJ/1000g acrylic resin		2.11E-06	MJ/seatbelt
brown coal; 11.9 MJ/kg	6.72E-05	MJ/1000g acrylic resin		1.34E-09	MJ/seatbelt
calcium carbonate (in)	6.76E+00	g/1000g acrylic resin		1.35E-04	g/seatbelt
chromium (in)	1.45E-07	g/1000g acrylic resin		2.90E-12	g/seatbelt
clay	8.01E-06	g/1000g acrylic resin		1.60E-10	g/seatbelt
copper (in)	1.11E-03	g/1000g acrylic resin		2.23E-08	g/seatbelt

crude oil; 42.3 MJ/kg	4.87E+01	MJ/1000g acrylic resin	9.74E-04	MJ/seatbelt
dolomite	7.39E-03	g/1000g acrylic resin	1.48E-07	g/seatbelt
feldspar	7.18E-12	g/1000g acrylic resin	1.44E-16	g/seatbelt
fluorspar	1.17E-02	g/1000g acrylic resin	2.33E-07	g/seatbelt
granite	3.53E-11	g/1000g acrylic resin	7.06E-16	g/seatbelt
ground water	1.95E-01	l/1000g acrylic resin	3.90E-06	l/seatbelt
gypsum	4.09E-03	g/1000g acrylic resin	8.19E-08	g/seatbelt
hard coal; 26.3 MJ/kg	8.00E+00	MJ/1000g acrylic resin	1.60E-04	MJ/seatbelt
inert rock	3.84E-05	g/1000g acrylic resin	7.69E-10	g/seatbelt
iron (in)	6.04E-01	g/1000g acrylic resin	1.21E-05	g/seatbelt
lead (in)	3.63E-03	g/1000g acrylic resin	7.26E-08	g/seatbelt
magnesium (in)	2.60E-13	g/1000g acrylic resin	5.19E-18	g/seatbelt
manganese (in)	4.56E-04	g/1000g acrylic resin	9.11E-09	g/seatbelt
mercury (in)	3.47E-05	g/1000g acrylic resin	6.93E-10	g/seatbelt
natural aggregate	2.23E-03	g/1000g acrylic resin	4.46E-08	g/seatbelt
natural gas; 44.1 MJ/kg	6.00E+01	MJ/1000g acrylic resin	1.20E-03	MJ/seatbelt
nickel	1.32E-07	g/1000g acrylic resin	2.64E-12	g/seatbelt
nitrogen (in)	1.09E+02	g/1000g acrylic resin	2.18E-03	g/seatbelt
olivine	5.67E-03	g/1000g acrylic resin	1.13E-07	g/seatbelt
oxygen	1.31E+02	g/1000g acrylic resin	2.62E-03	g/seatbelt
peat; 8.4 MJ/kg	1.18E-03	MJ/1000g acrylic resin	2.35E-08	MJ/seatbelt
phosphorus (in)	8.42E-01	g/1000g acrylic resin	1.68E-05	g/seatbelt
potassium chloride	3.64E-03	g/1000g acrylic resin	7.28E-08	g/seatbelt
primary energy from geother	1.69E-02	MJ/1000g acrylic resin	3.37E-07	MJ/seatbelt
primary energy from hydro p	4.80E-01	MJ/1000g acrylic resin	9.59E-06	MJ/seatbelt
primary energy from solar en	7.23E-04	MJ/1000g acrylic resin	1.45E-08	MJ/seatbelt
primary energy from waves	9.37E-04	MJ/1000g acrylic resin	1.87E-08	MJ/seatbelt
primary energy from wind po	4.61E-02	MJ/1000g acrylic resin	9.22E-07	MJ/seatbelt
quartz sand	1.10E-20	g/1000g acrylic resin	2.21E-25	g/seatbelt
river water	1.37E+04	g/1000g acrylic resin	2.74E-01	g/seatbelt
sand	3.32E+00	g/1000g acrylic resin	6.65E-05	g/seatbelt
sea water	4.91E+00	1l/1000g acrylic resin	9.82E-05	1l/seatbelt
slate	1.16E-02	g/1000g acrylic resin	2.32E-07	g/seatbelt
sodium chloride	3.20E+01	g/1000g acrylic resin	6.40E-04	g/seatbelt
sodium nitrate	7.80E-13	g/1000g acrylic resin	1.56E-17	g/seatbelt
sulfur (in)	4.28E+01	g/1000g acrylic resin	8.57E-04	g/seatbelt
talc	9.96E-24	g/1000g acrylic resin	1.99E-28	g/seatbelt
titanium	6.91E-30	g/1000g acrylic resin	1.38E-34	g/seatbelt
uranium	5.18E+03	g/1000g acrylic resin	1.04E-01	g/seatbelt
water	5.53E+01	1l/1000g acrylic resin	1.11E-03	1l/seatbelt
wood; 14.7 MJ/kg	8.10E-04	1MJ/1000g acrylic resin	1.62E-08	1MJ/seatbelt
zinc (in)	1.33E-04	g/1000g acrylic resin	2.66E-09	g/seatbelt
OUTFLOWS			0.00E+00	
acrylic resin	1000	g	2.00E-02	g
1,2-dichloroethane	2.99E-07	g/1000g acrylic resin	5.98E-12	g/seatbelt
1,2-dichloroethane	5.11E-09	g/1000g acrylic resin	1.02E-13	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	1.39E-27	g/1000g acrylic resin	2.78E-32	g/seatbelt
2,3,7,8-tetrachlorodibenzo-p-	2.23E-10	g/1000g acrylic resin	4.46E-15	g/seatbelt
acid (as H+)	2.09E-07	g/1000g acrylic resin	4.18E-12	g/seatbelt
acid (as H+)	7.77E-02	g/1000g acrylic resin	1.55E-06	g/seatbelt

adsorbable organic halogen c	1.45E-08	g/1000g acrylic resin	2.90E-13	g/seatbelt
aluminium	5.38E-04	g/1000g acrylic resin	1.08E-08	g/seatbelt
ammonia	9.33E-03	g/1000g acrylic resin	1.87E-07	g/seatbelt
ammonia	1.13E+00	g/1000g acrylic resin	2.27E-05	g/seatbelt
antimony	2.37E-09	g/1000g acrylic resin	4.74E-14	g/seatbelt
arsenic	8.97E-08	g/1000g acrylic resin	1.79E-12	g/seatbelt
arsenic	2.63E-07	g/1000g acrylic resin	5.25E-12	g/seatbelt
benzene	5.77E-03	g/1000g acrylic resin	1.15E-07	g/seatbelt
benzene	1.04E-09	g/1000g acrylic resin	2.08E-14	g/seatbelt
biological oxygen demand	5.12E-01	g/1000g acrylic resin	1.02E-05	g/seatbelt
bromate	3.27E-06	g/1000g acrylic resin	6.55E-11	g/seatbelt
cadmium	6.44E-08	g/1000g acrylic resin	1.29E-12	g/seatbelt
cadmium	5.11E-09	g/1000g acrylic resin	1.02E-13	g/seatbelt
calcium	1.13E-01	g/1000g acrylic resin	2.26E-06	g/seatbelt
carbon dioxide	5.86E+03	g/1000g acrylic resin	1.17E-01	g/seatbelt
carbon disulfide	5.29E-08	g/1000g acrylic resin	1.06E-12	g/seatbelt
carbon monoxide	5.53E+00	g/1000g acrylic resin	1.11E-04	g/seatbelt
carbonate	5.52E-02	g/1000g acrylic resin	1.10E-06	g/seatbelt
chemical oxygen demand	1.69E+00	g/1000g acrylic resin	3.38E-05	g/seatbelt
chlorate	4.45E-03	g/1000g acrylic resin	8.90E-08	g/seatbelt
chloride	8.69E+00	g/1000g acrylic resin	1.74E-04	g/seatbelt
chlorine	4.35E-04	g/1000g acrylic resin	8.70E-09	g/seatbelt
chlorine	1.35E-05	g/1000g acrylic resin	2.71E-10	g/seatbelt
chromium	9.52E-04	g/1000g acrylic resin	1.90E-08	g/seatbelt
chromium	3.48E-08	g/1000g acrylic resin	6.96E-13	g/seatbelt
copper	1.83E-06	g/1000g acrylic resin	3.65E-11	g/seatbelt
copper	5.16E-05	g/1000g acrylic resin	1.03E-09	g/seatbelt
cyanide	3.66E-03	g/1000g acrylic resin	7.33E-08	g/seatbelt
decane	1.20E-02	g/1000g acrylic resin	2.41E-07	g/seatbelt
dichloromethane	9.60E-07	g/1000g acrylic resin	1.92E-11	g/seatbelt
ethyl benzene	3.26E-04	g/1000g acrylic resin	6.52E-09	g/seatbelt
ethylene	2.90E-03	g/1000g acrylic resin	5.79E-08	g/seatbelt
fluoride	6.64E-03	g/1000g acrylic resin	1.33E-07	g/seatbelt
fluorine	7.13E-06	g/1000g acrylic resin	1.43E-10	g/seatbelt
hydrocarbons (unspecified)	5.45E-03	g/1000g acrylic resin	1.09E-07	g/seatbelt
hydrocyanic acid	2.80E-03	g/1000g acrylic resin	5.60E-08	g/seatbelt
hydrogen	1.14E-01	g/1000g acrylic resin	2.29E-06	g/seatbelt
hydrogen chloride	1.60E-01	g/1000g acrylic resin	3.19E-06	g/seatbelt
hydrogen fluoride	6.87E-03	g/1000g acrylic resin	1.37E-07	g/seatbelt
hydrogen sulfide	2.02E-05	g/1000g acrylic resin	4.05E-10	g/seatbelt
iron	3.09E-05	g/1000g acrylic resin	6.18E-10	g/seatbelt
lead	2.29E-06	g/1000g acrylic resin	4.59E-11	g/seatbelt
lead	1.83E-03	g/1000g acrylic resin	3.66E-08	g/seatbelt
manganese	2.27E-08	g/1000g acrylic resin	4.54E-13	g/seatbelt
mercury	1.71E-05	g/1000g acrylic resin	3.41E-10	g/seatbelt
mercury	3.25E-06	g/1000g acrylic resin	6.50E-11	g/seatbelt
methane	4.77E+01	g/1000g acrylic resin	9.53E-04	g/seatbelt
nickel	1.73E-03	g/1000g acrylic resin	3.46E-08	g/seatbelt
nickel	3.57E-05	g/1000g acrylic resin	7.14E-10	g/seatbelt
nitrate	9.47E-03	g/1000g acrylic resin	1.89E-07	g/seatbelt

nitrogen	1.68E-03	g/1000g acrylic resin	3.37E-08	g/seatbelt
nitrogen dioxide	1.24E+01	g/1000g acrylic resin	2.47E-04	g/seatbelt
nitrous oxide	7.64E-06	g/1000g acrylic resin	1.53E-10	g/seatbelt
non-methane volatile organic	1.21E+01	g/1000g acrylic resin	2.41E-04	g/seatbelt
oxygen	3.28E-09	g/1000g acrylic resin	6.56E-14	g/seatbelt
particles (> PM10)	1.68E+00	g/1000g acrylic resin	3.37E-05	g/seatbelt
particles (PM10)	2.00E+00	g/1000g acrylic resin	4.01E-05	g/seatbelt
particles (PM10)	5.82E-02	g/1000g acrylic resin	1.16E-06	g/seatbelt
particles (PM2.5)	9.56E-10	g/1000g acrylic resin	1.91E-14	g/seatbelt
phenol	5.12E-04	g/1000g acrylic resin	1.02E-08	g/seatbelt
phosphate	4.92E+00	g/1000g acrylic resin	9.83E-05	g/seatbelt
polycyclic aromatic hydrocarb	1.73E-03	g/1000g acrylic resin	3.46E-08	g/seatbelt
potassium	1.14E-04	g/1000g acrylic resin	2.29E-09	g/seatbelt
propene	2.14E-03	g/1000g acrylic resin	4.29E-08	g/seatbelt
selenium	2.09E-10	g/1000g acrylic resin	4.17E-15	g/seatbelt
silver	6.02E-09	g/1000g acrylic resin	1.20E-13	g/seatbelt
sodium	1.85E+01	g/1000g acrylic resin	3.71E-04	g/seatbelt
strontium	4.89E-07	g/1000g acrylic resin	9.77E-12	g/seatbelt
styrene	5.78E-05	g/1000g acrylic resin	1.16E-09	g/seatbelt
sulfate	2.73E+01	g/1000g acrylic resin	5.46E-04	g/seatbelt
sulfur	1.08E-06	g/1000g acrylic resin	2.16E-11	g/seatbelt
sulfur dioxide	2.89E+01	g/1000g acrylic resin	5.77E-04	g/seatbelt
tin	2.81E-10	g/1000g acrylic resin	5.62E-15	g/seatbelt
toluene	9.78E-04	g/1000g acrylic resin	1.96E-08	g/seatbelt
total organic carbon	1.69E-02	g/1000g acrylic resin	3.39E-07	g/seatbelt
vinyl chloride	3.61E-06	g/1000g acrylic resin	7.21E-11	g/seatbelt
vinyl chloride	6.61E-08	g/1000g acrylic resin	1.32E-12	g/seatbelt
volatile organic compound	2.02E+00	g/1000g acrylic resin	4.05E-05	g/seatbelt
volatile organic compound	1.08E+00	g/1000g acrylic resin	2.16E-05	g/seatbelt
xylene (all isomers)	4.04E-04	g/1000g acrylic resin	8.08E-09	g/seatbelt
zinc	9.90E-07	g/1000g acrylic resin	1.98E-11	g/seatbelt
zinc	8.95E-05	g/1000g acrylic resin	1.79E-09	g/seatbelt
chemical waste	1.56E+01	g/1000g acrylic resin	3.12E-04	g/seatbelt
chemical waste, inert	6.29E+00	g/1000g acrylic resin	1.26E-04	g/seatbelt
chemical waste, toxic	8.95E+00	g/1000g acrylic resin	1.79E-04	g/seatbelt
demolition waste	1.52E-02	g/1000g acrylic resin	3.04E-07	g/seatbelt
industrial waste	1.21E+01	g/1000g acrylic resin	2.43E-04	g/seatbelt
mineral waste	3.22E+00	g/1000g acrylic resin	6.44E-05	g/seatbelt
municipal waste	-7.23E+00	g/1000g acrylic resin	-1.45E-04	g/seatbelt
organic waste	1.06E-04	g/1000g acrylic resin	2.12E-09	g/seatbelt
overburden	5.72E+01	g/1000g acrylic resin	1.14E-03	g/seatbelt
packaging waste (metal)	8.95E-07	g/1000g acrylic resin	1.79E-11	g/seatbelt
packaging waste (plastic)	7.60E-09	g/1000g acrylic resin	1.52E-13	g/seatbelt
plastic	1.86E-02	g/1000g acrylic resin	3.73E-07	g/seatbelt
tailings	6.31E-02	g/1000g acrylic resin	1.26E-06	g/seatbelt
waste	6.71E+00	g/1000g acrylic resin	1.34E-04	g/seatbelt
waste paper	1.08E-07	g/1000g acrylic resin	2.16E-12	g/seatbelt
wood	1.97E-03	g/1000g acrylic resin	3.94E-08	g/seatbelt
wooden pallet	3.72E-08	g/1000g acrylic resin	7.45E-13	g/seatbelt
Remark:				

Data for acrylic resin interpreted from LCI data for Polymethyl methacrylate (PMMA) beads; production mix, at plant (ELCD database, 1999)					
3.132 Transportation to Label producer no.5	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4680	MJ/1000g of product	0.0200	9.36E-06	MJ/seatbelt
OUTFLOWS					
CO2	33.8000	g/1000g of product		6.76E-04	g/seatbelt
NOx	0.2145	g/1000g of product		4.29E-06	g/seatbelt
HC	0.0306	g/1000g of product		6.11E-07	g/seatbelt
Particulate matter	0.0037	g/1000g of product		7.41E-08	g/seatbelt
CO	0.0299	g/1000g of product		5.98E-07	g/seatbelt
SO2	0.0085	g/1000g of product		1.69E-07	g/seatbelt
Remark:					
Distance between Acrylic resin producer (Germany) and Label producer no.5 (Hosena, Germany) in km		**650**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.133 Production of paper for labels	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Hardwood	70.0000	g/1000g paper	0.0750	5.25E-03	g/seatbelt
Softwood	1210.0000	g/1000g paper		9.08E-02	g/seatbelt
Al2(SO4)3	6.7000	g/1000g paper		5.03E-04	g/seatbelt
Bark	6.5000	MJ/1000g paper		4.88E-04	MJ/seatbelt
biocides	0.0800	g/1000g paper		6.00E-06	g/seatbelt
Board	0.0500	g/1000g paper		3.75E-06	g/seatbelt
CaCO3	2.9000	g/1000g paper		2.18E-04	g/seatbelt
CaO	4.1000	g/1000g paper		3.08E-04	g/seatbelt
Core and core plug	1.9100	g/1000g paper		1.43E-04	g/seatbelt
Defoamers	0.9500	g/1000g paper		7.13E-05	g/seatbelt
Diesel	0.0300	MJ/1000g paper		2.25E-06	MJ/seatbelt
Electricity	2.2300	MJ/1000g paper		1.67E-04	MJ/seatbelt
H2SO4	14.7000	g/1000g paper		1.10E-03	g/seatbelt
Heavy oil	1.6900	MJ/1000g paper		1.27E-04	MJ/seatbelt
Hydrochloric acid	0.0700	g/1000g paper		5.25E-06	g/seatbelt
Light fuel oil	0.5400	MJ/1000g paper		4.05E-05	MJ/seatbelt
Lubricant	0.1800	g/1000g paper		1.35E-05	g/seatbelt

Na2CO3	1.9000	g/1000g paper		1.43E-04	g/seatbelt
Na2SO4	1.9000	g/1000g paper		1.43E-04	g/seatbelt
NaOH	9.3000	g/1000g paper		6.98E-04	g/seatbelt
Natural gas	1.0400	MJ/1000g paper		7.80E-05	MJ/seatbelt
Peat	0.0600	MJ/1000g paper		4.50E-06	MJ/seatbelt
Pitch despergent	0.0200	g/1000g paper		1.50E-06	g/seatbelt
Retention aids	0.5700	g/1000g paper		4.28E-05	g/seatbelt
S	0.1700	g/1000g paper		1.28E-05	g/seatbelt
Sizing agents	1.6000	g/1000g paper		1.20E-04	g/seatbelt
Starch	4.2000	g/1000g paper		3.15E-04	g/seatbelt
Steel	0.0500	g/1000g paper		3.75E-06	g/seatbelt
Waste paper	230.0000	g/1000g paper		1.73E-02	g/seatbelt
OUTFLOWS					
Electricity	0.0070	MJ/1000g paper		5.25E-07	MJ/seatbelt
Tall oil	25.0000	g/1000g paper		1.88E-03	g/seatbelt
Thermal energy	0.3200	MJ/1000g paper		2.40E-05	MJ/seatbelt
Turpentine	1.3000	g/1000g paper		9.75E-05	g/seatbelt
BOD	6.7000	g/1000g paper		5.03E-04	g/seatbelt
CO2	1580.0000	g/1000g paper		1.19E-01	g/seatbelt
COD	17.3000	g/1000g paper		1.30E-03	g/seatbelt
Dust	1.6000	g/1000g paper		1.20E-04	g/seatbelt
H2S	0.1400	g/1000g paper		1.05E-05	g/seatbelt
NOx	1.2000	g/1000g paper		9.00E-05	g/seatbelt
SOx	0.8600	g/1000g paper		6.45E-05	g/seatbelt
Susp solids	2.5000	g/1000g paper		1.88E-04	g/seatbelt
Kraftliner	1.0000	g/1000g paper		7.50E-05	g/seatbelt
Ashes	4.3000	g/1000g paper		3.23E-04	g/seatbelt
Other rest products	19.8000	g/1000g paper		1.49E-03	g/seatbelt
Remark:					
Data adapted from production of Kraftliner gate-to-gate (CPM, 2000)					
Electricity data for Germany					
3.134 Transportation	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.135 Production of label identification in Label producer no.5	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	193.78991	MJ/1000g product	0.0950	1.84E-02	MJ/seatbelt
water	137.16814	l/1000g product		1.30E-02	l/seatbelt
acrylic resin	210.52632	g/1000g product		2.00E-02	g/seatbelt
paper	789.47368	g/1000g product		7.50E-02	g/seatbelt

OUTFLOWS					
label indentification				0.095	g/seatbelt
Remark:					
Data adapted from label production in Label manufacturer no.2					
Electricity data for Germany					
3.136 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.4680	MJ/1000g of product	0.0950	4.45E-05	MJ/seatbelt
OUTFLOWS					
CO2	33.8000	g/1000g of product		3.21E-03	g/seatbelt
NOx	0.2145	g/1000g of product		2.04E-05	g/seatbelt
HC	0.0306	g/1000g of product		2.90E-06	g/seatbelt
Particulate matter	0.0037	g/1000g of product		3.52E-07	g/seatbelt
CO	0.0299	g/1000g of product		2.84E-06	g/seatbelt
SO2	0.0085	g/1000g of product		8.03E-07	g/seatbelt
Remark:					
Distance between Label producer no.5 (Hosena, Germany) and ALH (Sopronkövesd, Hungary) in km		**650**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.137 Production of PET	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
carcass meal	2.08E-10	g/1000g PET	0.0950	1.98E-14	g/seatbelt
energy (recovered)	-1.26E+03	g/1000g PET		-1.20E-01	g/seatbelt
hydrogen; gaseous	6.50E-03	g/1000g PET		6.18E-07	g/seatbelt
waste	6.58E+00	g/1000g PET		6.25E-04	g/seatbelt
air	4.11E+03	g/1000g PET		3.90E-01	g/seatbelt
baryte	1.09E-04	g/1000g PET		1.04E-08	g/seatbelt
bauxite	2.15E-03	g/1000g PET		2.04E-07	g/seatbelt
bentonite	7.16E-02	g/1000g PET		6.80E-06	g/seatbelt
biomass; 14.7 MJ/kg	2.11E-01	MJ/1000g PET		2.00E-05	MJ/seatbelt
brown coal; 11.9 MJ/kg	2.55E-04	MJ/1000g PET		2.42E-08	MJ/seatbelt
calcium carbonate (in)	2.77E-01	g/1000g PET		2.63E-05	g/seatbelt
chromium (in)	2.22E-09	g/1000g PET		2.11E-13	g/seatbelt
clay	1.46E-05	g/1000g PET		1.39E-09	g/seatbelt
copper (in)	6.44E-06	g/1000g PET		6.12E-10	g/seatbelt
crude oil; 42.3 MJ/kg	3.10E+01	MJ/1000g PET		2.95E-03	MJ/seatbelt
dolomite	4.00E-03	g/1000g PET		3.80E-07	g/seatbelt

feldspar	1.54E-13	g/1000g PET		1.47E-17	g/seatbelt
fluorspar	8.74E-04	g/1000g PET		8.30E-08	g/seatbelt
granite	6.30E-12	g/1000g PET		5.99E-16	g/seatbelt
ground water	5.70E-04	l/1000g PET		5.42E-08	l/seatbelt
gypsum	7.13E-03	g/1000g PET		6.78E-07	g/seatbelt
hard coal; 26.3 MJ/kg	7.69E+00	MJ/1000g PET		7.31E-04	MJ/seatbelt
inert rock	2.07E-05	g/1000g PET		1.97E-09	g/seatbelt
iron (in)	3.26E-01	g/1000g PET		3.10E-05	g/seatbelt
lead (in)	7.37E-04	g/1000g PET		7.00E-08	g/seatbelt
magnesium (in)	1.50E-15	g/1000g PET		1.42E-19	g/seatbelt
manganese (in)	2.46E-04	g/1000g PET		2.33E-08	g/seatbelt
mercury (in)	3.03E-06	g/1000g PET		2.88E-10	g/seatbelt
natural aggregate	1.20E-03	g/1000g PET		1.14E-07	g/seatbelt
natural gas; 44.1 MJ/kg	3.23E+01	MJ/1000g PET		3.07E-03	MJ/seatbelt
nickel	7.52E-10	g/1000g PET		7.15E-14	g/seatbelt
nitrogen (in)	2.81E+02	g/1000g PET		2.67E-02	g/seatbelt
olivine	3.06E-03	g/1000g PET		2.91E-07	g/seatbelt
oxygen	5.92E-03	g/1000g PET		5.62E-07	g/seatbelt
peat; 8.4 MJ/kg	1.14E-03	MJ/1000g PET		1.09E-07	MJ/seatbelt
phosphorus (in)	9.95E-03	g/1000g PET		9.45E-07	g/seatbelt
potassium chloride	5.35E-04	g/1000g PET		5.09E-08	g/seatbelt
primary energy from geother	2.09E-02	MJ/1000g PET		1.98E-06	MJ/seatbelt
primary energy from hydro p	2.03E-01	MJ/1000g PET		1.93E-05	MJ/seatbelt
primary energy from solar en	4.64E-05	MJ/1000g PET		4.41E-09	MJ/seatbelt
primary energy from waves	2.54E-04	MJ/1000g PET		2.41E-08	MJ/seatbelt
primary energy from wind po	1.46E-02	MJ/1000g PET		1.38E-06	MJ/seatbelt
quartz sand	6.35E-23	g/1000g PET		6.03E-27	g/seatbelt
river water	2.44E+02	g/1000g PET		2.31E-02	g/seatbelt
sand	2.65E-01	g/1000g PET		2.52E-05	g/seatbelt
sea water	3.77E+00	1l/1000g PET		3.58E-04	1l/seatbelt
slate	2.02E-02	g/1000g PET		1.92E-06	g/seatbelt
sodium chloride	1.69E+00	g/1000g PET		1.61E-04	g/seatbelt
sodium nitrate	4.49E-15	g/1000g PET		4.27E-19	g/seatbelt
sulfur (in)	8.27E-02	g/1000g PET		7.86E-06	g/seatbelt
talc	2.69E-24	g/1000g PET		2.55E-28	g/seatbelt
titanium	8.53E-31	g/1000g PET		8.10E-35	g/seatbelt
uranium	4.43E+03	g/1000g PET		4.21E-01	g/seatbelt
water	5.41E+01	1l/1000g PET		5.14E-03	1l/seatbelt
wood; 14.7 MJ/kg	8.14E-05	1MJ/1000g PET		7.74E-09	1MJ/seatbelt
zinc (in)	2.57E-05	g/1000g PET		2.44E-09	g/seatbelt
				0.00E+00	
OUTFLOWS				0.00E+00	
ammonia	1.225E-09	g/1000g PET		1.16E-13	g/seatbelt
ammonia	2.473E-06	g/1000g PET		2.35E-10	g/seatbelt
arsenic	3.717E-11	g/1000g PET		3.53E-15	g/seatbelt
arsenic	3.197E-10	g/1000g PET		3.04E-14	g/seatbelt
benzene	2.307E-06	g/1000g PET		2.19E-10	g/seatbelt
benzene	8.397E-21	g/1000g PET		7.98E-25	g/seatbelt
cadmium	2.27E-11	g/1000g PET		2.16E-15	g/seatbelt
cadmium	4.427E-15	g/1000g PET		4.21E-19	g/seatbelt

carbon dioxide	2.8088601	g/1000g PET		2.67E-04	g/seatbelt
chemical oxygen demand	0.0013847	g/1000g PET		1.32E-07	g/seatbelt
copper	1.062E-11	g/1000g PET		1.01E-15	g/seatbelt
copper	8.3E-08	g/1000g PET		7.89E-12	g/seatbelt
ethylene	1.688E-06	g/1000g PET		1.60E-10	g/seatbelt
hydrogen chloride	0.0001549	g/1000g PET		1.47E-08	g/seatbelt
hydrogen fluoride	5.797E-06	g/1000g PET		5.51E-10	g/seatbelt
lead	3.743E-10	g/1000g PET		3.56E-14	g/seatbelt
lead	2.001E-10	g/1000g PET		1.90E-14	g/seatbelt
mercury	2.024E-09	g/1000g PET		1.92E-13	g/seatbelt
mercury	1.516E-10	g/1000g PET		1.44E-14	g/seatbelt
methane	0.0184493	g/1000g PET		1.75E-06	g/seatbelt
nickel	6.579E-06	g/1000g PET		6.25E-10	g/seatbelt
nickel	1.764E-09	g/1000g PET		1.68E-13	g/seatbelt
nitrate	2.069E-06	g/1000g PET		1.97E-10	g/seatbelt
nitrogen dioxide	0.0073936	g/1000g PET		7.02E-07	g/seatbelt
nitrous oxide	4.501E-11	g/1000g PET		4.28E-15	g/seatbelt
phosphate	6.314E-07	g/1000g PET		6.00E-11	g/seatbelt
polycyclic aromatic hydrocarb	6.586E-06	g/1000g PET		6.26E-10	g/seatbelt
sulfur dioxide	0.0100516	g/1000g PET		9.55E-07	g/seatbelt
toluene	1.27E-06	g/1000g PET		1.21E-10	g/seatbelt
zinc	1.583E-10	g/1000g PET		1.50E-14	g/seatbelt
zinc	4.857E-08	g/1000g PET		4.61E-12	g/seatbelt
Chemical waste	7.010087	g/1000g PET		6.66E-04	g/seatbelt
chemical waste inert	2.060253	g/1000g PET		1.96E-04	g/seatbelt
chemical waste, toxic	2.214438	g/1000g PET		2.10E-04	g/seatbelt
demolition waste (unspecifie	0.0533581	g/1000g PET		5.07E-06	g/seatbelt
Industrial waste	1.428247	g/1000g PET		1.36E-04	g/seatbelt
mineral waste	0.396566	g/1000g PET		3.77E-05	g/seatbelt
Municipal waste	6.203781	g/1000g PET		5.89E-04	g/seatbelt
organic waste	2.041E-05	g/1000g PET		1.94E-09	g/seatbelt
overburden (unspecified)	54.381206	g/1000g PET		5.17E-03	g/seatbelt
packaging waste (metal)	6.501E-06	g/1000g PET		6.18E-10	g/seatbelt
packaging waste (plastic)	1.465E-09	g/1000g PET		1.39E-13	g/seatbelt
plastic	2.317022	g/1000g PET		2.20E-04	g/seatbelt
tailings (unspecified)	0.003176	g/1000g PET		3.02E-07	g/seatbelt
waste	1.342454	g/1000g PET		1.28E-04	g/seatbelt
waste paper	2.017E-08	g/1000g PET		1.92E-12	g/seatbelt
wood	0.0001974	g/1000g PET		1.88E-08	g/seatbelt
wooden pallet	7.177E-09	g/1000g PET		6.82E-13	g/seatbelt
Remark:					
Data adapted from PET granulate amorphous					
3.138 Transportation to Label manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					

Energy (fuel)	0.7920	MJ/1000g of product	0.0900	7.13E-05	MJ/seatbelt
OUTFLOWS					
CO2	57.2000	g/1000g of product		5.15E-03	g/seatbelt
NOx	0.3630	g/1000g of product		3.27E-05	g/seatbelt
HC	0.0517	g/1000g of product		4.65E-06	g/seatbelt
Particulate matter	0.0063	g/1000g of product		5.64E-07	g/seatbelt
CO	0.0506	g/1000g of product		4.55E-06	g/seatbelt
SO2	0.0143	g/1000g of product		1.29E-06	g/seatbelt
Remark:					
Distance between plant and Label manufacturer no.2 (Oberschleißheim, Germany) in km		**1100**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.139 Production of paper	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Hardwood	70.0000	g/1000g paper	0.0250	0.00175	g/seatbelt
Softwood	1210.0000	g/1000g paper		0.03025	g/seatbelt
Al2(SO4)3	6.7000	g/1000g paper		0.0001675	g/seatbelt
Bark	6.5000	MJ/1000g paper		0.0001625	MJ/seatbelt
biocides	0.0800	g/1000g paper		0.000002	g/seatbelt
Board	0.0500	g/1000g paper		0.00000125	g/seatbelt
CaCO3	2.9000	g/1000g paper		0.0000725	g/seatbelt
CaO	4.1000	g/1000g paper		0.0001025	g/seatbelt
Core and core plug	1.9100	g/1000g paper		0.00004775	g/seatbelt
Defoamers	0.9500	g/1000g paper		0.00002375	g/seatbelt
Diesel	0.0300	MJ/1000g paper		0.00000075	MJ/seatbelt
Electricity	2.2300	MJ/1000g paper		0.00005575	MJ/seatbelt
H2SO4	14.7000	g/1000g paper		0.0003675	g/seatbelt
Heavy oil	1.6900	MJ/1000g paper		0.00004225	MJ/seatbelt
Hydrochloric acid	0.0700	g/1000g paper		0.00000175	g/seatbelt
Light fuel oil	0.5400	MJ/1000g paper		0.0000135	MJ/seatbelt
Lubricant	0.1800	g/1000g paper		0.0000045	g/seatbelt
Na2CO3	1.9000	g/1000g paper		0.0000475	g/seatbelt
Na2SO4	1.9000	g/1000g paper		0.0000475	g/seatbelt
NaOH	9.3000	g/1000g paper		0.0002325	g/seatbelt
Natural gas	1.0400	MJ/1000g paper		0.000026	MJ/seatbelt
Peat	0.0600	MJ/1000g paper		0.0000015	MJ/seatbelt
Pitch despergent	0.0200	g/1000g paper		0.0000005	g/seatbelt
Retention aids	0.5700	g/1000g paper		0.00001425	g/seatbelt
S	0.1700	g/1000g paper		0.00000425	g/seatbelt
Sizing agents	1.6000	g/1000g paper		0.00004	g/seatbelt
Starch	4.2000	g/1000g paper		0.000105	g/seatbelt

Steel	0.0500	g/1000g paper		0.00000125	g/seatbelt
Waste paper	230.0000	g/1000g paper		0.00575	g/seatbelt
				0	
OUTFLOWS				0	
Electricity (out)	0.0070	MJ/1000g paper		0.000000175	MJ/seatbelt
Tall oil	25.0000	g/1000g paper		0.000625	g/seatbelt
Thermal energy	0.3200	MJ/1000g paper		0.000008	MJ/seatbelt
Turpentine	1.3000	g/1000g paper		0.0000325	g/seatbelt
BOD	6.7000	g/1000g paper		0.0001675	g/seatbelt
CO2	1580.0000	g/1000g paper		0.0395	g/seatbelt
COD	17.3000	g/1000g paper		0.0004325	g/seatbelt
Dust	1.6000	g/1000g paper		0.00004	g/seatbelt
H2S	0.1400	g/1000g paper		0.0000035	g/seatbelt
NOx	1.2000	g/1000g paper		0.00003	g/seatbelt
SOx	0.8600	g/1000g paper		0.0000215	g/seatbelt
Susp solids	2.5000	g/1000g paper		0.0000625	g/seatbelt
Kraftliner	1.0000	g/1000g paper		0.000025	g/seatbelt
Ashes	4.3000	g/1000g paper		0.0001075	g/seatbelt
Other rest products	19.8000	g/1000g paper		0.000495	g/seatbelt
Remark:					
Data adapted from production of Kraftliner gate-to-gate (CPM, 2000)					
Electricity data for Germany					
3.140 Transportation to Label manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1870	MJ/1000g of product	0.0250	4.68E-06	MJ/seatbelt
OUTFLOWS					
CO2	13.6000	g/1000g of product		3.40E-04	g/seatbelt
NOx	0.0900	g/1000g of product		2.25E-06	g/seatbelt
HC	0.0120	g/1000g of product		3.00E-07	g/seatbelt
Particulate matter	0.0015	g/1000g of product		3.75E-08	g/seatbelt
CO	0.0120	g/1000g of product		3.00E-07	g/seatbelt
SO2	0.0034	g/1000g of product		8.50E-08	g/seatbelt
Remark:					
Distance between plant and Label manufacturer no.2 (Oberschleißheim, Germany) in km		**100**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

3.141 Production of adhesive	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.142 Transportation to Label manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1870	MJ/1000g of product	0.0360	6.73E-06	MJ/seatbelt
OUTFLOWS					
CO2	13.6000	g/1000g of product		4.90E-04	g/seatbelt
NOx	0.0900	g/1000g of product		3.24E-06	g/seatbelt
HC	0.0120	g/1000g of product		4.32E-07	g/seatbelt
Particulate matter	0.0015	g/1000g of product		5.40E-08	g/seatbelt
CO	0.0120	g/1000g of product		4.32E-07	g/seatbelt
SO2	0.0034	g/1000g of product		1.22E-07	g/seatbelt
Remark:					
Distance between plant and Label manufacturer no.2 (Oberschleißheim, Germany) in km		**100**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.143 Production of ink	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
3.144 Transportation to Label manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.1870	MJ/1000g of product	0.0080	1.50E-06	MJ/seatbelt
OUTFLOWS					
CO2	13.6000	g/1000g of product		1.09E-04	g/seatbelt
NOx	0.0900	g/1000g of product		7.20E-07	g/seatbelt
HC	0.0120	g/1000g of product		9.60E-08	g/seatbelt
Particulate matter	0.0015	g/1000g of product		1.20E-08	g/seatbelt
CO	0.0120	g/1000g of product		9.60E-08	g/seatbelt

SO2	0.0034	g/1000g of product		2.72E-08	g/seatbelt
Remark:					
Distance between plant and Label manufacturer no.2 (Oberschleißheim, Germany) in km		**100**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
3.145 Production of label bam in Label manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	193.78991	MJ/1000g product	0.0950	1.84E-02	MJ/seatbelt
water	137.16814	l/1000g product		1.30E-02	l/seatbelt
PET-I	1000	g/1000g product		9.50E-02	g/seatbelt
OUTFLOWS					
label bam				0.095	g/seatbelt
Remark:					
Electricity data for Germany					
3.146 Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.3866	MJ/1000g of product	0.0950	3.67E-05	MJ/seatbelt
OUTFLOWS					
CO2	27.9240	g/1000g of product		2.65E-03	g/seatbelt
NOx	0.1772	g/1000g of product		1.68E-05	g/seatbelt
HC	0.0252	g/1000g of product		2.40E-06	g/seatbelt
Particulate matter	0.0031	g/1000g of product		2.91E-07	g/seatbelt
CO	0.0247	g/1000g of product		2.35E-06	g/seatbelt
SO2	0.0070	g/1000g of product		6.63E-07	g/seatbelt
Remark:					
Distance between Label manufacturer no.2 (Oberschleißheim, Germany) and ALH (Sopronkövesd, Hungary) in km		**537**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

4.1 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			2		
carcass meal	1.76E-06	1g/1000g POM		3.5158E-09	g
energy (recovered)	-1.91E+03	1g/1000g POM		-3.81347455	g
hydrogen; gaseous	9.80E-04	1g/1000g POM		1.96094E-06	g
waste	4.88E+00	1g/1000g POM		0.009764887	g
air	2.97E+02	1g/1000g POM		0.593066398	g
baryte	3.53E-05	1g/1000g POM		7.0653E-08	g
bauxite	2.15E-03	1g/1000g POM		4.30474E-06	g
bentonite	3.81E-02	1g/1000g POM		7.62844E-05	g
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		0.000150771	MJ
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		3.04761E-07	MJ
calcium carbonate (in)	1.44E-01	1g/1000g POM		0.000288782	g
chromium (in)	6.46E-10	1g/1000g POM		1.29271E-12	g
clay	2.04E-07	1g/1000g POM		4.08504E-10	g
copper (in)	1.29E-05	1g/1000g POM		2.58174E-08	g
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		0.085681051	MJ
dolomite	2.02E-03	1g/1000g POM		4.03266E-06	g
feldspar	7.82E-14	1g/1000g POM		1.56351E-16	g
fluorspar	3.75E-04	1g/1000g POM		7.49428E-07	g
granite	2.86E-12	1g/1000g POM		5.71192E-15	g
ground water	5.52E-02	l/1000g POM		0.000110376	l
gypsum	3.84E-03	1g/1000g POM		7.67476E-06	g
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		0.0045565	MJ
inert rock	1.39E-03	1g/1000g POM		2.77234E-06	g
iron (in)	1.65E-01	1g/1000g POM		0.000329116	g
lead (in)	3.32E-04	1g/1000g POM		6.64668E-07	g
magnesium (in)	5.86E-07	1g/1000g POM		1.17193E-09	g
manganese (in)	1.24E-04	1g/1000g POM		2.48495E-07	g
mercury (in)	4.86E-07	1g/1000g POM		9.72754E-10	g
natural aggregate	6.07E-04	1g/1000g POM		1.21375E-06	g
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		0.042968485	MJ
nickel	1.17E-06	1g/1000g POM		2.34498E-09	g
nitrogen (in)	9.44E+01	1g/1000g POM		0.188819536	g
olivine	1.54E-03	1g/1000g POM		3.08732E-06	g
oxygen	4.87E-03	1g/1000g POM		9.73302E-06	g
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		1.6449E-05	MJ
phosphorus (in)	8.77E-10	1g/1000g POM		1.75327E-12	g
potassium chloride	9.70E-06	1g/1000g POM		1.93993E-08	g
primary energy from geother	2.38E-02	MJ/1000g POM		4.76795E-05	MJ
primary energy from hydro p	2.95E-01	MJ/1000g POM		0.000589138	MJ
primary energy from solar en	8.77E-05	MJ/1000g POM		1.75478E-07	MJ
primary energy from waves	4.89E-04	MJ/1000g POM		9.77622E-07	MJ
primary energy from wind po	1.13E-02	MJ/1000g POM		2.25513E-05	MJ
quartz sand	5.31E-33	1g/1000g POM		1.06294E-35	g
river water	3.20E+03	1g/1000g POM		6.40597976	g
sand	9.51E-02	1g/1000g POM		0.000190262	g
sea water	6.03E+00	1l/1000g POM		0.012052842	l

slate	1.09E-02	1g/1000g POM		2.17286E-05	g
sodium chloride	2.67E-01	1g/1000g POM		0.0005344	g
sodium nitrate	1.76E-06	1g/1000g POM		3.5158E-09	g
sulfur (in)	3.33E-02	1g/1000g POM		6.66262E-05	g
talc	7.94E-24	1g/1000g POM		1.5887E-26	g
titanium	1.82E-03	1g/1000g POM		3.64718E-06	g
uranium	2.74E+03	1g/1000g POM		5.486725078	g
water	3.11E+01	1l/1000g POM		0.062238115	l
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		2.45719E-08	MJ
zinc (in)	6.14E-02	1g/1000g POM		0.000122789	g
OUTFLOWS					
POM	1000			2	g
1,2-dichloroethane	1.39E-08	1g/1000g POM		2.77604E-11	g
1,2-dichloroethane	3.16E-10	1g/1000g POM		6.32412E-13	g
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	1g/1000g POM		7.50302E-32	g
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	1g/1000g POM		2.44718E-16	g
acid (as H+)	4.33E-14	1g/1000g POM		8.65032E-17	g
acid (as H+)	2.01E-03	1g/1000g POM		4.02918E-06	g
adsorbable organic halogen c	6.94E-10	1g/1000g POM		1.38756E-12	g
aluminium	4.06E-04	1g/1000g POM		8.11528E-07	g
ammonia	1.58E-07	1g/1000g POM		3.16348E-10	g
ammonia	3.39E-03	1g/1000g POM		6.77444E-06	g
antimony	7.96E-08	1g/1000g POM		1.59215E-10	g
arsenic	8.41E-08	1g/1000g POM		1.68144E-10	g
arsenic	1.85E-07	1g/1000g POM		3.6915E-10	g
benzene	3.35E-15	1g/1000g POM		6.69706E-18	g
benzene	6.58E-19	1g/1000g POM		1.31572E-21	g
biological oxygen demand	2.88E-02	1g/1000g POM		5.75408E-05	g
bromate	4.13E-07	1g/1000g POM		8.26402E-10	g
cadmium	8.62E-08	1g/1000g POM		1.72457E-10	g
cadmium	4.36E-08	1g/1000g POM		8.71808E-11	g
calcium	3.65E-05	1g/1000g POM		7.29598E-08	g
carbon dioxide	1.67E+03	1g/1000g POM		3.340042102	g
carbon disulfide	1.98E-08	1g/1000g POM		3.95572E-11	g
carbon monoxide	6.10E+00	1g/1000g POM		0.012202082	g
carbonate	2.83E-02	1g/1000g POM		0.000056696	g
chemical oxygen demand	2.40E-01	1g/1000g POM		0.00048093	g
chlorate	6.77E-05	1g/1000g POM		1.35473E-07	g
chloride	1.53E-01	1g/1000g POM		0.000305606	g
chlorine	3.71E-07	1g/1000g POM		7.41194E-10	g
chlorine	8.03E-07	1g/1000g POM		1.6067E-09	g
chromium	3.83E-07	1g/1000g POM		7.65754E-10	g
chromium	4.93E-09	1g/1000g POM		9.85858E-12	g
copper	8.90E-09	1g/1000g POM		1.77947E-11	g
copper	1.03E-05	1g/1000g POM		2.05948E-08	g
cyanide	1.56E-08	1g/1000g POM		3.11994E-11	g
decane	1.39E-02	1g/1000g POM		0.000027774	g
dichloromethane	9.24E-10	1g/1000g POM		1.848E-12	g
ethyl benzene	1.97E-16	1g/1000g POM		3.93136E-19	g
ethylene	1.66E-03	1g/1000g POM		3.31588E-06	g

fluoride	3.59E-06	1g/1000g POM		7.18818E-09	g
fluorine	3.23E-08	1g/1000g POM		6.45596E-11	g
hydrocarbons (unspecified)	5.11E-03	1g/1000g POM		1.02166E-05	g
hydrocyanic acid	6.21E-16	1g/1000g POM		1.24237E-18	g
hydrogen	3.02E-02	1g/1000g POM		0.000060315	g
hydrogen chloride	5.13E-02	1g/1000g POM		0.000102632	g
hydrogen fluoride	1.49E-03	1g/1000g POM		2.98804E-06	g
hydrogen sulfide	5.52E-06	1g/1000g POM		1.10455E-08	g
iron	1.81E-05	1g/1000g POM		3.61016E-08	g
lead	1.99E-06	1g/1000g POM		3.97152E-09	g
lead	3.83E-07	1g/1000g POM		7.65662E-10	g
manganese	6.28E-07	1g/1000g POM		1.25512E-09	g
mercury	1.80E-06	1g/1000g POM		3.59518E-09	g
mercury	1.70E-07	1g/1000g POM		3.39662E-10	g
methane	1.18E+01	1g/1000g POM		0.02366402	g
nickel	8.73E-11	1g/1000g POM		1.74579E-13	g
nickel	2.58E-07	1g/1000g POM		5.15058E-10	g
nitrate	1.20E-01	1g/1000g POM		0.00023963	g
nitrogen	8.77E-04	1g/1000g POM		1.75481E-06	g
nitrogen dioxide	3.29E+00	1g/1000g POM		0.006573622	g
nitrous oxide	4.82E-10	1g/1000g POM		9.64656E-13	g
non-methane volatile organic	3.51E+00	1g/1000g POM		0.007026687	g
oxygen	7.98E-21	1g/1000g POM		1.59591E-23	g
particles (> PM10)	8.64E-02	1g/1000g POM		0.000172865	g
particles (PM10)	5.95E-01	1g/1000g POM		0.001190972	g
particles (PM10)	8.75E-03	1g/1000g POM		1.74946E-05	g
particles (PM2.5)	3.90E-12	1g/1000g POM		7.79052E-15	g
phenol	1.99E-03	1g/1000g POM		3.98438E-06	g
phosphate	5.37E-01	1g/1000g POM		0.001074734	g
polycyclic aromatic hydrocarb	1.36E-15	1g/1000g POM		2.7102E-18	g
potassium	1.18E-06	1g/1000g POM		2.35028E-09	g
propene	1.23E-03	1g/1000g POM		2.4562E-06	g
selenium	1.01E-22	1g/1000g POM		2.01008E-25	g
silver	2.90E-21	1g/1000g POM		5.80398E-24	g
sodium	8.11E-02	1g/1000g POM		0.000162224	g
strontium	7.15E-09	1g/1000g POM		1.42972E-11	g
styrene	2.76E-17	1g/1000g POM		5.5282E-20	g
sulfate	9.30E-01	1g/1000g POM		0.001860434	g
sulfur	3.49E-10	1g/1000g POM		6.9777E-13	g
sulfur dioxide	3.78E+00	1g/1000g POM		0.007568666	g
tin	1.53E-13	1g/1000g POM		3.05592E-16	g
toluene	5.61E-16	1g/1000g POM		1.12158E-18	g
total organic carbon	8.94E-03	1g/1000g POM		1.78805E-05	g
vinyl chloride	3.11E-07	1g/1000g POM		6.22504E-10	g
vinyl chloride	5.78E-09	1g/1000g POM		1.1552E-11	g
volatile organic compound	1.79E-01	1g/1000g POM		0.000357471	g
volatile organic compound	1.06E-02	1g/1000g POM		2.1193E-05	g
xylene (all isomers)	2.59E-16	1g/1000g POM		5.1846E-19	g
zinc	4.86E-06	1g/1000g POM		9.72734E-09	g
zinc	9.69E-05	1g/1000g POM		1.93898E-07	g

chemical waste	1.91E+00	1g/1000g POM		0.003825382	g
chemical waste, inert	8.15E-01	1g/1000g POM		0.001629122	g
chemical waste, toxic	1.70E+00	1g/1000g POM		0.003406456	g
demolition waste	2.20E-03	1g/1000g POM		4.39214E-06	g
industrial waste	1.13E+00	1g/1000g POM		0.002263988	g
mineral waste	2.05E-01	1g/1000g POM		0.000410876	g
municipal waste	-4.61E+00	1g/1000g POM		-0.009212188	g
organic waste	1.69E-03	1g/1000g POM		3.3702E-06	g
overburden	1.63E+01	1g/1000g POM		0.032582272	g
packaging waste (metal)	3.17E-05	1g/1000g POM		6.34328E-08	g
packaging waste (plastic)	6.63E-10	1g/1000g POM		1.32597E-12	g
plastic	3.40E-01	1g/1000g POM		0.000680614	g
tailings	2.46E-01	1g/1000g POM		0.000491664	g
waste	9.32E-01	1g/1000g POM		0.001863782	g
waste paper	2.35E-06	1g/1000g POM		4.70564E-09	g
wood	2.98E-05	1g/1000g POM		5.9644E-08	g
wooden pallet	5.89E-07	1g/1000g POM		1.17843E-09	g
Remark:					
Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD					
4.2. Transportation to Plastic parts manufacturer no.6	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Lack of data					
4.3 Production of Pin, webbing	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			2		
POM	1000	g/1000g of product		2	g
electricity	2.6666667	MJ/1000g of product		0.005333333	MJ
OUTFLOWS					
pin, webbing	1000	g/1000g of product		2	g
Remark					
Electricity data for Turkey					
Production data adapted from production of sleeve, data carrier by Plastic parts manufacturer no.2					
4.4. Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			2		
Energy (fuel)	1.2168	MJ/1000g of product		0.0024336	MJ
OUTFLOWS					
CO2	87.8800	g/1000g of product		0.17576	g
NOx	0.5577	g/1000g of product		0.0011154	g
HC	0.0794	g/1000g of product		0.00015886	g
Particulate matter	0.0096	g/1000g of product		0.000019266	g
CO	0.0777	g/1000g of product		0.00015548	g
SO2	0.0220	g/1000g of product		0.00004394	g

Remark:					
Distance between Plastic parts manufacturer no.6 (Turkey) and ALH (Hungary) in km		**1690**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
6.1 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			7.6		
carcass meal	1.76E-06	1g/1000g POM		1.336E-08	g
energy (recovered)	-1.91E+03	1g/1000g POM		-14.49120329	g
hydrogen; gaseous	9.80E-04	1g/1000g POM		7.45158E-06	g
waste	4.88E+00	1g/1000g POM		0.03710657	g
air	2.97E+02	1g/1000g POM		2.253652312	g
baryte	3.53E-05	1g/1000g POM		2.68481E-07	g
bauxite	2.15E-03	1g/1000g POM		1.6358E-05	g
bentonite	3.81E-02	1g/1000g POM		0.000289881	g
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		0.000572928	MJ
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		1.15809E-06	MJ
calcium carbonate (in)	1.44E-01	1g/1000g POM		0.001097372	g
chromium (in)	6.46E-10	1g/1000g POM		4.91231E-12	g
clay	2.04E-07	1g/1000g POM		1.55232E-09	g
copper (in)	1.29E-05	1g/1000g POM		9.81061E-08	g
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		0.325587994	MJ
dolomite	2.02E-03	1g/1000g POM		1.53241E-05	g
feldspar	7.82E-14	1g/1000g POM		5.94134E-16	g
fluorspar	3.75E-04	1g/1000g POM		2.84783E-06	g
granite	2.86E-12	1g/1000g POM		2.17053E-14	g
ground water	5.52E-02	l/1000g POM		0.00041943	l
gypsum	3.84E-03	1g/1000g POM		2.91641E-05	g
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		0.017314702	MJ
inert rock	1.39E-03	1g/1000g POM		1.05349E-05	g
iron (in)	1.65E-01	1g/1000g POM		0.001250641	g
lead (in)	3.32E-04	1g/1000g POM		2.52574E-06	g
magnesium (in)	5.86E-07	1g/1000g POM		4.45334E-09	g
manganese (in)	1.24E-04	1g/1000g POM		9.44282E-07	g
mercury (in)	4.86E-07	1g/1000g POM		3.69647E-09	g
natural aggregate	6.07E-04	1g/1000g POM		4.61223E-06	g
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		0.163280242	MJ
nickel	1.17E-06	1g/1000g POM		8.91092E-09	g
nitrogen (in)	9.44E+01	1g/1000g POM		0.717514237	g
olivine	1.54E-03	1g/1000g POM		1.17318E-05	g
oxygen	4.87E-03	1g/1000g POM		3.69855E-05	g
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		6.25064E-05	MJ
phosphorus (in)	8.77E-10	1g/1000g POM		6.66243E-12	g
potassium chloride	9.70E-06	1g/1000g POM		7.37173E-08	g
primary energy from geother	2.38E-02	MJ/1000g POM		0.000181182	MJ
primary energy from hydro p	2.95E-01	MJ/1000g POM		0.002238723	MJ

primary energy from solar en	8.77E-05	MJ/1000g POM		6.66815E-07	MJ
primary energy from waves	4.89E-04	MJ/1000g POM		3.71496E-06	MJ
primary energy from wind po	1.13E-02	MJ/1000g POM		8.56951E-05	MJ
quartz sand	5.31E-33	1g/1000g POM		4.03917E-35	g
river water	3.20E+03	1g/1000g POM		24.34272309	g
sand	9.51E-02	1g/1000g POM		0.000722996	g
sea water	6.03E+00	1l/1000g POM		0.0458008	l
slate	1.09E-02	1g/1000g POM		8.25687E-05	g
sodium chloride	2.67E-01	1g/1000g POM		0.00203072	g
sodium nitrate	1.76E-06	1g/1000g POM		1.336E-08	g
sulfur (in)	3.33E-02	1g/1000g POM		0.00025318	g
talc	7.94E-24	1g/1000g POM		6.03704E-26	g
titanium	1.82E-03	1g/1000g POM		1.38593E-05	g
uranium	2.74E+03	1g/1000g POM		20.8495553	g
water	3.11E+01	1l/1000g POM		0.236504836	l
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		9.33732E-08	MJ
zinc (in)	6.14E-02	1g/1000g POM		0.000466598	g
OUTFLOWS				0	
Polypropylene granulate (PP); production mix, at plant				0	
1,2-dichloroethane	1.39E-08	1g/1000g POM		1.0549E-10	g
1,2-dichloroethane	3.16E-10	1g/1000g POM		2.40317E-12	g
2,3,7,8-tetrachlorodibenzo-p	3.75E-29	1g/1000g POM		2.85115E-31	g
2,3,7,8-tetrachlorodibenzo-p	1.22E-13	1g/1000g POM		9.29928E-16	g
acid (as H+)	4.33E-14	1g/1000g POM		3.28712E-16	g
acid (as H+)	2.01E-03	1g/1000g POM		1.53109E-05	g
adsorbable organic halogen c	6.94E-10	1g/1000g POM		5.27274E-12	g
aluminium	4.06E-04	1g/1000g POM		3.08381E-06	g
ammonia	1.58E-07	1g/1000g POM		1.20212E-09	g
ammonia	3.39E-03	1g/1000g POM		2.57429E-05	g
antimony	7.96E-08	1g/1000g POM		6.05015E-10	g
arsenic	8.41E-08	1g/1000g POM		6.38948E-10	g
arsenic	1.85E-07	1g/1000g POM		1.40277E-09	g
benzene	3.35E-15	1g/1000g POM		2.54488E-17	g
benzene	6.58E-19	1g/1000g POM		4.99974E-21	g
biological oxygen demand	2.88E-02	1g/1000g POM		0.000218655	g
bromate	4.13E-07	1g/1000g POM		3.14033E-09	g
cadmium	8.62E-08	1g/1000g POM		6.55335E-10	g
cadmium	4.36E-08	1g/1000g POM		3.31287E-10	g
calcium	3.65E-05	1g/1000g POM		2.77247E-07	g
carbon dioxide	1.67E+03	1g/1000g POM		12.69215999	g
carbon disulfide	1.98E-08	1g/1000g POM		1.50317E-10	g
carbon monoxide	6.10E+00	1g/1000g POM		0.046367912	g
carbonate	2.83E-02	1g/1000g POM		0.000215445	g
chemical oxygen demand	2.40E-01	1g/1000g POM		0.001827534	g
chlorate	6.77E-05	1g/1000g POM		5.14799E-07	g
chloride	1.53E-01	1g/1000g POM		0.001161303	g
chlorine	3.71E-07	1g/1000g POM		2.81654E-09	g
chlorine	8.03E-07	1g/1000g POM		6.10546E-09	g
chromium	3.83E-07	1g/1000g POM		2.90987E-09	g
chromium	4.93E-09	1g/1000g POM		3.74626E-11	g

copper	8.90E-09	1g/1000g POM		6.76199E-11	g
copper	1.03E-05	1g/1000g POM		7.82602E-08	g
cyanide	1.56E-08	1g/1000g POM		1.18558E-10	g
decane	1.39E-02	1g/1000g POM		0.000105541	g
dichloromethane	9.24E-10	1g/1000g POM		7.02238E-12	g
ethyl benzene	1.97E-16	1g/1000g POM		1.49392E-18	g
ethylene	1.66E-03	1g/1000g POM		1.26003E-05	g
fluoride	3.59E-06	1g/1000g POM		2.73151E-08	g
fluorine	3.23E-08	1g/1000g POM		2.45326E-10	g
hydrocarbons (unspecified)	5.11E-03	1g/1000g POM		3.8823E-05	g
hydrocyanic acid	6.21E-16	1g/1000g POM		4.721E-18	g
hydrogen	3.02E-02	1g/1000g POM		0.000229197	g
hydrogen chloride	5.13E-02	1g/1000g POM		0.000390002	g
hydrogen fluoride	1.49E-03	1g/1000g POM		1.13546E-05	g
hydrogen sulfide	5.52E-06	1g/1000g POM		4.19729E-08	g
iron	1.81E-05	1g/1000g POM		1.37186E-07	g
lead	1.99E-06	1g/1000g POM		1.50918E-08	g
lead	3.83E-07	1g/1000g POM		2.90952E-09	g
manganese	6.28E-07	1g/1000g POM		4.76947E-09	g
mercury	1.80E-06	1g/1000g POM		1.36617E-08	g
mercury	1.70E-07	1g/1000g POM		1.29072E-09	g
methane	1.18E+01	1g/1000g POM		0.089923276	g
nickel	8.73E-11	1g/1000g POM		6.63401E-13	g
nickel	2.58E-07	1g/1000g POM		1.95722E-09	g
nitrate	1.20E-01	1g/1000g POM		0.000910594	g
nitrogen	8.77E-04	1g/1000g POM		6.66829E-06	g
nitrogen dioxide	3.29E+00	1g/1000g POM		0.024979764	g
nitrous oxide	4.82E-10	1g/1000g POM		3.66569E-12	g
non-methane volatile organic	3.51E+00	1g/1000g POM		0.026701411	g
oxygen	7.98E-21	1g/1000g POM		6.06447E-23	g
particles (> PM10)	8.64E-02	1g/1000g POM		0.000656888	g
particles (PM10)	5.95E-01	1g/1000g POM		0.004525694	g
particles (PM10)	8.75E-03	1g/1000g POM		6.64795E-05	g
particles (PM2.5)	3.90E-12	1g/1000g POM		2.9604E-14	g
phenol	1.99E-03	1g/1000g POM		1.51406E-05	g
phosphate	5.37E-01	1g/1000g POM		0.004083988	g
polycyclic aromatic hydrocarb	1.36E-15	1g/1000g POM		1.02988E-17	g
potassium	1.18E-06	1g/1000g POM		8.93106E-09	g
propene	1.23E-03	1g/1000g POM		9.33356E-06	g
selenium	1.01E-22	1g/1000g POM		7.6383E-25	g
silver	2.90E-21	1g/1000g POM		2.20551E-23	g
sodium	8.11E-02	1g/1000g POM		0.000616452	g
strontium	7.15E-09	1g/1000g POM		5.43292E-11	g
styrene	2.76E-17	1g/1000g POM		2.10072E-19	g
sulfate	9.30E-01	1g/1000g POM		0.007069649	g
sulfur	3.49E-10	1g/1000g POM		2.65153E-12	g
sulfur dioxide	3.78E+00	1g/1000g POM		0.028760931	g
tin	1.53E-13	1g/1000g POM		1.16125E-15	g
toluene	5.61E-16	1g/1000g POM		4.26201E-18	g
total organic carbon	8.94E-03	1g/1000g POM		6.79457E-05	g

vinyl chloride	3.11E-07	1g/1000g POM		2.36552E-09	g
vinyl chloride	5.78E-09	1g/1000g POM		4.38978E-11	g
volatile organic compound	1.79E-01	1g/1000g POM		0.00135839	g
volatile organic compound	1.06E-02	1g/1000g POM		8.05333E-05	g
xylene (all isomers)	2.59E-16	1g/1000g POM		1.97015E-18	g
zinc	4.86E-06	1g/1000g POM		3.69639E-08	g
zinc	9.69E-05	1g/1000g POM		7.36814E-07	g
chemical waste	1.91E+00	1g/1000g POM		0.014536452	g
chemical waste, inert	8.15E-01	1g/1000g POM		0.006190664	g
chemical waste, toxic	1.70E+00	1g/1000g POM		0.012944533	g
demolition waste	2.20E-03	1g/1000g POM		1.66901E-05	g
industrial waste	1.13E+00	1g/1000g POM		0.008603154	g
mineral waste	2.05E-01	1g/1000g POM		0.001561329	g
municipal waste	-4.61E+00	1g/1000g POM		-0.035006314	g
organic waste	1.69E-03	1g/1000g POM		1.28068E-05	g
overburden	1.63E+01	1g/1000g POM		0.123812634	g
packaging waste (metal)	3.17E-05	1g/1000g POM		2.41045E-07	g
packaging waste (plastic)	6.63E-10	1g/1000g POM		5.0387E-12	g
plastic	3.40E-01	1g/1000g POM		0.002586333	g
tailings	2.46E-01	1g/1000g POM		0.001868323	g
waste	9.32E-01	1g/1000g POM		0.007082372	g
waste paper	2.35E-06	1g/1000g POM		1.78814E-08	g
wood	2.98E-05	1g/1000g POM		2.26647E-07	g
wooden pallet	5.89E-07	1g/1000g POM		4.47803E-09	g
Remark:					
Data for POM interpreted from LCI data for Polypropylene granulate (PP); production mix, at plant (ELCD database, 1999)					
6.2. Transportation to Plastic parts manufacturer no.7	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			7.6		
Energy (fuel)	0.9216	MJ/1000g of POM		0.00700416	MJ
OUTFLOWS					
CO2	66.5600	g/1000g of POM		0.505856	g
NOx	0.4224	g/1000g of POM		0.00321024	g
HC	0.0602	g/1000g of POM		0.000457216	g
Particulate matter	0.0073	g/1000g of POM		5.54496E-05	g
CO	0.0589	g/1000g of POM		0.000447488	g
SO2	0.0166	g/1000g of POM		0.000126464	g
Remark:					
Distance between Plastics producer no.5 (Belgium) and Plastic parts manufacturer no.7 (Czech Republic) in km		**1280**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					

6.3 Production of Guide, webbing	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			6.3		
electricity	25.142857	MJ/1000g of product		0.1584	MJ
POM	1206.3492	g		7.6	g
OUTFLOWS					
plastic scrap	131.57895	g/1000g of product		0.828947368	g
guide, webbing	1000	g/1000g of product		6.3	g
Remark:					
Data for electricity taken as an average from data for Czech Republic					
Plastic scrap is recycled					
6.4. Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			6.3		
Energy (fuel)	0.3859	MJ/1000g of product		0.002431296	MJ
				0	
OUTFLOWS				0	
CO2	27.8720	g/1000g of product		0.1755936	g
NOx	0.1769	g/1000g of product		0.001114344	g
HC	0.0252	g/1000g of product		0.00015871	g
Particulate matter	0.0031	g/1000g of product		1.92478E-05	g
CO	0.0247	g/1000g of product		0.000155333	g
SO2	0.0070	g/1000g of product		4.38984E-05	g
Remark:					
Distance between Plastic parts manufacturer no.7 (Czech Republic) and ALH (Hungary) in km		**536**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
7.1 Production of Yarn/PET	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			226.2		
carcass meal	2.08E-10	1g/1000g Yarn		4.70458E-11	g
energy (recovered)	-1.26E+03	1g/1000g Yarn		-284.8864701	g
hydrogen; gaseous	6.50E-03	1g/1000g Yarn		0.001470603	g
waste	6.58E+00	1g/1000g Yarn		1.48749396	g
air	4.11E+03	1g/1000g Yarn		929.6622132	g
baryte	1.09E-04	1g/1000g Yarn		2.47531E-05	g
bauxite	2.15E-03	1g/1000g Yarn		0.000486665	g
bentonite	7.16E-02	1g/1000g Yarn		0.016191735	g
biomass; 14.7 MJ/kg	2.11E-01	MJ/1000g Yarn		0.047691709	MJ
brown coal; 11.9 MJ/kg	2.55E-04	MJ/1000g Yarn		5.75693E-05	MJ
calcium carbonate (in)	2.77E-01	1g/1000g Yarn		0.062603112	g
chromium (in)	2.22E-09	1g/1000g Yarn		5.01897E-10	g

clay	1.46E-05	1g/1000g Yarn		3.3115E-06	g
copper (in)	6.44E-06	1g/1000g Yarn		1.45777E-06	g
crude oil; 42.3 MJ/kg	3.10E+01	MJ/1000g Yarn		7.019693069	MJ
dolomite	4.00E-03	1g/1000g Yarn		0.000903927	g
feldspar	1.54E-13	1g/1000g Yarn		3.48877E-14	g
fluorspar	8.74E-04	1g/1000g Yarn		0.000197612	g
granite	6.30E-12	1g/1000g Yarn		1.42572E-12	g
ground water	5.70E-04	l/1000g Yarn		0.00012897	l
gypsum	7.13E-03	1g/1000g Yarn		0.001613806	g
hard coal; 26.3 MJ/kg	7.69E+00	MJ/1000g Yarn		1.740239919	MJ
inert rock	2.07E-05	1g/1000g Yarn		4.6843E-06	g
iron (in)	3.26E-01	1g/1000g Yarn		0.073756714	g
lead (in)	7.37E-04	1g/1000g Yarn		0.000166766	g
magnesium (in)	1.50E-15	1g/1000g Yarn		3.38205E-16	g
manganese (in)	2.46E-04	1g/1000g Yarn		5.55424E-05	g
mercury (in)	3.03E-06	1g/1000g Yarn		6.84698E-07	g
natural aggregate	1.20E-03	1g/1000g Yarn		0.000272048	g
natural gas; 44.1 MJ/kg	3.23E+01	MJ/1000g Yarn		7.307762863	MJ
nickel	7.52E-10	1g/1000g Yarn		1.70151E-10	g
nitrogen (in)	2.81E+02	1g/1000g Yarn		63.5575102	g
olivine	3.06E-03	1g/1000g Yarn		0.000691754	g
oxygen	5.92E-03	1g/1000g Yarn		0.001338577	g
peat; 8.4 MJ/kg	1.14E-03	MJ/1000g Yarn		0.000258826	MJ
phosphorus (in)	9.95E-03	1g/1000g Yarn		0.002251165	g
potassium chloride	5.35E-04	1g/1000g Yarn		0.000121095	g
primary energy from geother	2.09E-02	MJ/1000g Yarn		0.004719736	MJ
primary energy from hydro p	2.03E-01	MJ/1000g Yarn		0.045971654	MJ
primary energy from solar en	4.64E-05	MJ/1000g Yarn		1.05021E-05	MJ
primary energy from waves	2.54E-04	MJ/1000g Yarn		5.73942E-05	MJ
primary energy from wind po	1.46E-02	MJ/1000g Yarn		0.003294479	MJ
quartz sand	6.35E-23	1g/1000g Yarn		1.4365E-23	g
river water	2.44E+02	1g/1000g Yarn		55.10160724	g
sand	2.65E-01	1g/1000g Yarn		0.059896177	g
sea water	3.77E+00	1l/1000g Yarn		0.85202082	l
slate	2.02E-02	1g/1000g Yarn		0.004568697	g
sodium chloride	1.69E+00	1g/1000g Yarn		0.382552154	g
sodium nitrate	4.49E-15	1g/1000g Yarn		1.01592E-15	g
sulfur (in)	8.27E-02	1g/1000g Yarn		0.018704919	g
talc	2.69E-24	1g/1000g Yarn		6.07462E-25	g
titanium	8.53E-31	1g/1000g Yarn		1.92969E-31	g
uranium	4.43E+03	1g/1000g Yarn		1002.735741	g
water	5.41E+01	1l/1000g Yarn		12.23017476	l
wood; 14.7 MJ/kg	8.14E-05	1MJ/1000g Yarn		1.84231E-05	MJ
zinc (in)	2.57E-05	1g/1000g Yarn		5.81411E-06	g
				0	
OUTFLOWS				0	
ammonia	1.225E-09	g/1000g Yarn		2.77145E-10	g
ammonia	2.473E-06	g/1000g Yarn		5.5928E-07	g
arsenic	3.717E-11	g/1000g Yarn		8.40817E-12	g
arsenic	3.197E-10	g/1000g Yarn		7.23259E-11	g

benzene	2.307E-06	g/1000g Yarn		5.21898E-07	g
benzene	8.397E-21	g/1000g Yarn		1.89945E-21	g
cadmium	2.27E-11	g/1000g Yarn		5.13424E-12	g
cadmium	4.427E-15	g/1000g Yarn		1.00128E-15	g
carbon dioxide	2.8088601	g/1000g Yarn		0.635364149	g
chemical oxygen demand	0.0013847	g/1000g Yarn		0.000313209	g
copper	1.062E-11	g/1000g Yarn		2.40308E-12	g
copper	8.3E-08	g/1000g Yarn		1.87749E-08	g
ethylene	1.688E-06	g/1000g Yarn		3.81774E-07	g
hydrogen chloride	0.0001549	g/1000g Yarn		3.50368E-05	g
hydrogen fluoride	5.797E-06	g/1000g Yarn		1.31133E-06	g
lead	3.743E-10	g/1000g Yarn		8.46569E-11	g
lead	2.001E-10	g/1000g Yarn		4.52651E-11	g
mercury	2.024E-09	g/1000g Yarn		4.57811E-10	g
mercury	1.516E-10	g/1000g Yarn		3.42897E-11	g
methane	0.0184493	g/1000g Yarn		0.004173223	g
nickel	6.579E-06	g/1000g Yarn		1.48809E-06	g
nickel	1.764E-09	g/1000g Yarn		3.99105E-10	g
nitrate	2.069E-06	g/1000g Yarn		4.6794E-07	g
nitrogen dioxide	0.0073936	g/1000g Yarn		0.001672423	g
nitrous oxide	4.501E-11	g/1000g Yarn		1.01809E-11	g
phosphate	6.314E-07	g/1000g Yarn		1.42834E-07	g
polycyclic aromatic hydrocarl	6.586E-06	g/1000g Yarn		1.48977E-06	g
sulfur dioxide	0.0100516	g/1000g Yarn		0.002273671	g
toluene	1.27E-06	g/1000g Yarn		2.87177E-07	g
zinc	1.583E-10	g/1000g Yarn		3.58016E-11	g
zinc	4.857E-08	g/1000g Yarn		1.09867E-08	g
Chemical waste	7.010087	g/1000g Yarn		1.585681679	g
chemical waste inert	2.060253	g/1000g Yarn		0.466029229	g
chemical waste, toxic	2.214438	g/1000g Yarn		0.500905876	g
demolition waste (unspecifie	0.0533581	g/1000g Yarn		0.012069602	g
Industrial waste	1.428247	g/1000g Yarn		0.323069471	g
mineral waste	0.396566	g/1000g Yarn		0.089703229	g
Municipal waste	6.203781	g/1000g Yarn		1.403295262	g
organic waste	2.041E-05	g/1000g Yarn		4.61627E-06	g
overburden (unspecified)	54.381206	g/1000g Yarn		12.3010288	g
packaging waste (metal)	6.501E-06	g/1000g Yarn		1.47042E-06	g
packaging waste (plastic)	1.465E-09	g/1000g Yarn		3.31288E-10	g
plastic	2.317022	g/1000g Yarn		0.524110376	g
tailings (unspecified)	0.003176	g/1000g Yarn		0.000718416	g
waste	1.342454	g/1000g Yarn		0.303663095	g
waste paper	2.017E-08	g/1000g Yarn		4.56318E-09	g
wood	0.0001974	g/1000g Yarn		4.46544E-05	g
wooden pallet	7.177E-09	g/1000g Yarn		1.62333E-09	g
Remark:					
Data adapted from PET granulate amorphous					
Yarn usage 60kg/1000m					
Single lenght of seatbelt 3,77m					
Usage of material per seatbelt (g)					

7.2. Transportation to Webbing manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	2.6910	MJ/1000g of Yarn	226.2	0.6087042	MJ
OUTFLOWS					
CO2	198.0000	g/1000g of Yarn		44.7876	g
NOx	4.8600	g/1000g of Yarn		1.099332	g
HC	0.1620	g/1000g of Yarn		0.0366444	g
Particulate matter	0.1800	g/1000g of Yarn		0.040716	g
CO	0.2250	g/1000g of Yarn		0.050895	g
SO2	3.2400	g/1000g of Yarn		0.732888	g
Remark:					
Distance between Yarn producer (Thailand) and Webbing manufacturer (Belgium) in km		**9000**			
Transportation type: Medium ship					
7.3 Production of Dyestuff	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Remark:					
Lack of data for production					
Dyestuff usage 0,08kg/1000m					
Single lenght of seatbelt 3,77m					
Usage of material per seatbelt (g)					
7.4. Transportation to Webbing manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.3016		
Energy (fuel)	0.5112	MJ/1000g of Dyestuff		0.000154178	MJ
OUTFLOWS					
CO2	36.9200	g/1000g of Dyestuff		0.011135072	g
NOx	0.2343	g/1000g of Dyestuff		7.06649E-05	g
HC	0.0334	g/1000g of Dyestuff		1.00644E-05	g
Particulate matter	0.0040	g/1000g of Dyestuff		1.22058E-06	g
CO	0.0327	g/1000g of Dyestuff		9.85026E-06	g
SO2	0.0092	g/1000g of Dyestuff		2.78377E-06	g
Remark:					
Distance between Dyestuff producer (Germany) and Webbing manufacturer (Belgium) in km		**710**			

Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
7.5 Production of Auxilliaries	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Remark:					
Lack of data for production					
Auxilliaries usage 0,28kg/1000m					
Single lenght of seatbelt 3,77m					
Usage of material per seatbelt (g)					
7.6. Transportation to Webbing manufacturer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			1.0556		
Energy (fuel)	0.1044	MJ/1000g of auxilliaries		0.000110205	MJ
				0	
OUTFLOWS				0	
CO2	7.5400	g/1000g of auxilliaries		0.007959224	g
NOx	0.0479	g/1000g of auxilliaries		5.05105E-05	g
HC	0.0068	g/1000g of auxilliaries		7.19391E-06	g
Particulate matter	0.0008	g/1000g of auxilliaries		8.72453E-07	g
CO	0.0067	g/1000g of auxilliaries		7.04085E-06	g
SO2	0.0019	g/1000g of auxilliaries		1.98981E-06	g
Remark:					
Distance between Auxilliaries producer (Belgium) and Webbing manufacturer (Belgium) in km		**145**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
7.7. Production of Webbing, cut lenght	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			217.77		
Electricity	3.21241	MJ/1000g of product		0.699566527	MJ
Gas	10.92	MJ/1000g of product		2.378781193	MJ
Water	4.1798896	l/1000g of product		0.910254554	l
Yarn/PET	1038.7106	g/1000g product		226.2	g
Dyestuff	1.4510722	g/1000g product		0.316	g
Auxilliaries	4.847316	g/1000g product		1.0556	g
OUTFLOWS				0	
Webbing, cut lenght	1000	g		217.77	g
Water	4.1798896	l/1000g of product		0.910254554	l
Remark:					
Data given per year					
Total value of production/year		€ 19,787,959.00			
Value of 1 product		€ 6.58			

Electricity data for Belgium (half nuclear power and the rest from coal) (EIA, Nuclear, 2010)					
7.8. Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			217.77		
Energy (fuel)	0.9468	MJ/1000g of auxilliaries		0.206184636	MJ
	0.0000				
OUTFLOWS	0.0000				
CO2	68.3800	g/1000g of auxilliaries		14.8911126	g
NOx	0.4340	g/1000g of auxilliaries		0.094501292	g
HC	0.0618	g/1000g of auxilliaries		0.013459275	g
Particulate matter	0.0075	g/1000g of auxilliaries		0.001632295	g
CO	0.0605	g/1000g of auxilliaries		0.013172907	g
SO2	0.0171	g/1000g of auxilliaries		0.003722778	g
Remark:					
Distance between Auxilliaries producer (Belgium) and Webbing manufacturer (Belgium) in km		**1315**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
8.1 Production of steel C60S	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			60		
Alloy materials	50.5	g/1000g steel		3.03	g
Chemicals	4.99	g/1000g steel		0.2994	g
Coal	0.223	MJ/1000g steel		0.01338	MJ
Coal	517	g/1000g steel		1.33386	MJ
Diesel	0.195	MJ/1000g steel		0.0117	MJ
Electricity	3.29	MJ/1000g steel		0.1974	MJ
Explosives	1.02	g/1000g steel		0.0612	g
Gas	4.81	MJ/1000g steel		0.2886	MJ
Heavy oil	2.88	MJ/1000g steel		0.1728	MJ
Iron ore	2170	g/1000g steel		130.2	g
Limestone	162	g/1000g steel		9.72	g
Oil	0.00106	MJ/1000g steel		0.0000636	MJ
Scrap (in)	52.2	g/1000g steel		3.132	g
OUTFLOWS				0	
ammonia	0.000517	g/1000g steel		0.00003102	g
arsenic	2.08E-06	g/1000g steel		1.248E-07	g
cadmium	0.0000118	g/1000g steel		0.000000708	g
cadmium	4.46E-08	g/1000g steel		2.676E-09	g
CH4	4.04	g/1000g steel		0.2424	g
carbon dioxide	1180	g/1000g steel		70.8	g
chemical oxygen demand	0.0256	g/1000g steel		0.001536	g
chromium	0.00036	g/1000g steel		0.0000216	g
chromium	0.0000488	g/1000g steel		0.000002928	g
cobalt	0.0000072	g/1000g steel		0.000000432	g

cobalt	3.21E-06	g/1000g steel		1.926E-07	g
copper	0.000175	g/1000g steel		0.0000105	g
copper	0.000101	g/1000g steel		0.00000606	g
hydrogen chloride	0.0418	g/1000g steel		0.002508	g
hydrogen fluoride	0.0562	g/1000g steel		0.003372	g
lead	0.000529	g/1000g steel		0.00003174	g
lead	0.000402	g/1000g steel		0.00002412	g
mercury	0.0000344	g/1000g steel		0.000002064	g
nickel	0.0004	g/1000g steel		0.000024	g
nickel	0.0000815	g/1000g steel		0.00000489	g
nitrogen	0.0318	g/1000g steel		0.001908	g
nitrous oxide	1.49	g/1000g steel		0.0894	g
Phosphorus	0.000372	g/1000g steel		0.00002232	g
polycyclic aromatic hydrocarb	0.000147	g/1000g steel		0.00000882	g
sulfur dioxide	1.52	g/1000g steel		0.0912	g
zinc	0.00368	g/1000g steel		0.0002208	g
zinc	0.000997	g/1000g steel		0.00005982	g
Hazardous waste	1.62	g/1000g steel		0.0972	g
Industrial waste	96.4	g/1000g steel		5.784	g
mineral waste	1100	g/1000g steel		66	g
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
8.2. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			60		
Energy (fuel)	0.2160	MJ/1000g of auxilliaries		0.01296	MJ
				0	
OUTFLOWS				0	
CO2	15.6000	g/1000g of auxilliaries		0.936	g
NOx	0.0990	g/1000g of auxilliaries		0.00594	g
HC	0.0141	g/1000g of auxilliaries		0.000846	g
Particulate matter	0.0017	g/1000g of auxilliaries		0.0001026	g
CO	0.0138	g/1000g of auxilliaries		0.000828	g
SO2	0.0039	g/1000g of auxilliaries		0.000234	g
Remark:					
Distance between metal producer no.1 (Langenberg, Germany) and STA (Norderstedt, Germany) in km		**300**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
8.3 Production of zinc for coating	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.0916		
air	13500	g/1000g zinc		1.2366	g

baryte	1.5574821	g/1000g zinc		0.000142665	g
basalt	34.801523	g/1000g zinc		0.00318782	g
bauxite	21.142572	g/1000g zinc		0.00193666	g
bentonite	0.648349	g/1000g zinc		5.93888E-05	g
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		1.96445E-08	MJ
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		0.000399036	MJ
calcium carbonate	85.44366	g/1000g zinc		0.007826639	g
calcium chloride	5.527E-09	g/1000g zinc		5.06246E-13	g
carbon dioxide (in)	62.963074	g/1000g zinc		0.005767418	g
chromium (in)	0.0023622	g/1000g zinc		2.16379E-07	g
clay	0.2616171	g/1000g zinc		2.39641E-05	g
colemanite	0.9853674	g/1000g zinc		9.02597E-05	g
copper (in)	-31.106001	g/1000g zinc		-0.00284931	g
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		0.00038159	MJ
fluorspar	0.1583729	g/1000g zinc		1.4507E-05	g
gold (in)	-0.0026783	g/1000g zinc		-2.45328E-07	g
ground water	3624.1777	g/1000g zinc		0.331974673	g
gypsum	0.1523604	g/1000g zinc		1.39562E-05	g
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.001254183	MJ
inert rock	47243.326	g/1000g zinc		4.327488667	g
iron (in)	4.1413625	g/1000g zinc		0.000379349	g
kaolin	0.0019158	g/1000g zinc		1.75491E-07	g
lead (in)	120.22987	g/1000g zinc		0.011013056	g
magnesite	0.0012403	g/1000g zinc		1.13615E-07	g
manganese (in)	-11.317555	g/1000g zinc		-0.001036688	g
mercury (in)	4.417E-06	g/1000g zinc		4.0463E-10	g
molybdenum (in)	9.513E-05	g/1000g zinc		8.71422E-09	g
natural aggregate	26.231425	g/1000g zinc		0.002402799	g
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		0.000753041	MJ
nickel (in)	0.0042159	g/1000g zinc		3.86176E-07	g
olivine	1.735E-06	g/1000g zinc		1.58968E-10	g
oxygen	-42.44669	g/1000g zinc		-0.003888117	g
palladium	3.273E-09	g/1000g zinc		2.9978E-13	g
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		1.39838E-05	MJ
phosphorus (in)	5.566E-05	g/1000g zinc		5.09883E-09	g
platinum	3.931E-08	g/1000g zinc		3.60125E-12	g
potassium chloride	0.0009365	g/1000g zinc		8.57799E-08	g
primary energy from geother	0.0229938	MJ/1000g zinc		2.10623E-06	MJ
primary energy from hydro p	6.52631	MJ/1000g zinc		0.00059781	MJ
primary energy from solar en	0.5792547	MJ/1000g zinc		5.30597E-05	MJ
primary energy from waves	3.928E-06	MJ/1000g zinc		3.59803E-10	MJ
primary energy from wind po	0.3592062	MJ/1000g zinc		3.29033E-05	MJ
quartz sand	-12.853854	g/1000g zinc		-0.001177413	g
raw pumice	0.0001656	g/1000g zinc		1.5172E-08	g
rhodium	1.094E-10	g/1000g zinc		1.00251E-14	g
river water	6.1598962	l/1000g zinc		0.000564246	l
sand	0.0001874	g/1000g zinc		1.71627E-08	g
sea water	-0.000147	l/1000g zinc		-1.34678E-08	l
silicon	0.0001218	g/1000g zinc		1.11571E-08	g
silver (in)	-0.0161287	g/1000g zinc		-1.47739E-06	g

slate	1.32E-08	g/1000g zinc		1.20891E-12	g
sodium chloride	-14.000746	g/1000g zinc		-0.001282468	g
sodium sulfate	-0.0007459	g/1000g zinc		-6.83242E-08	g
soil	13.199188	g/1000g zinc		0.001209046	g
sulfur (in)	0.0033189	g/1000g zinc		3.04015E-07	g
surface water	27.074991	l/1000g zinc		0.002480069	l
talc	0.0005357	g/1000g zinc		4.90716E-08	g
titanium	0.0025897	g/1000g zinc		2.37212E-07	g
uranium	11208.633	g/1000g zinc		1.026710768	g
water	372.88334	l/1000g zinc		0.034156114	l
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		3.91801E-08	MJ
zinc (in)	819.6244	g/1000g zinc		0.075077595	g
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.000847059	g
zinc dross	31.9	g/1000g zinc		0.00292204	g
zinc dust	3.2163809	g/1000g zinc		0.00029462	g
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.002321602	g
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		7.55316E-06	g
ammonia	0.0101456	g/1000g zinc		9.29335E-07	g
ammonia	0.0944373	g/1000g zinc		8.65046E-06	g
ammonia	0.0048189	g/1000g zinc		4.41414E-07	g
ammonium	0.0001497	g/1000g zinc		1.3716E-08	g
ammonium	0.0018023	g/1000g zinc		1.65088E-07	g
ammonium to sea water	0.0013248	g/1000g zinc		1.2135E-07	g
arsenic	0.0058028	g/1000g zinc		5.31533E-07	g
arsenic	5.36E-06	g/1000g zinc		4.90892E-10	g
arsenic	0.0310056	g/1000g zinc		2.84012E-06	g
arsenic	5.75E-05	g/1000g zinc		5.27086E-09	g
benzene	0.0011388	g/1000g zinc		1.0431E-07	g
benzene	5.18E-05	g/1000g zinc		4.74229E-09	g
benzene	0.000199	g/1000g zinc		1.82299E-08	g
cadmium	0.0089817	g/1000g zinc		8.2272E-07	g
cadmium	1.94E-05	g/1000g zinc		1.78006E-09	g
cadmium	0.0002277	g/1000g zinc		2.08552E-08	g
cadmium	0.0015242	g/1000g zinc		1.39615E-07	g
carbon dioxide	3040.5	g/1000g zinc		0.2785098	g
CFC-11	0.0001464	g/1000g zinc		1.34118E-08	g
CFC-114	0.0001499	g/1000g zinc		1.37349E-08	g
CFC-12	3.15E-05	g/1000g zinc		2.88353E-09	g
CFC-13	1.98E-05	g/1000g zinc		1.81059E-09	g
chemical oxygen demand	0.9786417	g/1000g zinc		8.96436E-05	g
chemical oxygen demand	0.0212362	g/1000g zinc		1.94524E-06	g
chromium III	-2.72E-07	g/1000g zinc		-2.49225E-11	g
chromium III	1.13E-06	g/1000g zinc		1.03718E-10	g
chromium III	5.03E-05	g/1000g zinc		4.61082E-09	g
chromium VI	1.75E-05	g/1000g zinc		1.60422E-09	g
chromium VI	-4.32E-06	g/1000g zinc		-3.95414E-10	g
cobalt	0.0018228	g/1000g zinc		1.66965E-07	g
cobalt	2.97E-07	g/1000g zinc		2.72266E-11	g
cobalt	3.29E-07	g/1000g zinc		3.01499E-11	g

cobalt	1.10E-05	g/1000g zinc		1.00542E-09	g
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		3.78672E-09	g
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		8.45499E-07	g
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		9.60208E-08	g
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		0.000474014	g
copper	0.1356498	g/1000g zinc		1.24255E-05	g
copper	0.0049752	g/1000g zinc		4.55724E-07	g
copper	0.0001369	g/1000g zinc		1.25432E-08	g
copper	0.0110447	g/1000g zinc		1.01169E-06	g
ethylene	1.23E-05	g/1000g zinc		1.13065E-09	g
hydrogen chloride	0.1782016	g/1000g zinc		1.63233E-05	g
hydrogen chloride	7.22E-07	g/1000g zinc		6.61375E-11	g
hydrogen fluoride	0.0406748	g/1000g zinc		3.72581E-06	g
hydrogen fluoride	5.04E-08	g/1000g zinc		4.61977E-12	g
lead	0.1242728	g/1000g zinc		1.13834E-05	g
lead	4.66E-05	g/1000g zinc		4.26691E-09	g
lead	0.0008935	g/1000g zinc		8.18489E-08	g
lead	0.0044786	g/1000g zinc		4.10237E-07	g
mercury	0.0001779	g/1000g zinc		1.62997E-08	g
mercury	7.93E-07	g/1000g zinc		7.26028E-11	g
mercury	0.0001995	g/1000g zinc		1.82726E-08	g
mercury	5.12E-06	g/1000g zinc		4.69007E-10	g
methane	3.9556308	g/1000g zinc		0.000362336	g
nickel	0.0010629	g/1000g zinc		9.73638E-08	g
nickel	4.75E-05	g/1000g zinc		4.35204E-09	g
nickel	0.0001204	g/1000g zinc		1.10294E-08	g
nickel	3.02E-05	g/1000g zinc		2.76988E-09	g
nitrate	3.61E-05	g/1000g zinc		3.30594E-09	g
nitrate	0.0008705	g/1000g zinc		7.97362E-08	g
nitrate	0.2355114	g/1000g zinc		2.15728E-05	g
nitrogen	3.0664234	g/1000g zinc		0.000280884	g
nitrogen	0.0037303	g/1000g zinc		3.41697E-07	g
nitrogen	0.0388564	g/1000g zinc		3.55924E-06	g
nitrogen	0.0331367	g/1000g zinc		3.03532E-06	g
nitrogen dioxide	17.053961	g/1000g zinc		0.001562143	g
nitrogen monoxide	1.98E-05	g/1000g zinc		1.80971E-09	g
nitrous oxide	0.1158841	g/1000g zinc		1.0615E-05	g
phosphate	0.0051168	g/1000g zinc		4.68696E-07	g
phosphate	0.0030974	g/1000g zinc		2.83725E-07	g
toluene	0.0001184	g/1000g zinc		1.08466E-08	g
toluene	3.15E-05	g/1000g zinc		2.8894E-09	g
vanadium	0.0027262	g/1000g zinc		2.49722E-07	g
vanadium	7.30E-06	g/1000g zinc		6.68469E-10	g
vanadium	0.0001296	g/1000g zinc		1.1869E-08	g
zinc	0.1760723	g/1000g zinc		1.61282E-05	g
zinc	0.0085203	g/1000g zinc		7.80458E-07	g
zinc	0.0090181	g/1000g zinc		8.26061E-07	g
zinc	0.1440723	g/1000g zinc		1.3197E-05	g
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		2.08477E-07	g
demolition waste (unspecifie	6.5075571	g/1000g zinc		0.000596092	g

Hazardous waste	27.620581	g/1000g zinc		0.002530045	g
highly radioactive waste; rea	0.006792	g/1000g zinc		6.22147E-07	g
Industrial waste	177.6031	g/1000g zinc		0.016268444	g
Iron scrap	18.917083	g/1000g zinc		0.001732805	g
jarosite	123.75866	g/1000g zinc		0.011336293	g
medium and low radioactive	0.0080611	g/1000g zinc		7.38394E-07	g
mineral waste	6.121768	g/1000g zinc		0.000560754	g
overburden (unspecified)	44482.62	g/1000g zinc		4.074608035	g
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		0.000365198	g
slag (unspecified)	10.21577	g/1000g zinc		0.000935765	g
slag (uranium conversion); re	0.015073	g/1000g zinc		1.38069E-06	g
spoil (unspecified)	14.286476	g/1000g zinc		0.001308641	g
sludge	12.2	g/1000g zinc		0.00111752	g
steel scrap	1.0967234	g/1000g zinc		0.00010046	g
tailings (unspecified)	5045.0465	g/1000g zinc		0.462126256	g
unspecified radioactive waste	0.013515	g/1000g zinc		1.23797E-06	g
uranium depleted; reactor fu	0.0155929	g/1000g zinc		1.42831E-06	g
used oil	220.9923	g/1000g zinc		0.020242895	g
zinc slag	0.8737593	g/1000g zinc		8.00364E-05	g
zinc scrab	16.168781	g/1000g zinc		0.00148106	g
8.4. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.0916		
Energy (fuel)	0.0576	MJ/1000g of auxilliaries		5.27616E-06	MJ
OUTFLOWS					
CO2	4.1600	g/1000g of auxilliaries		0.000381056	g
NOx	0.0264	g/1000g of auxilliaries		2.41824E-06	g
HC	0.0038	g/1000g of auxilliaries		3.44416E-07	g
Particulate matter	0.0005	g/1000g of auxilliaries		4.17696E-08	g
CO	0.0037	g/1000g of auxilliaries		3.37088E-07	g
SO2	0.0010	g/1000g of auxilliaries		9.5264E-08	g
Remark:					
Distance between metal producer no.2 (Lüneburg, Germany) and STA (Norderstedt, Germany) in km		**80**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Distance assumed based on map					
8.5 Production of zinc for layer	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.218		
air	13500	g/1000g zinc		2.943	g
baryte	1.5574821	g/1000g zinc		0.000339531	g
basalt	34.801523	g/1000g zinc		0.007586732	g

bauxite	21.142572	g/1000g zinc		0.004609081	g
bentonite	0.648349	g/1000g zinc		0.00014134	g
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g zinc		4.67523E-08	MJ
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g zinc		0.000949672	MJ
calcium carbonate	85.44366	g/1000g zinc		0.018626718	g
calcium chloride	5.527E-09	g/1000g zinc		1.20482E-12	g
carbon dioxide (in)	62.963074	g/1000g zinc		0.01372595	g
chromium (in)	0.0023622	g/1000g zinc		5.14962E-07	g
clay	0.2616171	g/1000g zinc		5.70325E-05	g
colemanite	0.9853674	g/1000g zinc		0.00021481	g
copper (in)	-31.106001	g/1000g zinc		-0.006781108	g
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g zinc		0.00090815	MJ
fluorspar	0.1583729	g/1000g zinc		3.45253E-05	g
gold (in)	-0.0026783	g/1000g zinc		-5.83859E-07	g
ground water	3624.1777	g/1000g zinc		0.790070729	g
gypsum	0.1523604	g/1000g zinc		3.32146E-05	g
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g zinc		0.002984846	MJ
inert rock	47243.326	g/1000g zinc		10.29904508	g
iron (in)	4.1413625	g/1000g zinc		0.000902817	g
kaolin	0.0019158	g/1000g zinc		4.17653E-07	g
lead (in)	120.22987	g/1000g zinc		0.026210112	g
magnesite	0.0012403	g/1000g zinc		2.70394E-07	g
manganese (in)	-11.317555	g/1000g zinc		-0.002467227	g
mercury (in)	4.417E-06	g/1000g zinc		9.62983E-10	g
molybdenum (in)	9.513E-05	g/1000g zinc		2.07391E-08	g
natural aggregate	26.231425	g/1000g zinc		0.005718451	g
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g zinc		0.001792172	MJ
nickel (in)	0.0042159	g/1000g zinc		9.19065E-07	g
olivine	1.735E-06	g/1000g zinc		3.78329E-10	g
oxygen	-42.44669	g/1000g zinc		-0.009253379	g
palladium	3.273E-09	g/1000g zinc		7.1345E-13	g
peat; 8.4 MJ/kg	0.1526621	MJ/1000g zinc		3.32803E-05	MJ
phosphorus (in)	5.566E-05	g/1000g zinc		1.21348E-08	g
platinum	3.931E-08	g/1000g zinc		8.57066E-12	g
potassium chloride	0.0009365	g/1000g zinc		2.04149E-07	g
primary energy from geother	0.0229938	MJ/1000g zinc		5.01266E-06	MJ
primary energy from hydro p	6.52631	MJ/1000g zinc		0.001422736	MJ
primary energy from solar en	0.5792547	MJ/1000g zinc		0.000126278	MJ
primary energy from waves	3.928E-06	MJ/1000g zinc		8.563E-10	MJ
primary energy from wind po	0.3592062	MJ/1000g zinc		7.83069E-05	MJ
quartz sand	-12.853854	g/1000g zinc		-0.00280214	g
raw pumice	0.0001656	g/1000g zinc		3.6108E-08	g
rhodium	1.094E-10	g/1000g zinc		2.38589E-14	g
river water	6.1598962	l/1000g zinc		0.001342857	l
sand	0.0001874	g/1000g zinc		4.08456E-08	g
sea water	-0.000147	l/1000g zinc		-3.20521E-08	l
silicon	0.0001218	g/1000g zinc		2.65529E-08	g
silver (in)	-0.0161287	g/1000g zinc		-3.51605E-06	g
slate	1.32E-08	g/1000g zinc		2.87709E-12	g
sodium chloride	-14.000746	g/1000g zinc		-0.003052163	g

sodium sulfate	-0.0007459	g/1000g zinc		-1.62606E-07	g
soil	13.199188	g/1000g zinc		0.002877423	g
sulfur (in)	0.0033189	g/1000g zinc		7.23529E-07	g
surface water	27.074991	l/1000g zinc		0.005902348	l
talc	0.0005357	g/1000g zinc		1.16786E-07	g
titanium	0.0025897	g/1000g zinc		5.64544E-07	g
uranium	11208.633	g/1000g zinc		2.44348196	g
water	372.88334	l/1000g zinc		0.081288569	l
wood; 14.7 MJ/kg	0.0004277	MJ/1000g zinc		9.32451E-08	MJ
zinc (in)	819.6244	g/1000g zinc		0.178678119	g
zinc calcine; 62% Zn	9.2473693	g/1000g zinc		0.002015927	g
zinc dross	31.9	g/1000g zinc		0.0069542	g
zinc dust	3.2163809	g/1000g zinc		0.000701171	g
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g zinc		0.00552521	g
OUTFLOWS				0	
ammonia	0.082458	g/1000g zinc		1.79759E-05	g
ammonia	0.0101456	g/1000g zinc		2.21174E-06	g
ammonia	0.0944373	g/1000g zinc		2.05873E-05	g
ammonia	0.0048189	g/1000g zinc		1.05053E-06	g
ammonium	0.0001497	g/1000g zinc		3.26429E-08	g
ammonium	0.0018023	g/1000g zinc		3.92896E-07	g
ammonium to sea water	0.0013248	g/1000g zinc		2.88803E-07	g
arsenic	0.0058028	g/1000g zinc		1.265E-06	g
arsenic	5.36E-06	g/1000g zinc		1.16828E-09	g
arsenic	0.0310056	g/1000g zinc		6.75923E-06	g
arsenic	5.75E-05	g/1000g zinc		1.25442E-08	g
benzene	0.0011388	g/1000g zinc		2.48248E-07	g
benzene	5.18E-05	g/1000g zinc		1.12862E-08	g
benzene	0.000199	g/1000g zinc		4.33855E-08	g
cadmium	0.0089817	g/1000g zinc		1.958E-06	g
cadmium	1.94E-05	g/1000g zinc		4.23639E-09	g
cadmium	0.0002277	g/1000g zinc		4.96337E-08	g
cadmium	0.0015242	g/1000g zinc		3.32272E-07	g
carbon dioxide	3040.5	g/1000g zinc		0.662829	g
CFC-11	0.0001464	g/1000g zinc		3.19188E-08	g
CFC-114	0.0001499	g/1000g zinc		3.26879E-08	g
CFC-12	3.15E-05	g/1000g zinc		6.86254E-09	g
CFC-13	1.98E-05	g/1000g zinc		4.30904E-09	g
chemical oxygen demand	0.9786417	g/1000g zinc		0.000213344	g
chemical oxygen demand	0.0212362	g/1000g zinc		4.62949E-06	g
chromium III	-2.72E-07	g/1000g zinc		-5.93135E-11	g
chromium III	1.13E-06	g/1000g zinc		2.46839E-10	g
chromium III	5.03E-05	g/1000g zinc		1.09733E-08	g
chromium VI	1.75E-05	g/1000g zinc		3.8179E-09	g
chromium VI	-4.32E-06	g/1000g zinc		-9.41051E-10	g
cobalt	0.0018228	g/1000g zinc		3.97362E-07	g
cobalt	2.97E-07	g/1000g zinc		6.4797E-11	g
cobalt	3.29E-07	g/1000g zinc		7.17541E-11	g
cobalt	1.10E-05	g/1000g zinc		2.39281E-09	g
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g zinc		9.01206E-09	g

cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g zinc		2.01221E-06	g
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g zinc		2.28521E-07	g
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g zinc		0.001128112	g
copper	0.1356498	g/1000g zinc		2.95717E-05	g
copper	0.0049752	g/1000g zinc		1.08458E-06	g
copper	0.0001369	g/1000g zinc		2.98517E-08	g
copper	0.0110447	g/1000g zinc		2.40774E-06	g
ethylene	1.23E-05	g/1000g zinc		2.69085E-09	g
hydrogen chloride	0.1782016	g/1000g zinc		3.88479E-05	g
hydrogen chloride	7.22E-07	g/1000g zinc		1.57402E-10	g
hydrogen fluoride	0.0406748	g/1000g zinc		8.8671E-06	g
hydrogen fluoride	5.04E-08	g/1000g zinc		1.09946E-11	g
lead	0.1242728	g/1000g zinc		2.70915E-05	g
lead	4.66E-05	g/1000g zinc		1.01549E-08	g
lead	0.0008935	g/1000g zinc		1.94793E-07	g
lead	0.0044786	g/1000g zinc		9.76329E-07	g
mercury	0.0001779	g/1000g zinc		3.87919E-08	g
mercury	7.93E-07	g/1000g zinc		1.72788E-10	g
mercury	0.0001995	g/1000g zinc		4.34873E-08	g
mercury	5.12E-06	g/1000g zinc		1.1162E-09	g
methane	3.9556308	g/1000g zinc		0.000862328	g
nickel	0.0010629	g/1000g zinc		2.31717E-07	g
nickel	4.75E-05	g/1000g zinc		1.03575E-08	g
nickel	0.0001204	g/1000g zinc		2.6249E-08	g
nickel	3.02E-05	g/1000g zinc		6.59208E-09	g
nitrate	3.61E-05	g/1000g zinc		7.86784E-09	g
nitrate	0.0008705	g/1000g zinc		1.89765E-07	g
nitrate	0.2355114	g/1000g zinc		5.13415E-05	g
nitrogen	3.0664234	g/1000g zinc		0.00066848	g
nitrogen	0.0037303	g/1000g zinc		8.13208E-07	g
nitrogen	0.0388564	g/1000g zinc		8.47069E-06	g
nitrogen	0.0331367	g/1000g zinc		7.22379E-06	g
nitrogen dioxide	17.053961	g/1000g zinc		0.003717763	g
nitrogen monoxide	1.98E-05	g/1000g zinc		4.30695E-09	g
nitrous oxide	0.1158841	g/1000g zinc		2.52627E-05	g
phosphate	0.0051168	g/1000g zinc		1.11546E-06	g
phosphate	0.0030974	g/1000g zinc		6.7524E-07	g
toluene	0.0001184	g/1000g zinc		2.58139E-08	g
toluene	3.15E-05	g/1000g zinc		6.87652E-09	g
vanadium	0.0027262	g/1000g zinc		5.94315E-07	g
vanadium	7.30E-06	g/1000g zinc		1.5909E-09	g
vanadium	0.0001296	g/1000g zinc		2.82472E-08	g
zinc	0.1760723	g/1000g zinc		3.83838E-05	g
zinc	0.0085203	g/1000g zinc		1.85742E-06	g
zinc	0.0090181	g/1000g zinc		1.96595E-06	g
zinc	0.1440723	g/1000g zinc		3.14078E-05	g
calcium fluoride; reactor fuel	0.0022759	g/1000g zinc		4.96157E-07	g
demolition waste (unspecifie	6.5075571	g/1000g zinc		0.001418647	g
Hazardous waste	27.620581	g/1000g zinc		0.006021287	g
highly radioactive waste; rea	0.006792	g/1000g zinc		1.48066E-06	g

Industrial waste	177.6031	g/1000g zinc		0.038717476	g
Iron scrap	18.917083	g/1000g zinc		0.004123924	g
jarosite	123.75866	g/1000g zinc		0.026979388	g
medium and low radioactive	0.0080611	g/1000g zinc		1.75731E-06	g
mineral waste	6.121768	g/1000g zinc		0.001334545	g
overburden (unspecified)	44482.62	g/1000g zinc		9.697211262	g
radioactive tailings; reactor fu	3.9868775	g/1000g zinc		0.000869139	g
slag (unspecified)	10.21577	g/1000g zinc		0.002227038	g
slag (uranium conversion); re	0.015073	g/1000g zinc		3.28591E-06	g
spoil (unspecified)	14.286476	g/1000g zinc		0.003114452	g
sludge	12.2	g/1000g zinc		0.0026596	g
steel scrap	1.0967234	g/1000g zinc		0.000239086	g
tailings (unspecified)	5045.0465	g/1000g zinc		1.099820128	g
unspecified radioactive waste	0.013515	g/1000g zinc		2.94627E-06	g
uranium depleted; reactor fu	0.0155929	g/1000g zinc		3.39926E-06	g
used oil	220.9923	g/1000g zinc		0.048176321	g
zinc slag	0.8737593	g/1000g zinc		0.00019048	g
zinc scrab	16.168781	g/1000g zinc		0.003524794	g
8.6. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.218		
Energy (fuel)	0.0576	MJ/1000g of zinc		1.25568E-05	MJ
				0	
OUTFLOWS				0	
CO2	4.1600	g/1000g of zinc		0.00090688	g
NOx	0.0264	g/1000g of zinc		5.7552E-06	g
HC	0.0038	g/1000g of zinc		8.1968E-07	g
Particulate matter	0.0005	g/1000g of zinc		9.9408E-08	g
CO	0.0037	g/1000g of zinc		8.0224E-07	g
SO2	0.0010	g/1000g of zinc		2.2672E-07	g
Remark:					
Distance between metal producer no.2 (Lüneburg, Germany) and STA (Norderstedt, Germany) in km		**80**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Distance assumed based on map					
8.7 Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			19		
carcass meal	1.76E-06	1g/1000g POM		3.34001E-08	g
energy (recovered)	-1.91E+03	1g/1000g POM		-36.22800823	g
hydrogen; gaseous	9.80E-04	1g/1000g POM		1.8629E-05	g
waste	4.88E+00	1g/1000g POM		0.092766425	g
air	2.97E+02	1g/1000g POM		5.634130781	g

baryte	3.53E-05	1g/1000g POM		6.71204E-07	g
bauxite	2.15E-03	1g/1000g POM		4.0895E-05	g
bentonite	3.81E-02	1g/1000g POM		0.000724702	g
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		0.001432321	MJ
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		2.89523E-06	MJ
calcium carbonate (in)	1.44E-01	1g/1000g POM		0.002743429	g
chromium (in)	6.46E-10	1g/1000g POM		1.22808E-11	g
clay	2.04E-07	1g/1000g POM		3.88079E-09	g
copper (in)	1.29E-05	1g/1000g POM		2.45265E-07	g
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		0.813969984	MJ
dolomite	2.02E-03	1g/1000g POM		3.83103E-05	g
feldspar	7.82E-14	1g/1000g POM		1.48533E-15	g
fluorspar	3.75E-04	1g/1000g POM		7.11957E-06	g
granite	2.86E-12	1g/1000g POM		5.42632E-14	g
ground water	5.52E-02	l/1000g POM		0.001048575	l
gypsum	3.84E-03	1g/1000g POM		7.29102E-05	g
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		0.043286754	MJ
inert rock	1.39E-03	1g/1000g POM		2.63372E-05	g
iron (in)	1.65E-01	1g/1000g POM		0.003126601	g
lead (in)	3.32E-04	1g/1000g POM		6.31435E-06	g
magnesium (in)	5.86E-07	1g/1000g POM		1.11334E-08	g
manganese (in)	1.24E-04	1g/1000g POM		2.36071E-06	g
mercury (in)	4.86E-07	1g/1000g POM		9.24116E-09	g
natural aggregate	6.07E-04	1g/1000g POM		1.15306E-05	g
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		0.408200606	MJ
nickel	1.17E-06	1g/1000g POM		2.22773E-08	g
nitrogen (in)	9.44E+01	1g/1000g POM		1.793785592	g
olivine	1.54E-03	1g/1000g POM		2.93295E-05	g
oxygen	4.87E-03	1g/1000g POM		9.24637E-05	g
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		0.000156266	MJ
phosphorus (in)	8.77E-10	1g/1000g POM		1.66561E-11	g
potassium chloride	9.70E-06	1g/1000g POM		1.84293E-07	g
primary energy from geother	2.38E-02	MJ/1000g POM		0.000452956	MJ
primary energy from hydro p	2.95E-01	MJ/1000g POM		0.005596809	MJ
primary energy from solar en	8.77E-05	MJ/1000g POM		1.66704E-06	MJ
primary energy from waves	4.89E-04	MJ/1000g POM		9.28741E-06	MJ
primary energy from wind po	1.13E-02	MJ/1000g POM		0.000214238	MJ
quartz sand	5.31E-33	1g/1000g POM		1.00979E-34	g
river water	3.20E+03	1g/1000g POM		60.85680772	g
sand	9.51E-02	1g/1000g POM		0.001807489	g
sea water	6.03E+00	1l/1000g POM		0.114502	l
slate	1.09E-02	1g/1000g POM		0.000206422	g
sodium chloride	2.67E-01	1g/1000g POM		0.0050768	g
sodium nitrate	1.76E-06	1g/1000g POM		3.34001E-08	g
sulfur (in)	3.33E-02	1g/1000g POM		0.000632949	g
talc	7.94E-24	1g/1000g POM		1.50926E-25	g
titanium	1.82E-03	1g/1000g POM		3.46482E-05	g
uranium	2.74E+03	1g/1000g POM		52.12388824	g
water	3.11E+01	1l/1000g POM		0.59126209	l
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		2.33433E-07	MJ

zinc (in)	6.14E-02	1g/1000g POM		0.001166496	g
OUTFLOWS				0	
POM	1000			19	
1,2-dichloroethane	1.39E-08	1g/1000g POM		2.63724E-10	g
1,2-dichloroethane	3.16E-10	1g/1000g POM		6.00791E-12	g
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	1g/1000g POM		7.12787E-31	g
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	1g/1000g POM		2.32482E-15	g
acid (as H+)	4.33E-14	1g/1000g POM		8.2178E-16	g
acid (as H+)	2.01E-03	1g/1000g POM		3.82772E-05	g
adsorbable organic halogen c	6.94E-10	1g/1000g POM		1.31818E-11	g
aluminium	4.06E-04	1g/1000g POM		7.70952E-06	g
ammonia	1.58E-07	1g/1000g POM		3.00531E-09	g
ammonia	3.39E-03	1g/1000g POM		6.43572E-05	g
antimony	7.96E-08	1g/1000g POM		1.51254E-09	g
arsenic	8.41E-08	1g/1000g POM		1.59737E-09	g
arsenic	1.85E-07	1g/1000g POM		3.50693E-09	g
benzene	3.35E-15	1g/1000g POM		6.36221E-17	g
benzene	6.58E-19	1g/1000g POM		1.24994E-20	g
biological oxygen demand	2.88E-02	1g/1000g POM		0.000546638	g
bromate	4.13E-07	1g/1000g POM		7.85082E-09	g
cadmium	8.62E-08	1g/1000g POM		1.63834E-09	g
cadmium	4.36E-08	1g/1000g POM		8.28218E-10	g
calcium	3.65E-05	1g/1000g POM		6.93118E-07	g
carbon dioxide	1.67E+03	1g/1000g POM		31.73039997	g
carbon disulfide	1.98E-08	1g/1000g POM		3.75793E-10	g
carbon monoxide	6.10E+00	1g/1000g POM		0.115919779	g
carbonate	2.83E-02	1g/1000g POM		0.000538612	g
chemical oxygen demand	2.40E-01	1g/1000g POM		0.004568835	g
chlorate	6.77E-05	1g/1000g POM		1.287E-06	g
chloride	1.53E-01	1g/1000g POM		0.002903257	g
chlorine	3.71E-07	1g/1000g POM		7.04134E-09	g
chlorine	8.03E-07	1g/1000g POM		1.52637E-08	g
chromium	3.83E-07	1g/1000g POM		7.27466E-09	g
chromium	4.93E-09	1g/1000g POM		9.36565E-11	g
copper	8.90E-09	1g/1000g POM		1.6905E-10	g
copper	1.03E-05	1g/1000g POM		1.95651E-07	g
cyanide	1.56E-08	1g/1000g POM		2.96394E-10	g
decane	1.39E-02	1g/1000g POM		0.000263853	g
dichloromethane	9.24E-10	1g/1000g POM		1.7556E-11	g
ethyl benzene	1.97E-16	1g/1000g POM		3.73479E-18	g
ethylene	1.66E-03	1g/1000g POM		3.15009E-05	g
fluoride	3.59E-06	1g/1000g POM		6.82877E-08	g
fluorine	3.23E-08	1g/1000g POM		6.13316E-10	g
hydrocarbons (unspecified)	5.11E-03	1g/1000g POM		9.70575E-05	g
hydrocyanic acid	6.21E-16	1g/1000g POM		1.18025E-17	g
hydrogen	3.02E-02	1g/1000g POM		0.000572993	g
hydrogen chloride	5.13E-02	1g/1000g POM		0.000975004	g
hydrogen fluoride	1.49E-03	1g/1000g POM		2.83864E-05	g
hydrogen sulfide	5.52E-06	1g/1000g POM		1.04932E-07	g
iron	1.81E-05	1g/1000g POM		3.42965E-07	g

lead	1.99E-06	1g/1000g POM		3.77294E-08	g
lead	3.83E-07	1g/1000g POM		7.27379E-09	g
manganese	6.28E-07	1g/1000g POM		1.19237E-08	g
mercury	1.80E-06	1g/1000g POM		3.41542E-08	g
mercury	1.70E-07	1g/1000g POM		3.22679E-09	g
methane	1.18E+01	1g/1000g POM		0.22480819	g
nickel	8.73E-11	1g/1000g POM		1.6585E-12	g
nickel	2.58E-07	1g/1000g POM		4.89305E-09	g
nitrate	1.20E-01	1g/1000g POM		0.002276485	g
nitrogen	8.77E-04	1g/1000g POM		1.66707E-05	g
nitrogen dioxide	3.29E+00	1g/1000g POM		0.062449409	g
nitrous oxide	4.82E-10	1g/1000g POM		9.16423E-12	g
non-methane volatile organic	3.51E+00	1g/1000g POM		0.066753527	g
oxygen	7.98E-21	1g/1000g POM		1.51612E-22	g
particles (> PM10)	8.64E-02	1g/1000g POM		0.001642219	g
particles (PM10)	5.95E-01	1g/1000g POM		0.011314235	g
particles (PM10)	8.75E-03	1g/1000g POM		0.000166199	g
particles (PM2.5)	3.90E-12	1g/1000g POM		7.40099E-14	g
phenol	1.99E-03	1g/1000g POM		3.78516E-05	g
phosphate	5.37E-01	1g/1000g POM		0.01020997	g
polycyclic aromatic hydrocarb	1.36E-15	1g/1000g POM		2.57469E-17	g
potassium	1.18E-06	1g/1000g POM		2.23277E-08	g
propene	1.23E-03	1g/1000g POM		2.33339E-05	g
selenium	1.01E-22	1g/1000g POM		1.90958E-24	g
silver	2.90E-21	1g/1000g POM		5.51378E-23	g
sodium	8.11E-02	1g/1000g POM		0.00154113	g
strontium	7.15E-09	1g/1000g POM		1.35823E-10	g
styrene	2.76E-17	1g/1000g POM		5.25179E-19	g
sulfate	9.30E-01	1g/1000g POM		0.017674123	g
sulfur	3.49E-10	1g/1000g POM		6.62882E-12	g
sulfur dioxide	3.78E+00	1g/1000g POM		0.071902327	g
tin	1.53E-13	1g/1000g POM		2.90312E-15	g
toluene	5.61E-16	1g/1000g POM		1.0655E-17	g
total organic carbon	8.94E-03	1g/1000g POM		0.000169864	g
vinyl chloride	3.11E-07	1g/1000g POM		5.91379E-09	g
vinyl chloride	5.78E-09	1g/1000g POM		1.09744E-10	g
volatile organic compound	1.79E-01	1g/1000g POM		0.003395974	g
volatile organic compound	1.06E-02	1g/1000g POM		0.000201333	g
xylene (all isomers)	2.59E-16	1g/1000g POM		4.92537E-18	g
zinc	4.86E-06	1g/1000g POM		9.24097E-08	g
zinc	9.69E-05	1g/1000g POM		1.84203E-06	g
chemical waste	1.91E+00	1g/1000g POM		0.036341129	g
chemical waste, inert	8.15E-01	1g/1000g POM		0.015476659	g
chemical waste, toxic	1.70E+00	1g/1000g POM		0.032361332	g
demolition waste	2.20E-03	1g/1000g POM		4.17253E-05	g
industrial waste	1.13E+00	1g/1000g POM		0.021507886	g
mineral waste	2.05E-01	1g/1000g POM		0.003903322	g
municipal waste	-4.61E+00	1g/1000g POM		-0.087515786	g
organic waste	1.69E-03	1g/1000g POM		3.20169E-05	g
overburden	1.63E+01	1g/1000g POM		0.309531584	g

packaging waste (metal)	3.17E-05	1g/1000g POM		6.02612E-07	g
packaging waste (plastic)	6.63E-10	1g/1000g POM		1.25968E-11	g
plastic	3.40E-01	1g/1000g POM		0.006465833	g
tailings	2.46E-01	1g/1000g POM		0.004670808	g
waste	9.32E-01	1g/1000g POM		0.017705929	g
waste paper	2.35E-06	1g/1000g POM		4.47036E-08	g
wood	2.98E-05	1g/1000g POM		5.66618E-07	g
wooden pallet	5.89E-07	1g/1000g POM		1.11951E-08	g
8.8. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			19		
Energy (fuel)	0.3744	MJ/1000g ofPOM		0.0071136	MJ
OUTFLOWS					
CO2	27.0400	g/1000g of POM		0.51376	g
NOx	0.1716	g/1000g of POM		0.0032604	g
HC	0.0244	g/1000g of POM		0.00046436	g
Particulate matter	0.0030	g/1000g of POM		0.000056316	g
CO	0.0239	g/1000g of POM		0.00045448	g
SO2	0.0068	g/1000g of POM		0.00012844	g
Remark:					
Distance between Plastics producer no.5 (Germany) and STA (Norderstedt, Germany) in km		**520**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Distance assumed based on map					
8.9 Production of Pillar Loop	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			79.0096		
oil Norderstedt	0.2806403	MJ/1000g product		0.022173279	MJ
gas Hall 14	0.1812846	MJ/1000g product		0.014323227	MJ
electricity	7.2399056	MJ/1000g product		0.572022042	MJ
C60S	759.40139	g/1000g product		60	g
zinc for coating	1.1593528	g/1000g product		0.0916	g
zinc for layer	2.7591584	g/1000g product		0.218	g
POM	240.47711	g/1000g product		19	g
OUTFLOWS				0	
pillar loop	1000	g/1000g product		79.0096	g
chromium III	0.0095382	g/1000g product		0.000753609	g
copper	0.0095382	g/1000g product		0.000753609	g
cyanide	0.0004391	g/1000g product		3.46917E-05	g
nickel	0.0095382	g/1000g product		0.000753609	g
zinc	0.0095382	g/1000g product		0.000753609	g
used oil	0.0074484	g/1000g product		0.000588496	g
Remark:					

Data given for 1 year					
Total value of production/year		€ 34,580,022.00			
Value of the product		€ 0.78			
Remark:					
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
8.10. Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			79.0096		
Energy (fuel)	0.7783	MJ/1000g of product		0.061494752	MJ
OUTFLOWS					
CO2	56.2120	g/1000g of product		4.441287635	g
NOx	0.3567	g/1000g of product		0.028185095	g
HC	0.0508	g/1000g of product		0.004014241	g
Particulate matter	0.0062	g/1000g of product		0.000486833	g
CO	0.0497	g/1000g of product		0.003928831	g
SO2	0.0141	g/1000g of product		0.001110322	g
Remark:					
Distance between Plastics producer no.5 (Germany) and STA (Norderstedt, Germany) in km		**1081**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
9.1 Production of thermoplastic E/P	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			8		
carcass meal	4.33E-07	g/1000g E/P		3.46186E-09	g
energy (recovered)	-1.40E+03	g/1000g E/P		-11.17193559	g
hydrogen; gaseous	1.31E-03	g/1000g E/P		1.05041E-05	g
waste	5.79E+00	g/1000g E/P		0.04632303	g
air	2.58E+02	g/1000g E/P		2.067760776	g
baryte	5.41E-05	g/1000g E/P		4.3256E-07	g
bauxite	5.04E-03	g/1000g E/P		4.02923E-05	g
bentonite	3.31E-02	g/1000g E/P		0.000264465	g
biomass; 14.7 MJ/kg	1.28E-01	MJ/1000g E/P		0.001023497	MJ
brown coal; 11.9 MJ/kg	3.80E-05	MJ/1000g E/P		3.04095E-07	MJ
calcium carbonate (in)	1.33E-01	g/1000g E/P		0.001065216	g
chromium (in)	1.02E-09	g/1000g E/P		8.15584E-12	g
clay	2.80E-07	g/1000g E/P		2.24342E-09	g
copper (in)	3.20E-06	g/1000g E/P		2.56102E-08	g
crude oil; 42.3 MJ/kg	3.81E+01	MJ/1000g E/P		0.305198594	MJ
dolomite	2.13E-03	g/1000g E/P		1.70717E-05	g
feldspar	6.15E-14	g/1000g E/P		4.91958E-16	g
fluorspar	3.16E-04	g/1000g E/P		2.52854E-06	g
granite	4.67E-12	g/1000g E/P		3.73901E-14	g

ground water	9.52E-02	l/1000g E/P		0.000761983	l
gypsum	3.30E-03	g/1000g E/P		2.64147E-05	g
hard coal; 26.3 MJ/kg	2.79E+00	MJ/1000g E/P		0.022345356	MJ
inert rock	1.11E-05	g/1000g E/P		8.86754E-08	g
iron (in)	1.74E-01	g/1000g E/P		0.001394295	g
lead (in)	5.07E-04	g/1000g E/P		4.05662E-06	g
magnesium (in)	1.44E-07	g/1000g E/P		1.15395E-09	g
manganese (in)	1.31E-04	g/1000g E/P		1.05144E-06	g
mercury (in)	7.08E-07	g/1000g E/P		5.66714E-09	g
natural aggregate	6.43E-04	g/1000g E/P		5.14346E-06	g
natural gas; 44.1 MJ/kg	2.74E+01	MJ/1000g E/P		0.219204529	MJ
nickel	2.89E-07	g/1000g E/P		2.31256E-09	g
nitrogen (in)	1.69E+02	g/1000g E/P		1.353143992	g
olivine	1.63E-03	g/1000g E/P		1.30796E-05	g
oxygen	3.30E-03	g/1000g E/P		2.64026E-05	g
peat; 8.4 MJ/kg	1.50E-02	MJ/1000g E/P		0.000119746	MJ
phosphorus (in)	1.09E-09	g/1000g E/P		8.73032E-12	g
potassium chloride	6.31E-06	g/1000g E/P		5.0444E-08	g
primary energy from geother	2.73E-02	MJ/1000g E/P		0.000218435	MJ
primary energy from hydro p	5.83E-01	MJ/1000g E/P		0.004665654	MJ
primary energy from solar en	1.04E-04	MJ/1000g E/P		8.3212E-07	MJ
primary energy from waves	3.55E-04	MJ/1000g E/P		2.83603E-06	MJ
primary energy from wind po	1.59E-02	MJ/1000g E/P		0.000126931	MJ
quartz sand	4.19E-33	g/1000g E/P		3.34933E-35	g
river water	1.03E+03	g/1000g E/P		8.236469864	g
sand	8.38E-02	g/1000g E/P		0.000670418	g
sea water	1.14E+01	1l/1000g E/P		0.090874165	1l
slate	9.35E-03	g/1000g E/P		7.47813E-05	g
sodium chloride	3.51E-01	g/1000g E/P		0.002808728	g
sodium nitrate	4.33E-07	g/1000g E/P		3.46186E-09	g
sulfur (in)	5.20E-02	g/1000g E/P		0.00041618	g
talc	8.80E-24	g/1000g E/P		7.04349E-26	g
titanium	6.25E-31	g/1000g E/P		4.99922E-33	g
uranium	3.13E+03	g/1000g E/P		25.013741	g
water	1.79E+01	1l/1000g E/P		0.143236795	1l
wood; 14.7 MJ/kg	1.81E-05	1MJ/1000g E/P		1.44646E-07	1MJ
zinc (in)	1.51E-02	g/1000g E/P		0.000121031	g
OUTFLOWS				0	
Thermoplastic E/P; productio	1000			8	
1,2-dichloroethane	2.54E-08	g/1000g E/P		2.02963E-10	g
1,2-dichloroethane	5.06E-10	g/1000g E/P		4.04746E-12	g
2,3,7,8-tetrachlorodibenzo-p-	3.17E-29	g/1000g E/P		2.53533E-31	g
2,3,7,8-tetrachlorodibenzo-p-	9.81E-07	g/1000g E/P		7.84744E-09	g
acid (as H+)	3.68E-14	g/1000g E/P		2.94088E-16	g
acid (as H+)	1.96E-03	g/1000g E/P		1.56678E-05	g
adsorbable organic halogen c	1.05E-09	g/1000g E/P		8.4044E-12	g
aluminium	5.57E-04	g/1000g E/P		4.45583E-06	g
ammonia	2.17E-07	g/1000g E/P		1.73262E-09	g
ammonia	3.11E-03	g/1000g E/P		2.4843E-05	g
antimony	1.98E-08	g/1000g E/P		1.58098E-10	g

arsenic	1.23E-07	g/1000g E/P		9.8684E-10	g
arsenic	1.98E-07	g/1000g E/P		1.58746E-09	g
benzene	2.64E-15	g/1000g E/P		2.10927E-17	g
benzene	5.58E-19	g/1000g E/P		4.46466E-21	g
biological oxygen demand	2.09E-02	g/1000g E/P		0.000167245	g
bromate	5.55E-07	g/1000g E/P		4.44003E-09	g
cadmium	5.26E-08	g/1000g E/P		4.20902E-10	g
cadmium	1.11E-08	g/1000g E/P		8.86648E-11	g
calcium	2.89E-03	g/1000g E/P		2.31275E-05	g
carbon dioxide	1.57E+03	g/1000g E/P		12.53462284	g
carbon disulfide	1.48E-08	g/1000g E/P		1.18702E-10	g
carbon monoxide	1.24E+01	g/1000g E/P		0.098900888	g
carbonate	2.89E-02	g/1000g E/P		0.00023115	g
chemical oxygen demand	1.90E-01	g/1000g E/P		0.001521696	g
chlorate	9.94E-05	g/1000g E/P		7.9493E-07	g
chloride	1.57E-01	g/1000g E/P		0.001252472	g
chlorine	3.64E-08	g/1000g E/P		2.9105E-10	g
chlorine	1.06E-06	g/1000g E/P		8.49936E-09	g
chromium	5.62E-07	g/1000g E/P		4.49266E-09	g
chromium	1.39E-09	g/1000g E/P		1.10826E-11	g
copper	2.26E-09	g/1000g E/P		1.80406E-11	g
copper	1.55E-04	g/1000g E/P		1.24162E-06	g
cyanide	1.65E-08	g/1000g E/P		1.32226E-10	g
decane	5.99E-03	g/1000g E/P		4.7901E-05	g
dichloromethane	2.96E-11	g/1000g E/P		2.3684E-13	g
ethyl benzene	1.55E-16	g/1000g E/P		1.23877E-18	g
ethylene	1.62E-03	g/1000g E/P		1.29808E-05	g
fluoride	1.42E-06	g/1000g E/P		1.13808E-08	g
fluorine	1.65E-08	g/1000g E/P		1.32037E-10	g
hydrocarbons (unspecified)	4.35E-03	g/1000g E/P		3.47951E-05	g
hydrocyanic acid	4.89E-16	g/1000g E/P		3.90911E-18	g
hydrogen	4.14E-02	g/1000g E/P		0.000331182	g
hydrogen chloride	6.17E-02	g/1000g E/P		0.0004939	g
hydrogen fluoride	1.81E-03	g/1000g E/P		1.44932E-05	g
hydrogen sulfide	5.84E-06	g/1000g E/P		4.6745E-08	g
iron	1.64E-05	g/1000g E/P		1.31144E-07	g
lead	1.17E-06	g/1000g E/P		9.39224E-09	g
lead	1.17E-06	g/1000g E/P		9.38432E-09	g
manganese	1.56E-07	g/1000g E/P		1.2484E-09	g
mercury	2.38E-06	g/1000g E/P		1.90134E-08	g
mercury	2.19E-07	g/1000g E/P		1.75395E-09	g
methane	1.42E+01	g/1000g E/P		0.113586848	g
nickel	1.40E-10	g/1000g E/P		1.1173E-12	g
nickel	3.72E-07	g/1000g E/P		2.97927E-09	g
nitrate	2.25E-03	g/1000g E/P		1.79655E-05	g
nitrogen	1.11E-03	g/1000g E/P		8.8456E-06	g
nitrogen dioxide	3.23E+00	g/1000g E/P		0.025839944	g
nitrous oxide	7.91E-10	g/1000g E/P		6.33082E-12	g
non-methane volatile organic	4.24E+00	g/1000g E/P		0.03393944	g
oxygen	6.28E-21	g/1000g E/P		5.02548E-23	g

particles (> PM10)	1.95E-01	g/1000g E/P		0.001562736	g
particles (PM10)	6.45E-01	g/1000g E/P		0.005157903	g
particles (PM10)	7.12E-03	g/1000g E/P		5.69381E-05	g
particles (PM2.5)	3.49E-12	g/1000g E/P		2.79002E-14	g
phenol	1.87E-03	g/1000g E/P		1.49398E-05	g
phosphate	2.24E-03	g/1000g E/P		1.78975E-05	g
polycyclic aromatic hydrocarb	1.07E-15	g/1000g E/P		8.53736E-18	g
potassium	6.77E-04	g/1000g E/P		5.41349E-06	g
propene	1.20E-03	g/1000g E/P		9.61544E-06	g
selenium	7.92E-23	g/1000g E/P		6.33377E-25	g
silver	2.29E-21	g/1000g E/P		1.82883E-23	g
sodium	9.84E-02	g/1000g E/P		0.000787234	g
strontium	1.06E-08	g/1000g E/P		8.44648E-11	g
styrene	2.18E-17	g/1000g E/P		1.74094E-19	g
sulfate	8.29E-01	g/1000g E/P		0.00662808	g
sulfur	5.68E-10	g/1000g E/P		4.54592E-12	g
sulfur dioxide	4.08E+00	g/1000g E/P		0.032612032	g
tin	7.49E-08	g/1000g E/P		5.98964E-10	g
toluene	4.42E-16	g/1000g E/P		3.53281E-18	g
total organic carbon	1.11E-02	g/1000g E/P		8.86888E-05	g
vinyl chloride	5.02E-07	g/1000g E/P		4.01424E-09	g
vinyl chloride	9.24E-09	g/1000g E/P		7.39334E-11	g
volatile organic compound	1.46E-01	g/1000g E/P		0.001171019	g
volatile organic compound	9.95E-03	g/1000g E/P		7.9583E-05	g
xylene (all isomers)	2.04E-16	g/1000g E/P		1.63306E-18	g
zinc	1.29E-06	g/1000g E/P		1.03384E-08	g
zinc	1.33E-04	g/1000g E/P		1.06464E-06	g
chemical waste	2.94E+00	g/1000g E/P		0.02351116	g
chemical waste, inert	7.20E-01	g/1000g E/P		0.005757792	g
chemical waste, toxic	2.04E+00	g/1000g E/P		0.01631176	g
demolition waste	6.32E-07	g/1000g E/P		5.05979E-09	g
industrial waste	8.56E-01	g/1000g E/P		0.006847096	g
mineral waste	1.94E-01	g/1000g E/P		0.001550264	g
municipal waste	-5.46E+00	g/1000g E/P		-0.043701112	g
organic waste	4.27E-04	g/1000g E/P		3.4169E-06	g
overburden	1.98E+01	g/1000g E/P		0.158368496	g
packaging waste (metal)	7.91E-06	g/1000g E/P		6.3256E-08	g
packaging waste (plastic)	1.05E-09	g/1000g E/P		8.36512E-12	g
plastic	6.34E-01	g/1000g E/P		0.005072528	g
tailings	6.21E-02	g/1000g E/P		0.000496635	g
waste	9.88E-01	g/1000g E/P		0.0079052	g
waste paper	5.91E-07	g/1000g E/P		4.72869E-09	g
wood	4.39E-05	g/1000g E/P		3.51402E-07	g
wooden pallet	1.49E-07	g/1000g E/P		1.19494E-09	g
9.2. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			8		
Energy (fuel)	0.4320	MJ/1000g of product		0.003456	MJ

	0.0000				
OUTFLOWS	0.0000				
CO2	31.2000	g/1000g of product		0.2496	g
NOx	0.1980	g/1000g of product		0.001584	g
HC	0.0282	g/1000g of product		0.0002256	g
Particulate matter	0.0034	g/1000g of product		0.00002736	g
CO	0.0276	g/1000g of product		0.0002208	g
SO2	0.0078	g/1000g of product		0.0000624	g
Remark:					
Distance between Plastics producer no.6 (Germany) and STA (Norderstedt, Germany) in km		**600**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
9.3. Production of chromium for coating	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.073		
air	13500	g/1000g chromium		0.9855	g
baryte	1.5574821	g/1000g chromium		0.000113696	g
basalt	34.801523	g/1000g chromium		0.002540511	g
bauxite	21.142572	g/1000g chromium		0.001543408	g
bentonite	0.648349	g/1000g chromium		4.73295E-05	g
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g chromium		1.56556E-08	MJ
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g chromium		0.000318009	MJ
calcium carbonate	85.44366	g/1000g chromium		0.006237387	g
calcium chloride	5.527E-09	g/1000g chromium		4.03449E-13	g
carbon dioxide (in)	62.963074	g/1000g chromium		0.004596304	g
chromium (in)	0.0023622	g/1000g chromium		1.72441E-07	g
clay	0.2616171	g/1000g chromium		1.90981E-05	g
colemanite	0.9853674	g/1000g chromium		7.19318E-05	g
copper (in)	-31.106001	g/1000g chromium		-0.002270738	g
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g chromium		0.000304105	MJ
fluorspar	0.1583729	g/1000g chromium		1.15612E-05	g
gold (in)	-0.0026783	g/1000g chromium		-1.95512E-07	g
ground water	3624.1777	g/1000g chromium		0.264564969	g
gypsum	0.1523604	g/1000g chromium		1.11223E-05	g
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g chromium		0.000999513	MJ
inert rock	47243.326	g/1000g chromium		3.448762803	g
iron (in)	4.1413625	g/1000g chromium		0.000302319	g
kaolin	0.0019158	g/1000g chromium		1.39856E-07	g
lead (in)	120.22987	g/1000g chromium		0.008776781	g
magnesite	0.0012403	g/1000g chromium		9.05449E-08	g
manganese (in)	-11.317555	g/1000g chromium		-0.000826181	g
mercury (in)	4.417E-06	g/1000g chromium		3.22467E-10	g
molybdenum (in)	9.513E-05	g/1000g chromium		6.94474E-09	g
natural aggregate	26.231425	g/1000g chromium		0.001914894	g
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g chromium		0.000600131	MJ
nickel (in)	0.0042159	g/1000g chromium		3.0776E-07	g

olivine	1.735E-06	g/1000g chromium		1.26688E-10	g
oxygen	-42.44669	g/1000g chromium		-0.003098608	g
palladium	3.273E-09	g/1000g chromium		2.38908E-13	g
peat; 8.4 MJ/kg	0.1526621	MJ/1000g chromium		1.11443E-05	MJ
phosphorus (in)	5.566E-05	g/1000g chromium		4.06348E-09	g
platinum	3.931E-08	g/1000g chromium		2.86999E-12	g
potassium chloride	0.0009365	g/1000g chromium		6.83617E-08	g
primary energy from geother	0.0229938	MJ/1000g chromium		1.67855E-06	MJ
primary energy from hydro p	6.52631	MJ/1000g chromium		0.000476421	MJ
primary energy from solar en	0.5792547	MJ/1000g chromium		4.22856E-05	MJ
primary energy from waves	3.928E-06	MJ/1000g chromium		2.86743E-10	MJ
primary energy from wind po	0.3592062	MJ/1000g chromium		2.6222E-05	MJ
quartz sand	-12.853854	g/1000g chromium		-0.000938331	g
raw pumice	0.0001656	g/1000g chromium		1.20912E-08	g
rhodium	1.094E-10	g/1000g chromium		7.98944E-15	g
river water	6.1598962	l/1000g chromium		0.000449672	l
sand	0.0001874	g/1000g chromium		1.36777E-08	g
sea water	-0.000147	l/1000g chromium		-1.0733E-08	l
silicon	0.0001218	g/1000g chromium		8.89157E-09	g
silver (in)	-0.0161287	g/1000g chromium		-1.17739E-06	g
slate	1.32E-08	g/1000g chromium		9.63431E-13	g
sodium chloride	-14.000746	g/1000g chromium		-0.001022054	g
sodium sulfate	-0.0007459	g/1000g chromium		-5.44505E-08	g
soil	13.199188	g/1000g chromium		0.000963541	g
sulfur (in)	0.0033189	g/1000g chromium		2.42283E-07	g
surface water	27.074991	l/1000g chromium		0.001976474	l
talc	0.0005357	g/1000g chromium		3.91072E-08	g
titanium	0.0025897	g/1000g chromium		1.89045E-07	g
uranium	11208.633	g/1000g chromium		0.818230198	g
water	372.88334	l/1000g chromium		0.027220484	l
wood; 14.7 MJ/kg	0.0004277	MJ/1000g chromium		3.12243E-08	MJ
zinc (in)	819.6244	g/1000g chromium		0.059832581	g
zinc calcine; 62% Zn	9.2473693	g/1000g chromium		0.000675058	g
zinc dross	31.9	g/1000g chromium		0.0023287	g
zinc dust	3.2163809	g/1000g chromium		0.000234796	g
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g chromium		0.001850185	g
OUTFLOWS				0	
ammonia	0.082458	g/1000g chromium		6.01944E-06	g
ammonia	0.0101456	g/1000g chromium		7.40627E-07	g
ammonia	0.0944373	g/1000g chromium		6.89392E-06	g
ammonia	0.0048189	g/1000g chromium		3.51782E-07	g
ammonium	0.0001497	g/1000g chromium		1.09309E-08	g
ammonium	0.0018023	g/1000g chromium		1.31566E-07	g
ammonium to sea water	0.0013248	g/1000g chromium		9.67092E-08	g
arsenic	0.0058028	g/1000g chromium		4.23601E-07	g
arsenic	5.36E-06	g/1000g chromium		3.91213E-10	g
arsenic	0.0310056	g/1000g chromium		2.26341E-06	g
arsenic	5.75E-05	g/1000g chromium		4.20058E-09	g
benzene	0.0011388	g/1000g chromium		8.3129E-08	g
benzene	5.18E-05	g/1000g chromium		3.77934E-09	g

benzene	0.000199	g/1000g chromium		1.45282E-08	g
cadmium	0.0089817	g/1000g chromium		6.55661E-07	g
cadmium	1.94E-05	g/1000g chromium		1.41861E-09	g
cadmium	0.0002277	g/1000g chromium		1.66204E-08	g
cadmium	0.0015242	g/1000g chromium		1.11265E-07	g
carbon dioxide	3040.5	g/1000g chromium		0.2219565	g
CFC-11	0.0001464	g/1000g chromium		1.06884E-08	g
CFC-114	0.0001499	g/1000g chromium		1.0946E-08	g
CFC-12	3.15E-05	g/1000g chromium		2.29801E-09	g
CFC-13	1.98E-05	g/1000g chromium		1.44294E-09	g
chemical oxygen demand	0.9786417	g/1000g chromium		7.14408E-05	g
chemical oxygen demand	0.0212362	g/1000g chromium		1.55024E-06	g
chromium III	-2.72E-07	g/1000g chromium		-1.98618E-11	g
chromium III	1.13E-06	g/1000g chromium		8.2657E-11	g
chromium III	5.03E-05	g/1000g chromium		3.67456E-09	g
chromium VI	1.75E-05	g/1000g chromium		1.27847E-09	g
chromium VI	-4.32E-06	g/1000g chromium		-3.15122E-10	g
cobalt	0.0018228	g/1000g chromium		1.33062E-07	g
cobalt	2.97E-07	g/1000g chromium		2.16981E-11	g
cobalt	3.29E-07	g/1000g chromium		2.40278E-11	g
cobalt	1.10E-05	g/1000g chromium		8.01261E-10	g
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g chromium		3.0178E-09	g
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g chromium		6.73815E-07	g
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g chromium		7.65231E-08	g
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g chromium		0.000377762	g
copper	0.1356498	g/1000g chromium		9.90244E-06	g
copper	0.0049752	g/1000g chromium		3.63186E-07	g
copper	0.0001369	g/1000g chromium		9.99622E-09	g
copper	0.0110447	g/1000g chromium		8.06261E-07	g
ethylene	1.23E-05	g/1000g chromium		9.01065E-10	g
hydrogen chloride	0.1782016	g/1000g chromium		1.30087E-05	g
hydrogen chloride	7.22E-07	g/1000g chromium		5.27079E-11	g
hydrogen fluoride	0.0406748	g/1000g chromium		2.96926E-06	g
hydrogen fluoride	5.04E-08	g/1000g chromium		3.68169E-12	g
lead	0.1242728	g/1000g chromium		9.07192E-06	g
lead	4.66E-05	g/1000g chromium		3.40049E-09	g
lead	0.0008935	g/1000g chromium		6.52289E-08	g
lead	0.0044786	g/1000g chromium		3.26936E-07	g
mercury	0.0001779	g/1000g chromium		1.29899E-08	g
mercury	7.93E-07	g/1000g chromium		5.78603E-11	g
mercury	0.0001995	g/1000g chromium		1.45622E-08	g
mercury	5.12E-06	g/1000g chromium		3.73772E-10	g
methane	3.9556308	g/1000g chromium		0.000288761	g
nickel	0.0010629	g/1000g chromium		7.75934E-08	g
nickel	4.75E-05	g/1000g chromium		3.46833E-09	g
nickel	0.0001204	g/1000g chromium		8.78982E-09	g
nickel	3.02E-05	g/1000g chromium		2.20744E-09	g
nitrate	3.61E-05	g/1000g chromium		2.63464E-09	g
nitrate	0.0008705	g/1000g chromium		6.35452E-08	g
nitrate	0.2355114	g/1000g chromium		1.71923E-05	g

nitrogen	3.0664234	g/1000g chromium		0.000223849	g
nitrogen	0.0037303	g/1000g chromium		2.72313E-07	g
nitrogen	0.0388564	g/1000g chromium		2.83651E-06	g
nitrogen	0.0331367	g/1000g chromium		2.41898E-06	g
nitrogen dioxide	17.053961	g/1000g chromium		0.001244939	g
nitrogen monoxide	1.98E-05	g/1000g chromium		1.44224E-09	g
nitrous oxide	0.1158841	g/1000g chromium		8.45954E-06	g
phosphate	0.0051168	g/1000g chromium		3.73524E-07	g
phosphate	0.0030974	g/1000g chromium		2.26112E-07	g
toluene	0.0001184	g/1000g chromium		8.64411E-09	g
toluene	3.15E-05	g/1000g chromium		2.30269E-09	g
vanadium	0.0027262	g/1000g chromium		1.99014E-07	g
vanadium	7.30E-06	g/1000g chromium		5.32732E-10	g
vanadium	0.0001296	g/1000g chromium		9.45891E-09	g
zinc	0.1760723	g/1000g chromium		1.28533E-05	g
zinc	0.0085203	g/1000g chromium		6.21981E-07	g
zinc	0.0090181	g/1000g chromium		6.58324E-07	g
zinc	0.1440723	g/1000g chromium		1.05173E-05	g
calcium fluoride; reactor fuel	0.0022759	g/1000g chromium		1.66144E-07	g
demolition waste (unspecifie	6.5075571	g/1000g chromium		0.000475052	g
Hazardous waste	27.620581	g/1000g chromium		0.002016302	g
highly radioactive waste; rea	0.006792	g/1000g chromium		4.95816E-07	g
Industrial waste	177.6031	g/1000g chromium		0.012965026	g
Iron scrap	18.917083	g/1000g chromium		0.001380947	g
jarosite	123.75866	g/1000g chromium		0.009034382	g
medium and low radioactive	0.0080611	g/1000g chromium		5.88458E-07	g
mineral waste	6.121768	g/1000g chromium		0.000446889	g
overburden (unspecified)	44482.62	g/1000g chromium		3.247231294	g
radioactive tailings; reactor fu	3.9868775	g/1000g chromium		0.000291042	g
slag (unspecified)	10.21577	g/1000g chromium		0.000745751	g
slag (uranium conversion); re	0.015073	g/1000g chromium		1.10033E-06	g
spoil (unspecified)	14.286476	g/1000g chromium		0.001042913	g
sludge	12.2	g/1000g chromium		0.0008906	g
steel scrap	1.0967234	g/1000g chromium		8.00608E-05	g
tailings (unspecified)	5045.0465	g/1000g chromium		0.368288392	g
unspecified radioactive waste	0.013515	g/1000g chromium		9.86593E-07	g
uranium depleted; reactor fu	0.0155929	g/1000g chromium		1.13829E-06	g
used oil	220.9923	g/1000g chromium		0.016132438	g
chromium slag	0.8737593	g/1000g chromium		6.37844E-05	g
chromium scrab	16.168781	g/1000g chromium		0.001180321	g
9.4. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.073		
Energy (fuel)	0.1944	MJ/1000g of product		1.41912E-05	MJ
OUTFLOWS					
CO2	14.0400	g/1000g of product		0.00102492	g
NOx	0.0891	g/1000g of product		6.5043E-06	g

HC	0.0127	g/1000g of product		9.2637E-07	g
Particulate matter	0.0015	g/1000g of product		1.12347E-07	g
CO	0.0124	g/1000g of product		9.0666E-07	g
SO2	0.0035	g/1000g of product		2.5623E-07	g
Remark:					
Distance between Metal producer no.12 (Detmond, Germany) and STA (Norderstedt, Germany) in km		**270**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Distance estimated from the map					
9.5. Production of copper for coating	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.31		
air	13500	g/1000g copper		4.185	g
baryte	1.5574821	g/1000g copper		0.000482819	g
basalt	34.801523	g/1000g copper		0.010788472	g
bauxite	21.142572	g/1000g copper		0.006554197	g
bentonite	0.648349	g/1000g copper		0.000200988	g
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g copper		6.64826E-08	MJ
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g copper		0.00135045	MJ
calcium carbonate	85.44366	g/1000g copper		0.026487535	g
calcium chloride	5.527E-09	g/1000g copper		1.71328E-12	g
carbon dioxide (in)	62.963074	g/1000g copper		0.019518553	g
chromium (in)	0.0023622	g/1000g copper		7.32286E-07	g
clay	0.2616171	g/1000g copper		8.11013E-05	g
colemanite	0.9853674	g/1000g copper		0.000305464	g
copper (in)	-31.106001	g/1000g copper		-0.00964286	g
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g copper		0.001291406	MJ
fluorspar	0.1583729	g/1000g copper		4.90956E-05	g
gold (in)	-0.0026783	g/1000g copper		-8.30258E-07	g
ground water	3624.1777	g/1000g copper		1.123495073	g
gypsum	0.1523604	g/1000g copper		4.72317E-05	g
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g copper		0.004244505	MJ
inert rock	47243.326	g/1000g copper		14.64543108	g
iron (in)	4.1413625	g/1000g copper		0.001283822	g
kaolin	0.0019158	g/1000g copper		5.93911E-07	g
lead (in)	120.22987	g/1000g copper		0.037271261	g
magnesite	0.0012403	g/1000g copper		3.84506E-07	g
manganese (in)	-11.317555	g/1000g copper		-0.003508442	g
mercury (in)	4.417E-06	g/1000g copper		1.36938E-09	g
molybdenum (in)	9.513E-05	g/1000g copper		2.94914E-08	g
natural aggregate	26.231425	g/1000g copper		0.008131742	g
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g copper		0.002548501	MJ
nickel (in)	0.0042159	g/1000g copper		1.30693E-06	g
olivine	1.735E-06	g/1000g copper		5.37991E-10	g
oxygen	-42.44669	g/1000g copper		-0.013158474	g

palladium	3.273E-09	g/1000g copper		1.01454E-12	g
peat; 8.4 MJ/kg	0.1526621	MJ/1000g copper		4.73252E-05	MJ
phosphorus (in)	5.566E-05	g/1000g copper		1.72559E-08	g
platinum	3.931E-08	g/1000g copper		1.21876E-11	g
potassium chloride	0.0009365	g/1000g copper		2.90303E-07	g
primary energy from geother	0.0229938	MJ/1000g copper		7.12809E-06	MJ
primary energy from hydro p	6.52631	MJ/1000g copper		0.002023156	MJ
primary energy from solar en	0.5792547	MJ/1000g copper		0.000179569	MJ
primary energy from waves	3.928E-06	MJ/1000g copper		1.21767E-09	MJ
primary energy from wind po	0.3592062	MJ/1000g copper		0.000111354	MJ
quartz sand	-12.853854	g/1000g copper		-0.003984695	g
raw pumice	0.0001656	g/1000g copper		5.13463E-08	g
rhodium	1.094E-10	g/1000g copper		3.39278E-14	g
river water	6.1598962	l/1000g copper		0.001909568	l
sand	0.0001874	g/1000g copper		5.80833E-08	g
sea water	-0.000147	l/1000g copper		-4.55787E-08	l
silicon	0.0001218	g/1000g copper		3.77587E-08	g
silver (in)	-0.0161287	g/1000g copper		-4.99989E-06	g
slate	1.32E-08	g/1000g copper		4.09128E-12	g
sodium chloride	-14.000746	g/1000g copper		-0.004340231	g
sodium sulfate	-0.0007459	g/1000g copper		-2.31228E-07	g
soil	13.199188	g/1000g copper		0.004091748	g
sulfur (in)	0.0033189	g/1000g copper		1.02887E-06	g
surface water	27.074991	l/1000g copper		0.008393247	l
talc	0.0005357	g/1000g copper		1.66072E-07	g
titanium	0.0025897	g/1000g copper		8.02792E-07	g
uranium	11208.633	g/1000g copper		3.474676181	g
water	372.88334	l/1000g copper		0.115593836	l
wood; 14.7 MJ/kg	0.0004277	MJ/1000g copper		1.32596E-07	MJ
zinc (in)	819.6244	g/1000g copper		0.254083564	g
zinc calcine; 62% Zn	9.2473693	g/1000g copper		0.002866684	g
zinc dross	31.9	g/1000g copper		0.009889	g
zinc dust	3.2163809	g/1000g copper		0.000997078	g
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g copper		0.00785695	g
OUTFLOWS				0	
ammonia	0.082458	g/1000g copper		2.5562E-05	g
ammonia	0.0101456	g/1000g copper		3.14513E-06	g
ammonia	0.0944373	g/1000g copper		2.92756E-05	g
ammonia	0.0048189	g/1000g copper		1.49387E-06	g
ammonium	0.0001497	g/1000g copper		4.64188E-08	g
ammonium	0.0018023	g/1000g copper		5.58705E-07	g
ammonium to sea water	0.0013248	g/1000g copper		4.10683E-07	g
arsenic	0.0058028	g/1000g copper		1.79885E-06	g
arsenic	5.36E-06	g/1000g copper		1.66131E-09	g
arsenic	0.0310056	g/1000g copper		9.61175E-06	g
arsenic	5.75E-05	g/1000g copper		1.78381E-08	g
benzene	0.0011388	g/1000g copper		3.53014E-07	g
benzene	5.18E-05	g/1000g copper		1.60492E-08	g
benzene	0.000199	g/1000g copper		6.1695E-08	g
cadmium	0.0089817	g/1000g copper		2.78431E-06	g

cadmium	1.94E-05	g/1000g copper		6.02422E-09	g
cadmium	0.0002277	g/1000g copper		7.058E-08	g
cadmium	0.0015242	g/1000g copper		4.72497E-07	g
carbon dioxide	3040.5	g/1000g copper		0.942555	g
CFC-11	0.0001464	g/1000g copper		4.53891E-08	g
CFC-114	0.0001499	g/1000g copper		4.64828E-08	g
CFC-12	3.15E-05	g/1000g copper		9.75866E-09	g
CFC-13	1.98E-05	g/1000g copper		6.12753E-09	g
chemical oxygen demand	0.9786417	g/1000g copper		0.000303379	g
chemical oxygen demand	0.0212362	g/1000g copper		6.58322E-06	g
copper III	-2.72E-07	g/1000g copper		-8.43448E-11	g
copper III	1.13E-06	g/1000g copper		3.51009E-10	g
copper III	5.03E-05	g/1000g copper		1.56043E-08	g
copper VI	1.75E-05	g/1000g copper		5.42912E-09	g
copper VI	-4.32E-06	g/1000g copper		-1.33819E-09	g
cobalt	0.0018228	g/1000g copper		5.65056E-07	g
cobalt	2.97E-07	g/1000g copper		9.21425E-11	g
cobalt	3.29E-07	g/1000g copper		1.02036E-10	g
cobalt	1.10E-05	g/1000g copper		3.40261E-09	g
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g copper		1.28153E-08	g
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g copper		2.8614E-06	g
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g copper		3.24961E-07	g
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g copper		0.001604196	g
copper	0.1356498	g/1000g copper		4.20514E-05	g
copper	0.0049752	g/1000g copper		1.5423E-06	g
copper	0.0001369	g/1000g copper		4.24497E-08	g
copper	0.0110447	g/1000g copper		3.42385E-06	g
ethylene	1.23E-05	g/1000g copper		3.82644E-09	g
hydrogen chloride	0.1782016	g/1000g copper		5.52425E-05	g
hydrogen chloride	7.22E-07	g/1000g copper		2.23828E-10	g
hydrogen fluoride	0.0406748	g/1000g copper		1.26092E-05	g
hydrogen fluoride	5.04E-08	g/1000g copper		1.56346E-11	g
lead	0.1242728	g/1000g copper		3.85246E-05	g
lead	4.66E-05	g/1000g copper		1.44404E-08	g
lead	0.0008935	g/1000g copper		2.76999E-07	g
lead	0.0044786	g/1000g copper		1.38836E-06	g
mercury	0.0001779	g/1000g copper		5.51628E-08	g
mercury	7.93E-07	g/1000g copper		2.45708E-10	g
mercury	0.0001995	g/1000g copper		6.18397E-08	g
mercury	5.12E-06	g/1000g copper		1.58725E-09	g
methane	3.9556308	g/1000g copper		0.001226246	g
nickel	0.0010629	g/1000g copper		3.29506E-07	g
nickel	4.75E-05	g/1000g copper		1.47285E-08	g
nickel	0.0001204	g/1000g copper		3.73266E-08	g
nickel	3.02E-05	g/1000g copper		9.37406E-09	g
nitrate	3.61E-05	g/1000g copper		1.11882E-08	g
nitrate	0.0008705	g/1000g copper		2.6985E-07	g
nitrate	0.2355114	g/1000g copper		7.30085E-05	g
nitrogen	3.0664234	g/1000g copper		0.000950591	g
nitrogen	0.0037303	g/1000g copper		1.1564E-06	g

nitrogen	0.0388564	g/1000g copper		1.20455E-05	g
nitrogen	0.0331367	g/1000g copper		1.02724E-05	g
nitrogen dioxide	17.053961	g/1000g copper		0.005286728	g
nitrogen monoxide	1.98E-05	g/1000g copper		6.12456E-09	g
nitrous oxide	0.1158841	g/1000g copper		3.59241E-05	g
phosphate	0.0051168	g/1000g copper		1.5862E-06	g
phosphate	0.0030974	g/1000g copper		9.60204E-07	g
toluene	0.0001184	g/1000g copper		3.67079E-08	g
toluene	3.15E-05	g/1000g copper		9.77853E-09	g
vanadium	0.0027262	g/1000g copper		8.45127E-07	g
vanadium	7.30E-06	g/1000g copper		2.26228E-09	g
vanadium	0.0001296	g/1000g copper		4.0168E-08	g
zinc	0.1760723	g/1000g copper		5.45824E-05	g
zinc	0.0085203	g/1000g copper		2.64129E-06	g
zinc	0.0090181	g/1000g copper		2.79562E-06	g
zinc	0.1440723	g/1000g copper		4.46624E-05	g
calcium fluoride; reactor fuel	0.0022759	g/1000g copper		7.05544E-07	g
demolition waste (unspecifie	6.5075571	g/1000g copper		0.002017343	g
Hazardous waste	27.620581	g/1000g copper		0.00856238	g
highly radioactive waste; rea	0.006792	g/1000g copper		2.10552E-06	g
Industrial waste	177.6031	g/1000g copper		0.055056961	g
Iron scrap	18.917083	g/1000g copper		0.005864296	g
jarosite	123.75866	g/1000g copper		0.038365185	g
medium and low radioactive	0.0080611	g/1000g copper		2.49893E-06	g
mineral waste	6.121768	g/1000g copper		0.001897748	g
overburden (unspecified)	44482.62	g/1000g copper		13.78961234	g
radioactive tailings; reactor fu	3.9868775	g/1000g copper		0.001235932	g
slag (unspecified)	10.21577	g/1000g copper		0.003166889	g
slag (uranium conversion); re	0.015073	g/1000g copper		4.67262E-06	g
spoil (unspecified)	14.286476	g/1000g copper		0.004428808	g
sludge	12.2	g/1000g copper		0.003782	g
steel scrap	1.0967234	g/1000g copper		0.000339984	g
tailings (unspecified)	5045.0465	g/1000g copper		1.563964403	g
unspecified radioactive waste	0.013515	g/1000g copper		4.18964E-06	g
uranium depleted; reactor fu	0.0155929	g/1000g copper		4.83381E-06	g
used oil	220.9923	g/1000g copper		0.068507613	g
copper slag	0.8737593	g/1000g copper		0.000270865	g
copper scrab	16.168781	g/1000g copper		0.005012322	g
9.6. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Remark:					
Lack of data					
9.7. Production of steel C60E	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			43		
Alloy materials	50.5	g/1000g steel		2.1715	g

Chemicals	4.99	g/1000g steel		0.21457	g
Coal	0.223	MJ/1000g steel		0.009589	MJ
Coal	517	g/1000g steel		0.955933	MJ
Diesel	0.195	MJ/1000g steel		0.008385	MJ
Electricity	3.29	MJ/1000g steel		0.14147	MJ
Explosives	1.02	g/1000g steel		0.04386	g
Gas	4.81	MJ/1000g steel		0.20683	MJ
Heavy oil	2.88	MJ/1000g steel		0.12384	MJ
Iron ore	2170	g/1000g steel		93.31	g
Limestone	162	g/1000g steel		6.966	g
Oil	0.00106	MJ/1000g steel		0.00004558	MJ
Scrap (in)	52.2	g/1000g steel		2.2446	g
OUTFLOWS				0	
ammonia	0.000517	g/1000g steel		0.000022231	g
arsenic	2.08E-06	g/1000g steel		8.944E-08	g
cadmium	0.0000118	g/1000g steel		5.074E-07	g
cadmium	4.46E-08	g/1000g steel		1.9178E-09	g
CH4	4.04	g/1000g steel		0.17372	g
carbon dioxide	1180	g/1000g steel		50.74	g
chemical oxygen demand	0.0256	g/1000g steel		0.0011008	g
chromium	0.00036	g/1000g steel		0.00001548	g
chromium	0.0000488	g/1000g steel		2.0984E-06	g
cobalt	0.0000072	g/1000g steel		3.096E-07	g
cobalt	3.21E-06	g/1000g steel		1.3803E-07	g
copper	0.000175	g/1000g steel		0.000007525	g
copper	0.000101	g/1000g steel		0.000004343	g
hydrogen chloride	0.0418	g/1000g steel		0.0017974	g
hydrogen fluoride	0.0562	g/1000g steel		0.0024166	g
lead	0.000529	g/1000g steel		0.000022747	g
lead	0.000402	g/1000g steel		0.000017286	g
mercury	0.0000344	g/1000g steel		1.4792E-06	g
nickel	0.0004	g/1000g steel		0.0000172	g
nickel	0.0000815	g/1000g steel		3.5045E-06	g
nitrogen	0.0318	g/1000g steel		0.0013674	g
nitrous oxide	1.49	g/1000g steel		0.06407	g
Phosphorus	0.000372	g/1000g steel		0.000015996	g
polycyclic aromatic hydrocarl	0.000147	g/1000g steel		0.000006321	g
sulfur dioxide	1.52	g/1000g steel		0.06536	g
zinc	0.00368	g/1000g steel		0.00015824	g
zinc	0.000997	g/1000g steel		0.000042871	g
Hazardous waste	1.62	g/1000g steel		0.06966	g
Industrial waste	96.4	g/1000g steel		4.1452	g
mineral waste	1100	g/1000g steel		47.3	g
9.8. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Energy (fuel)	0.2160	MJ/1000g of steel	43	0.009288	MJ
OUTFLOWS					

CO2	15.6000	g/1000g of steel		0.6708	g
NOx	0.0990	g/1000g of steel		0.004257	g
HC	0.0141	g/1000g of steel		0.0006063	g
Particulate matter	0.0017	g/1000g of steel		0.00007353	g
CO	0.0138	g/1000g of steel		0.0005934	g
SO2	0.0039	g/1000g of steel		0.0001677	g
Remark:					
Distance between metal producer no.1 (Langenberg, Germany) and STA (Norderstedt, Germany) in km		**300**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
9.9. Production of nickel for e-plate	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.31		
air	13500	g/1000g nickel		4.185	g
baryte	1.5574821	g/1000g nickel		0.000482819	g
basalt	34.801523	g/1000g nickel		0.010788472	g
bauxite	21.142572	g/1000g nickel		0.006554197	g
bentonite	0.648349	g/1000g nickel		0.000200988	g
biomass; 14.7 MJ/kg	0.0002145	MJ/1000g nickel		6.64826E-08	MJ
brown coal; 11.9 MJ/kg	4.3562918	MJ/1000g nickel		0.00135045	MJ
calcium carbonate	85.44366	g/1000g nickel		0.026487535	g
calcium chloride	5.527E-09	g/1000g nickel		1.71328E-12	g
carbon dioxide (in)	62.963074	g/1000g nickel		0.019518553	g
chromium (in)	0.0023622	g/1000g nickel		7.32286E-07	g
clay	0.2616171	g/1000g nickel		8.11013E-05	g
colemanite	0.9853674	g/1000g nickel		0.000305464	g
copper (in)	-31.106001	g/1000g nickel		-0.00964286	g
crude oil; 42.3 MJ/kg	4.1658251	MJ/1000g nickel		0.001291406	MJ
fluorspar	0.1583729	g/1000g nickel		4.90956E-05	g
gold (in)	-0.0026783	g/1000g nickel		-8.30258E-07	g
ground water	3624.1777	g/1000g nickel		1.123495073	g
gypsum	0.1523604	g/1000g nickel		4.72317E-05	g
hard coal; 26.3 MJ/kg	13.691953	MJ/1000g nickel		0.004244505	MJ
inert rock	47243.326	g/1000g nickel		14.64543108	g
iron (in)	4.1413625	g/1000g nickel		0.001283822	g
kaolin	0.0019158	g/1000g nickel		5.93911E-07	g
lead (in)	120.22987	g/1000g nickel		0.037271261	g
magnesite	0.0012403	g/1000g nickel		3.84506E-07	g
manganese (in)	-11.317555	g/1000g nickel		-0.003508442	g
mercury (in)	4.417E-06	g/1000g nickel		1.36938E-09	g
molybdenum (in)	9.513E-05	g/1000g nickel		2.94914E-08	g
natural aggregate	26.231425	g/1000g nickel		0.008131742	g
natural gas; 44.1 MJ/kg	8.2209707	MJ/1000g nickel		0.002548501	MJ
nickel (in)	0.0042159	g/1000g nickel		1.30693E-06	g
olivine	1.735E-06	g/1000g nickel		5.37991E-10	g

oxygen	-42.44669	g/1000g nickel		-0.013158474	g
palladium	3.273E-09	g/1000g nickel		1.01454E-12	g
peat; 8.4 MJ/kg	0.1526621	MJ/1000g nickel		4.73252E-05	MJ
phosphorus (in)	5.566E-05	g/1000g nickel		1.72559E-08	g
platinum	3.931E-08	g/1000g nickel		1.21876E-11	g
potassium chloride	0.0009365	g/1000g nickel		2.90303E-07	g
primary energy from geother	0.0229938	MJ/1000g nickel		7.12809E-06	MJ
primary energy from hydro p	6.52631	MJ/1000g nickel		0.002023156	MJ
primary energy from solar en	0.5792547	MJ/1000g nickel		0.000179569	MJ
primary energy from waves	3.928E-06	MJ/1000g nickel		1.21767E-09	MJ
primary energy from wind po	0.3592062	MJ/1000g nickel		0.000111354	MJ
quartz sand	-12.853854	g/1000g nickel		-0.003984695	g
raw pumice	0.0001656	g/1000g nickel		5.13463E-08	g
rhodium	1.094E-10	g/1000g nickel		3.39278E-14	g
river water	6.1598962	l/1000g nickel		0.001909568	l
sand	0.0001874	g/1000g nickel		5.80833E-08	g
sea water	-0.000147	l/1000g nickel		-4.55787E-08	l
silicon	0.0001218	g/1000g nickel		3.77587E-08	g
silver (in)	-0.0161287	g/1000g nickel		-4.99989E-06	g
slate	1.32E-08	g/1000g nickel		4.09128E-12	g
sodium chloride	-14.000746	g/1000g nickel		-0.004340231	g
sodium sulfate	-0.0007459	g/1000g nickel		-2.31228E-07	g
soil	13.199188	g/1000g nickel		0.004091748	g
sulfur (in)	0.0033189	g/1000g nickel		1.02887E-06	g
surface water	27.074991	l/1000g nickel		0.008393247	l
talc	0.0005357	g/1000g nickel		1.66072E-07	g
titanium	0.0025897	g/1000g nickel		8.02792E-07	g
uranium	11208.633	g/1000g nickel		3.474676181	g
water	372.88334	l/1000g nickel		0.115593836	l
wood; 14.7 MJ/kg	0.0004277	MJ/1000g nickel		1.32596E-07	MJ
zinc (in)	819.6244	g/1000g nickel		0.254083564	g
zinc calcine; 62% Zn	9.2473693	g/1000g nickel		0.002866684	g
zinc dross	31.9	g/1000g nickel		0.009889	g
zinc dust	3.2163809	g/1000g nickel		0.000997078	g
zinc oxide; 9,7-14% Zn 3,1-6,5	25.345	g/1000g nickel		0.00785695	g
OUTFLOWS				0	
ammonia	0.082458	g/1000g nickel		2.5562E-05	g
ammonia	0.0101456	g/1000g nickel		3.14513E-06	g
ammonia	0.0944373	g/1000g nickel		2.92756E-05	g
ammonia	0.0048189	g/1000g nickel		1.49387E-06	g
ammonium	0.0001497	g/1000g nickel		4.64188E-08	g
ammonium	0.0018023	g/1000g nickel		5.58705E-07	g
ammonium to sea water	0.0013248	g/1000g nickel		4.10683E-07	g
arsenic	0.0058028	g/1000g nickel		1.79885E-06	g
arsenic	5.36E-06	g/1000g nickel		1.66131E-09	g
arsenic	0.0310056	g/1000g nickel		9.61175E-06	g
arsenic	5.75E-05	g/1000g nickel		1.78381E-08	g
benzene	0.0011388	g/1000g nickel		3.53014E-07	g
benzene	5.18E-05	g/1000g nickel		1.60492E-08	g
benzene	0.000199	g/1000g nickel		6.1695E-08	g

cadmium	0.0089817	g/1000g nickel		2.78431E-06	g
cadmium	1.94E-05	g/1000g nickel		6.02422E-09	g
cadmium	0.0002277	g/1000g nickel		7.058E-08	g
cadmium	0.0015242	g/1000g nickel		4.72497E-07	g
carbon dioxide	3040.5	g/1000g nickel		0.942555	g
CFC-11	0.0001464	g/1000g nickel		4.53891E-08	g
CFC-114	0.0001499	g/1000g nickel		4.64828E-08	g
CFC-12	3.15E-05	g/1000g nickel		9.75866E-09	g
CFC-13	1.98E-05	g/1000g nickel		6.12753E-09	g
chemical oxygen demand	0.9786417	g/1000g nickel		0.000303379	g
chemical oxygen demand	0.0212362	g/1000g nickel		6.58322E-06	g
nickel III	-2.72E-07	g/1000g nickel		-8.43448E-11	g
nickel III	1.13E-06	g/1000g nickel		3.51009E-10	g
nickel III	5.03E-05	g/1000g nickel		1.56043E-08	g
nickel VI	1.75E-05	g/1000g nickel		5.42912E-09	g
nickel VI	-4.32E-06	g/1000g nickel		-1.33819E-09	g
cobalt	0.0018228	g/1000g nickel		5.65056E-07	g
cobalt	2.97E-07	g/1000g nickel		9.21425E-11	g
cobalt	3.29E-07	g/1000g nickel		1.02036E-10	g
cobalt	1.10E-05	g/1000g nickel		3.40261E-09	g
cobalt-58 kBq (Radioactivity)	4.13E-05	g/1000g nickel		1.28153E-08	g
cobalt-58 kBq (Radioactivity)	0.0092303	g/1000g nickel		2.8614E-06	g
cobalt-60 kBq (Radioactivity)	0.0010483	g/1000g nickel		3.24961E-07	g
cobalt-60 kBq (Radioactivity)	5.1748265	g/1000g nickel		0.001604196	g
copper	0.1356498	g/1000g nickel		4.20514E-05	g
copper	0.0049752	g/1000g nickel		1.5423E-06	g
copper	0.0001369	g/1000g nickel		4.24497E-08	g
copper	0.0110447	g/1000g nickel		3.42385E-06	g
ethylene	1.23E-05	g/1000g nickel		3.82644E-09	g
hydrogen chloride	0.1782016	g/1000g nickel		5.52425E-05	g
hydrogen chloride	7.22E-07	g/1000g nickel		2.23828E-10	g
hydrogen fluoride	0.0406748	g/1000g nickel		1.26092E-05	g
hydrogen fluoride	5.04E-08	g/1000g nickel		1.56346E-11	g
lead	0.1242728	g/1000g nickel		3.85246E-05	g
lead	4.66E-05	g/1000g nickel		1.44404E-08	g
lead	0.0008935	g/1000g nickel		2.76999E-07	g
lead	0.0044786	g/1000g nickel		1.38836E-06	g
mercury	0.0001779	g/1000g nickel		5.51628E-08	g
mercury	7.93E-07	g/1000g nickel		2.45708E-10	g
mercury	0.0001995	g/1000g nickel		6.18397E-08	g
mercury	5.12E-06	g/1000g nickel		1.58725E-09	g
methane	3.9556308	g/1000g nickel		0.001226246	g
nickel	0.0010629	g/1000g nickel		3.29506E-07	g
nickel	4.75E-05	g/1000g nickel		1.47285E-08	g
nickel	0.0001204	g/1000g nickel		3.73266E-08	g
nickel	3.02E-05	g/1000g nickel		9.37406E-09	g
nitrate	3.61E-05	g/1000g nickel		1.11882E-08	g
nitrate	0.0008705	g/1000g nickel		2.6985E-07	g
nitrate	0.2355114	g/1000g nickel		7.30085E-05	g
nitrogen	3.0664234	g/1000g nickel		0.000950591	g

nitrogen	0.0037303	g/1000g nickel		1.1564E-06	g
nitrogen	0.0388564	g/1000g nickel		1.20455E-05	g
nitrogen	0.0331367	g/1000g nickel		1.02724E-05	g
nitrogen dioxide	17.053961	g/1000g nickel		0.005286728	g
nitrogen monoxide	1.98E-05	g/1000g nickel		6.12456E-09	g
nitrous oxide	0.1158841	g/1000g nickel		3.59241E-05	g
phosphate	0.0051168	g/1000g nickel		1.5862E-06	g
phosphate	0.0030974	g/1000g nickel		9.60204E-07	g
toluene	0.0001184	g/1000g nickel		3.67079E-08	g
toluene	3.15E-05	g/1000g nickel		9.77853E-09	g
vanadium	0.0027262	g/1000g nickel		8.45127E-07	g
vanadium	7.30E-06	g/1000g nickel		2.26228E-09	g
vanadium	0.0001296	g/1000g nickel		4.0168E-08	g
zinc	0.1760723	g/1000g nickel		5.45824E-05	g
zinc	0.0085203	g/1000g nickel		2.64129E-06	g
zinc	0.0090181	g/1000g nickel		2.79562E-06	g
zinc	0.1440723	g/1000g nickel		4.46624E-05	g
calcium fluoride; reactor fuel	0.0022759	g/1000g nickel		7.05544E-07	g
demolition waste (unspecifie	6.5075571	g/1000g nickel		0.002017343	g
Hazardous waste	27.620581	g/1000g nickel		0.00856238	g
highly radioactive waste; rea	0.006792	g/1000g nickel		2.10552E-06	g
Industrial waste	177.6031	g/1000g nickel		0.055056961	g
Iron scrap	18.917083	g/1000g nickel		0.005864296	g
jarosite	123.75866	g/1000g nickel		0.038365185	g
medium and low radioactive	0.0080611	g/1000g nickel		2.49893E-06	g
mineral waste	6.121768	g/1000g nickel		0.001897748	g
overburden (unspecified)	44482.62	g/1000g nickel		13.78961234	g
radioactive tailings; reactor fu	3.9868775	g/1000g nickel		0.001235932	g
slag (unspecified)	10.21577	g/1000g nickel		0.003166889	g
slag (uranium conversion); re	0.015073	g/1000g nickel		4.67262E-06	g
spoil (unspecified)	14.286476	g/1000g nickel		0.004428808	g
sludge	12.2	g/1000g nickel		0.003782	g
steel scrap	1.0967234	g/1000g nickel		0.000339984	g
tailings (unspecified)	5045.0465	g/1000g nickel		1.563964403	g
unspecified radioactive waste	0.013515	g/1000g nickel		4.18964E-06	g
uranium depleted; reactor fu	0.0155929	g/1000g nickel		4.83381E-06	g
used oil	220.9923	g/1000g nickel		0.068507613	g
nickel slag	0.8737593	g/1000g nickel		0.000270865	g
nickel scrab	16.168781	g/1000g nickel		0.005012322	g
9.10. Transportation to STA	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.31		
Energy (fuel)	0.1944	MJ/1000g of product		0.000060264	MJ
OUTFLOWS					
CO2	14.0400	g/1000g of product		0.0043524	g
NOx	0.0891	g/1000g of product		0.000027621	g
HC	0.0127	g/1000g of product		3.9339E-06	g

Particulate matter	0.0015	g/1000g of product		4.7709E-07	g
CO	0.0124	g/1000g of product		3.8502E-06	g
SO2	0.0035	g/1000g of product		1.0881E-06	g
Remark:					
Distance between Metal producer no.12 (Detmond, Germany) and STA (Norderstedt, Germany) in km		**270**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
Distance estimated from the map					
9.11. Production of Tongue overmoulded	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			52.493		
oil Norderstedt	0.1732942	MJ/1000g product		0.00909673	MJ
gas Hall 14	0.1119425	MJ/1000g product		0.005876196	MJ
electricity	4.4706096	MJ/1000g product		0.23467571	MJ
E/P	152.40127	g/1000g product		8	
chromium for coating	1.3906616	g/1000g product		0.073	g
copper for coating	5.9055493	g/1000g product		0.31	g
steel c60E	819.15684	g/1000g product		43	g
nickel for e-plate	5.9055493	g/1000g product		0.31	g
OUTFLOWS				0	g
tongue overmoulded	1000	g/1000g product		52.493	g
chromium III	0.0058898	g/1000g product		0.000309173	g
copper	0.0058898	g/1000g product		0.000309173	g
cyanide	0.0002711	g/1000g product		1.42325E-05	g
nickel	0.0058898	g/1000g product		0.000309173	g
zinc	0.0058898	g/1000g product		0.000309173	g
used oil	0.0045994	g/1000g product		0.000241434	g
Remark:					
Data given for 1 year					
Total value of production/year		€ 34,580,022.00			
Value of the product		€ 0.32			
Data adapted from ore based steel production (CPM, 1996)					
Electricity data for Germany					
9.12. Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			52.493		
Energy (fuel)	0.7783	MJ/1000g of product		0.040856352	MJ
OUTFLOWS					
CO2	56.2120	g/1000g of product		2.950736516	g
NOx	0.3567	g/1000g of product		0.018725828	g

HC	0.0508	g/1000g of product		0.002667012	g
Particulate matter	0.0062	g/1000g of product		0.000323446	g
CO	0.0497	g/1000g of product		0.002610267	g
SO2	0.0141	g/1000g of product		0.000737684	g
Remark:					
Distance between Plastics producer no.5 (Germany) and STA (Norderstedt, Germany) in km		**1081**			
Transportation type: Truck with semi-trailer, long distance transport, Euro 3					
10.1. Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.5		
carcass meal	1.76E-06	g/1000g POM		8.7895E-10	g
energy (recovered)	-1.91E+03	g/1000g POM		-0.953368638	g
hydrogen; gaseous	9.80E-04	g/1000g POM		4.90236E-07	g
waste	4.88E+00	g/1000g POM		0.002441222	g
air	2.97E+02	g/1000g POM		0.1482666	g
baryte	3.53E-05	g/1000g POM		1.76633E-08	g
bauxite	2.15E-03	g/1000g POM		1.07619E-06	g
bentonite	3.81E-02	g/1000g POM		1.90711E-05	g
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		3.76926E-05	MJ
brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		7.61903E-08	MJ
calcium carbonate (in)	1.44E-01	g/1000g POM		7.21955E-05	g
chromium (in)	6.46E-10	g/1000g POM		3.23178E-13	g
clay	2.04E-07	g/1000g POM		1.02126E-10	g
copper (in)	1.29E-05	g/1000g POM		6.45435E-09	g
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		0.021420263	MJ
dolomite	2.02E-03	g/1000g POM		1.00817E-06	g
feldspar	7.82E-14	g/1000g POM		3.90878E-17	g
fluorspar	3.75E-04	g/1000g POM		1.87357E-07	g
granite	2.86E-12	g/1000g POM		1.42798E-15	g
ground water	5.52E-02	l/1000g POM		2.75941E-05	l
gypsum	3.84E-03	g/1000g POM		1.91869E-06	g
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		0.001139125	MJ
inert rock	1.39E-03	g/1000g POM		6.93085E-07	g
iron (in)	1.65E-01	g/1000g POM		8.2279E-05	g
lead (in)	3.32E-04	g/1000g POM		1.66167E-07	g
magnesium (in)	5.86E-07	g/1000g POM		2.92983E-10	g
manganese (in)	1.24E-04	g/1000g POM		6.21238E-08	g
mercury (in)	4.86E-07	g/1000g POM		2.43189E-10	g
natural aggregate	6.07E-04	g/1000g POM		3.03437E-07	g
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		0.010742121	MJ
nickel	1.17E-06	g/1000g POM		5.86245E-10	g
nitrogen (in)	9.44E+01	g/1000g POM		0.047204884	g
olivine	1.54E-03	g/1000g POM		7.7183E-07	g
oxygen	4.87E-03	g/1000g POM		2.43326E-06	g
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		4.11226E-06	MJ

phosphorus (in)	8.77E-10	g/1000g POM		4.38318E-13	g
potassium chloride	9.70E-06	g/1000g POM		4.84983E-09	g
primary energy from geother	2.38E-02	MJ/1000g POM		1.19199E-05	MJ
primary energy from hydro p	2.95E-01	MJ/1000g POM		0.000147284	MJ
primary energy from solar en	8.77E-05	MJ/1000g POM		4.38694E-08	MJ
primary energy from waves	4.89E-04	MJ/1000g POM		2.44406E-07	MJ
primary energy from wind po	1.13E-02	MJ/1000g POM		5.63784E-06	MJ
quartz sand	5.31E-33	g/1000g POM		2.65735E-36	g
river water	3.20E+03	g/1000g POM		1.60149494	g
sand	9.51E-02	g/1000g POM		4.75655E-05	g
sea water	6.03E+00	1l/1000g POM		0.003013211	l
slate	1.09E-02	g/1000g POM		5.43215E-06	g
sodium chloride	2.67E-01	g/1000g POM		0.0001336	g
sodium nitrate	1.76E-06	g/1000g POM		8.7895E-10	g
sulfur (in)	3.33E-02	g/1000g POM		1.66566E-05	g
talc	7.94E-24	g/1000g POM		3.97174E-27	g
titanium	1.82E-03	g/1000g POM		9.11795E-07	g
uranium	2.74E+03	g/1000g POM		1.37168127	g
water	3.11E+01	1l/1000g POM		0.015559529	l
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		6.14297E-09	MJ
zinc (in)	6.14E-02	g/1000g POM		3.06973E-05	g
OUTFLOWS				0	
POM	1000			0.5	
1,2-dichloroethane	1.39E-08	g/1000g POM		6.9401E-12	g
1,2-dichloroethane	3.16E-10	g/1000g POM		1.58103E-13	g
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g POM		1.87576E-32	g
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g POM		6.11795E-17	g
acid (as H+)	4.33E-14	g/1000g POM		2.16258E-17	g
acid (as H+)	2.01E-03	g/1000g POM		1.0073E-06	g
adsorbable organic halogen c	6.94E-10	g/1000g POM		3.46891E-13	g
aluminium	4.06E-04	g/1000g POM		2.02882E-07	g
ammonia	1.58E-07	g/1000g POM		7.9087E-11	g
ammonia	3.39E-03	g/1000g POM		1.69361E-06	g
antimony	7.96E-08	g/1000g POM		3.98037E-11	g
arsenic	8.41E-08	g/1000g POM		4.20361E-11	g
arsenic	1.85E-07	g/1000g POM		9.22875E-11	g
benzene	3.35E-15	g/1000g POM		1.67427E-18	g
benzene	6.58E-19	g/1000g POM		3.28931E-22	g
biological oxygen demand	2.88E-02	g/1000g POM		1.43852E-05	g
bromate	4.13E-07	g/1000g POM		2.06601E-10	g
cadmium	8.62E-08	g/1000g POM		4.31142E-11	g
cadmium	4.36E-08	g/1000g POM		2.17952E-11	g
calcium	3.65E-05	g/1000g POM		1.824E-08	g
carbon dioxide	1.67E+03	g/1000g POM		0.835010526	g
carbon disulfide	1.98E-08	g/1000g POM		9.8893E-12	g
carbon monoxide	6.10E+00	g/1000g POM		0.003050521	g
carbonate	2.83E-02	g/1000g POM		0.000014174	g
chemical oxygen demand	2.40E-01	g/1000g POM		0.000120233	g
chlorate	6.77E-05	g/1000g POM		3.38684E-08	g
chloride	1.53E-01	g/1000g POM		7.64015E-05	g

chlorine	3.71E-07	g/1000g POM		1.85299E-10	g
chlorine	8.03E-07	g/1000g POM		4.01675E-10	g
chromium	3.83E-07	g/1000g POM		1.91439E-10	g
chromium	4.93E-09	g/1000g POM		2.46465E-12	g
copper	8.90E-09	g/1000g POM		4.44868E-12	g
copper	1.03E-05	g/1000g POM		5.1487E-09	g
cyanide	1.56E-08	g/1000g POM		7.79985E-12	g
decane	1.39E-02	g/1000g POM		6.9435E-06	g
dichloromethane	9.24E-10	g/1000g POM		4.61999E-13	g
ethyl benzene	1.97E-16	g/1000g POM		9.8284E-20	g
ethylene	1.66E-03	g/1000g POM		8.2897E-07	g
fluoride	3.59E-06	g/1000g POM		1.79705E-09	g
fluorine	3.23E-08	g/1000g POM		1.61399E-11	g
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		2.55415E-06	g
hydrocyanic acid	6.21E-16	g/1000g POM		3.10592E-19	g
hydrogen	3.02E-02	g/1000g POM		1.50788E-05	g
hydrogen chloride	5.13E-02	g/1000g POM		0.000025658	g
hydrogen fluoride	1.49E-03	g/1000g POM		7.4701E-07	g
hydrogen sulfide	5.52E-06	g/1000g POM		2.76138E-09	g
iron	1.81E-05	g/1000g POM		9.0254E-09	g
lead	1.99E-06	g/1000g POM		9.9288E-10	g
lead	3.83E-07	g/1000g POM		1.91416E-10	g
manganese	6.28E-07	g/1000g POM		3.13781E-10	g
mercury	1.80E-06	g/1000g POM		8.98795E-10	g
mercury	1.70E-07	g/1000g POM		8.49155E-11	g
methane	1.18E+01	g/1000g POM		0.005916005	g
nickel	8.73E-11	g/1000g POM		4.36448E-14	g
nickel	2.58E-07	g/1000g POM		1.28765E-10	g
nitrate	1.20E-01	g/1000g POM		5.99075E-05	g
nitrogen	8.77E-04	g/1000g POM		4.38703E-07	g
nitrogen dioxide	3.29E+00	g/1000g POM		0.001643406	g
nitrous oxide	4.82E-10	g/1000g POM		2.41164E-13	g
non-methane volatile organic	3.51E+00	g/1000g POM		0.001756672	g
oxygen	7.98E-21	g/1000g POM		3.98979E-24	g
particles (> PM10)	8.64E-02	g/1000g POM		4.32163E-05	g
particles (PM10)	5.95E-01	g/1000g POM		0.000297743	g
particles (PM10)	8.75E-03	g/1000g POM		4.37365E-06	g
particles (PM2.5)	3.90E-12	g/1000g POM		1.94763E-15	g
phenol	1.99E-03	g/1000g POM		9.96095E-07	g
phosphate	5.37E-01	g/1000g POM		0.000268683	g
polycyclic aromatic hydrocarb	1.36E-15	g/1000g POM		6.7755E-19	g
potassium	1.18E-06	g/1000g POM		5.8757E-10	g
propene	1.23E-03	g/1000g POM		6.1405E-07	g
selenium	1.01E-22	g/1000g POM		5.0252E-26	g
silver	2.90E-21	g/1000g POM		1.451E-24	g
sodium	8.11E-02	g/1000g POM		4.05561E-05	g
strontium	7.15E-09	g/1000g POM		3.57429E-12	g
styrene	2.76E-17	g/1000g POM		1.38205E-20	g
sulfate	9.30E-01	g/1000g POM		0.000465109	g
sulfur	3.49E-10	g/1000g POM		1.74443E-13	g

sulfur dioxide	3.78E+00	g/1000g POM		0.001892167	g
tin	1.53E-13	g/1000g POM		7.6398E-17	g
toluene	5.61E-16	g/1000g POM		2.80396E-19	g
total organic carbon	8.94E-03	g/1000g POM		4.47012E-06	g
vinyl chloride	3.11E-07	g/1000g POM		1.55626E-10	g
vinyl chloride	5.78E-09	g/1000g POM		2.88801E-12	g
volatile organic compound	1.79E-01	g/1000g POM		8.93677E-05	g
volatile organic compound	1.06E-02	g/1000g POM		5.29824E-06	g
xylene (all isomers)	2.59E-16	g/1000g POM		1.29615E-19	g
zinc	4.86E-06	g/1000g POM		2.43184E-09	g
zinc	9.69E-05	g/1000g POM		4.84746E-08	g
chemical waste	1.91E+00	g/1000g POM		0.000956346	g
chemical waste, inert	8.15E-01	g/1000g POM		0.000407281	g
chemical waste, toxic	1.70E+00	g/1000g POM		0.000851614	g
demolition waste	2.20E-03	g/1000g POM		1.09804E-06	g
industrial waste	1.13E+00	g/1000g POM		0.000565997	g
mineral waste	2.05E-01	g/1000g POM		0.000102719	g
municipal waste	-4.61E+00	g/1000g POM		-0.002303047	g
organic waste	1.69E-03	g/1000g POM		8.4255E-07	g
overburden	1.63E+01	g/1000g POM		0.008145568	g
packaging waste (metal)	3.17E-05	g/1000g POM		1.58582E-08	g
packaging waste (plastic)	6.63E-10	g/1000g POM		3.31494E-13	g
plastic	3.40E-01	g/1000g POM		0.000170154	g
tailings	2.46E-01	g/1000g POM		0.000122916	g
waste	9.32E-01	g/1000g POM		0.000465946	g
waste paper	2.35E-06	g/1000g POM		1.17641E-09	g
wood	2.98E-05	g/1000g POM		1.4911E-08	g
wooden pallet	5.89E-07	g/1000g POM		2.94608E-10	g
10.2. Transportation to Plastic parts manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.5		
Energy (fuel)	0.5236	MJ/1000g of product		0.0002618	MJ
OUTFLOWS					
CO2	38.0800	g/1000g of product		0.01904	g
NOx	0.2520	g/1000g of product		0.000126	g
HC	0.0336	g/1000g of product		0.0000168	g
Particulate matter	0.0042	g/1000g of product		0.0000021	g
CO	0.0336	g/1000g of product		0.0000168	g
SO2	0.0095	g/1000g of product		0.00000476	g
Remark:					
Distance between Plastics producer no.2 (Bad Rappena, Germany) and Plastic parts manufacturer no.2 (München, Germany) in km		**280**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					

10.3. Production of Button, Stop, Button Cover	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.5		
POM					
Electricity	15.84	MJ/1000g product		0.00792	MJ
OUTFLOWS				0	
button, stop, button cover	1000	g/1000g product		0.5	g
Remark:					
Closed circuit (supplier information)					
Data for electricity taken from data for Germany					
10.4. Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.5		
Energy (fuel)	0.9649	MJ/1000g of product		0.00048246	MJ
OUTFLOWS					
CO2	70.1760	g/1000g of product		0.035088	g
NOx	0.4644	g/1000g of product		0.0002322	g
HC	0.0619	g/1000g of product		0.00003096	g
Particulate matter	0.0077	g/1000g of product		0.00000387	g
CO	0.0619	g/1000g of product		0.00003096	g
SO2	0.0175	g/1000g of product		0.000008772	g
Remark:					
Distance between Plastics producer no.2 (Bad Rappena, Germany) and Plastic parts manufacturer no.2 (München, Germany) in km		**516**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
11.1. Production of thermoplastic POM	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.5		
carcass meal	1.76E-06	g/1000g POM		8.7895E-10	g
energy (recovered)	-1.91E+03	g/1000g POM		-0.953368638	g
hydrogen; gaseous	9.80E-04	g/1000g POM		4.90236E-07	g
waste	4.88E+00	g/1000g POM		0.002441222	g
air	2.97E+02	g/1000g POM		0.1482666	g
baryte	3.53E-05	g/1000g POM		1.76633E-08	g
bauxite	2.15E-03	g/1000g POM		1.07619E-06	g
bentonite	3.81E-02	g/1000g POM		1.90711E-05	g
biomass; 14.7 MJ/kg	7.54E-02	MJ/1000g POM		3.76926E-05	MJ

brown coal; 11.9 MJ/kg	1.52E-04	MJ/1000g POM		7.61903E-08	MJ
calcium carbonate (in)	1.44E-01	g/1000g POM		7.21955E-05	g
chromium (in)	6.46E-10	g/1000g POM		3.23178E-13	g
clay	2.04E-07	g/1000g POM		1.02126E-10	g
copper (in)	1.29E-05	g/1000g POM		6.45435E-09	g
crude oil; 42.3 MJ/kg	4.28E+01	MJ/1000g POM		0.021420263	MJ
dolomite	2.02E-03	g/1000g POM		1.00817E-06	g
feldspar	7.82E-14	g/1000g POM		3.90878E-17	g
fluorspar	3.75E-04	g/1000g POM		1.87357E-07	g
granite	2.86E-12	g/1000g POM		1.42798E-15	g
ground water	5.52E-02	l/1000g POM		2.75941E-05	l
gypsum	3.84E-03	g/1000g POM		1.91869E-06	g
hard coal; 26.3 MJ/kg	2.28E+00	MJ/1000g POM		0.001139125	MJ
inert rock	1.39E-03	g/1000g POM		6.93085E-07	g
iron (in)	1.65E-01	g/1000g POM		8.2279E-05	g
lead (in)	3.32E-04	g/1000g POM		1.66167E-07	g
magnesium (in)	5.86E-07	g/1000g POM		2.92983E-10	g
manganese (in)	1.24E-04	g/1000g POM		6.21238E-08	g
mercury (in)	4.86E-07	g/1000g POM		2.43189E-10	g
natural aggregate	6.07E-04	g/1000g POM		3.03437E-07	g
natural gas; 44.1 MJ/kg	2.15E+01	MJ/1000g POM		0.010742121	MJ
nickel	1.17E-06	g/1000g POM		5.86245E-10	g
nitrogen (in)	9.44E+01	g/1000g POM		0.047204884	g
olivine	1.54E-03	g/1000g POM		7.7183E-07	g
oxygen	4.87E-03	g/1000g POM		2.43326E-06	g
peat; 8.4 MJ/kg	8.22E-03	MJ/1000g POM		4.11226E-06	MJ
phosphorus (in)	8.77E-10	g/1000g POM		4.38318E-13	g
potassium chloride	9.70E-06	g/1000g POM		4.84983E-09	g
primary energy from geother	2.38E-02	MJ/1000g POM		1.19199E-05	MJ
primary energy from hydro p	2.95E-01	MJ/1000g POM		0.000147284	MJ
primary energy from solar en	8.77E-05	MJ/1000g POM		4.38694E-08	MJ
primary energy from waves	4.89E-04	MJ/1000g POM		2.44406E-07	MJ
primary energy from wind po	1.13E-02	MJ/1000g POM		5.63784E-06	MJ
quartz sand	5.31E-33	g/1000g POM		2.65735E-36	g
river water	3.20E+03	g/1000g POM		1.60149494	g
sand	9.51E-02	g/1000g POM		4.75655E-05	g
sea water	6.03E+00	1l/1000g POM		0.003013211	1l
slate	1.09E-02	g/1000g POM		5.43215E-06	g
sodium chloride	2.67E-01	g/1000g POM		0.0001336	g
sodium nitrate	1.76E-06	g/1000g POM		8.7895E-10	g
sulfur (in)	3.33E-02	g/1000g POM		1.66566E-05	g
talc	7.94E-24	g/1000g POM		3.97174E-27	g
titanium	1.82E-03	g/1000g POM		9.11795E-07	g
uranium	2.74E+03	g/1000g POM		1.37168127	g
water	3.11E+01	1l/1000g POM		0.015559529	1l
wood; 14.7 MJ/kg	1.23E-05	1MJ/1000g POM		6.14297E-09	1MJ
zinc (in)	6.14E-02	g/1000g POM		3.06973E-05	g
OUTFLOWS				0	
POM	1000			0.5	
1,2-dichloroethane	1.39E-08	g/1000g POM		6.9401E-12	g

1,2-dichloroethane	3.16E-10	g/1000g POM		1.58103E-13	g
2,3,7,8-tetrachlorodibenzo-p-	3.75E-29	g/1000g POM		1.87576E-32	g
2,3,7,8-tetrachlorodibenzo-p-	1.22E-13	g/1000g POM		6.11795E-17	g
acid (as H+)	4.33E-14	g/1000g POM		2.16258E-17	g
acid (as H+)	2.01E-03	g/1000g POM		1.0073E-06	g
adsorbable organic halogen c	6.94E-10	g/1000g POM		3.46891E-13	g
aluminium	4.06E-04	g/1000g POM		2.02882E-07	g
ammonia	1.58E-07	g/1000g POM		7.9087E-11	g
ammonia	3.39E-03	g/1000g POM		1.69361E-06	g
antimony	7.96E-08	g/1000g POM		3.98037E-11	g
arsenic	8.41E-08	g/1000g POM		4.20361E-11	g
arsenic	1.85E-07	g/1000g POM		9.22875E-11	g
benzene	3.35E-15	g/1000g POM		1.67427E-18	g
benzene	6.58E-19	g/1000g POM		3.28931E-22	g
biological oxygen demand	2.88E-02	g/1000g POM		1.43852E-05	g
bromate	4.13E-07	g/1000g POM		2.06601E-10	g
cadmium	8.62E-08	g/1000g POM		4.31142E-11	g
cadmium	4.36E-08	g/1000g POM		2.17952E-11	g
calcium	3.65E-05	g/1000g POM		1.824E-08	g
carbon dioxide	1.67E+03	g/1000g POM		0.835010526	g
carbon disulfide	1.98E-08	g/1000g POM		9.8893E-12	g
carbon monoxide	6.10E+00	g/1000g POM		0.003050521	g
carbonate	2.83E-02	g/1000g POM		0.000014174	g
chemical oxygen demand	2.40E-01	g/1000g POM		0.000120233	g
chlorate	6.77E-05	g/1000g POM		3.38684E-08	g
chloride	1.53E-01	g/1000g POM		7.64015E-05	g
chlorine	3.71E-07	g/1000g POM		1.85299E-10	g
chlorine	8.03E-07	g/1000g POM		4.01675E-10	g
chromium	3.83E-07	g/1000g POM		1.91439E-10	g
chromium	4.93E-09	g/1000g POM		2.46465E-12	g
copper	8.90E-09	g/1000g POM		4.44868E-12	g
copper	1.03E-05	g/1000g POM		5.1487E-09	g
cyanide	1.56E-08	g/1000g POM		7.79985E-12	g
decane	1.39E-02	g/1000g POM		6.9435E-06	g
dichloromethane	9.24E-10	g/1000g POM		4.61999E-13	g
ethyl benzene	1.97E-16	g/1000g POM		9.8284E-20	g
ethylene	1.66E-03	g/1000g POM		8.2897E-07	g
fluoride	3.59E-06	g/1000g POM		1.79705E-09	g
fluorine	3.23E-08	g/1000g POM		1.61399E-11	g
hydrocarbons (unspecified)	5.11E-03	g/1000g POM		2.55415E-06	g
hydrocyanic acid	6.21E-16	g/1000g POM		3.10592E-19	g
hydrogen	3.02E-02	g/1000g POM		1.50788E-05	g
hydrogen chloride	5.13E-02	g/1000g POM		0.000025658	g
hydrogen fluoride	1.49E-03	g/1000g POM		7.4701E-07	g
hydrogen sulfide	5.52E-06	g/1000g POM		2.76138E-09	g
iron	1.81E-05	g/1000g POM		9.0254E-09	g
lead	1.99E-06	g/1000g POM		9.9288E-10	g
lead	3.83E-07	g/1000g POM		1.91416E-10	g
manganese	6.28E-07	g/1000g POM		3.13781E-10	g
mercury	1.80E-06	g/1000g POM		8.98795E-10	g

mercury	1.70E-07	g/1000g POM		8.49155E-11	g
methane	1.18E+01	g/1000g POM		0.005916005	g
nickel	8.73E-11	g/1000g POM		4.36448E-14	g
nickel	2.58E-07	g/1000g POM		1.28765E-10	g
nitrate	1.20E-01	g/1000g POM		5.99075E-05	g
nitrogen	8.77E-04	g/1000g POM		4.38703E-07	g
nitrogen dioxide	3.29E+00	g/1000g POM		0.001643406	g
nitrous oxide	4.82E-10	g/1000g POM		2.41164E-13	g
non-methane volatile organic	3.51E+00	g/1000g POM		0.001756672	g
oxygen	7.98E-21	g/1000g POM		3.98979E-24	g
particles (> PM10)	8.64E-02	g/1000g POM		4.32163E-05	g
particles (PM10)	5.95E-01	g/1000g POM		0.000297743	g
particles (PM10)	8.75E-03	g/1000g POM		4.37365E-06	g
particles (PM2.5)	3.90E-12	g/1000g POM		1.94763E-15	g
phenol	1.99E-03	g/1000g POM		9.96095E-07	g
phosphate	5.37E-01	g/1000g POM		0.000268683	g
polycyclic aromatic hydrocarb	1.36E-15	g/1000g POM		6.7755E-19	g
potassium	1.18E-06	g/1000g POM		5.8757E-10	g
propene	1.23E-03	g/1000g POM		6.1405E-07	g
selenium	1.01E-22	g/1000g POM		5.0252E-26	g
silver	2.90E-21	g/1000g POM		1.451E-24	g
sodium	8.11E-02	g/1000g POM		4.05561E-05	g
strontium	7.15E-09	g/1000g POM		3.57429E-12	g
styrene	2.76E-17	g/1000g POM		1.38205E-20	g
sulfate	9.30E-01	g/1000g POM		0.000465109	g
sulfur	3.49E-10	g/1000g POM		1.74443E-13	g
sulfur dioxide	3.78E+00	g/1000g POM		0.001892167	g
tin	1.53E-13	g/1000g POM		7.6398E-17	g
toluene	5.61E-16	g/1000g POM		2.80396E-19	g
total organic carbon	8.94E-03	g/1000g POM		4.47012E-06	g
vinyl chloride	3.11E-07	g/1000g POM		1.55626E-10	g
vinyl chloride	5.78E-09	g/1000g POM		2.88801E-12	g
volatile organic compound	1.79E-01	g/1000g POM		8.93677E-05	g
volatile organic compound	1.06E-02	g/1000g POM		5.29824E-06	g
xylene (all isomers)	2.59E-16	g/1000g POM		1.29615E-19	g
zinc	4.86E-06	g/1000g POM		2.43184E-09	g
zinc	9.69E-05	g/1000g POM		4.84746E-08	g
chemical waste	1.91E+00	g/1000g POM		0.000956346	g
chemical waste, inert	8.15E-01	g/1000g POM		0.000407281	g
chemical waste, toxic	1.70E+00	g/1000g POM		0.000851614	g
demolition waste	2.20E-03	g/1000g POM		1.09804E-06	g
industrial waste	1.13E+00	g/1000g POM		0.000565997	g
mineral waste	2.05E-01	g/1000g POM		0.000102719	g
municipal waste	-4.61E+00	g/1000g POM		-0.002303047	g
organic waste	1.69E-03	g/1000g POM		8.4255E-07	g
overburden	1.63E+01	g/1000g POM		0.008145568	g
packaging waste (metal)	3.17E-05	g/1000g POM		1.58582E-08	g
packaging waste (plastic)	6.63E-10	g/1000g POM		3.31494E-13	g
plastic	3.40E-01	g/1000g POM		0.000170154	g
tailings	2.46E-01	g/1000g POM		0.000122916	g

waste	9.32E-01	g/1000g POM		0.000465946	g
waste paper	2.35E-06	g/1000g POM		1.17641E-09	g
wood	2.98E-05	g/1000g POM		1.4911E-08	g
wooden pallet	5.89E-07	g/1000g POM		2.94608E-10	g
11.2. Transportation to Plastic parts manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.5		
Energy (fuel)	0.5236	MJ/1000g of product		0.0002618	MJ
OUTFLOWS					
CO2	38.0800	g/1000g of product		0.01904	g
NOx	0.2520	g/1000g of product		0.000126	g
HC	0.0336	g/1000g of product		0.0000168	g
Particulate matter	0.0042	g/1000g of product		0.0000021	g
CO	0.0336	g/1000g of product		0.0000168	g
SO2	0.0095	g/1000g of product		0.00000476	g
Remark:					
Distance between Plastics producer no.2 (Bad Rappena, Germany) and Plastic parts manufacturer no.2 (München, Germany) in km		**280**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
11.3. Production of Button, Stop, Button Loop	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.5		
POM					
Electricity	15.84	MJ/1000g product		0.00792	MJ
OUTFLOWS				0	
button, stop, button loop	1000	g		0.5	g
Remark:					
Closed circuit (supplier information)					
Remark:					
Data for electricity taken from data for Germany					
11.4. Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			0.5		
Energy (fuel)	0.9649	MJ/1000g of product		0.00048246	MJ
OUTFLOWS					
CO2	70.1760	g/1000g of product		0.035088	g
NOx	0.4644	g/1000g of product		0.0002322	g

HC	0.0619	g/1000g of product		0.00003096	g
Particulate matter	0.0077	g/1000g of product		0.00000387	g
CO	0.0619	g/1000g of product		0.00003096	g
SO2	0.0175	g/1000g of product		0.000008772	g
Remark:					
Distance between Plastics producer no.2 (Bad Rappena, Germany) and Plastic parts manufacturer no.2 (München, Germany) in km		**516**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
12.1 Production of thermoplastic E/P	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			6		
carcass meal	4.33E-07	g/1000g E/P		2.59639E-09	g
energy (recovered)	-1.40E+03	g/1000g E/P		-8.378951694	g
hydrogen; gaseous	1.31E-03	g/1000g E/P		7.87807E-06	g
waste	5.79E+00	g/1000g E/P		0.034742273	g
air	2.58E+02	g/1000g E/P		1.550820582	g
baryte	5.41E-05	g/1000g E/P		3.2442E-07	g
bauxite	5.04E-03	g/1000g E/P		3.02192E-05	g
bentonite	3.31E-02	g/1000g E/P		0.000198349	g
biomass; 14.7 MJ/kg	1.28E-01	MJ/1000g E/P		0.000767623	MJ
brown coal; 11.9 MJ/kg	3.80E-05	MJ/1000g E/P		2.28072E-07	MJ
calcium carbonate (in)	1.33E-01	g/1000g E/P		0.000798912	g
chromium (in)	1.02E-09	g/1000g E/P		6.11688E-12	g
clay	2.80E-07	g/1000g E/P		1.68257E-09	g
copper (in)	3.20E-06	g/1000g E/P		1.92077E-08	g
crude oil; 42.3 MJ/kg	3.81E+01	MJ/1000g E/P		0.228898945	MJ
dolomite	2.13E-03	g/1000g E/P		1.28038E-05	g
feldspar	6.15E-14	g/1000g E/P		3.68969E-16	g
fluorspar	3.16E-04	g/1000g E/P		1.89641E-06	g
granite	4.67E-12	g/1000g E/P		2.80426E-14	g
ground water	9.52E-02	l/1000g E/P		0.000571487	l
gypsum	3.30E-03	g/1000g E/P		1.9811E-05	g
hard coal; 26.3 MJ/kg	2.79E+00	MJ/1000g E/P		0.016759017	MJ
inert rock	1.11E-05	g/1000g E/P		6.65066E-08	g
iron (in)	1.74E-01	g/1000g E/P		0.001045721	g
lead (in)	5.07E-04	g/1000g E/P		3.04247E-06	g
magnesium (in)	1.44E-07	g/1000g E/P		8.65464E-10	g
manganese (in)	1.31E-04	g/1000g E/P		7.88578E-07	g
mercury (in)	7.08E-07	g/1000g E/P		4.25035E-09	g
natural aggregate	6.43E-04	g/1000g E/P		3.8576E-06	g
natural gas; 44.1 MJ/kg	2.74E+01	MJ/1000g E/P		0.164403397	MJ
nickel	2.89E-07	g/1000g E/P		1.73442E-09	g
nitrogen (in)	1.69E+02	g/1000g E/P		1.014857994	g
olivine	1.63E-03	g/1000g E/P		9.8097E-06	g

oxygen	3.30E-03	g/1000g E/P		1.98019E-05	g
peat; 8.4 MJ/kg	1.50E-02	MJ/1000g E/P		8.98098E-05	MJ
phosphorus (in)	1.09E-09	g/1000g E/P		6.54774E-12	g
potassium chloride	6.31E-06	g/1000g E/P		3.7833E-08	g
primary energy from geother	2.73E-02	MJ/1000g E/P		0.000163826	MJ
primary energy from hydro p	5.83E-01	MJ/1000g E/P		0.003499241	MJ
primary energy from solar en	1.04E-04	MJ/1000g E/P		6.2409E-07	MJ
primary energy from waves	3.55E-04	MJ/1000g E/P		2.12702E-06	MJ
primary energy from wind po	1.59E-02	MJ/1000g E/P		9.5198E-05	MJ
quartz sand	4.19E-33	g/1000g E/P		2.512E-35	g
river water	1.03E+03	g/1000g E/P		6.177352398	g
sand	8.38E-02	g/1000g E/P		0.000502814	g
sea water	1.14E+01	1l/1000g E/P		0.068155624	l
slate	9.35E-03	g/1000g E/P		5.6086E-05	g
sodium chloride	3.51E-01	g/1000g E/P		0.002106546	g
sodium nitrate	4.33E-07	g/1000g E/P		2.59639E-09	g
sulfur (in)	5.20E-02	g/1000g E/P		0.000312135	g
talc	8.80E-24	g/1000g E/P		5.28262E-26	g
titanium	6.25E-31	g/1000g E/P		3.74941E-33	g
uranium	3.13E+03	g/1000g E/P		18.76030575	g
water	1.79E+01	1l/1000g E/P		0.107427596	l
wood; 14.7 MJ/kg	1.81E-05	1MJ/1000g E/P		1.08484E-07	MJ
zinc (in)	1.51E-02	g/1000g E/P		9.07734E-05	g
OUTFLOWS				0	
Thermoplastic E/P; productio	1000			6	
1,2-dichloroethane	2.54E-08	g/1000g E/P		1.52222E-10	g
1,2-dichloroethane	5.06E-10	g/1000g E/P		3.0356E-12	g
2,3,7,8-tetrachlorodibenzo-p-	3.17E-29	g/1000g E/P		1.9015E-31	g
2,3,7,8-tetrachlorodibenzo-p-	9.81E-07	g/1000g E/P		5.88558E-09	g
acid (as H+)	3.68E-14	g/1000g E/P		2.20566E-16	g
acid (as H+)	1.96E-03	g/1000g E/P		1.17508E-05	g
adsorbable organic halogen c	1.05E-09	g/1000g E/P		6.3033E-12	g
aluminium	5.57E-04	g/1000g E/P		3.34187E-06	g
ammonia	2.17E-07	g/1000g E/P		1.29946E-09	g
ammonia	3.11E-03	g/1000g E/P		1.86322E-05	g
antimony	1.98E-08	g/1000g E/P		1.18573E-10	g
arsenic	1.23E-07	g/1000g E/P		7.4013E-10	g
arsenic	1.98E-07	g/1000g E/P		1.1906E-09	g
benzene	2.64E-15	g/1000g E/P		1.58195E-17	g
benzene	5.58E-19	g/1000g E/P		3.34849E-21	g
biological oxygen demand	2.09E-02	g/1000g E/P		0.000125434	g
bromate	5.55E-07	g/1000g E/P		3.33002E-09	g
cadmium	5.26E-08	g/1000g E/P		3.15676E-10	g
cadmium	1.11E-08	g/1000g E/P		6.64986E-11	g
calcium	2.89E-03	g/1000g E/P		1.73456E-05	g
carbon dioxide	1.57E+03	g/1000g E/P		9.40096713	g
carbon disulfide	1.48E-08	g/1000g E/P		8.90268E-11	g
carbon monoxide	1.24E+01	g/1000g E/P		0.074175666	g
carbonate	2.89E-02	g/1000g E/P		0.000173363	g
chemical oxygen demand	1.90E-01	g/1000g E/P		0.001141272	g

chlorate	9.94E-05	g/1000g E/P		5.96198E-07	g
chloride	1.57E-01	g/1000g E/P		0.000939354	g
chlorine	3.64E-08	g/1000g E/P		2.18287E-10	g
chlorine	1.06E-06	g/1000g E/P		6.37452E-09	g
chromium	5.62E-07	g/1000g E/P		3.3695E-09	g
chromium	1.39E-09	g/1000g E/P		8.31192E-12	g
copper	2.26E-09	g/1000g E/P		1.35304E-11	g
copper	1.55E-04	g/1000g E/P		9.31218E-07	g
cyanide	1.65E-08	g/1000g E/P		9.91692E-11	g
decane	5.99E-03	g/1000g E/P		3.59258E-05	g
dichloromethane	2.96E-11	g/1000g E/P		1.7763E-13	g
ethyl benzene	1.55E-16	g/1000g E/P		9.29076E-19	g
ethylene	1.62E-03	g/1000g E/P		9.7356E-06	g
fluoride	1.42E-06	g/1000g E/P		8.5356E-09	g
fluorine	1.65E-08	g/1000g E/P		9.90276E-11	g
hydrocarbons (unspecified)	4.35E-03	g/1000g E/P		2.60963E-05	g
hydrocyanic acid	4.89E-16	g/1000g E/P		2.93183E-18	g
hydrogen	4.14E-02	g/1000g E/P		0.000248386	g
hydrogen chloride	6.17E-02	g/1000g E/P		0.000370425	g
hydrogen fluoride	1.81E-03	g/1000g E/P		1.08699E-05	g
hydrogen sulfide	5.84E-06	g/1000g E/P		3.50587E-08	g
iron	1.64E-05	g/1000g E/P		9.8358E-08	g
lead	1.17E-06	g/1000g E/P		7.04418E-09	g
lead	1.17E-06	g/1000g E/P		7.03824E-09	g
manganese	1.56E-07	g/1000g E/P		9.363E-10	g
mercury	2.38E-06	g/1000g E/P		1.426E-08	g
mercury	2.19E-07	g/1000g E/P		1.31546E-09	g
methane	1.42E+01	g/1000g E/P		0.085190136	g
nickel	1.40E-10	g/1000g E/P		8.37978E-13	g
nickel	3.72E-07	g/1000g E/P		2.23445E-09	g
nitrate	2.25E-03	g/1000g E/P		1.34741E-05	g
nitrogen	1.11E-03	g/1000g E/P		6.6342E-06	g
nitrogen dioxide	3.23E+00	g/1000g E/P		0.019379958	g
nitrous oxide	7.91E-10	g/1000g E/P		4.74811E-12	g
non-methane volatile organic	4.24E+00	g/1000g E/P		0.02545458	g
oxygen	6.28E-21	g/1000g E/P		3.76911E-23	g
particles (> PM10)	1.95E-01	g/1000g E/P		0.001172052	g
particles (PM10)	6.45E-01	g/1000g E/P		0.003868427	g
particles (PM10)	7.12E-03	g/1000g E/P		4.27036E-05	g
particles (PM2.5)	3.49E-12	g/1000g E/P		2.09252E-14	g
phenol	1.87E-03	g/1000g E/P		1.12049E-05	g
phosphate	2.24E-03	g/1000g E/P		1.34231E-05	g
polycyclic aromatic hydrocarb	1.07E-15	g/1000g E/P		6.40302E-18	g
potassium	6.77E-04	g/1000g E/P		4.06012E-06	g
propene	1.20E-03	g/1000g E/P		7.21158E-06	g
selenium	7.92E-23	g/1000g E/P		4.75033E-25	g
silver	2.29E-21	g/1000g E/P		1.37162E-23	g
sodium	9.84E-02	g/1000g E/P		0.000590426	g
strontium	1.06E-08	g/1000g E/P		6.33486E-11	g
styrene	2.18E-17	g/1000g E/P		1.3057E-19	g

sulfate	8.29E-01	g/1000g E/P		0.00497106	g
sulfur	5.68E-10	g/1000g E/P		3.40944E-12	g
sulfur dioxide	4.08E+00	g/1000g E/P		0.024459024	g
tin	7.49E-08	g/1000g E/P		4.49223E-10	g
toluene	4.42E-16	g/1000g E/P		2.64961E-18	g
total organic carbon	1.11E-02	g/1000g E/P		6.65166E-05	g
vinyl chloride	5.02E-07	g/1000g E/P		3.01068E-09	g
vinyl chloride	9.24E-09	g/1000g E/P		5.54501E-11	g
volatile organic compound	1.46E-01	g/1000g E/P		0.000878264	g
volatile organic compound	9.95E-03	g/1000g E/P		5.96873E-05	g
xylene (all isomers)	2.04E-16	g/1000g E/P		1.22479E-18	g
zinc	1.29E-06	g/1000g E/P		7.7538E-09	g
zinc	1.33E-04	g/1000g E/P		7.9848E-07	g
chemical waste	2.94E+00	g/1000g E/P		0.01763337	g
chemical waste, inert	7.20E-01	g/1000g E/P		0.004318344	g
chemical waste, toxic	2.04E+00	g/1000g E/P		0.01223382	g
demolition waste	6.32E-07	g/1000g E/P		3.79484E-09	g
industrial waste	8.56E-01	g/1000g E/P		0.005135322	g
mineral waste	1.94E-01	g/1000g E/P		0.001162698	g
municipal waste	-5.46E+00	g/1000g E/P		-0.032775834	g
organic waste	4.27E-04	g/1000g E/P		2.56268E-06	g
overburden	1.98E+01	g/1000g E/P		0.118776372	g
packaging waste (metal)	7.91E-06	g/1000g E/P		4.7442E-08	g
packaging waste (plastic)	1.05E-09	g/1000g E/P		6.27384E-12	g
plastic	6.34E-01	g/1000g E/P		0.003804396	g
tailings	6.21E-02	g/1000g E/P		0.000372476	g
waste	9.88E-01	g/1000g E/P		0.0059289	g
waste paper	5.91E-07	g/1000g E/P		3.54652E-09	g
wood	4.39E-05	g/1000g E/P		2.63552E-07	g
wooden pallet	1.49E-07	g/1000g E/P		8.96208E-10	g
12.2. Transportation to Plastic parts manufacturer no.2	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			6		
Energy (fuel)	0.5236	MJ/1000g of product		0.0031416	MJ
OUTFLOWS					
CO2	38.0800	g/1000g of product		0.22848	g
NOx	0.2520	g/1000g of product		0.001512	g
HC	0.0336	g/1000g of product		0.0002016	g
Particulate matter	0.0042	g/1000g of product		0.0000252	g
CO	0.0336	g/1000g of product		0.0002016	g
SO2	0.0095	g/1000g of product		0.00005712	g
Remark:					

Distance between Plastics producer no.2 (Bad Rappena, Germany) and Plastic parts manufacturer no.2 (München, Germany) in km		**280**			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					
12.3. Production of Sleeve, data carrier	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			6		
E/P					
Electricity	9.6	MJ/1000g product		0.0576	MJ
OUTFLOWS					
sleeve, data carrier	1000	g		6	g
Remark:					
Closed circuit (supplier information)					
Remark:					
Data for electricity taken from data for Germany					
12.4. Transportation to ALH	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS			6		
Energy (fuel)	0.9649	MJ/1000g of product		0.00578952	MJ
OUTFLOWS					
CO_2	70.1760	g/1000g of product		0.421056	g
NO_x	0.4644	g/1000g of product		0.0027864	g
HC	0.0619	g/1000g of product		0.00037152	g
Particulate matter	0.0077	g/1000g of product		0.00004644	g
CO	0.0619	g/1000g of product		0.00037152	g
SO_2	0.0175	g/1000g of product		0.000105264	g
A. Installation of the seatbelt in Audi	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
electricity	0.0179703	MJ/1000g product	1129.8650	0.020304	MJ/seatbelt
Remark					
Electricity data for Germany					
Data for installation adapted from installation of Night Vision Camera in Audi	electricity for seatbelt	5.649325			

B1. Use phase	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
Energy (fuel)	436.9112	MJ/1000g seatbelt	1129.8650	493.6506695	MJ/seatbelt
CO	300.77992	g/1000g seatbelt		339.8407075	g/seatbelt
VOC	26.15444	g/1000g seatbelt		29.55098653	g/seatbelt
VOC evap	18.880309	g/1000g seatbelt		21.33220019	g/seatbelt
NMVOC	25.907336	g/1000g seatbelt		29.27179208	g/seatbelt
NMVOC evap	18.880309	g/1000g seatbelt		21.33220019	g/seatbelt
CH4	0.246332	g/1000g seatbelt		0.278321958	g/seatbelt
NOx	10.725869	g/1000g seatbelt		12.11878367	g/seatbelt
NO	104.01544	g/1000g seatbelt		117.5234097	g/seatbelt
NO2	0.3220077	g/1000g seatbelt		0.363825255	g/seatbelt
N2O	0.0434749	g/1000g seatbelt		0.049120772	g/seatbelt
NH3	9.5830116	g/1000g seatbelt		10.82750938	g/seatbelt
PM 2.5	3.6911197	g/1000g seatbelt		4.17046695	g/seatbelt
PM 10	5.415444	g/1000g seatbelt		6.118720653	g/seatbelt
PM exhaust	0.5027027	g/1000g seatbelt		0.567986189	g/seatbelt
EC	0.0753668	g/1000g seatbelt		0.085154304	g/seatbelt
OM	0.2262548	g/1000g seatbelt		0.255637409	g/seatbelt
FC	31527.653	g/1000g seatbelt		35621.9911	g/seatbelt
CO2	31006.672	g/1000g seatbelt		35033.35325	g/seatbelt
SO2	0	g/1000g seatbelt		0	g/seatbelt
Pb	6.36E-03	g/1000g seatbelt		0.007180532	g/seatbelt
Cd	1.32E-04	g/1000g seatbelt		0.000149195	g/seatbelt
Cu	6.76E-02	g/1000g seatbelt		0.076350955	g/seatbelt
Cr	2.82E-03	g/1000g seatbelt		0.003184562	g/seatbelt
Ni	1.09E-03	g/1000g seatbelt		0.001230201	g/seatbelt
selenium	1.64E-04	g/1000g seatbelt		0.000184966	g/seatbelt
zinc	3.49E-02	g/1000g seatbelt		0.039436215	g/seatbelt
Remark					
Data taken from the software COPERT 4					

B2. Use phase - maintanance and repair	Normalised per activity	Unit	Unit weight (g)	Flows passing system boundary, normalised to f.u	Unit/f.u.
INFLOWS					
Electricity (in)	0.6661823	MJ/1000g seatbelt	1129.8650	0.752696108	MJ/seatbelt
Total energy	0.0046456	MJ/1000g seatbelt		0.005248851	MJ/seatbelt
Bauxite	0	g/1000g seatbelt		0	g/seatbelt
Coal	1.4564086	MJ/1000g seatbelt		1.645545107	g/seatbelt
Ilmenite	5.482E-05	g/1000g seatbelt		6.19426E-05	g/seatbelt
Iron (in)	1.6613026	g/1000g seatbelt		1.87704765	g/seatbelt
Lead (in)	11.075351	g/1000g seatbelt		12.513651	g/seatbelt
Limestone	11.629118	g/1000g seatbelt		13.13933355	g/seatbelt
Manganese	0.4208633	g/1000g seatbelt		0.475518738	g/seatbelt

Fuel	11.034749	MJ/1000g seatbelt		12.46777672	g/seatbelt
Oil	3.3142987	MJ/1000g seatbelt		3.744710062	g/seatbelt
Olivine	0.0017721	g/1000g seatbelt		0.002002184	g/seatbelt
Pyrite	2.381E-05	g/1000g seatbelt		2.69043E-05	g/seatbelt
Sand	6.6452104	g/1000g seatbelt		7.508190601	g/seatbelt
Sulphur	2.215E-05	g/1000g seatbelt		2.50273E-05	g/seatbelt
Tungsten	0.0003766	g/1000g seatbelt		0.000425464	g/seatbelt
Uranium	0.0010522	g/1000g seatbelt		0.001188797	g/seatbelt
Zinc (in)	0.0002381	g/1000g seatbelt		0.000269043	g/seatbelt
Iron scrap	23.812004	g/1000g seatbelt		26.90434966	g/seatbelt
Natural rubber	8.8602805	g/1000g seatbelt		10.0109208	g/seatbelt
Raw materials	0.1772056	g/1000g seatbelt		0.200218416	g/seatbelt
Steel scrap (in)	25.473306	g/1000g seatbelt		28.78139731	g/seatbelt
Water	3.0230169	l/1000g seatbelt		3.415601041	l/seatbelt
OUTFLOWS				0	
CO2	397.28263	g/1000g seatbelt		448.8757336	g/seatbelt
CO	21.645665	g/1000g seatbelt		24.45667952	g/seatbelt
HC	1.0931371	g/1000g seatbelt		1.235097354	g/seatbelt
HF	0	g/1000g seatbelt		0	g/seatbelt
Pb	0.0348874	g/1000g seatbelt		0.039418001	g/seatbelt
CH4	2.1342201	g/1000g seatbelt		2.411380548	g/seatbelt
NOx	1.5256295	g/1000g seatbelt		1.723755426	g/seatbelt
PM	1.1352234	g/1000g seatbelt		1.282649228	g/seatbelt
SOx	2.339114	g/1000g seatbelt		2.642883092	g/seatbelt
Ammonia	0.0066452	g/1000g seatbelt		0.007508191	g/seatbelt
Dissolved matter	0.576472	g/1000g seatbelt		0.651335535	g/seatbelt
Heavy metals	0.0017167	g/1000g seatbelt		0.001939616	g/seatbelt
Oils	0.0215969	g/1000g seatbelt		0.024401619	g/seatbelt
Other organics	0.0013844	g/1000g seatbelt		0.001564206	g/seatbelt
Phosphates	0.0002326	g/1000g seatbelt		0.000262787	g/seatbelt
Suspended matter	0.283529	g/1000g seatbelt		0.320349466	g/seatbelt
municipal and industrial waste	0.0227045	g/1000g seatbelt		0.025652985	g/seatbelt
Waste (total)	0.1533936	g/1000g seatbelt		0.173314066	g/seatbelt
Remark					
Data adapted from report (LCI USCAR, 1998)					
Assumptions and calculations for the study:					
	liters of fuel	Target values for Audi A3		Liters consumed by Audi A3 1,6	
Highway 55%	9034.0051	110000	km	5830	
City 45%	10892.676	90000	km	8460	
Sum	19926.681	200000	km	14290	
Fuel consumption of Ford Taurus					
Highway	l/100km	5.3	l/100km		
City	l/100km	9.4	l/100km		
Weight of Ford Taurus	kg	1295	kg		

C1. Transportation to car scrap plant	**Normalised per activity**	**Unit**	**Unit weight (g)**	**Flows passing system boundary, normalised to f.u**	**Unit/f.u.**
INFLOWS					
Energy (fuel)	0.0935	MJ/1000g of seatbel	1129.865	0.105642378	MJ/seatbelt
OUTFLOWS					
CO2	6.8	g/1000g of seatbelt		7.683082	g/seatbelt
NOx	0.045	g/1000g of seatbelt		0.050843925	g/seatbelt
HC	0.006	g/1000g of seatbelt		0.00677919	g/seatbelt
Particulate matter	0.00075	g/1000g of seatbelt		0.000847399	g/seatbelt
CO	0.006	g/1000g of seatbelt		0.00677919	g/seatbelt
SO2	0.0017	g/1000g of seatbelt		0.001920771	g/seatbelt
Remark:					
Distance between average point to averag		50			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					

C2. Transportation from car scrap plant to recycling plant	**Normalised per activity**	**Unit**	**Unit weight (g)**	**Flows passing system boundary, normalised to f.u**	**Unit/f.u.**
INFLOWS					
Energy (fuel)	0.187	MJ/1000g of seatbel	1129.865	0.211284755	MJ/seatbelt
OUTFLOWS					
CO2	13.6	g/1000g of seatbelt		15.366164	g/seatbelt
NOx	0.09	g/1000g of seatbelt		0.10168785	g/seatbelt
HC	0.012	g/1000g of seatbelt		0.01355838	g/seatbelt
Particulate matter	0.0015	g/1000g of seatbelt		0.001694798	g/seatbelt
CO	0.012	g/1000g of seatbelt		0.01355838	g/seatbelt
SO2	0.0034	g/1000g of seatbelt		0.003841541	g/seatbelt
Remark:					
Distance between average point to averag		100			
Transportation type: Medium sized distribution truck, regional distribution, Euro 3					

C3. End of life	**Normalised per activity**	**Unit**	**Unit weight (g)**	**Flows passing system boundary, normalised to f.u**	**Unit/f.u.**
INFLOWS					
Electricity (in)	0.0116563	MJ/1000g seatbelt	1129.8650	0.013170099	MJ/seatbelt
Total energy	0.0001855	MJ/1000g seatbelt		0.00020956	MJ/seatbelt
Bauxite	0	g/1000g seatbelt		0	g/seatbelt
Coal	0.0247955	g/1000g seatbelt		0.028015513	g/seatbelt
Ilmenite	0	g/1000g seatbelt		0	g/seatbelt

Iron (in)	0.0038569	g/1000g seatbelt		0.004357753	g/seatbelt
Lead (in)	0	g/1000g seatbelt		0	g/seatbelt
Limestone	0.1714169	g/1000g seatbelt		0.193677932	g/seatbelt
Manganese	0	g/1000g seatbelt		0	g/seatbelt
Natural gas	8.3154328	g/1000g seatbelt		9.395316486	g/seatbelt
Oil	0.1049928	g/1000g seatbelt		0.118627733	g/seatbelt
Olivine	0	g/1000g seatbelt		0	g/seatbelt
Pyrite	0	g/1000g seatbelt		0	g/seatbelt
Sand	2.3141279	g/1000g seatbelt		2.614652083	g/seatbelt
Sulphur	0	g/1000g seatbelt		0	g/seatbelt
Tungsten	0	g/1000g seatbelt		0	g/seatbelt
Uranium	2.143E-05	g/1000g seatbelt		2.42097E-05	g/seatbelt
Zinc (in)	0	g/1000g seatbelt		0	g/seatbelt
Iron scrap	0	g/1000g seatbelt		0	g/seatbelt
Natural rubber	0	g/1000g seatbelt		0	g/seatbelt
Raw materials	0	g/1000g seatbelt		0	g/seatbelt
Steel scrap (in)	0	g/1000g seatbelt		0	g/seatbelt
Water	0.0003428	l/1000g seatbelt		0.000387356	l/seatbelt
OUTFLOWS				0	
CO2	12.279705	g/1000g seatbelt		13.87440918	g/seatbelt
CO	0.0585389	g/1000g seatbelt		0.066141014	g/seatbelt
HC	0.0145704	g/1000g seatbelt		0.016462624	g/seatbelt
HF	0	g/1000g seatbelt		0	g/seatbelt
Pb	1.286E-06	g/1000g seatbelt		1.45258E-06	g/seatbelt
CH4	0.012342	g/1000g seatbelt		0.013944811	g/seatbelt
NOx	0.069081	g/1000g seatbelt		0.078052207	g/seatbelt
PM	0.02117	g/1000g seatbelt		0.023919225	g/seatbelt
SOx	0.0269982	g/1000g seatbelt		0.030504274	g/seatbelt
Ammonia	0.0001628	g/1000g seatbelt		0.000183994	g/seatbelt
Dissolved matter	0.001457	g/1000g seatbelt		0.001646262	g/seatbelt
Heavy metals	1.114E-07	g/1000g seatbelt		1.25891E-07	g/seatbelt
Oils	0.0006342	g/1000g seatbelt		0.000716608	g/seatbelt
Other organics	1.886E-08	g/1000g seatbelt		2.13046E-08	g/seatbelt
Phosphates	1.371E-09	g/1000g seatbelt		1.54942E-09	g/seatbelt
Suspended matter	0.0049711	g/1000g seatbelt		0.00561666	g/seatbelt
municipal and industrial waste	0.0253697	g/1000g seatbelt		0.028664334	g/seatbelt
Waste (total)	0.027941	g/1000g seatbelt		0.031569503	g/seatbelt
Remark					
Data adapted from report (LCI USCAR, 1998)					

APPENDIX V - Electricity production

Direction	Flow type	Substance	Unit	Environment	France	Germany	Italy	Austria	Tunesia	Ireland	Switzerland	Czech Republic	China	Turkey	Hungary	Belgium	Singapure	Slovenia
input	natural resource	copper in ore	kg	ground	2,471	5,743	4,103	2,631	4,450	6,736	1,030	3,558	3,713	3,601	3,476	3,1130578	4,345	2,569
		crude oil	kg	ground	1169,833	2772,983	9365,855	2047,239	12926,287	6576,330	355,700	1822,188	2869,380	3850,289	2034,966	740,69714	16562,720	1228,789
		lignite	kg	ground	312,643	1072,253	604,503	346,649	421,026	780,120	139,515	1297,375	1609,555	729,944	571,239	390,31392	470,556	825,535
		limestone	kg	ground	326,061	1219,953	598,800	725,927	240,679	816,430	424,676	1451,130	1898,597	854,314	561,467	369,44315	249,206	1016,436
		natural gas	Nm3	ground	2765,813	7911,745	33504,907	9577,347	50122,468	33357,998	852,431	3441,251	2162,562	30064,234	23122,693	17300,849	47810,907	2645,919
		hard coal	kg	ground	10554,283	91002,663	35875,111	24049,956	10305,714	56585,443	814,758	114695,397	148443,701	57154,922	39388,098	21313,034	9839,952	67621,646
		uranium ore	kg	ground	6,066	1,801	0,041	0,024	0,029	0,053	3,229	2,413	0,258	0,050	2,916	4,2802264	0,032	3,022
		water	kg	ground	2715625	6182693	4209032	1773829	3641284	4600644	1105616	7456380	8921334	3945931	3424370	2551119	4589604	4916605
		wood	kg	ground	86,594	661,680	270,144	177,090	91,153	418,927	11,619	831,620	1071,449	421,332	295,263	165,23886	87,939	493,142
							0,000	0,000	0,000	0,000	0,000		0,000	0,000	0,000		0,000	0,000
output	emission	Cd	kg	air	0,000	0,001	0,002	0,001	0,003	0,002	0,000	0,001	0,002	0,001	0,001	0,000329	0,004	0,001
		CH4	kg	air	75,688	540,599	399,668	186,446	360,571	500,199	10,477	641,424	820,133	476,218	338,399	206,58891	359,492	382,079
		CO	kg	air	12,307	42,020	63,686	25,667	80,468	68,185	6,719	40,267	48,448	60,158	45,189	32,298817	80,517	26,779
		CO2	kg	air	28514	167427	204923	76556	241619	225818	5388	181888	228312	206896	149788	98099	242327	109993
		Cs-134	kBq	air	1,777	0,528	0,012	0,007	0,008	0,016	0,946	0,707	0,076	0,015	0,854	1,2540599	0,009	0,885
		Hg	kg	air	0,002	0,016	0,006	0,004	0,001	0,009	0,000	0,020	0,026	0,009	0,006	0,0033865	0,001	0,012
		Kr-85	kBq	air	229520307	68146848	1565828	897461	1095135	2019956	122164703	91297015	9767734	1888103	110337605	161939785	1222759	114336295
		N2O	kg	air	0,826	1,322	1,735	0,571	2,146	1,703	0,369	1,413	1,538	1,435	1,275	1,0316173	2,358	1,015
		NH3	kg	air	0,119	0,753	0,296	0,197	0,086	0,457	0,025	0,949	1,217	0,456	0,325	0,1854397	0,095	0,569
		NMVOC	kg	air	13,643	35,416	106,055	26,488	147,105	85,260	4,423	25,301	34,316	60,440	39,335	23,108741	174,044	17,052
		NOX	kg	air	51,402	278,583	353,664	130,095	421,540	382,806	11,564	299,389	375,575	346,411	250,647	164,41238	428,923	182,270
		PAH	kg	air	0,001	0,004	0,013	0,004	0,019	0,013	0,000	0,003	0,003	0,012	0,009	0,0067545	0,018	0,002
		PM	kg	air	23,366	162,707	71,167	44,623	29,189	103,961	4,486	202,997	262,133	101,416	70,344	38,710778	33,329	121,044
		Pb	kg	air	0,007	0,037	0,029	0,013	0,026	0,032	0,002	0,042	0,055	0,025	0,016	0,0084468	0,032	0,025
		Rn-222	kBq	air	333819221	99103092	2244999	1153210	1592840	2924694	177560431	132778450	14157698	2696274	160487354	235543068	1778970	166247737
		SO2	kg	air	100,175	572,596	467,198	186,269	431,855	487,932	18,968	674,006	886,573	406,284	262,204	130,07783	548,452	403,840
		Sr-90	kBq	air	2,450	0,727	0,017	0,010	0,012	0,022	1,304	0,974	0,104	0,020	1,178	1,7284351	0,013	1,220
		U-238	kBq	air	18,187	10,983	2,012	1,490	0,116	3,382	9,371	14,344	10,308	3,451	10,682	13,532009	0,129	13,071
		COD	kg	water	0,230	0,814	1,327	0,415	1,664	1,213	0,077	0,799	1,033	0,941	0,642	0,39033	1,937	0,506
		Cs-134	kBq	water	315,004	93,515	2,118	1,222	1,460	2,740	167,665	125,290	13,393	2,561	151,411	222,23948	1,637	156,914
		N total	kg	water	1,280	0,847	1,103	0,294	1,431	0,875	0,646	0,907	0,689	0,590	0,884	0,9548726	1,794	0,851
		Oil	kg	water	1,203	2,898	9,924	2,242	13,803	7,269	0,368	1,862	2,827	4,573	2,635	1,2271035	17,198	1,265
		PO4-3	kg	water	1,017	8,709	3,455	2,307	1,021	5,433	0,082	10,972	14,197	5,484	3,783	2,0516422	0,978	6,471
		Sr-90	kBq	water	296,817	88,663	2,136	1,444	1,439	3,230	157,952	118,045	12,642	2,453	142,680	209,42462	1,577	147,824
		U-238	kBq	water	85,424	36,654	4,444	3,207	0,530	7,287	44,841	48,352	22,916	7,383	44,983	61,676674	0,609	50,661
		Electricity	**TJ**	**technosphere**	0,989	0,947	0,957	0,934	1,000	0,995	0,966	0,986	0,999	0,998	0,957	0,9470164	1,000	0,992
	emission	highly radio	M3	technosphere	0,001	0,000	0,000	0,000	0,000	0,000	0,001	0,000	0,000	0,000	0,000	0,0007306	0,000	0,001
		medium & l	M3	technosphere	0,013	0,004	0,000	0,000	0,000	0,000	0,007	0,005	0,001	0,000	0,006	0,0089422	0,000	0,006
		waste in de	kg	technosphere	5284,665	33334,345	14120,439	12172,012	4519,677	21046,178	3751,252	41742,605	54240,891	21974,873	14859,547	8541,8413	4376,706	25949,204

APPENDIX VI - Transportation

ROAD	Type of vehicle	Light distribution truck, short distance short distance distribution		Medium sized distribution truck, regional distribution		Truck with semi-trailer, long distance transport		Truck with draw bar trailer, long distance transport		
	Pay load capacity (t)	1.5 - 8.5		8.5 - 15		26		40		
		Euro 2	**Euro 3**	**Euro 2**	**Euro 3**	**Euro 2**	**Euro 3**	**Euro 2**	**Euro 3**	
	Energy									
	Energy MJ/tkm	2,41		1,87		0,72		0,65		
	Emissions (g/tkm)									
	CO2	176	176	136	136	52	52	48	48	
	NOx	1,6	1,1	1,2	0,9	0,46	0,33	0,42	0,3	
	HC	0,16	0,16	0,12	0,12	0,047	0,047	0,043	0,043	
	Particulate matter	0,025	0,019	0,019	0,015	0,0074	0,0057	0,0067	0,0052	
	CO	0,17	0,15	0,13	0,12	0,049	0,046	0,045	0,041	
	SO2	0,043	0,043	0,034	0,034	0,013	0,013	0,01	0,01	
		Euro 2 - vehicles produced 1996-2000				Euro 3 - vehicles produced 2000-2005				
SEA	**Type of ship**	**RoRo ship**	**Small ship**	**Medium ship**	**Large ship**					
	Size (capacity)	**2000-30000**	**<2000**	**2000-8000**	**>8000**					
	Approx. speed (knots)	**10-20**	**11**	**13**	**14**					
	Energy									
	Energy MJ/tkm	0,349	0,432	0,299	0,216					
	Emissions (g/tkm)									
	CO2	24,9	30,8	22	15,4					

	NOx	0,67	0,729	0,54	0,429					
	HC	0,032	0,02	0,018	0,02					
	Particulate matter	0,0335	0,0246	0,02	0,0204					
	CO	0,0134	0,042	0,025	0,0087					
	SO2	0,424	0,515	0,36	0,262					
TRAIL	**Railroad transport**	**Rail car goods train**	**System train**							
	Electricity									
	Electricity (MJ/tkm)	0,151	0,18							
	Energy									
	Energy MJ/tkm	0,245								
	Emissions (g/tkm)									
	CO2	18								
	NOx	0,36								
	HC	0,023								
	Particulate matter	0,008								
	CO	0,019								
	SO2	0,00014								
AIR*	**Air transport**	**Data as collected**	**Unit**							
	Energy									
	Energy	1	kg/1000km	45	MJ/tkm					
	Emissions									
	CO2	3,154	kg/1000km	3154	(g/tkm)					
	NO2	0,016	kg/1000km	16	(g/tkm)					
	PM 2.5	0,0002	kg/1000km	0,2	(g/tkm)					
	CO	0,00102	kg/1000km	1,02	(g/tkm)					
	SO2	5,00E-05	kg/1000km	0,05	(g/tkm)					
	methane	2,84E-06	kg/1000km	0,002836	(g/tkm)					
	N2O	0,001	kg/1000km	1	(g/tkm)					
***data adapted from Plane; technology mix, cargo; 68t payload (ELCD, 2000)**										

Appendix VII Inventory results

In this section the inventory results concerning emissions (selected substances), energy and water consumption and total waste for the seatbelt's components production, use phase, and end of life are presented.

1.1. Production

1.1.1. Pretensioner retractor

The activities included in technical system for producing pretensioner retractor are:

- Manufacturing of metals (steel, alloys, aluminium, silver, copper etc.)
- Manufacturing of metal parts (loaded cup, tube, sensor car sense, rivet blindniet, collector, frame, rivet nut, spring retraction, safety plate, gear wheel, bar torsion and gear ring)
- Gold, nickel, copper, chromium and zinc coatings
- Manufacturing of raw materials (acrylic resin, polyamide 6.6, PET, ceramic glass, elastomers, ceramic paper and glass fiber ...)
- Production of Frame
- Production of Collector
- Production of Ball guide
- Production of Rivet Blindniet
- Production of Tube
- Production of Cover spring side green
- Production of Cover spring side
- Production of Rivet nut
- Production of Spindle
- Production of Sensor, web sense
- Production of Bearing plate
- Production of Sensor car sense
- Production of Ball, car sense
- Production of Cap
- Production of Label identification
- Production of Label bam
- Assembling of Pretensioner retractor
- Transportations between manufacturing sites
- Electricity generation

Table 1 Emissions from the processes connected with production of pretensioner retractor for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO_2	4032.207773	g	Production of steel
HC	0.293501324	g	Transport
NO_x	17.44165553	g	Transport
SO_2	26.33819802	g	Transport
CH_4	10.55498163	g	Production of steel
NH_3	0.026203361	g	Production of alloy
PM	2.104648982	g	Production of steel

Table 2 Energy consumption for processes connected with production of pretensioner retractor for one unit of seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	82.82741903	MJ	Production of steel
Fuel	3.547027299	MJ	Transport
Electricity	9.266643625	MJ	Production of frame
Coal	29.61371502	MJ	Production of steel
Gas	22.01100785	MJ	Production of bobbin
Wood	3.047682994	MJ	Production of paper
Oil	15.01193568	MJ	Production of steel

Table 3 Water consumption for the processes connected with production of pretensioner retractor for one unit of seatbelt module

Water		
Amount	**Unit**	**Main source**
285.7390562	liter	Production of aluminium

Table 4 Waste connected with production of pretensioner retractor for one unit of seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	1736.93722	g	Production of steel
Hazardous waste	1.542271938	g	Production of steel

1.1.2. Pin for webbing

The activities including as technical system for producing Pin for webbing are:

- Production of POM
- Transport of POM
- Manufacturing of Pin webbing
- Transport of Pin webbing
- Production of electricity

Table 5 Emissions connected with production of pin for webbing for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	4.619246162	g	Production of POM
HC	0.00015886	g	Transport
NOx	0.002962928	g	Production of pin
SO2	0.009779452	g	Production of POM
CH4	0.026203851	g	Production of POM
NH3	9.20723E-06	g	Production of POM
PM	0.000560151	g	Production of pin

Table 6 Energy consumption connected with production of pin for webbing for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	0.148229233	MJ	Production of pin
Fuel	0.0024336	MJ	Transport
Electricity	0.005333333	MJ	Production of pin
Coal	0.004556805	MJ	Assembly
Gas	0.048620561	MJ	Production of pin
Wood	3.30324E-05	MJ	Production of pin
Oil	0.08642416	MJ	Production of pin

Table 7 Water consumption connected with production of pin for webbing for one seatbelt module

Water		
Amount	**Unit**	**Main source**
6.501426058	liter	Production of POM

Table 8 Waste generation connected with production of pin for webbing for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	0.164914068	g	Production of pin
Hazardous waste	0.003406456	g	Production of POM

1.1.3. Guide for webbing

The activities including as technical system for producing guide for webbing are:

- Production of POM - thermoplastic
- Transport of POM
- Manufacturing of guide for webbing
- Transport of guide for webbing
- Production of electricity

Table 9 Emissions connected with production of guide for webbing for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	42,1846568	g	Production of guide
HC	0,000615926	g	Transport
NOx	0,051747862	g	Production of guide
SO2	0,135693906	g	Production of guide
CH4	0,19152491	g	Production of guide
NH3	0,000176113	g	Production of guide
PM	0,032229452	g	Production of guide

Table 10 Energy consumption connected with production of guide for webbing for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	1.18652498	MJ	Production of guide
Fuel	0.009435456	MJ	Transport
Electricity	0.1584	MJ	Production of guide
Coal	0.495127706	MJ	Production of guide
Gas	0.182494813	MJ	Production of guide
Wood	0.00193641	MJ	Production of guide
Oil	0.335985178	MJ	Production of guide

Table 11 Water consumption connected with production of guide for webbing for one seatbelt module

Water		
Amount	**Unit**	**Main source**
25.80653871	liter	Production of guide

Table 12 Waste generation connected with production of guide for webbing for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	7.622292013	g	Production of guide
Hazardous waste	0.012944534	g	Production of POM

1.1.4. Webbing

The activities including as technical system for producing webbing are:

- Production of yarn/PET
- Production of dyestuff
- Production of auxiliaries
- Transport of yarn/PET
- Transport of dyestuff
- Transport of auxiliaries
- Manufacturing of webbing
- Transport of webbing
- Production of electricity

Table 13 Emissions connected with production of webbing for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	128.9600543	g	Production of webbing
HC	0.050120933	g	Transport
NOx	1.308971864	g	Transport
SO2	0.829887316	g	Transport
CH4	0.148695906	g	Production of webbing
NH3	0.000130287	g	Production of webbing
PM	0.069431153	g	Transport

Table 14 Energy consumption connected with production of webbing for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	20.90271626	MJ	Production of Yarn/PET
Fuel	0.815153219	MJ	Transport
Electricity	0.699566527	MJ	Production of webbing
Coal	2.132427462	MJ	Production of Yarn/PET
Gas	10.11317815	MJ	Production of Yarn/PET
Wood	0.001699255	MJ	Production of webbing
Oil	7.038687352	MJ	Production of webbing

Table 15 Water consumption connected with production of webbing for one seatbelt module

Water		
Amount	**Unit**	**Main source**
71.78911842	liter	Production of Yarn/PET

Table 16 Waste generation connected with production of webbing for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	12.67165876	g	Production of Yarn/PET
Hazardous waste	0.500905882	g	Production of Yarn/PET

1.1.5. Pillar loop

The activities including as technical system for producing Pillar loop are:

- Production of steel (C60S)
- Production of zinc for coating
- Production of zinc for layer
- Production of POM - thermoplastic
- Transport of POM - thermoplastic
- Transport of steel
- Transport of zinc for coating
- Transport of zinc for layer
- Manufacturing of pillar loop
- Transport of pillar loop
- Production of electricity

Table 17 Emissions connected with production of pillar loop for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	238.186299	g	Production of steel
HC	0.005325765	g	Transport
NOx	0.251741209	g	Transport
SO2	0.605143255	g	Production of pillar loop
CH4	0.884381706	g	Production of steel
NH3	0.000734419	g	Production of pillar loop
PM	0.125836423	g	Production of pillar loop

Table 18 Energy consumption connected with production of pillar loop for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	5.625062272	MJ	Production of steel
Fuel	0.093791542	MJ	Transport
Electricity	0.769422042	MJ	Production of pillar loop
Coal	2.765177805	MJ	Production of steel
Gas	0.913929157	MJ	Production od POM
Wood	0.007483938	MJ	Production of pillar loop
Oil	1.065028701	MJ	Production of steel

Table 19 Water consumption connected with production of pillar loop for one seatbelt module

Water		
Amount	**Unit**	**Main source**
67.56850026	liter	Production of pillar loop

Table 20 Waste generation connected with production of pillar loop for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	79.12695472	g	Production of steel
Hazardous waste	0.138121678	g	Production of steel

1.1.6. Tongue

The activities including as technical system for producing tongue are:

- Production of thermoplastic E/P
- Production of chromium for coating
- Production of cooper for coating
- Production of steel (C60E)
- Production of e-plate nickel
- Transport of E/P
- Transport of steel
- Transport of chromium for coating
- Transport of cooper for coating
- Manufacturing of tongue
- Transport of tongue
- Production of electricity

Table 21 Emissions connected with production of tongue for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	132.2352489	g	Production of steel
HC	0.003503772	g	Transport
NOx	0.129388577	g	Production of tongue
SO2	0.314320621	g	Production of steel
CH4	0.493392127	g	Production of steel
NH3	0.000463401	g	Production of tongue
PM	0.061626554	g	Production of tongue

Table 22 Energy consumption connected with production of tongue for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	3.360150609	MJ	Production of steel
Fuel	0.062059807	MJ	Transport
Electricity	0.37614571	MJ	Production of tongue
Coal	1.900630966	MJ	Production of steel
Gas	0.53663456	MJ	Production of steel
Wood	0.003659008	MJ	Production of tongue
Oil	0.469567658	MJ	Production of steel

Table 23 Water consumption connected with production of tongue for one seatbelt module

Water		
Amount	**Unit**	**Main source**
13.58993122	liter	Production of tongue

Table 24 Waste generation connected with production of tongue for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	64.713248	g	Production of steel
Hazardous waste	0.105132996	g	Production of steel

1.1.7. Stop button cover

The activities including as technical system for producing Stop button cover are:

- Production of POM - thermoplastic
- Transport of POM - thermoplastic
- Manufacturing of stop button cover
- Transport of stop button cover
- Production of electricity

Table 25 Emissions connected with production of stop button cover for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	2.215162429	g	Production of button
HC	0.00004776	g	Transport
NOx	0.002564574	g	Production of button
SO2	0.006440657	g	Production of button
CH4	0.01019755	g	Production fo POM
NH3	7.66017E-06	g	Production of button
PM	0.001294611	g	Production of button

Table 1 Energy consumption connected with production of stop button cover for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	0.064205743	MJ	Production of POM
Fuel	0.00074426	MJ	Transport
Electricity	0.00792	MJ	Production of button
Coal	0.020094692	MJ	Production of POM
Gas	0.012950922	MJ	Production of POM
Wood	7.70504E-05	MJ	Production of button
Oil	0.022211884	MJ	Production of button

Table 27 Water consumption connected with production of stop button cover for one seatbelt module

Water		
Amount	**Unit**	**Main source**
1.669062202	liter	Production of POM

Table 28 Waste generation connected with production of stop button cover for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	0,275936685	g	Production of button
Hazardous waste	0,000851614	g	Production of POM

1.1.8. Stop button loop

The activities including as technical system for producing Stop button loop are:

- Production of POM - thermoplastic
- Transport of POM - thermoplastic
- Manufacturing of stop button loop
- Transport of stop button loop
- Production of electricity

Table 29 Emissions connected with production of stop button loop for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO_2	2.215162429	g	Production of button
HC	0.00004776	g	Transport
NO_x	0.002564574	g	Production of button
SO_2	0.006440657	g	Production of button
CH_4	0.01019755	g	Production fo POM
NH_3	7.66017E-06	g	Production of button
PM	0.001294611	g	Production of button

Table 30 Energy consumption connected with production of stop button loop for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	0.064205743	MJ	Production of POM
Fuel	0.00074426	MJ	Transport
Electricity	0.00792	MJ	Production of button
Coal	0.020094692	MJ	Production of POM
Gas	0.012950922	MJ	Production of POM
Wood	7.70504E-05	MJ	Production of button
Oil	0.022211884	MJ	Production of button

Table 31 Water consumption connected with production of stop button loop for one seatbelt module

Water		
Amount	**Unit**	**Main source**
1.669062202	liter	Production of POM

Table 32 Waste generation connected with production of stop button loop for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	0.275936685	g	Assembly
Hazardous waste	0.000851614	g	Assembly

1.1.9. Sleeve data carrier

The activities including as technical system for producing Sleeve data carrier are:

- Production of thermoplastic E/P
- Transport of E/P
- Manufacturing of sleeve data carrier
- Transport of sleeve data carrier
- Production of electricity

Table 33 Emissions connected with production of sleeve data carrier for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	19.69431334	g	Production of sleeve
HC	0.00057312	g	Transport
NOx	0.020344754	g	Production of sleeve
SO2	0.057602927	g	Production of sleeve
CH4	0.116328643	g	Production of E/P
NH3	6.20261E-05	g	Production of sleeve
PM	0.009443577	g	Production of sleeve

Table 34 Energy consumption connected with production of sleeve data carrier for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	0.642334611	MJ	Production of E/P
Fuel	0.00893112	MJ	Transport
Electricity	0.0576	MJ	Production of sleeve
Coal	0.154617359	MJ	Production of sleeve
Gas	0.180467403	MJ	Production of E/P
Wood	0.000560258	MJ	Production of sleeve
Oil	0.235540022	MJ	Production of E/P

Table 35 Water consumption connected with production of sleeve data carrier for one seatbelt module

Water		
Amount	**Unit**	**Main source**
6.709630225	liter	Production of E/P

Table 36 Waste generation connected with production of sleeve data carrier for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	2.091393296	g	Production of sleeve
Hazardous waste	0.01223382	g	Production of E/P

1.2. Assembly

In the assembly process following activities was considered:

- Assembly process of all components

Table 37 Emissions connected with assembly for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	50.23395655	g	-
HC	0	g	-
NOx	0.087930026	g	-
Sox	0.088224114	g	-
CH4	0.113488102	g	-
NH3	0.000109065	g	-
PM	0.023591165	g	-

Table 38 Energy consumption connected with assembly for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	1.167564136	MJ	-
Fuel	0	MJ	-
Electricity	0.335367906	MJ	-
Coal	0.347409957	MJ	-
Gas	0.458560645	MJ	-
Wood	0.001455619	MJ	-
Oil	0.02477001	MJ	-

Table 2 Water consumption connected with assembly for one seatbelt module

Water		
Amount	**Unit**	**Main source**
1.401472901	liter	-

Table 40 Waste generation connected with assembly for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	258.03246	g	-
Hazardous waste	2.21028E-09	g	-

1.3. Installation

- Transportation to Audi Ingolstadt, Germany
- Installation in the car

Table 41 Emissions connected with installation for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	37.4761715	g	Transport
HC	0.03080012	g	Transport
NOx	0.221912501	g	Transport
SOx	0.020145168	g	Installation
CH4	0.010976324	g	Installation
NH3	1.52959E-05	g	Installation
PM	0.007038941	g	Installation

Table 3 Energy consumption connected with installation for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	0.497995677	MJ	Transport
Fuel	0.471831624	MJ	Transport
Electricity	0.020304	MJ	Installation
Coal	0	MJ	Installation
Gas	0.005662562	MJ	Installation
Wood	0.000197491	MJ	Installation
Oil	0	MJ	Installation

Table 43 Water consumption connected with installation for one seatbelt module

Water		
Amount	**Unit**	**Main source**
0.1255334	liter	Installation

Table 44 Waste generation connected with installation for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	0.676879379	g	Installation
Hazardous waste	7.64055E-11	g	Installation

1.4. Use phase of seatbelt

The activities including as technical system for use phase of seatbelt are:

- Car operation (fuel production and consumption)
- Maintenance and repair

Table 45 Emissions connected with use phase for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	35482.22898	g	Use
HC	1.235097354	g	Use
NOx	13.84253909	g	Use
SOx	2.642883092	g	Use
CH4	2.689702506	g	Use
NH3	10.83501757	g	Use
PM	11.57183683	g	Use

Table 46 Energy consumption connected with use phase for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	512.2666463	MJ	Use
Fuel	506.1184462	MJ	Use
Electricity	0.752696108	MJ	Maintanance
Coal	1.645545107	MJ	Use
Gas	0	MJ	Use
Wood	0	MJ	-
Oil	3.744710062	MJ	Maintanance

Table 47 Water consumption connected with use phase for one seatbelt module

Water		
Amount	**Unit**	**Main source**
0	liter	Maintanance

Table 48 Waste generation connected with use phase for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	0.198967051	g	Maintanance
Hazardous waste	0	g	-

1.5. End of life of seatbelt

The activities for end of life phase of seatbelt include:

- Used car transported to car scrap company (50km)
- Car with removed liquids and hazardous substances in the packaged form is transported to recycling plant (100km)
- Deployment of seatbelt
- Recycling of the seatbelt
- Incineration of not recycled parts

Table 4 Emissions connected with end of life for one seatbelt module

Emissions			
Substance	**Amount**	**Unit**	**Main source**
CO2	36.92365518	g	Transport
HC	0.036800194	g	Shredding
NOx	0.230583982	g	Transport
SOx	0.036266586	g	Shredding
CH4	0.013944811	g	Shredding
NH3	0.000183994	g	Shredding
PM	0.026461421	g	Shredding

Table 50 Energy consumption connected with end of life for one seatbelt module

Energy consumption			
Sort	**Amount**	**Unit**	**Main source**
Total energy	9.872266524	MJ	Shredding
Fuel	0.316927133	MJ	Transport
Electricity	0.013170099	MJ	Shredding
Coal	0.028015513	MJ	Shredding
Gas	9.395316486	MJ	Shredding
Wood	0	MJ	-
Oil	0.118627733	MJ	Shredding

Table 51 Water consumption connected with end of life for one seatbelt module

Water		
Amount	**Unit**	**Main source**
0	liter	-

Table 52 Waste generation connected with end of life for one seatbelt module

Waste			
Sort	**Amount**	**Unit**	**Main source**
Total waste	0.031569503	g	Shredding
Hazardous waste	0	g	-