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Background report for the life cycle inventories of wood and wood based products for updates of ecoinvent 2.2

Commissioned by the Swiss Federals Office for the Environment (FOEN)

6th of March 2017

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1 Introduction

1.1 Scope of the document

This report documents the life cycle inventories for forestry processes and wood products as they have been integrated into the structure of ecoinvent 2.2:2016. The life cycle inventories had been created originally in ecoinvent 3 under the project „Aktualisierung der Modelle und Datensätze zu Holz und Holzprodukten in der Datenbank ecoinvent“, commissioned by the Federal Office for the Environment (FOEN) (Werner et al. 2014).

The updated life cycle inventories covered in this report include:

- forestry processes for Switzerland, Sweden and Germany,
- production of sawn timber products and other wood products from sawmills for Switzerland and Europe,
- production of wood based panels in Europe.

The updated processes follow the methodological approach of ecoinvent 2.2 (Frischknecht et al. 2007), notably:

- the cut-off approach related to the input or output of secondary material or secondary fuels to the unit process;
- mass-based co-product allocation of the biogenic carbon content and primary energy content as material inherent properties, regardless of the allocation of other inputs and outputs to the process;
- no use of market datasets but integration of transport and eventual averaging of different inputs according to markets directly within the unit processes of ecoinvent 2.2;
- nomenclature of processes in line with ecoinvent 2.2 guidance.

Several other groups of updated life cycle inventories in the above-mentioned FOEN project, e.g. related to wood preservation, wood combustion processes or waste treatment processes have not been integrated into the structure of ecoinvent 2.2:2016.

As a result, all processes in updated version of ecoinvent 2.2:2016 now link to the updated processes of the wood chain; this implies that the previous datasets related to forestry or sawmilling processes have become obsolete.

1.2 Procedural and methodological aspects of the update and conversion of datasets

Originally, the datasets of the FOEN project were created as unallocated datasets in ecoinvent 3 via the EcoEditor for ecoinvent 3 according to the quality requirements of ecoinvent 3 3 (Weidema et al. 2013). The datasets documented in this project have been created from the export of ecoinvent 3.1 with the system model „cut-off by classification“, which was developed by the ecoinvent centre to mimic the methodological approach of ecoinvent 2.2.

For the inclusion of the datasets exported from ecoinvent 3 into the logic of ecoinvent 2, several adjustments had to be made to the original datasets, among them:

- the allocation correction for the content of biogenic carbon and renewable primary energy content; deviating from the original ecoinvent 2.2 approach, the corrections were not made with specific datasets for allocation correction but directly within the individual datasets, correcting the resource input of CO_2 from atmosphere and of renewable primary energy for the surplus or lack of wood input as compared to the wood content of the product of the unit process.
- the deletion of the market datasets from ecoinvent 3 and then a direct relinking of the „activity datasets" plus the addition of transport processes to each of the „activity datasets" converted from ecoinvent 3. As the transport data for the wood chain in ecoinvent 3 is not considered very accurate, the transport data from comparable ecoinvent 2 datasets were used instead.
- for some processes, more accurate wood inputs from different origins was introduced to better reflect the market conditions in Switzerland, e.g. for the input of hardwood logs for the production of sawn wood from hardwood in Switzerland. Such market data was taken from the „Jahrbuch Wald und Holz" (BAFU 2016) or from FAOStat for Switzerland for the years 2015 or 2014. The same sources were used to establish datasets „at regional storage/CH" as a mixture of products from different origins (plus transport).
- this relinking was also done for datasets that use wood as an input but that were not updated in the above-mentioned FOEN project, e.g. for buildings, agricultural infrastructure, bioenergy production, wood fuels for combustion, etc. The complete relinking is documented in Annex A.1.
- for the sake of unambiguity, residual wood and woody bulk materials such as chips or pellets are expressed in kg dry mass (not in m^3 solid or bulked). This implied a conversion of units for these inputs from m^3 bulked or solid to kg dry mass. Dry matter content as documented in the corresponding ecoinvent 3 datasets was used, see Annex A.5.
- in ecoinvent 3, land use of forestry is attributed to the different functions of forestry based on the revenues of the forestry units. For the sake of consistency with the assumptions underlying the updated assessment method Ecological scarcity 2013 (Frischknecht & Büsser, 2014), the values for land occupation and land transformation have been adjusted and attributed exclusively to the production function of forests. This implies that a) the method should be adjusted to allow for allocation on LCI level, and b) that *ecoinvent 2.2:2016 and beyond shall not be used for the assessment of land use of forestry products in LCA outside the ecological scarcity method 2013***.**

The use of exported datasets from ecoinvent 3 implies that the co-allocation principles and allocation factors were not modified. This means for the updated datasets:

- most co-product allocations are based on economic allocation using „global" prices as established by the ecoinvent centre (see Annex A.3).
- the forestry processes were modelled as joint co-production processes, basically implying a mass-based allocation of all inputs and outputs. This seems justifiable in the sense that the environmental relevance of joint co-production processes such as the stand establishment, maintenance of forest roads and the cutting itself cause a minor share of the total environmental impacts whereas the hauling of the harvested wood and eventually further processing of individual assortments (e.g. to wood chips) can specifically be allocated to the individual forestry products (based on mass).

In addition to that, some more changes have been introduced:

- the forestry processes are now modelled as 1 unit process (not 3 as in ecoinvent 2) that includes all processes from site preparation, tending, thinnings and final harvests up to the final products at forest road. The process includes also environmental flows related to the resource aspects of the harvested wood such as biogenic carbon content, primary energy content and land occupation/transformation.
- a RER sawmilling process chain has been generated as a copy of the Swiss sawmilling process chain with inputs of European wood and European electricity mix. The yields of the individual processes as well as the required energy input have not been modified.
- swelling and shrinking of wood below a moisture content of u = 30 % has been taken into account; this implies that the dry matter content/m^3 differs depending on the moisture of the wood product.

1.3 Corrections of data

Several corrections have been made to the datasets in ecoinvent 3. The corresponding corrections have also been made to the datasets described in this report. Those corrections were:

- adjustment of the equation for the allocation of skidding in all datasets, affecting the datasets of cleft timber,
- adjustment of the total yield of spruce forestry in Germany, affecting all datasets of forestry products from spruce in Germany
- adjustment of the productivities for harvesting, forwarding and for the power sawing in Swedish forestry processes, affecting all datasets of forestry products for Swedish forests.

The corrections are documented in Annex A.6 in the respective datasets.

2 Update of the forestry processes

2.1 Overview of the updated forestry processes

The following **forestry machinery** was inventoried as infrastructure datasets. The datasets start with the semi-finished products and raw materials at the factory gate and account for the input and disposal of all materials, their (pre-) processing and the energy required for the production and maintenance of the forest machinery represented by this dataset. In addition, material for and emissions from disassembly are included.
Infrastructure for the production and maintenance of the machinery was inventoried as a rough guess from lorry production.
The datasets do not contain fuel consumption or related emissions. These issues are inventoried in the respective dataset on the operation of the machinery (see below):

- forestry harvester, at plant/p/RER/I
- forwarder, at plant/p/RER/I
- skidder, at plant/p/RER/I
- cable yarder with sled winch, at plant/p/RER/I
- mobile cable yarder, trailer-mounted, at plant/p/RER/I
- mobile cable yarder, truck-mounted, incl. processor, at plant/p/RER/I
- energy wood harvester, at plant/p/RER/I
- terrain chipper on forwarder, at plant/p/RER/I

The dataset for the power saw in ecoinvent 2 has been checked and considered to be still valid.

For each type of forest machinery and for some machines already existing in ecoinvent 2, a corresponding dataset was inventoried or updated, reflecting average/legal conditions in Europe. The services covered in these datasets begin with the transport of the machinery to the logging site; the datasets include the input of machinery infrastructure, the input of diesel fuel, lubricants/greases as well as their disposal, and the emissions into air from diesel consumption. Wood is not included in the datasets:

- harvesting, forestry harvester/hr/RER
- forwarding, forwarder/hr/RER
- power sawing, without catalytic converter/hr/RER
- skidding/hr/RER
- cable yarding, sled yarder/hr/RER
- cable yarding, mobile cable yarder on trailer/hr/RER
- delimbing/sorting, excavator-based processor/hr/RER
- cable yarding and processing, mobile cable yarder on truck/hr/RER
- harvesting/bundling, energy wood harvester/hr/RER
- wood chipping, chipper, mobile, diesel, at forest road/hr/RER

- wood chipping, forwarder with terrain chipper, in forest/hr/RER

For the production of tree seedlings, two datasets for **seedling production** have been inventoried. The dataset refers to the production of 1000 tree seedlings. The datasets contain the production of tree seedlings in a tree nursery for plantation in forests. The seedlings are produced in an unheated or a heated greenhouse and packed for transport. The seedlings go with a packaging of 1.05 kg of growing dras (HDPE), 3.65 kg of plant boxes from cardboard and 0.0525 kg of stretch wrap (LLDPE), to be recycled or disposed of after planting.

The activity starts with the establishment of the greenhouse with HDPE film and considers soil improvement, fertilization, transport of inputs and transport packaging materials. The dataset also contains the disposal of the transport packaging (after plantation of the seedling); the activity ends with the seedlings packed for transportation[1].

- tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER
- tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER

Forestry processes have been modelled as co-production processes for three regions: Switzerland, Germany and Sweden.

The **forestry processes for Switzerland** are modelled for average softwood and average hardwood. The datasets represent sustainable forest management practices and cover the weighted average of several harvesting systems employed in Switzerland related to the harvesting of an average m^3 of solid wood under bark. Three main assortments are distinguished as reference products of Swiss wood production: sawlogs, industrial wood (pulp wood) and wood fuel, which can be processed to chips (at forest road or in the stand), bundles of energy wood, or cleft timber.

The activity starts with site preparation assuming natural regeneration and includes all process related to forest management such as clearing, tending, pruning, thinnings and harvesting operations over one rotation period. It covers also the maintenance of forest roads. For specific assortments, the activity also includes the processing of wood fuel to chips, bundles and cleft timber; the activity ends with the assortments at the forest road and includes eventual drying before transportation.

For *hardwood*, the datasets refer to 1 m^3 of hardwood under bark with an average density of 640 kg o.d./m^3 as an average as the most frequently used hardwood species in Switzerland (Sell 1997): European beech (*Fagus silvatica*): 640- 720 kg o.d./m^3, European oak (*Quercus robur*): 600 - 700 kg o.d./m^3. Densities of other hardwood species, however, can differ considerably. CO_2 uptake is based on 49.4 % carbon in the wood and includes 10 % of bark:

- sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH
- pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH
- cleft timber, hardwood, sustainable forest management, measured as dry mass, at forest road/kg/CH

[1] The datasets do not contain data on water use, frame infrastructure of the greenhouse and on the use of fungicides, insecticides etc. as the source does not provide this information.

- wood chips, hardwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH

For *softwood*, the datasets refer to 1 m^3 of softwood under bark with an average dry wood density of 440 kg o.d./m^3. Densities of specific softwood species, however, can differ considerably, e.g. (Sell 1997): European spruce (*Picea abies*): 400 - 430 kg o.d./m^3, Silver fir (*Abies alba*): 400 - 450 kg o.d./m^3, Swiss pine (*Pinus cembra*): 350 - 450 kg o.d./m^3, European larch (*Larix decidua*): 500 - 580 kg o.d./m^3, Scots pine (*Pinus silvatica*): 460 - 510 kg o.d./m^3, Maritime pine (*Pinus pinaster*): 450 kg - 550/m^3. CO_2 uptake is based on 49.4 % carbon in the wood and includes 12 % of bark.

- sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH
- pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH
- cleft timber, softwood, sustainable forest management, measured as dry mass, at forest road/kg/CH
- wood chips, softwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH

and as average dataset:

- cleft timber, production mix, sustainable forest management, measured as dry mass, at regional storage/kg/CH

The **forestry processes for Germany** are modelled for beech, oak, pine and spruce from sustainable forest management as the prevailing management practice in Germany. They result in the same assortments as listed (theoretically) for Switzerland.

The activity starts with site preparation assuming establishment of the forest via planting, including seedling production and covers all process related to forest management such as site preparation, planting, tending, young growth tending, clearing, thinnings and harvesting operations including over one rotation period. It covers also the maintenance and construction of forest roads For specific assortments, the activity also includes the processing of wood fuel to chips, bundles and cleft timber; the activity ends with the assortments at the forest road and includes eventual drying before transportation.

The following datasets have been created (for the wood properties, see Table 2-10):

For beech:

- sawlog and veneer log, beech, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
- pulpwood, beech, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
- cleft timber, beech, sustainable forest management, measured as dry mass, at forest road/kg/DE
- wood chips, beech, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE

For oak:

- sawlog and veneer log, oak, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
- pulpwood, oak, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
- cleft timber, oak, sustainable forest management, measured as dry mass, at forest road/kg/DE
- wood chips, oak, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE

For pine

- sawlog and veneer log, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
- pulpwood, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
- cleft timber, pine, sustainable forest management, measured as dry mass, at forest road/kg/DE
- wood chips, pine, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE

For spruce:

- sawlog and veneer log, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
- pulpwood, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
- cleft timber, spruce, sustainable forest management, measured as dry mass, at forest road/kg/DE
- wood chips, spruce, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE

The **forestry processes for Sweden** are modelled for birch, pine and spruce from sustainable forest management as the prevailing management practice in Sweden. They result in the same assortments as listed (theoretically) for Switzerland.

The activity starts with site preparation assuming natural regeneration and/or planting including seedling production (as applicable for the species) and includes all process related to forest management such as site preparation, planting, tending, young growth tending, clearing, thinnings and harvesting operations over one rotation period. It covers also the maintenance and construction of forest roads. For specific assortments, the activity also includes the processing of wood fuel to chips, bundles and cleft timber; the activity ends with the assortments at the forest road and includes eventual drying before transportation.

The following datasets have been created (for the wood properties, see Table 2-15):

For birch:

- sawlog and veneer log, birch, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
- pulpwood, birch, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
- cleft timber, birch, sustainable forest management, measured as dry mass, at forest road/kg/SE
- wood chips, birch, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE
- bundle, energy wood, birch, sustainable forest management, measured as dry mass, at forest road/kg/SE

For pine:

- sawlog and veneer log, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
- pulpwood, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
- cleft timber, pine, sustainable forest management, measured as dry mass, at forest road/kg/SE
- wood chips, pine, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE
- bundle, energy wood, pine, sustainable forest management, measured as dry mass, at forest road/kg/SE

For spruce:

- sawlog and veneer log, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
- pulpwood, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
- cleft timber, spruce, sustainable forest management, measured as dry mass, at forest road/kg/SE
- wood chips, spruce, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE
- bundle, energy wood, spruce, sustainable forest management, measured as dry mass, at forest road/kg/SE

For the convenience of „downstream“ users of the forestry datasets, **some mixed RER datasets** have been generated:

- sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
- pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER

- sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
- pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
- cleft timber, production mix, sustainable forest management, measured as dry mass, at forest road/kg/RER
- wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER

2.2 Introduction

The production of wood as biogenic renewable raw material is associated with several aspects that need special attention in life cycle assessment:

- Wood is extracted from a natural system – the forest – that can be managed with different intensities. In general, the natural processes such of tree growth or of the forest as natural system are not considered in LCA, whereas all the technical aspect of forest management are part of the LCA. This implies among other things that changes in forest carbon pools are included if sustainable forest management cannot be assumed (see below).
- The production of wood happens over a rotation period of many years that can add up to 130 to 150 year in temperate climate zones. Beyond that, wood is produced in a "system" that can be managed sustainably or not sustainably. The prevailing practices in Europe are based on the principles of sustainable forest management. This means that within this "system" wood shall not be harvested beyond the level that is re-grown. This implies at least for the impacts on forest carbon pools that it does not matter whether harvesting occurs as minor clear-cuts or as single-tree harvesting.
- European forestry is dedicated to the principles of multi-functional forest management. According to these principles, the production function of forests is considered equally important as the protective function, the function to preserve biodiversity, or the recreation function.
- Only in exceptional cases, a forest is managed explicitly and exclusively for the production of one specific assortment. Usually, European forest are managed in a way that the total revenues from the different assortments are maximized, for which current and expected market conditions are taken into consideration. This can result in shifts in the share of the different assortments over time.

For the modelling of the Swiss and European forestry processes in ecoinvent 3, this has the following implications:

- The datasets of the European forestry have been modelled as "combined production" processes according to the ecoinvent 3 quality guidelines (Weidema et al. 2013). It is assumed that the different assortments can/could be produced independently from each other (leaving some unused biomass in the forest), or that some degrees of freedom exist at what point in

time how much of an assortment is harvested. This implies as a result of the modelling approach that the inputs of the forest management are attributed in a fixed way to the different assortments via their respective production volumes[2].

- All inputs to forestry over one rotation period are attributed to the total harvested volume over one rotation period. This includes inputs for stand establishment and all subsequent forestry interventions as well as the inputs needed for the maintenance of (or construction of new) forest roads. To this end, the originally 3 datasets used to model forestry processes in ecoinvent 2 – the resource related aspects, the interventions without direct products as well as the harvesting processes – have been merged into one process in ecoinvent 3 and thus also for the updated processes in ecoinvent beyond 2.2. The further processing of individual assortments, e.g. the processing of energy wood into chips or the clefting of energy wood at the forest road – have been allocated exclusively to the respective assortments/products. Thus, a single dataset "at forest road" includes all the forestry related inputs/processes (see Figure 2-1).

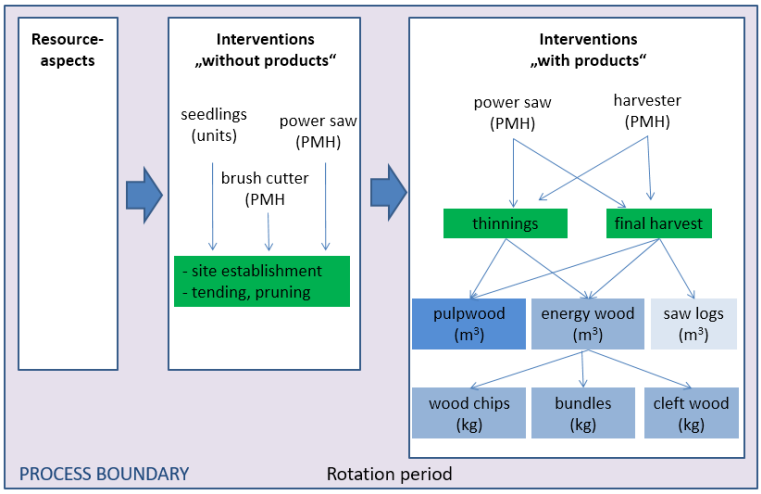


Figure 2-1: Integration of the forestry processes into one dataset in ecoinvent 3

- For sustainably managed forests, it can be assumed that the carbon pools of a forestry system – thus not when considering single trees but the forested area of a forest management unit, or even on regional or national scale – are constant; spatially variable or temporary changes in forest carbon pools can thus be neglected.
  In case that wood stems of not sustainably managed forests or from deforestation, impacts on forest carbon pools need to be considered in additional datasets; in such situations, the changes in forest carbon pools need to be attributed to the main drivers of forest degradation or deforestation on a causal basis. For European forests, such considerations are not relevant: the greenhouse gas inventories of all European countries with relevant forest cover report increasing forest carbon pools under Art. 3.4 of the Kyoto Protocol – i.e. for areas under forest management.

[2] Alternatively, different forest types would have needed to be distinguished that exclusively produce sawn timber or pulpwood as the main product („reference product"). With such an approach, different allocation procedures would have been possible – also an economic allocation. However, a) due to the principles and degrees of freedom for decisions in forestry, and b) as it resulted impossible to reasonably distinguish such single functional forests, European forestry processes were modelled –within the possibilities of ecoinvent 3 – „as combined production processes", resulting in a physical allocation of all inputs and outputs.

The newly generated forestry datasets represent forestry with a generic model that covers the most relevant processes and products. Processes have been neglected that are not common practice or considered marginal (such as the debarking in the forest) or that could have consequences for the carbon balance of the forest, such as root extraction for use as biofuel. Such processes might need to be complemented for a specific LCA using these datasets.

The following chapters describe the background and content of the forestry related processes as follows:

- production and disposal of forest machinery (infrastructure),
- operation of forest machinery,
- forestry processes in Switzerland,
- forestry processes in Germany,
- forestry processes in Sweden.

All the datasets including in ecoinvent beyond version 2.2 are listed in alphabetic order in Annex A.7.

2.3 Forest machines and their operation

2.3.1 Description of the inventoried forest machinery

A **forestry harvester** is a type of heavy forestry vehicle employed in cut-to-length logging operations for felling, delimbing and bucking trees. A forest harvester is typically employed together with a forwarder that hauls the logs to a roadside landing. A typical harvester head consists of (from bottom to top, with head in vertical position):

- a chain saw to cut the tree at its base, and also cut it to length; the saw is hydraulically powered. It has a more robust chain, and a higher power output than any saw that can be carried by a human.
- two or more curved delimbing knives which reach around the trunk to remove branches.
- two feed rollers to grasp the tree; the wheels pivot apart to allow the tree to be embraced by the harvester head, and pivot together to hug the tree tightly. The wheels are driven in rotation to force the cut tree stem through the delimbing knives.
- diameter sensors to calculate the volume of timber harvested in conjunction with
- a measuring wheel which measures the length of the stem as it is fed through the head.

Forestry harvesters can be grouped according to their engine power (Klvac et al. 2003, Jirousek et al. 2007, Athanassaiadis 1999): class I (< 80 kW, average total weight of 12,800 kg), class II (80 - 120 kW, average total weight of 14,000 kg) and class III (> 120 kW, total average weight of 16,000 kg) with different productivities, fuel consumptions, consumption of wear and tear parts and emission profiles.

The dataset contains a forestry harvester class II (80 - 120 kW), with a total weight of 14,000 kg and a maintenance factor of 0.7 (estimated based on Spielmann et al 2007). For assumed service life, see dataset on operation of respective machinery.

In the absence of more specific data, the dataset can be extrapolated to represent forestry harvesters (or feller-bunchers for full-tree harvesting) of other weight classes as specified above.

A **forwarder** is a forestry vehicle that carries felled logs from the stump to a roadside landing. Unlike a skidder, a forwarder carries logs clear of the ground, which can reduce soil impacts but tends to limit the size of the logs it can move. Forwarders are typically employed together with harvesters in cut-to-length logging operations.

Forwarders are commonly categorised on their load carrying capabilities (Klvac et al. 2003, Jirousek et al. 2007, Athanassaiadis 1999): class I (< 10 t), class II (10 - 12 t) and class III (> 12 t)) with different productivities, fuel consumptions, consumption of wear and tear parts and emission profiles.

The dataset contains a medium sized forwarder class II (10 - 12t), with a total weight of 11,049 kg and a maintenance factor of 0.55 (estimated based on Spielmann et al 2007). For assumed service life, see dataset on operation of respective machinery.

In the absence of more specific data, the dataset can be extrapolated to represent forwarders of other weight classes as specified above."

A **skidder** is any type of heavy vehicle used in a logging operation for pulling cut trees out of a forest in a process called "skidding", in which the logs are transported from the cutting site to a landing. Here they are loaded onto trucks (or in times past, railroad cars or flumes), and sent to the mill.

Contemporary skidders are tracked or four wheel drive tractors with a turbocharged diesel engine, winch and steel, funnel-shaped guards on the rear to protect the wheels. They have articulated steering and usually a small, adjustable, push-blade on the front. The operator/logger is protected from falling or flying debris (or parted cables, or rolling over) by a steel enclosure. They are one of the few logging machines that is capable of thinning or selective logging in larger timber. Forwarders can haul small short pieces out, but if mature timber is to be thinned, a skidder is one of the few options for taking out some trees while leaving others.

Several versions of skidders are currently being used:

- Cable skidder: On a cable skidder, the cable is reeled out and attached to a pull of cut timber, then the winch pulls the load toward the skidder. The winch or grapple holds the trees while the skidder drags them to a landing area. Cable skidders are less popular than in the past. They are more labour intensive than grapple skidders because someone (the operator or a second person) must drag the winch line out to the logs and hook them up. This is helpful where it is not possible to drive the machine close to the log (such as in steep hills).

- Grapple skidder: Grapple skidder have a hydraulic grapple bucket instead of a winch, and the bucket- attached to the skidder by a boom- grabs and lifts the timber.
- Clambank skidder: clambank skidders are equipped with a hydraulic grapple bucket and a clambank where the grabbed and lifted timber is fixed for skidding.

Skidders can be grouped according to their engine power or weight with different productivities, fuel consumptions, consumption of wear and tear parts and emission profiles.

The dataset refers to a large skidder with a total weight of 12,000 kg, an engine power of 130 kW and a maintenance factor of 0.3 (according to Knechtle 1997). For assumed service life, see data set on operation of respective machinery.

In the absence of more specific data, the dataset can be extrapolated to represent skidders of other weight classes (e.g. for 6,000 kg machine weight and 70 kW of engine power).

Cable yarding is the process of transporting logs to the landing using a stationary winching machine (a yarder) and a system of heavy wire rope. Cable yarding is primarily used on the West Coast of North America with yarder, loaders and grapple yarders, but also in Europe (Austria, Switzerland, Czech Republic, France, and Italy).

These systems are best suited for steep terrain or soft soils that restrict ground operations. All cable yarding systems can move wood uphill to a landing; some systems can also bring wood downhill to the landing. Extraction distance is generally longer than with other ground-based systems and may reach over more than 600 m. Depending on the type of rigging and yarder capability, cable yarding can be used in selection harvests as well as clear-cuts.

Cable yarding systems are often paired with manual felling and processing because of the steep terrain.

There exist a broad variety of yarders and layouts for cable yarding. In most cases, yarding is done via a so-called "skyline". Skyline yarders use a cable stretched from a tower to the back of the cutting unit. A carriage is pulled back and forth along the skyline to move wood to the landing. If the skyline is raised and lowered during operation it is called a “live skyline”, if the skyline is simply tensioned during rigging and left in position during operation it is a “standing skyline.” When a skyline system has the yarder positioned upslope from the cutting area, gravity is often used to send the empty carriage down the cable. The winches in the yarder then pull the load uphill to the yarder (referred to as “uphill yarding”). Skyline systems can also be rigged with additional cables to allow the yarder to operate from the bottom of the slope, controlling the load as it moves downhill to the yarder (referred to as “downhill yarding”). There are many possible rigging patterns to address the requirements of equipment and terrain.

Mobile cable yarders allow for more flexibility but are more expensive than "traditional" cable yarding systems using a sledge-based winch."

3 generic yarding system have been inventoried.

The inventoried **mobile cable yarder is built on a reinforced trailer** and consists of a tower, a diesel aggregate, three winches, three cables (skyline, mainline and third line) plus four guylines for the anchorage of the tower as well as a carriage. The assumed yarding distance is 600 m. The machinery can be used in combination with a wheel excavator for sorting the yarded stems. Alternative layout and complementary machinery are possible.

The inventoried mobile cable yarder is mounted on a trailer. The whole machinery incl. trailer has a total weight of 13,500 kg (of which 2,608 kg are cable and 385 kg carriage), with a tower height of approximately 12 m, with an engine power of 175 kW and a maintenance factor of 0.55 (estimated based on Spielmann et al. 2007). For assumed service life, see data set on operation of respective machinery.

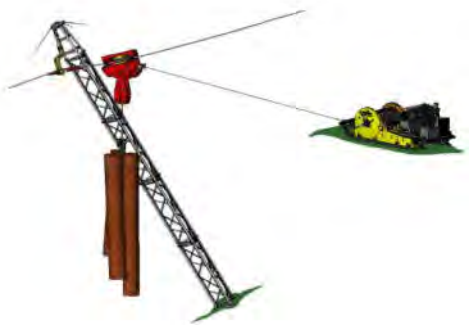
The third cable can be excluded from the dataset to approximate the same machinery used for "uphill" yarding.

The inventoried **mobile cable yarder is built on a reinforced truck chassis** and consists of a tower, two winches, two cables (skyline and mainline) plus four guylines for the anchorage of the tower as well as a carriage. It also includes a processer built on the platform of the truck for immediate processing of the yarded stems or trees.

The inventoried mobile cable yarder including processor and cables is mounted on a truck with 3 axles. The whole machinery incl. truck has a total weight of 31,000 kg (of which 2,005 kg of cable and 385 kg of carriage), a standard tower height of 10.5 m, an engine power of 353 kW and a maintenance factor of 0.55 (estimated based on Spielmann et al. 2007). The assumed yarding distance is 600 m. For assumed service life, see data set on operation of respective machinery.

The dataset can be complemented with a third cable to approximate the same machinery used for "non-uphill" yarding."

The inventoried yarding system consists of a **sled yarder** with a total weight of 1,550 kg, a carriage (320 kg), ancillary material (500 kg) and the required cables (2770 kg); an end pole is optional and can also be replaced by using a tree for the same purpose. The sled based winch has an engine power of 55 kW and the machinery (excluding cables) has a maintenance factor of 0.3. For assumed service life, see data set on operation of respective machinery.



An **energy wood harvester** is a type of heavy forestry vehicle employed in the stand or at the forest road for compiling and bundling slash into bundles of energy wood for more easy transportation. Energy wood harvesters units are built on a robust all-terrain vehicle, usually a forwarder (or a truck chassis). A diesel engine provides power for both the vehicle and the harvesting mechanism through hydraulic drive. An extensible, articulated boom, similar to that on an excavator, reaches out from the vehicle to grasp the slash on the forest floor and to put it on the feeding device of the bundler unit.

This dataset contains an energy wood harvester built on a forwarder chassis with a total weight of 21,400 kg, a maintenance factor of 0.55 (estimated based on Spielmann et al 2007) and an engine power of 135 kW. For assumed service life, see data set on operation of respective machinery.

A **terrain chipper** is a chipping unit for the chipping of energy wood in the stand. The chipping unit can be built on a specifically developed vehicle or combined with a forwarder. The dataset contains the chipping unit mounted on (and including) a medium-sized forwarder.

This dataset contains a medium sized forwarder class II (10 - 12t), with a total weight of 11,110 kg, with a maintenance factor of 0.55 according to Spielmann et al (2007) as well as a chipping unit with a total weight of 8,500 kg. For assumed service life, see data set on operation of respective machinery.

2.3.2 Production and disposal of forestry machines

Spielmann et al (2007) has been the starting point for the materialisation of most forestry machines in ecoinvent, complemented with some additional studies (Athanassiadis et al. 2002, Athanassiadis 1999, Cremer & Velazques-Marti 2007, Jirsousek et al. 2007, Klav et al. 2003, Knechtle 1997, Lambrecht et al. 2004, Riezinger 2008) and other sources[3]. Table 2-1 documents some key data for the newly inventoried forestry machines.

Additional inputs for the production of the forestry machines such as heat or electricity and outputs such as wastewater have been taken from Spielmann et al. (2007) and extrapolated to the weight of each machinery.

The total material input including maintenance and additions process inputs have been estimated in a simplified way based on maintenance factors, which had been derived by Spielmann et al. (2007) based on a detailed analysis on component level; alternatively the maintenance factors have been estimated by the project group for the update of ecoinvent 3 data. Only for the ropes of the cable yarders, a complete replacement of the ropes was assumed over the service life of the machinery itself.

[3] Personal written communication: K. Wyssen, Wyssen Seilbahnen AG; J. Willaredt, Husquarna AB und websites, among them www.goldmanequipment.com, http://www.deere.com, http://www.dobierzin.de/Drahtseile/Drahtseile, http://www.wyssen.com

Table 2-1: Key data for forestry machinery in ecoinvent

	power kW	weight t	fuel consumption l/PMS	Load factor	service life PMS	maintenance factor
Harvester, 80 - 120 kW	100	14.0	12.8	0.5	17600	0.7
Forwarder, 10 - 12 t	110	12.2	11.0	0.5	17600	0.55
Energy wood harvester/bundler plus forwarder	77	21.4	11.55	0.5	17600	0.55
Power saw, without catalytic converter [1)]	3.5	0.0055	2.13	0.8	2500	0.30
Terrain chipper, mounted on forwarder	95	19.6	29.5	0.5	17600	0.55
Mobile chipper, mounted on truck	475	29.0	70.0	0.5	15000	0.55
Skidder, large	130	12.0	13.0	0.4	12000	0.30
Cable yarder, with sled winch	55	4.8	5.5	0.35	15000	0.30
Mobile cable yarder, truck-mounted, incl. processor	353	31.0	35.3	0.35	20000	0.55
Mobile cable yarder, trailer-mounted	175	13.5	17.5	0.35	17000	0.55

[1)] according to producer information, power saws with catalytic converters are hardly used anymore; instead optimised fuels and lubricants are used for environmental and health protection.

The datasets also include the disposal of all material inputs.

2.3.3 Operation of the forest machinery

The operation of the forest machinery has been modelled uniformly per „productive machine hour“ (PMH) including interruptions of up to 15 minutes (PMH15). This holds also for the mobile cable yarders, for which the time needed for installation and de-installation has been considered as part of the productivity (see Annex A.4). The datasets include the input of diesels or 2-stroke petrol blend, ancillary materials such as greases or lubricants as well as materials that are related directly with the forestry process such as plastic stripes for the bundling of energy wood, etc.

Also for the modelling of fuels, lubricants and other ancillary materials, an extensive literature research was conducted and evaluated (Athanassiadis et al 1999, Cremer & Velazques-Marti 2007, Eriksson & Gustavsson 2008, Eriksson & Gustavsson 2010a, Eriksson & Gustavsson 2010b, Fobrig 2004, Jirsousek et al. 2007, Kilpeläinen et al. 2011, Klvac & Skoupy 2009, Klvac et al. 2003, Knechtle 1997, Markewitz 2006, Michelsen 2008, Petersen 2006, Riezinger 2008, Spielmann et al. 2007, Wittkopf et al. 2003). For the size of the inventoried forest machinery (weight, machine power), literature values were selected that seemed plausible to the project group, particularly related to diesel consumption as the most relevant parameter.

Emissions from diesel combustion were calculated according to the model by Lambrecht (2004) that refers to the threshold values for different types of machinery and age classes as defined in the European DIRECTIVE 2004/26/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 April 2004 amending Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery (Anonymous 2004), which is also used by Spielmann et al. (2007).

According to this model, the resulting emissions (E_i) of a substance *i* from a base emission factor EF_{base_i} for the substance, multiplies with the machine power (*EP*) and a load factor (*LF*):

$$E_i = EF_{base\_i} \times EP \times LF$$

Regarding the age classes of the forest machinery, it was assumed that 50 % belong to emissions class EURO IIIa and 50 % belong to emissions class EURO III b; the corresponding values were used as listed in Table 2-2.

Table 2-2: Base emission factors for the estimation of diesel powered forest machinery (Anonymous 2004 and own calculations based on Spielmann et al. 2007)

EURO IIIa	NO_x/VOC	NO_x	VOC	NMVOC	CH_4	PM	CO
	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh
> 130 kW	4.0	*3.5* [1)]	*0.5* [1)]	*0.488* [2)]	*0.012* [2)]	0.2	3.5
75 -130 kW	4.0	*3.5* [1)]	*0.5* [1)]	*0.488* [2)]	*0.012* [2)]	0.3	5
EURO IIIb		**NO_x**	**VOC**	**NMVOC**	**CH_4**	**PM**	**CO**
		g/kWh	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh
> 130 kW		2	0.19	*0.18544*	*0.00456*	0.025	3.5
75 -130 kW		3.3	0.19	*0.18544*	*0.00456*	0.025	5

[1)] regarding the splitting of the joint base emissions factor for NO_x and VOC for tier EURO IIIa: Spielmann et al. (2007) estimates the bases emission factor for VOC as half the base emissions factor for „tier II"-machines of 1.0 g/kWh and the base emissions factor for NOx as the difference to the joint base emissions factor.

[2)] the base emission factor for VOC is sub-divided into 2.4 % methane and 97.6 % NMVOC

CO_2 emissions were calculated directly form the average C-content of diesel. The N_2O emissions were estimated as 0.03 g/kWh from literature cited in Spielmann et al. (2007). As the European Directive does not discriminate between different size classes, emissions of particulate matter were split into the classes PM > 10 µm, PM >2.5 µm and < 10 µm as well as PM < 2.5 µm based on the dataset „diesel in building machine" of ecoinvent v.3. All other emission were taken directly (and converted as needed) from the same dataset and integrated into the datasets; these emissions – measured in 2000 – are most likely outdated.

The emissions profile of the power saw without catalytic converter were modelled based on producer information and complemented with data on additional aliphatic and polycyclic emissions from literature (Ålander et al. 2005, Magnussen et al. 2002, Magnussen 2000, Spielmann et al. 2007); arithmetic means of specific emissions were calculated if reported in several sources (and if not calculated directly as document in the dataset). Cumulative emissions inventoried as NMVOC and PAH were calculated as the amount of the respective emissions that were not inventoried as individual substances. SO_2 emissions were calculated based on the assumed sulphur content of <0.001 % according to Swiss regulation on low-sulphur fuels.

The operation of the forestry machines were modelled for a European (RER) context as explicit reference was made to European legal threshold values for emissions of road vehicles (Anonymous 2004).

2.3.4 Transport of the forest machinery from forest site to forest site

The following daily transport distances have been assumed for each type of forest machinery (Table 2-3):

Table 2-3: Daily transport distances of forest machinery (based on Spielmann et al. 2007)

	km/day
Power saw	-
Skidder	25
Harvester	25
Forwarder	
Mobile cable yarder, mounted on truck, including processor	6.2
Mobile cable yarder, trailer mounted	6.2
Mobile cable yarder, with sled winch	6.2
Helicopter	-
Excavator	25
Energy wood harvester	not inventoried for Switzerland
Mobile chipper, truck-mounted	n.a.
Clefting device	n.a.

For the modelling of these transports, it has not been considered that some transport is happening of forest roads, of which their maintenance has been included in the forestry datasets. Therefore, the inventorying with the usual transport datasets leads to some double counting of street infrastructure, which seems tolerable, considering the nature of the transport data as rough estimates.

2.4 Forestry processes in Switzerland

2.4.1 Harvesting methods and harvested wood

The datasets represent sustainable forest management practices and cover the weighted average of several harvesting systems employed in Switzerland related to the harvesting of an average m^3 of solid hardwood under bark. Three main assortments are distinguished as reference products of Swiss wood production:

- sawlogs,
- industrial wood (pulp wood),
- wood fuel, which can be processed into
  - chips (at forest road or in the stand),
  - cleft timber,
  - bundles of energy wood (currently not inventoried for Switzerland).

The harvested volumes and the relative share of assortments represent the average of the years 2008 to 2010 according to Swiss Forestry Statistics (Bafu 2012). Wood chips (for which no distinction is made between soft- and hardwood in the statistics) are attributed to the assortment "energy wood" in proportion to the assortment "energy wood" as reported in the Swiss forestry statistics (Table 2-4).

Table 2-4: Harvesting of the main assortments as solid wood at forest road according to the Swiss Forestry Statistics (BAFU 2012)

	Softwood		Hardwood	
	1000 m^3 under bark	%	1000 m^3 under bark	%
Sawlogs	2713	77.8%	298	18.79%
Industrial wood	318	9.1%	216	13.62%
Energy wood	455	13.0%	1072	67.59%
Wood to be chopped [1)]	*279*		*658*	
Wood to be chipped	*175*		*414*	
Total	3486	100%	1586	100%
Total CH (1000 m^3 u.b.)	5072			

[1)] "Energieholz" according to Swiss Forestry Statistics

Table 2-5: Hauling machines and harvested amounts of solid wood per production region according to NFI 3

Production region	Hauling machines	Harvsting of solid wood					
		Softwood			Hardwood		
		1000 m^3 solid wood/year	1000 m^3 solid wood/year	%	1000 m^3 solid wood/year	1000 m^3 solid wood/year	%
Jura	Skidder	490			386		
	Forwarder	139			163		
	Cable yarding uphill	1			8		
	Cable yarding not uphill	2			1		
	others	1	633	14%	2	560	33%
Middle lands	Skidder	1448			581		
	Forwarder	447			207		
	Cable yarding uphill	9			3		
	Cable yarding not uphill	11			3		
	Helicopter	1			0		
	others	23	1939	43%	2	796	47%
Pre-Alps	Skidder	930			117		
	Forwarder	46			11		
	Cable yarding uphill	88			24		
	Cable yarding not uphill	96			32		
	Cable yarding, sled winch	21			0		
	Helicopter	41			1		
	others	11	1233	27%	0	185	11%
Alps	Skidder	188			29		
	Forwarder	83			6		
	Cable yarding uphill	95			19		
	Cable yarding not uphill	172			31		
	Cable yarding, sled winch	30			1		
	Helicopter	88			5		
	others	31	687	15%	7	98	6%
Southern Alps	Skidder	2			11		
	Forwarder	2			3		
	Cable yarding uphill	2			4		
	Cable yarding not uphill	11			8		
	Cable yarding, sled winch	3			0		
	Helicopter	14			13		
	others	0	34	1%	0	39	2%
Total		4526		100%	1678		100%

Note: Pre-hauling has been neglected as only an insignificant amount of solid wood is concerned (126,000 m^3 or 2 % of total harvest).

The technology mix for the harvesting operations for 1 m^3 of solid wood was determined starting from the types of hauling as reported in the Swiss National Forest Inventory (LFI 3) for each of the production regions in Switzerland (Table 2-5).

The values – particularly regarding the cable yarding – correspond to the effective declarations for the selected hauling method as mentioned by the foresters in the context of the 3rd Swiss National Forest Inventory (NFI 3).

Starting from this information, 6 standard harvesting methods were defined to keep the calculations practicable. In reality major deviations can occur from these standard methods. In view of comparable fuel consumptions and comparable machinery, the resulting grouping seems appropriate for use in ecoinvent.

The parameters for the harvesting methods are estimates that have been determined based on different sources, among them the Swiss Forestry calendar, the productivity model HeProMo, information of the KWF, different literature resources, practical experiences, etc. In any case, the productivity of the harvesting methods depends on a variety of factors and can vary considerably in practice. The inventoried harvesting methods represent average productivities that result from average harvesting conditions and mid-sized machinery.

The values in brackets cover the variability of the values for unfavourable conditions and small machinery to favourable conditions and large machinery.

1 Power saw + skidder				
Process	**cutting**	**processing**	**hauling**	**sorting/storage**
Place	stand	stand	**skid trails**	**forest road**
Machines	power saw	power saw	**skidder**	**skidder**
Personnel	2		1-2	
Productivity softwood (m^3/PMH)	**1.5** (0.5-3.5)		**9** (2-12)	
Productivity hardwood (m^3/PMH)	**2.5** (1.0-4.5)		**9** (2-12)	

Cut-to-length method

Short description

The trees are cut with a power saw, delimbed and cut into pieces according to assortments. The pieces should be as long as possible to allow an efficient skidding. The pieces are then pre-delivered with a skidder (equipped with a winch, a grapple or a clambank) to the skid trail, skidded on this skid track to the forest road and stored there, usually separating different assortments.

Quite frequently a forwarder was used instead of a skidder for this harvesting method. Under the perspective of ecoinvent, these harvesting methods do not differ significantly. From the NFI, only harvested wood quantities brought to the forest road with a skidder are available. Thus only this method was inventoried.

2 Forwarder + harvester				
Process	cutting	processing	hauling	sorting/storage
Place	stand	stand	skid trails	forest road
Machines	harvester[1)]	harvester	forwarder	forwarder
Personnel	1		1	
Productivity softwood (m³/PMH)	**20** (5-30)		**15** (5-25)	
Productivity hardwood (m³/PMH)	**15** (5-25)		**12** (5-20)	

Cut-to-length method

Short description

The trees are cut with the harvester – which exclusively moves on the skid trails – then pre-delivered to the skid trail with its crane and processed there in such a way that the branches remain laying on the skid trail. The processed wood (short wood) is stored on the side of the trail, then lifted onto a forwarder and driven to the forest road.

[1)] if distances between skid trails are larger than 20 m, a fully mechanised harvesting is no longer possible. In such a case, two alternatives can occur:

- the trees in the in-between zone that cannot be reached by the crane of the harvester are cut manually with power saw towards the skid trail. In such a case, 1 additional worker with a power saw is needed.
- If distances between skid trails are large or in dense stands, trees are cut manually with a power saw and pre-delivered with a vehicle equipped with a winch. In such a case, 2 additional workers, 1 power saw and a vehicle with a winch are used.

For Switzerland, these two alternatives are of very minor importance (according to NFI 3).

3 Power saw + mobile cable yarder incl. processor on truck Yarding direction uphill, yarding distance up to 600m				
Process	cutting	processing	hauling	sorting/storage
Place	stand	stand	skid trails	forest road
Machines	harvester[1)]	harvester	forwarder	forwarder
Personnel		2 [2)]		
Productivity softwood (m³/PMH)	**7** (3-10)	**13** (7-18) [3)]		
Productivity hardwood (m³/PMH)	**7** (3-10)	**13**(7-18) [3)]		

Full-tree method

Short description

The trees are cut in the stand with a power saw, skidded as whole trees to the forest road with a mobile cable yarder equipped with a crane-based processor, mounted on a truck, delimbed there, cut into pieces for assortments and stored. As an alternative, the wood can also be skidded with a mobile cable yarder; the processing is then done with an excavator equipped with a processor head (or comparable machinery. For the purpose of ecoinvent, this harvesting method is not distinguished.

[1)] in most cases, a transport vehicle (a lorry with a crane) forms part of this harvesting system. The lorry is needed for the continuous removal of the processed wood due to the limited storage area around the cable yarder. For ecoinvent, this vehicle and transportation is considered in the respective transportation dataset.

[2)] excluding the continuous removal of the processed wood from the storage place.

[3)] the productivity including machine working hours for installation and de-installation of the yarding equipment.

4 Power saw + mobile cable yarder, non-uphill

Yarding direction non-uphill (horizontal, downhill), yarding distance up to 600m

Process	**cutting**	**processing**	**hauling**	**sorting/storage**
Place	stand	stand	stand	forest road
Machines	power saw	power saw	mobile cable yarder	excavator
Personnel	2		2	1
Productivity softwood (m^3/PMH)	**1.2** (0.5-2.5)		**8** (6-11) [1)]	**11** (7-13)
Productivity hardwood (m^3/PMH)	**2.0** (0.7-3.5)		**8** (6-11) [1)]	**11** (7-13)

Cut-to-length method

Short description

The trees are cut with a power saw, delimbed and cut into pieces according to assortments. These pieces are then yarded horizontally or downhill, suspended freely with a mobile cable yarder to the forest road. There the pieces are sorted and stored with a vehicle equipped with a crane, here assumed to be a wheeled excavator with a wood grapple.

Assumption: the excavator works with 75 % of the PMS of the mobile cable crane.

[1)] the productivity including machine working hours for installation and de-installation of the yarding equipment

5 Power saw + conventional cable yarder (sled-based)

Yarding direction uphill and downhill, yarding distance over 600m [1)]

Process	cutting	processing	hauling	sorting/storage
Place	stand	stand	stand	forest road
Machines	power saw	power saw	conventional winch based cable yarder	excavator
Personnel	2		3	1
Productivity softwood (m^3/PMH)	**1.2** (0.5-2.5)		**8** (5-10) [2)]	**11** (7-13)
Productivity hardwood (m^3/PMH)	**2.0** (0.7-3.5)		**8** (5-10) [2)]	**11** (7-13)

Cut-to-length method

Short description

The trees are cut with the power saw, delimbed and cut into pieces according to assortments. The pieces are then yarded to the forest road with a conventional sled-based cable yarder.

Assumption: on average, the excavator works with 75 % of the PMS of the conventional cable yarder

[1)] for ecoinvent, it is assumed that a sled-based cable yarder was used for yarding distances beyond 600 m

[2)] productivity including installation/de-installation of the yarding equipment.

6 Power saw + helicopter				
Process	**cutting**	**processing**	**hauling**	**cutting**
Place	stand	stand	stand	stand
Machines	power saw	power saw [1)]	helicopter	power saw
Personnel	2		4-6 [3)]	1
Productivity softwood (m³/PMH)	**1.0** (0.5-2.0)		**25** (20-30)	**15**
Productivity hardwood (m³/PMH)	**1.5** (0.8-2.5)		**25** (20-30)	**15**

Cut-to-length method [1)]

Short description

The trees are cut, delimbed, cut into pieces according to assortments and drawn together for loads suited for transport with a helicopter. Then the assorted pieces are flown to the landing and dropped there. Subsequently, the wood is sorted with an excavator-based grapple, given the final delimbing and processing and then stored afterwards.

The full-tree method is neglected for ecoinvent as a simplification.

[1)] sometimes the final delimbing is done at the landing; for ecoinvent, it is assumed that the delimbing is done completely in the stand.

[2)] 6 workers, if two different work places are flown to in an alternating way, else 4

[3)] the full-tree method with a helicopter is done in practice in particular circumstances only, e.g.: very difficult terrain, where the processing of wood is not possible, wood cutting above buildings or infrastructure, short flight distances due to air resistance of whole trees, etc. The full-tree method is therefore neglected in ecoinvent.

The following table documents the hauling methods applied and their relative share to the total harvested volume (Table 2-6):

Table 2-6: Harvested amounts per hauling machine according to NFI 3 and associated harvesting procedures

SOFTWOOD				
	Harvesting 1000 m^3/a	%	Average m^3	Associated harvesting system
Skidder	3058	68.6%	0.686	1 Power saw/skidder
Forwarder	717	16.1%	0.161	2 Harvester/forwarder
Mobile cable yarder, uphill	195	4.4%	0.044	3 Power saw/mobile cable yarder inkl. processor
Mobile cable yarder, non-uphill	292	6.5%	0.065	4 Power saw/mobile cable yarder
Sled-based, conventional cable crane	54	1.2%	0.012	5 Power saw/conventional cable crane
Helicopter	144	3.2%	0.032	6 Power saw/helicopter
Total	**4460**	**100.0%**	**1.000**	
Neglected	66	1.5%		
Total CH according to LFI 3	4526	101.5%		

HARDWOOD				
	Harvesting 1000 m^3/a	%	Average m^3	Associated harvesting system
Skidder	1124	67.4%	0.674	1 Power saw/skidder
Forwarder	390	23.4%	0.234	2 Harvester/forwarder
Mobile cable yarder, uphill	58	3.5%	0.035	3 Power saw/mobile cable yarder inkl. processor
Mobile cable yarder, non-uphill	75	4.5%	0.045	4 Power saw/mobile cable yarder
Sled-based, conventional cable crane	1	0.1%	0.001	5 Power saw/conventional cable crane
Helicopter	19	1.1%	0.011	6 Power saw/helicopter
Total	**1667**	**100.0%**	**1.000**	
Neglected	11	0.7%		
Total CH according to LFI 3	1678	100.7%		

This table tells us that for instance 68 % of the softwood are harvested with a power saw in combination with a skidder; this means for ecoinvent 0.686 m^3 per m^3 of softwood are harvested with the corresponding harvesting method.

For the machine use per m^3 of solid wood, expressed in PMH, the weighted values are listed in Table 2-7.

Table 2-7: Average machine use in productive machine hours (PMH) for the harvesting of 1 m^3 of solid wood in Switzerland

Softwood	**Median**	Max	Min
	PMH/m^3	PMH/m^3	PMH/m^3
Power saw	**0.560**	1.606	0.247
Skidder	**0.0762**	0.343	0.057
Harvester	**0.00804**	0.032	0.005
Forwarder	**0.0107**	0.032	0.006
Cable yarding, truck-mounted	**0.00336**	0.006	0.002
Cable yarding, trailer-mounted	**0.00818**	0.011	0.006
Cable yarder with sled winch	**0.00151**	0.002	0.001
Helicopter	**0.00129**	0.002	0.001
Excavator	**0.00921**	0.014	0.008

Hardwood	**Median**	Max	Min
	PMH/m^3	PMH/m^3	PMH/m^3
Power saw	**0.305**	0.765	0.171
Skidder	**0.0749**	0.337	0.056
Harvester	**0.0156**	0.047	0.009
Forwarder	**0.0195**	0.047	0.012
Cable yarding, truck-mounted	**0.00268**	0.005	0.002
Cable yarding, trailer-mounted	**0.00562**	0.007	0.004
Cable yarder with sled winch	**0.0000750**	0.000	0.000
Helicopter	**0.000456**	0.001	0.000
Excavator	**0.00490**	0.008	0.004

The inputs related to the operation of the machines were allocated to the harvested wood based on volume because the forestry processes were modelled as „combined production“ datasets according to ecoinvent v3 guidelines (see also Chapter 1.2).

The amount of harvested energy wood from Table 2-4 are chipped or clefted at the forest road and stored; in Switzerland, hardly any chips are produced in the stand and practically no bundles of energy wood are produced.

The inputs for the clefting were taken from an existing ecoinvent 2.2 dataset and converted to PMH; for the chipping at the forest road, a new data set was created based on Spielmann et al. (2007) and the data from Table 2-1.

2.4.2 Land occupation of Swiss forests

In the context of the updated of forestry data in ecoinvent 3, a detailed analysis of land use related aspects was done. Swiss forestry is by law a multifunctional forestry with resulting restrictions for the extractive use of wood. The land use aspects related to the productive function of forestry were therefore determined based on the income structure of the forestry units in Switzerland, distinguishing the production function and other forest functions, i.e. the protective function and biodiversity. Details can be found in the project report Werner et al. (2014).

However, as this multi-functionality is considered – against common practice in LCA – for the derivation of characterisation factors for the UBP 2013 method (Frischknecht & Büsser 2014), both the land use categories (CORINE land use classes) according to the UBP 2013 method and the attribution of land use exclusively to the production function were followed for the conversion of the ecoinvent 3 datasets to the ecoinvent 2 framework.

Table 2-8 lists the assumed yields for softwood and hardwood derived from yield tables for spruce and beech in Switzerland (Kaufmann 2012).

Table 2-8: Rotation lengths and total harvest over on rotation period for softwood and hardwood in Switzerland

	Forest area	Rotation period (RP)	Thinnings	Final harvests	Total harvest
	1000 ha	years	m^3 solid wood+/RP/ha	m^3 solid wood+/RP/ha	m^3 solid wood+/RP/ha
SW poor	361	150	350	360	710
HW poor	124	150	280	250	530
SW good	252	100	530	580	1110
HW good	253	120	420	390	810
Softwood	613	129	424	450	874
Hardwood	377	130	374	344	718

SW poor	Softwood > 50%, GWL <3375, avg(HDOMFI)=13.3
HW poor	Hardwood+>50%, GWL < 3375, avg(HDOMBU)=13.1
SW good	Softwood > 50%, GWL >3375, avg(HDOMFI)=21.6
HW good	Hardwood>50%, GWL > 3375, avg(HDOMFI)=18.3
GWL:	Site quality. Dry matter in kg/ha/y, a site is capable of producing
HDOMFI:	Height class spruce (tree height that will be achieved after 50 years)
HDOMBU:	Height class beech (tree height that will be achieved after 50 years)
Rotation period	Assumption as the basis for the yield table calculations
Total harvestd	(Thinnings and final harvest) per RP. Assumption: uneven forests have the same productivity as even aged forests
Solid wood	Stemwood and branches with a diameter of >7 cm

Based on this table, an average rotation period of 129 years with a total harvesting volume of 874 m^3/rotation period for softwood and an average rotation period of 130 years with a total harvesting volume of 718 m^3/rotation period for hardwood was assumed.

2.4.3 Land used of forest roads, their maintenance and other forestry interventions

Apart from the harvesting itself, several other forestry interventions are done in the forest. First of all the site preparation, clearing, tending, pruning and the maintenance of forest roads. Apart from that also land use of forest roads was inventoried.

In Table 2-9 land occupation of forest roads per production region is listed, distinguishing different road covers. An average road width of 4 meters is assumed (Kaufmann 2012 as an excerpt of the NFI 3).

From Table 2-9, a land occupation of 109 m^2/ha results, which, for ecoinvent 2, is fully attributed to the production function.

For the maintenance of the forest road, an input of 2 cm gravel every 10 years was assumed for natural roads in accordance with the project group. Diesel consumption etc. was taken directly from pre-existing ecoinvent 2 datasets. The maintenance of roads with concrete or asphalt cover have been neglected due to a lack of data.

Table 2-9: Land occupation of forest roads in Switzerland, per road cover

Production region	Productive forest surface	Road cover								
		ASPHALT			CONCRETE			NATURE		
	1000 ha	km	m/ha	m^2/ha	km	m/ha	m^2/ha	km	m/ha	m^2/ha
Jura	196	1383	7.1	**28.2**	32	0.16327	**0.65**	6545	33.4	**133.6**
Middle Lands	230	1513	6.6	**26.3**	175	0.76087	**3.04**	11901	51.7	**207.0**
Pre-Alps	209	1356	6.5	**26.0**	37	0.17703	**0.71**	2359	11.3	**45.1**
Alps	346	1587	4.6	**18.3**	23	0.06647	**0.27**	2691	7.8	**31.1**
Southern Alps	135	608	4.5	**18.0**	1	0.00741	**0.03**	259	1.9	**7.7**
Weighted			*5.8*	***23.1***		*0.24*	***0.96***		*21.3*	***85.1***
Assumed road width	*m*			*4*			*4*			*4*

It is very seldom that forest roads are built newly in Switzerland; thus, a new construction of forest roads was disregarded for Switzerland.

For the stand establishment, 100 % natural revegetation was assumed. For the tending and pruning, several interventions have been assumed based on Schweinle (2001) in agreement with the project group[4]. These inputs have again been fully allocated to the production function.

2.5 Forestry processes in Germany

For Germany forestry processes for the 4 main tree species are modelled:

- hardwood: beech
- hardwood: oak
- softwood: spruce
- softwood: pine

Table 2-10 lists the parameters of the inventoried tree species and their sources:

Table 2-10: Parameters of the inventoried wood species for Germany

		Beech	**Oak**	**Spruce**	**Pine**	**source**
dry wood density	g/cm³	0.660	0.640	0.430	0.490	Schweinle 2000
share of bark	%	10 %	10 %	12 %	12 %	
rotation period	years	140	140	100	120	Wittkopf
shrinkage ratio	%/ %	0.60 %	0.41 %	0.40 %	0.40 %	Kollmann 1982
moisture content roundwood,	%	70 %	70 %	70 %	70 %	Schweinle & Thoroe 2001
moisture content industrial wood [1)]	%	80 %	80 %	80 %	80 %	
moisture content cleft timber [1)]	%	35 %	35 %	35 %	35 %	Own estimate
moisture content wood chips [1)]	%	80 %	80 %	80 %	80 %	Schweinle & Thoroe 2001
calorific value (upper)	MJ/kg dry	19.6	19.6	20.4	20.4	Werner et al. 2007
calorific value (lower)	MJ/kg dry	18.4	18.1	19.3	19.7	Schweinle & Thoroe 2001

[1)] at forest road

[4] 2 interventions for 14 PMH/ha each with a brush cutter for clearing and tending; 2 interventions for 15 PMH/ha each for pruning with a small power saw.

The inventories largely rely on data from Albrecht et al. (2009); however, they have been modelled as a combined-production process, according to the ecoinvent Data Quality Guidelines. Therefore, it was not possible to implement some of the methodological settings in Albrecht et al. (2009), particularly those related to the co-product allocation of some sub-processes. The datasets cover in particular (for details, see Albrecht et al., 2009):

- stand establishment with planting, including the use of a planting device mounted on a tractor and – in a separate dataset - the production of seedlings in an unheated greenhouse according to Aldentun (2002). The number of seedlings required varies between 3000 seedlings/ha for spruce up to 10‘000 seedlings/ha for oak (see Table 2-11);
- tending, including the use of a brush cutters in one intervention for all tree species;
- young growth tending, including the use of a brush cutters in two interventions for beech and oak, and in one intervention for pine;
- cleaning, including one intervention as selective cleaning with a small power saw and one systematic cleaning with a mulching device or similar for all tree species;
- maintenance of forest road, whereas – deviating from Albrecht et al. (2009) – the distribution of a new gravel layer every ten years was inventoried.
- thinning, whereas it was assumed that all thinning are made as mechanical thinnings with a harvester and a forwarder. The range for the use of harvesters is assumed to lay between 10 and 32 cm of average DBH of the exiting stand. For spruce and pine, the development of the average diameters of the exiting stand allows the use of harvesters up to the years ‘rotation period minus 30 years’. In the case of beech and oak, harvesters can only be used up to the ages of 110 and 105 years respectively, due to the increasing DBH in older stands.
- final harvest, whereas motor-manual wood harvesting and skidding was inventoried for the final harvesting as the predominant harvesting method for large-sized timber in Germany.

Table 2-11 compiles the parameters used for the inventorying of the stand establishment and maintenance over one rotation period for each tree species.

The total harvestings over one rotation period have been derived from the following yield tables over the assumed rotation periods as listed in Table 2-12:

- beech: Wiedemann "yield class II.0“, plus 20 % of the commercial volume as wood chips (Wittkopf 2005)
- oak: Jüttner "yield class II.0", plus 22 % of the commercial volume as wood chips (Wittkopf 2005)
- spruce: Assmann/Franz. "dominant height site index 36", plus 13 % of the commercial volume as wood chips (Wittkopf 2005)
- pine: Wiedemann "yield class II.0", plus 19 % of the commercial volume as wood chips (Wittkopf 2005)

The relative distribution of the total harvest corresponds to the situation of wood harvesting in 2011 (see Table 2-12) and has been derived from the sources listed there (see Table 2-14).

As mentioned above, it was assumed as a simplification that all wood from thinnings is harvested with a harvester and a forwarder; wood from final harvest is harvested motor-manually with a power saw and skidded with a forest tractor.

Table 2-11: Parameters for the inventorying of stand establishment and maintenance over one rotation period, for each tree species (based on Albrecht et al. 2009)

		Beech	Oak	Spruce	Pine
stand establishment, with tractor					
diesel consumption	l/PMH	7	7	7	7
productivity	seedlings/PMH	500	500	500	500
seedlings per ha	seedlings/ha	8000	10000	3000	8000
tending, with brush cutter					
fuel consumption	l/PMH	2.4	2.4	2.4	2.4
no. of interventions	interventions/ha	1	1	1	1
productivity	PMH/ha/intervention	14	14	14	14
young growth tending, with brush cutter					
fuel consumption	l/PMH	2.4	2.4	2.4	2.4
no. of interventions	interventions/ha	2	2	0	1
productivity	PMH/ha/intervention	15	15	15	15
selective cleaning, with power saw					
fuel consumption	l/PMH	2.4	2.4	2.4	2.4
no. of interventions	interventions/ha	1	1	1	1
productivity	PMH/ha/intervention	15	15	15	15
systematic cleaning, with mulcher on tractor					
diesel consumption	l/PMH	6	6	6	6
no. of interventions	interventions/ha	1	1	1	1
productivity	PMH/ha/intervention	15	15	15	15
liming, with helicopter					
no. of interventions	interventions/ha	1	1	1	1
productivity	PMH/ha/intervention	3	3	3	3
lime	kg/ha/intervention	4500	4500	4500	4500

Table 2-12: Total harvesting over one rotation period relative distribution in main assortments according to the harvesting in2011, in m^3 solid under bark (sub) (own calculations based on Albrecht et al. 2009, Anonymous 2012, Anonymous 2010)

		Beech		Oak		Spruce		Pine	
Total harvest over a rotation period, per ha									
total harvest	m^3 sub./ha	822		815		977		768	
of which from thinnings	*m^3 sub./ha*	192	23.4 %	321	39.4 %	325	33.3 %	300	39.1 %
of which from final harvest(s)	*m^3 sub./ha*	630	76.6 %	494	60.6 %	653	66.7 %	468	60.9 %
Main assortments over rotation period, per ha									
sawlogs	m^3 sub./ha	214	26 %	277.1	34 %	694	71 %	384	50 %
industrial wood	m^3 sub./ha	247	30 %	154.85	19 %	166	17 %	276	36 %
energy wood	m^3 sub./ha	362	44 %	383	47 %	117	12 %	108	14 %
of which wood chips	*m^3 sub./ha*	*83*	*23 %*	*88*	*23 %*	*27*	*23 %*	*25*	*23 %*
chipped in stand	*m^3 sub./ha*	*1.66*	*2 %*	*1.76*	*2 %*	*0.539*	*2 %*	*0.495*	*2 %*
chipped at forest road	*m^3 sub./ha*	*81.5*	*98 %*	*86.3*	*98 %*	*26.4*	*98 %*	*24.2*	*98 %*
of which cleft timber	*m^3 sub./ha*	*278*	*77 %*	*295*	*77 %*	*901*	*77 %*	*83*	*77 %*
of which bundles of energy wood	*m^3 sub./ha*	*0*	*0 %*	*0*	*0 %*	*0*	*0 %*	*0*	*0 %*

In Table 2-13 the harvesting effort for an average m^3 harvested over one rotation period from thinnings and final harvest is derived, taking into account the different productivities of the two harvesting methods.

Table 2-13: Effort related to the harvesting of one average m^3 from thinning and final harvest over one rotation period

		Beech	Oak	Spruce	Pine
Composition of an average m^3 over one rotation period (see Table5.3)					
from thinning	m^3 sub.	0.234	0.394	0.333	0.391
from final harvest	m^3 sub.	0.766	0.606	0.667	0.609
Assumed productivities for each harvesting method					
1 power saw + tractor					
productivity power saw	m^3/PMH	2	2	1.5	1.5
productivity tractor	m^3/PMH	9	9	9	9
2 harvester + forwarder					
productivity harvester	m^3/PMH	15	15	20	20
productivity forwarder	m^3/PMH	12	12	15	15
Effort per average m^3					
power saw	PMH/m^3	0.383	0.303	0.445	0.406
tractor	PMH/m^3	0.0852	0.0673	0.0741	0.0677
harvester	PMH/m^3	0.0156	0.0263	0.0166	0.0195
forwarder	PMH/m^3	0.0195	0.0328	0.0222	0.0260

Table 2-14: Estimate of the harvestings for the year 2012 as main assortments, for each tree species, solid under bark (sub) (based on Anonymous 2012, Anonymous 2010 and information of the LWF Bavaria)

		Oak	Beech	Pine	Spruce
sawlogs	1000 m^3 sub.	673	2‘847	6‘512	18‘985
		34 %	26 %	50 %	71 %
industrial wood/energy wood	*1000 m^3 sub.*	*1‘515*	*9‘397*	*7099*	*9‘114*
of which extracted	*1000 m^3 sub.*	*215*	*1‘267*	*485*	*1‘190*
industrial wood/energy wood, used	*1000 m^3 sub.*	*1‘300*	*8‘130*	*6‘614*	*7‘924*
industrial wood	1000 m^3 sub.	381	3‘262	4‘791	4‘571
		19 %	30 %	36 %	17 %
energy wood	1000 m^3 sub.	918	4‘869	1‘823	3‘353
		47 %	44 %	14 %	12 %
of which wood chips	*1000 m^3 sub.*	*211*	*1‘117*	*418*	*770*
		23 %	*23 %*	*23 %*	*23 %*
of which cleft timber	*1000 m^3 sub.*	*708*	*3‘751*	*1‘405*	*2‘584*
		77 %	*77 %*	*77 %*	*77 %*
TOTAL used	*1000 m^3 sub.*	1‘973	10‘977	13‘126	26‘909

For the chipping in the stand a productivity of 25 m^3 bulked/PMH is assumed (based on Cremer & Velazquesz 2007, referring to Lechner et al. 2007)). For wood chips chipped in the stand, a productivity

of the forwarding of 70 m^3 bulked/PMH with a diesel consumption of 9.5 l/h of the forwarder is assumed.

Losses of biomass during the production chain was disregarded due to the relatively rough estimates within the production chain of wood chips and bundles (see Erikkson & Gustavsson 2008 for more information).

The data on harvesting in the reference year 2011 was taken from the German Statistical Yearbook (Anonymous 2012)[5]. The assortment „industrial wood/energy wood" was split into industrial wood and energy wood respectively according to the Statistical Yearbook for Nutrition, Agriculture and Forestry of the Federal Republic Germany (Anonymous 2010) based on the situation in 2009. Due to the lack of data on federal level, the share of wood chips and cleft timber as energy wood were approximated based on a survey of forest owners in Bavaria, which has been published by the Bavarian Institute for Forests and Forestry[6] (Table 2-14).

Due to a lack of information, it was assumed that no bundles of energy wood are produced in Germany.

2.6 Forestry processes in Sweden

For Sweden forestry processes for the 3 main tree species are modelled:

- hardwood: birch
- softwood: spruce
- softwood: pine

Table 2-15 lists the parameters of the inventoried tree species and their sources:

Table 2-15: Parameters of the inventoried wood species for Sweden

		Birch	Spruce	Pine	source
dry wood density	g/cm^3	0.64	0.430	0.490	Oenorm B 3012 (for birch)
share of bark	%	10 %	12 %	12 %	Schweinle 2000
rotation period	years	60	80	80	according to Lindholm 2010
shrinkage	%/ %	0.41 %	0.40 %	0.40 %	Kollmann 1982
moisture content roundwood,	%	70 %	70 %	70 %	Schweinle & Thoroe 2001
moisture content industrial wood [1)]	%	80 %	80 %	80 %	
moisture content cleft timber [1)]	%	35 %	35 %	35 %	own estimate
moisture content wood chips [1)]	%	80 %	80 %	80 %	based on Schweinle & Thoroe 2001
moisture content bundles [1)]	%	50 %	50 %	50 %	Erikkson 2008
calorific value (upper)	MJ/kg dry	19.6	20.4	20.4	Werner et al. 2007
calorific value (lower)	MJ/kg dry	18.372 [2)]	19.280	19.658	Schweinle & Thoroe 2001

[1)] at forest road

[2)] assumed as for beech

[5] https://www.destatis.de/DE/Publikationen/StatistischesJahrbuch/Wirtschaftsbereiche/LandForstwirtschaft.pdf?__blob=publicationFile

[6] http://www.lwf.bayern.de/waldbewirtschaftung/holz-logistik/aktuell/45674/

The inventories are based on several literature sources, mainly Kilpeläinen et al. (2011), Berg & Lindholm (2004), Berg & Karjalainen (2003) and Yrjölä 2002. Some process data for stand establishment and maintenance was taken from Albrecht et al. (2009).

The datasets cover in particular:

- stand establishment with planting and/or natural regeneration, depending on the tree species, based on Kallio & Leinonen (2005) (as for Finland). For seedling production in heated and unheated greenhouses, data from Aldentun (2002) was used. The ratio between seedlings from heated and unheated greenhouses as calculated to meet the energy consumption for seedling production as reported by Kilpeläinen et al. (2011). Planting is modelled according to Albrecht et al. (2008);
- site preparation, including soil scarification with harrows or similar equipment as well as ditch cleaning (Kilpeläinen et al. 2011);
- tending, young growth tending, and cleaning have been inventoried based on Albrecht et al. (2009); for birch, the scenario for beech by Albrecht et al. (2009) was assumed;
- maintenance construction of forest road according to information from Svaeskog (personal communication,2007);
- thinning and final harvest, whereas it was assumed that 98 % of the harvesting from thinning und final harvest are done in a fully mechanised way with harvester and forwarder, and 2 % of the harvesting are done in a motor-manual way with power saw and forest tractor (based on Klvac & Skoupy 2009).

Table 2-16 compiles the parameters used for the inventorying of the stand establishment and maintenance over one rotation period for each tree species.

Within the scope of the datasets, eventual fertilization, redistribution of wood ash or the extraction of stumps for energetic purposes has not been considered.

The total harvest and assortments have been assumed for the inventoried tree species over one rotation period. Total harvesting over one rotation period was estimated from the following sources and from the rotation periods as listed in Table 2-17:

- birch: yield estimated based on Hynenen et al. (2008), who assume a total harvest of between 360 and 560 m^3 /ha, plus 8.1 % of the commercial volume as „GROT“ for energy purposes (Skogsstyrelsen 2012);
- spruce: yield estimate based on (1995, 2004) quoted after (Kallio & Leinonen 2005), whereas 75 % of the theoretically available biomass are extracted for energy purposes (Kallio & Leinonen 2005);
- pine: yield estimated from the ratio of the yield estimates for spruce and pine as documented in Table 2-17.

Table 2-16: Parameters for the inventorying of stand establishment und maintenance over one rotation period, for each tree species (Kilpeläinen et al. 2011, Kallio & Leinonen 2005, Albrecht et al. 2009)

		Birch	Spruce	Pine
type of regeneration and seedling production				
share of area with natural regeneration	%	100 %	0 %	40 %
share of area, planted[1)]	%	0 %	100 %	60 %
seedlings per ha	seedlings/ha	-	3000	8000
seedlings from heated greenhouses	%	-	29.6 %	29.6 %
seedlings from unheated greenhouses	%	-	70.4 %	70.4 %
mechanical site preparation, with forwarder, tractor or excavator				
share of the area with mechanical site preparation	%	100 %	100 %	100 %
diesel consumption	l/PMH	18.2	18.2	18.2
productivity	PMH/ha	1.1	1.1	1.1
planting, with tractor				
diesel consumption	l/PMH	-	7	7
productivity	seedlings/PMH	-	500	500
tending, with brush cutter				
fuel consumption	l/PMH	2.4	2.4	2.4
no. of interventions	interventions/ha	1	1	1
productivity	PMH/ha/intervention	14	14	14
young growth tending, with brush cutter				
fuel consumption	l/PMH	2.4	2.4	2.4
no. of interventions	interventions/ha	2	0	1
productivity	PMH/ha/intervention	15	15	15
selective cleaning, with power saw				
fuel consumption	l/PMH	2.4	2.4	2.4
no. of interventions	interventions/ha	1	1	1
productivity	PMH/ha/intervention	15	15	15
systematic cleaning, with mulcher on tractor				
diesel consumption	l/PMH	6	6	6
no. of interventions	interventions/ha	1	1	1
productivity	PMH/ha/intervention	15	15	15

[1)] the share with direct seeding is neglected

Table 2-17 compiles the total harvest over one rotation period and its relative distribution in main assortments, in m^3 solid under bark (sub), based on own calculations.

In Sweden thinnings and final harvests are done fully mechanised in the so-called „cut-to-length“ system. Klvac & Skoupy (2009) estimate that 98 % of the total harvest of stem wood are harvested with harvesters and forwarders in a fully mechanised system whereas only 2 % are harvested motor-manually with a power saw and a forest tractor.

Tops and branches are either chipped in the stand or forwarded as loose material or as bundles that have been produced with an energy wood harvester.

Table 2-17: Total harvesting over one rotation period relative distribution in main assortments, in m³ solid under bark (sub) (own calculations based on Hynenen et al. (2008), Kallio & Leinonen 2005, Kärhä 2011, Svaeskog, 2007, personal communication, Swedish Energy Agency & Swedish Wood Fuel Association[7], 2013)

		Birch		Spruce		Pine	
Total harvesting over a rotation period, per ha							
harvesting	m³ sub./ha	486		542		426	
main assortments over rotation period, per ha							
sawlogs	m³ sub./ha	12.2	2.5 %	269.9	49.8 %	212.2	49.8 %
industrial wood	m³ sub./ha	240.8	49.5 %	233.1	43.0 %	183.2	43.0 %
energy wood	m³ sub./ha	233.5	48.0 %	39.0	7.2 %	30.7	7.2 %
of which wood chips	*m³ sub./ha*	*182.1*	*78.0 %*	*30.4*	*78.0 %*	*23.9*	*78.0 %*
chipped at forest road	*m³ sub./ha*	*161.9*	*88.9 %*	*27.1*	*88.9 %*	*21.3*	*88.9 %*
chipped in stand	*m³ sub./ha*	*20.2*	*11.1 %*	*3.4*	*11.1 %*	*2.7*	*11.1 %*
of which cleft timber	*m³ sub./ha*	*27.6*	*11.8 %*	*4.6*	*11.8 %*	*3.6*	*11.8 %*
of which bundles of energy wood	*m³ sub./ha*	*23.8*	*10.2 %*	*4.0*	*10.2 %*	*3.1*	*10.2 %*

Table 2-18: Effort related to the harvesting of one average m³ from thinning and final harvest over one rotation period (Berg & Karjalainen 2003, Skogforsk 2006, Klvac & Skoupy 2009)

		Birch	Spruce	Pine		fuel con-sumption SE	fuel con-sumption dataset
assumed productivities for each harvesting method [1)]							
1 power saw + tractor (2 %, Klvac & Skoupy 2009)						l/m³	l/m³
productivity power saw	m³/PMH	1.70	1.70	1.70		0.294 [2)]	1.25
productivity tractor	m³/PMH	8.04	8.04	8.04		0.870 [2)]	1.62
2 harvester + forwarder (98 %, Klvac & Skoupy 2009)							
productivity harvester	m³/PMH	10.4	10.45	10.45		1.20 [3)]	1.15
productivity forwarder	m³/PMH	12.3	12.27	12.27		0.5 [3)]	0.897
effort per average m³							
power saw	PMH/m³	0.0118	0.0118	0.0118			
tractor	PMH/m³	0.00249	0.00249	0.00249			
harvester	PMH/m³	0.0938	0.0938	0.0938			
forwarder	PMH/m³	0.0799	0.0799	0.0799			
adaptation of PMH/m³ to match with fuel consumption in datasets on forest machinery							
productivity power saw	*PMH/m³*	*0.00276*	*0.00276*	*0.00276*			
productivity tractor	*PMH/m³*	*0.00134*	*0.00134*	*0.00134*			
productivity harvester	*PMH/m³*	*0.0979*	*0.0979*	*0.0979*			
productivity forwarder	*PMH/m³*	*0.0445*	*0.0445*	*0.0445*			

[1)] according to Berg & Karjalainen 2003, inventorying 44.7 % of the harvest from thinnings and 55.4 % of the harvest from final harvest (according to Hakkila (1995, 2004) for spruce, quoted after Kallio & Leinonen 2005)

[2)] own calculation based on Berg & Karjalainen 2003

[3)] Skogforsk 2006

[7] http://www.skogsstyrelsen.se/Myndigheten/Statistik/Amnesomraden/Tradbransle/Tabler--figurer/, accessed on 9 August 2013

In Table 2-18 the effort is estimated for the harvesting of an average m^3 of stem wood from thinnings and harvesting over one rotation period. In the final step at the bottom of the table, the PMH/m^3 as documented in literature for Swedish conditions have been adapted to be consistent with the fuel consumption inventoried in the ecoinvent datasets on forest machinery and as reported for Swedish forestry operations. These adaptations are due to the average size of harvesters and forwarders used in Sweden, which deviates from the size of the forest machinery inventoried in the respective dataset (see Kärhä 2011, Skogforsk 2006).

For the chipping in the stand a productivity of 25 m^3bulked/PMH is assumed (based on Cremer & Velazquesz 2007, referring to Lechner et al. 2007)); for the bundling of slash, an energy wood harvester was inventoried with a productivity of 9 m^3 solid/PMH for spruce, 6.5 m^3 solid/PMH for pine and 8.3 m^3 solid/PMH for birch (Kallio & Leinonen 2005).

For the forwarding, a productivity of 25 bundles/PMH is assumed for Swedish condition, while an average length of 3 m and an average diameter of 0.75 m diameter is assumed for a bundle (Eriksson 2008, Kallio & Leinonen 2005). This adds up to a productivity of 88 m^3bulked/PMH for the forwarding of bundles with a diesel consumption of 9.5 l/h of the forwarder (Gustavsson 2011).

For wood chips chipped in the stand, a productivity of the forwarding of 70 Sm^3 bulked/PMH with a diesel consumption of 9.5 l/h of the forwarder is assumed.

Losses of biomass during the production chain are disregarded due to the relatively rough estimates within the production chain of wood chips and bundles (see Erikkson & Gustavsson 2008 for more information).

Due to the available data, it has not been possible to distinguish productivities for the individual tree species.

Data on the harvesting of all assortments for the reference year 2011 was taken from the Statistical Yearbook 2012 (Skogsstyrelsen 2012); total harvest consists of the harvested stem wood plus the harvested tops and branches (GROT) for energetic purposes. The distribution of the total harvest in the harvests of each tree species were made based on information from Svaeskog and the values on percentages in Table 2-19.

Table 2-19: Estimate of the wood harvesting for the year 2011 as main assortments, for each tree species, solid under bark (sub) (based on Skogsstyrelsen 2012, Svaeskog 2007, personal communication)

Total harvesting 2011, for each tree species (without „other tree species“)							
harvested stem wood	m^3 sub.	72,100,000					
GROT (tops/branches)	m^3 sub.	5,938,000					
TOTAL harvesting	m^3 sub.	78,038,000					
		Birch		***Spruce***		***Pine***	
	m^3 sub.	8346943	10.7 %	34421120	44.1 %	27866268	35.7 %
main assortments, in the year 2011							
sawlogs	m^3 sub./ha	208‘673	2.5 %	17‘141‘717	49.8 %	13‘877‘401	49.8 %
industrial wood	m^3 sub./ha	4‘131‘737	49.5 %	14‘801‘081	43.0 %	11‘982‘495	43.0 %
energy wood	m^3 sub./ha	4‘006‘533	48.0 %	2‘478‘320	7.2 %	2‘006‘371	7.2 %
of which wood chips	*m^3 sub./ha*	3‘125‘095	78.0 %	1‘933‘090	78.0 %	1‘564‘969	78.0 %
chipped at forest road	*m^3 sub./ha*	2‘777‘862	88.9 %	1‘718‘302	88.9 %	1‘391‘084	88.9 %
chipped in stand	*m^3 sub./ha*	347‘232	11.1 %	214‘787	11.1 %	173‘885	11.1 %
of which cleft timber	*m^3 sub./ha*	472‘770	11.8 %	292‘441	11.8 %	236‘751	11.8 %
of which bundles of energy wood	*m^3 sub./ha*	408‘666	10.2 %	252‘788	10.2 %	204‘649	10.2 %

Due to the prevailing practice of clear-cutting in final harvest and due to the sketched practices for site preparation, the area of productive forestry in Sweden has been classified as „forest, intensive“ according to the CORINE classification of land covers.

3 Update of the sawmilling processes

3.1 Overview of the updated datasets related to sawmilling processes

The sawmilling process chain has been structured as follows (all datasets for CH and RER; here only the CH datasets are listed for illustrative purposes).

The sawing of the sawlog results in sawnwood, **slabs & sidings**, bark and saw dust at the saw. The datasets represent the service of sawing one m^3 of wood at a sawmill. The sawing process starts with the sorting of the log at the sawmill; the activity ends with sawn wood, at sawmill; the processing of all co-products from the sawing process are covered in separate datasets. The dataset does not include dust emissions to the environment because of lack of data.

- sawnwood, hardwood, raw, at saw/m3/CH
- sawnwood, softwood, raw, at saw/m3/CH
- bark, hardwood, after debarking, at sawmill/kg/CH
- bark, softwood, after debarking, at sawmill/kg/CH
- slab and siding, hardwood, wet, measured as dry mass, at sawmill/kg/CH
- slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/CH
- saw dust, loose, hardwood, wet, measured as dry mass, at saw/kg/CH
- saw dust, loose, softwood, wet, measured as dry mass, at saw/kg/CH
- saw dust, loose, production mix, wet, measured as dry mass, at saw/kg/CH

This bark is then chipped into **bark chips.** The datasets represent the service of the handling of bark from softwood at sawmill with an output of one kg of bark, measured in oven-dry mass of bark. Bark chips production starts with the bark taken off the stem as part of the over-all sawing process (see respective dataset) and includes all the handling of the bark in the sawmill. This activity ends with the bark chips stored in a silo at the saw mill:

- bark chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH
- bark chips, softwood, wet, measured as dry mass, at sawmill/kg/CH
- bark chips, production mix, wet, measured as dry mass, at sawmill/kg/CH

The slabs and sidings can then chipped into **wood chips**:

- wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH
- wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH

In addition to these datasets for wood chips from sawmills and from forestry (see previous chapter), a **production mix for wood chips** has been generated:

- wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH

The **sawdust** – modelled only for a dataset for mixed saw dust – is transported internally from the saw to a bunker. The dataset represents the service of collecting the sawdust, expressed per kg dry mass and transporting it to its silo via aspiration. The activity starts with the sawdust at the sawing machine; the activity ends with the sawdust collected at a silo at the sawmill site. The dataset does not include direct wood dust emissions nor specific infrastructure, which is taken into account as a rough estimate in the sawmilling process:

- saw dust, production mix, wet, measured as dry mass, at sawmill/kg/CH

As the inputs for the drying differ for beams, boards and laths, these products from sawnwood are distinguished for the subsequent drying processes. Three different types of drying are distinguished:

- air drying down to a moisture content of u = 20 %
- kiln drying down to a moisture content of u = 20 %
- kiln drying down to a moisture content of u = 10 %

For *air drying*, the dataset represents the natural air drying process of beams, boards and laths, per m^3 dried wood. After sawing, the wood is dried. Air drying occurs during storage, which is assumed to take place at the sawmill site. The following drying times are assumed:

- beams, hardwood: 30 months
- boards, hardwood: 12 months
- laths, hardwood: 12 months
- beams, softwood: 12 months
- boards, softwood: 12 months
- laths, softwood: 6 months

Shrinkage ratio of between the moisture content of u=30 % - 0 % is assumed to be 0.004 %/ %. The natural air drying process starts from sawn wood, at sawmill site; the activity ends with air dried beams, boards or laths at the sawmill. The datasets include air drying of wet wood assumed as u=70 % down to u=20 %, shrinkage and land use. The datasets do not include air emissions released from the wood because the same emissions would occur if the wood would not be used.

For *kiln drying*, dataset represents the service of kiln drying of one m^3 sawn beams, boards, and laths. The wood chips used in the process are considered to be supplied internally, produced from slabs and sidings after sawing. Humidity of the wood chips when burned is estimated to be around 50 %, which is achieved after some weeks of drying in the storage. Wood chip will be able to supply the entire thermal demand for drying. Air emission factors as well as the boiler efficiency represent average annual operation including start and stop (warm-up and shut-down). The boiler used is considered to be 300 kW and emission profile refers to the facility. Shrinkage ratio of between the moisture content of u=30 % - 0 % is assumed to be 0.004 %/ %. The kiln drying process starts from sawn wood, at the sawmill site, assumed to lose some water before the start of the kiln drying process; this activity ends with kiln dried beams, boards or laths, at sawmill. The datasets include kiln drying of wet wood assumed as u=50 % down to u=20 % or u=10 %, and shrinkage. The datasets do not include air emissions released from the wood, as the emissions are assumed to be comparable to emissions from natural drying during decomposition/rotting.

Thus, the following datasets have been generated for **dried, raw beams, boards and laths as well as for their production mix (consisting of the three products)**

for hardwood:

- sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH
- sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
- sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
- sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH
- sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
- sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
- sawnwood, lath, hardwood, dried (u=10 %), planed, at sawmill/m3/CH
- sawnwood, lath, hardwood, dried (u=20 %), planed, at sawmill/m3/CH
- sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH
- sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
- sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
- sawnwood, production mix, hardwood, raw, dried (u=10 %), at sawmill/m3/CH
- sawnwood, production mix, hardwood, raw, dried (u=20 %), at sawmill/m3/CH

and for softwood:

- sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/CH
- sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
- sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
- sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/CH
- sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
- sawnwood, board, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER
- sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/CH
- sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
- sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
- sawnwood, production mix, softwood, raw, dried (u=20 %), at sawmill/m3/CH
- sawnwood, production mix, softwood, raw, dried (u=10 %), at sawmill/m3/CH

As the next process step, the dried sawnwood can be planed, generating **planed (dried) beams, boards and laths as well as their production mix (consisting of the three products)** and the resulting shavings at the planing machine. These datasets represent the planing of one m^3 wood beam/board/lath that has been kiln dried to u = 20 % or 10 % moisture content. In the case of products with 20 % moisture content, the ratio of kiln dried to air dried raw input corresponds to the estimated market mix. Thus, the planing process starts from air dried respectively kiln dried wood, at sawmill site; the activity ends with planed wood product, at plant. The planing mill is assumed to be located on the sawmill site. The emissions during the planing are excluded due to lack of data. The suction of the shavings is modelled in a separate activity (see below):

for hardwood:

- sawnwood, beam, hardwood, dried (u=20 %), planed, at sawmill/m3/CH
- sawnwood, beam, hardwood, dried (u=10 %), planed, at sawmill/m3/CH
- sawnwood, board, hardwood, dried (u=20 %), planed, at sawmill/m3/CH

- sawnwood, board, hardwood, dried (u=10 %), planed, at sawmill/m3/CH
- sawnwood, lath, hardwood, dried (u=20 %), planed, at sawmill/m3/CH
- sawnwood, lath, hardwood, dried (u=10 %), planed, at sawmill/m3/CH
- sawnwood, production mix, hardwood, dried (u=20 %), planed, at sawmill/m3/CH
- sawnwood, production mix, hardwood, dried (u=10 %), planed, at sawmill/m3/CH

- shavings, loose, hardwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, hardwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, hardwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, hardwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, hardwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, hardwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, hardwood, from planing, measured as dry mass, at planing machine/kg/CH

and for softwood:

- sawnwood, beam, softwood, dried (u=20 %), planed, at sawmill/m3/CH
- sawnwood, beam, softwood, dried (u=10 %), planed, at sawmill/m3/CH
- sawnwood, board, softwood, dried (u=20 %), planed, at sawmill/m3/CH
- sawnwood, board, softwood, dried (u=10 %), planed, at sawmill/m3/CH
- sawnwood, lath, softwood, dried (u=20 %), planed, at sawmill/m3/CH
- sawnwood, lath, softwood, dried (u=10 %), planed, at sawmill/m3/CH
- sawnwood, production mix, softwood, dried (u=20 %), planed, at sawmill/m3/CH
- sawnwood, production mix, softwood, dried (u=10 %), planed, at sawmill/m3/CH

- shavings, loose, softwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, softwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, softwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, softwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, softwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/CH
- shavings, loose, softwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/CH

After planning, the **shavings** are then collected and transported to a bunker. The datasets represent the service of collecting shavings from the planing of wood, expressed per kg dry mass and transporting it to its silo via aspiration. The activity starts with the shavings at the planing machine; the activity ends with the shavings collected at a silo at the sawmill site. The datasets do not include direct wood dust emissions. The pipes and pumps as well as the silo are assumed be part of the infrastructure DS for the sawmill:

- shavings, hardwood, measured as dry mass, at planing mill/kg/CH
- shavings, softwood, measured as dry mass, at planing mill/kg/CH

Dried wood chips from sawmills can also be converted into **wood pellets**, which has been modelled as an RER-process only, based on one modern wood pellets factory in Switzerland with an annual capacity of about 60 000 m^3/year. This dataset represent the inputs and outputs of materials and energy for wood pellets production. Pellets are produced in a wood pellets factory which uses wood residue from sawmills and woodchips as raw materials. The raw materials are first pre-treated and dried, then commuted and mixed. In the end they are pelletized, cooled and bagged. Pellets that are packed in 15 kg-bags amount to the 20 % of the production. The remaining 80 % are sold unpacked. The pellets produced match the characteristics of the German standard of quality DIN-plus (certification). There is no waste modelled of the packaging film and maize starch, since these inputs will be part of the final product. The activity starts from the receipt of the raw material at the pellet factory; the activity ends with the final product (wood pellets) ready to be delivered at the production factory.:

- wood pellet, measured as dry mass, at plant/kg/RER

In addition, a specific infrastructure dataset has been generated for a **Swiss sawmill**. The service life is assumed to be 50 years. The DS has been adjusted from the ecoinvent 2.2 report to represent an average size sawmill for Switzerland around 2012; the land area and the material and their transports needed for building and disposal of a sawmill with a yearly output of 50'000 m^3 sawn timber is included. Land used for air drying of wood is not included:

- sawmill/CH/I

Datasets related to the production of wood-based boards from sawn timber have not been updated but have been relinked to the updated wood inputs (see also Annex A.2).

For the wood input for the production of wood products in Europe, average European datasets were created from the 3 corresponding European datasets for Switzerland, Germany and Sweden

- sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
- sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
- pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
- pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER

To this end, the production data for sawlogs and pulpwood for all European countries with a production share of >2 % according to FAOStat 2012 was scaled to 100 % total production; then the country was assigned to one of the three countries based on similar climatic and topographical conditions, whereas the species mix was considered the same as in Switzerland, Germany or Sweden (due to a lack of data). It is acknowledged that this is a very rough approximation.

Thus these datasets correspond to the production mix of relevant roundwood producing countries. They do not necessarily represent the specific origin of wood for a specific product.

3.2 Methodological considerations

3.2.1 Structuring of the sawmilling processes, including intermediate products

The process chain in a sawmill is a net of interlinked processes; its structure depends on the individual design and technologies in place for each sawmill. The structuring of the sawmilling processes is based on the identification of the core processes in a sawmill that are attributable to several co-products such as upstream processes like forestry and transport of logs to the sawmill, sorting, storing and the sawing of the (debarked) log. Other processes are attributable directly to one of the co-products such as the chipping of residual wood (either after sawing or as part of the profile chipping), the chipping of the bark (the "debarking") or the suction of saw dust as collection and internal transport.

For the sawing, no distinction is made regarding different types of sawn wood products such as beams, boards and laths as sawing pattern largely depend on the diameter of the log and usually different types and sizes of sawn timber products are produced in the same cut. Further down the process chain, i.e., for the drying and planing, beams, boards and laths are distinguished as their corresponding inputs in heat, electricity, etc. differ considerably in these process steps.

The different sawnwood products and the yields of the sawing process are indicated below (Table 3-1):

Table 3-1: Specification of beams, boards and laths

Products	what they are	how they are used
beams	beams are wooden construction elements with a large cross section (60 mm x 80 mm or more, common being 100 x 100 to 140 x 140 for square cross section and 60 x 200 for non-square cross sections)	mainly used as construction elements in building envelopes (post+beam; ridge beams; rafter)
boards	boards are "flat“ wooden construction elements (40 mm or less x 120 mm or more)	used for scaffolding (low quality elements), stairs (high quality elements)
laths	laths are wooden construction elements similar to beams but of a smaller cross section (from 20 mm x 40 mm with 40 mm x 60 mm being most common)	mainly used in underconstruction for facades, floors and inner plating of walls

Figure 3-1 illustrates the process chain of the debarking, sawing and processing of the co-products (except sawn timber).

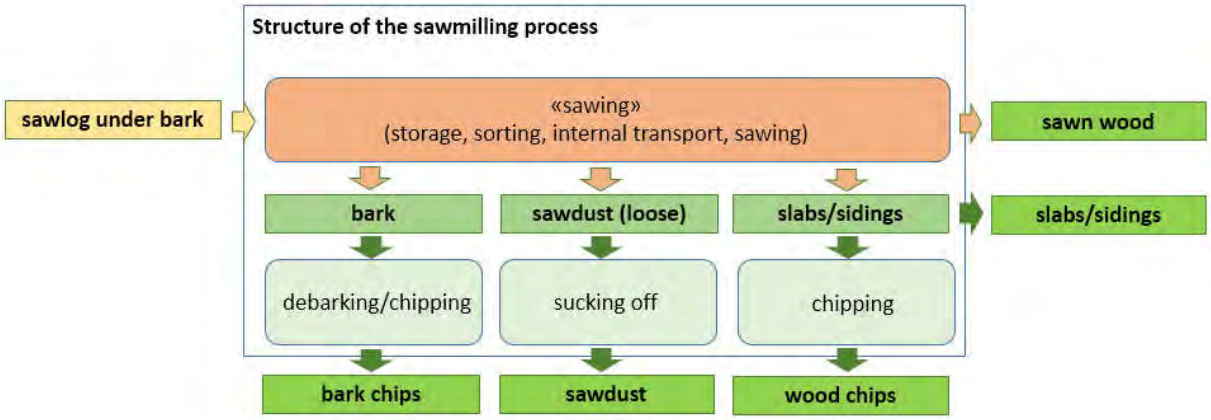


Figure 3-1: Structure of the debarking, sawing and co-product processing

The process chain for the sawn timber – drying, planing – is illustrated in Figure 3-2:

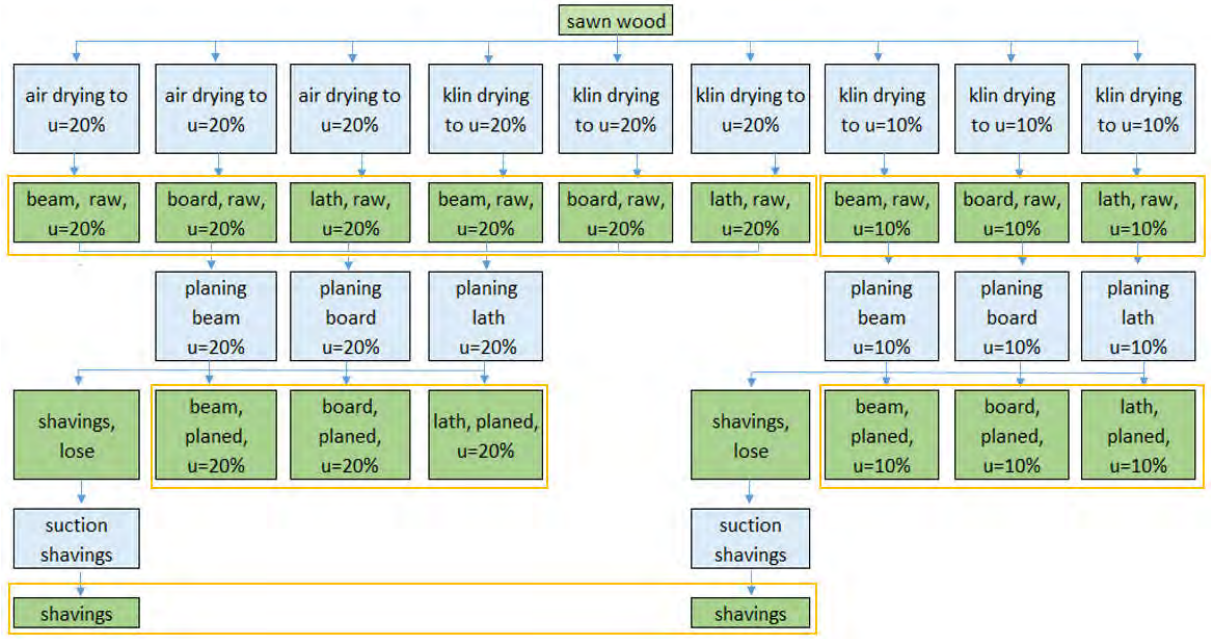


Figure 3-2: Structure of the process chain after the sawing; the products group in orange frames are also inventoried as „mixed production“.

3.2.2 Allocations

All data have been provided by the Association Holzindustrie Schweiz. The data stem from annual surveys of their member companies.

This means for specific allocations:

- electricity and heat consumption were provided per energy carrier as Swiss average mix and were linked with Swiss datasets for the quantification of the environmental impacts. It results that average yields and efficiencies were used instead of company specific values;
- the same holds for waste quantities and co-products that are modelled as Swiss averages based on HIS data.

In the system model of ecoinvent 3 „cut-off by classification“, economic allocation has been applied based on the prices as listed in Annex A.3. The resulting allocated processes have not been modified for the transfer of the data into the ecoinvent 2.2 structure, except for the allocation corrections for biogenic carbon and renewable primary energy as material inherent property (see Chapter 1.2).

3.3 Background data for the Swiss sawmilling chain

Table 3-2 provides an overview of the yield of the sawing process for softwood and hardwood per m^3 solid log for the sawmills in Switzerland for the year 2011.

Table 3-2: Roundwood input and resulting sawn timber products and residual wood in Swiss sawmills (source: BFS, Eidg. Holzverarbeitungserhebung 2012)

	roundwood		sawn wood		residual wood	
	m^3 solid	%	m^3 solid	%	m^3 solid	%
softwood	1 768 934	100	1 079 421	61	689 513	39
hardwood	94 395	100	55 858	59	38 537	41
total	1 863 329	100	1 135 279	61	728 050	39

softwood	**hardwood**
an average distribution of resulting beams (35 %), boards (48 %) and laths (17 %)	average distribution of resulting beams (50 %), boards (33 %) and laths (17 %)

The next table lists the basic wood densities, apparent densities and assumed transport weight for softwood and hardwood in the sawmilling chain (Table 3-3).

Table 3-3: Basic wood densities, apparent densities and assumed transport weight for softwood and hardwood in the sawmilling chain (for shrinkage ratios, see main text; dry wood density according to HIS)

		softwood/CH	hardwood/CH
	moisture content	kg/m^3	kg/m^3
Basic wood density (dry mass/wet volume)	0 %	440	640
	10 %	422	614
	20 %	404	588
	30 %	387	563
	> 30 %	387	563
Apparent density (wet mass/wet volume)	10 %	464	675
	20 %	485	706
	30 %	503	732
	70 %	658	957
Assumed transport weight		800	1000

4 Update of the processes for the production of wood-based panels

4.1 Overview of the updated datasets on wood-based panels

Datasets for the following **wood-based panels** have been generated:

- fibreboard, soft, from wet & dry processes, at plant/m3/RER
- fibreboard, hard, at plant/kg/RER
- medium density fibreboard, uncoated, at plant/m3/RER
- oriented strand board, at plant/m3/RER
- particleboard, average glue mix, uncoated, at plant/m3/RER
- medium density fibreboard, uncoated, at plant/m3/RER

Due to the confidentiality of producer data, no distinction could be made for different gluing systems used in particle board production; the same holds for soft fibreboard production in the wet and in the dry process, as for these distinctions, producer information of at least 3 sources for each of the alternatives would have been needed.

Some of the production processes generate **bark** or **industrial residual wood** as by-products. The resulting datasets are:

- bark chips, wet, from soft fibreboard production, from wet & dry processes, measured as dry mass, at plant/kg/RER
- bark chips, wet, from hard fibreboard production, measured as dry mass, at plant/kg/RER
- bark chips, wet, from oriented strand board production, measured as dry mass, at plant/kg/RER
- bark chips, wet, from particle board production, uncoated, average glue mix, measured as dry mass, at plant/kg/RER

- residual wood, dry, from soft fibreboard production, from wet & dry processes, measured as dry mass, at plant/kg/RER
- residual wood, dry, from hard fibreboard production, measured as dry mass, at plant/kg/RER
- residual wood, dry, from medium density fibreboard production, uncoated, measured as dry mass, at plant/kg/RER
- residual wood, dry, from oriented strand board production, measured as dry mass, at plant/kg/RER
- residual wood, dry, from particle board production, uncoated, average glue mix, measured as dry mass, at plant/kg/RER

A minor amount of sur-plus **heat** is created during particle board production; the respective dataset has been deleted from the database.

Some of the production processes – particularly the „wet“ production processes – cause wastewater. Specific datasets for the **treatment of wastewater** have been created based on the reported waterborne emissions per product, using the respective tool developed for ecoinvent 2.

- Treatment hard fibreboard production effluent, to wastewater treatment, class 1/m3/RER
- Treatment, medium density fibreboard production effluent, to wastewater treatment, class 1/m3/RER
- Treatment, particle board production effluent, to wastewater treatment, class 1/m3/RER
- Treatment, soft fibreboard production effluent, to wastewater treatment, class 1/m3/RER

For double-sided coating of wood-based boards, e.g. particleboard or MDF in thicknesses between 15 mm and 18 mm, the production of **melamine impregnated paper** and a **double-sided coating** process have been inventoried. Coated products are often use in furniture production or in kitchens:

- paper, melamine impregnated, at plant/kg/RER
- coating, double-sided, with melamine impregnated paper/m2/RER

The inventories are based on the information made available by the companies and complemented with information from EPDs and other information sources. Thus, the datasets do not represent a statistical sample of the participating companies but rather best available information. In particular, it has not always been possible to attribute heating processes to board production or to the paper production and coating processes. In such cases, the impacts of heat generation were attributed to the board production. As a consequence, the impacts of the production of boards might be slightly over-estimated, whereas impacts of the melamine impregnated paper production and of the coating process might slightly be underestimated.

4.2 Description of the products

4.2.1 Particleboard

Particleboard (PB) is manufactured from the dry wood-panel production process under pressure and heat from particles of wood (flakes, chips, shavings, sawdust and similar) and/or other lignocellulosic material in particle form (flax shives, hemp shives, bagasse fragments and similar) with the addition of an adhesive.

Particleboard, or particle board (or chipboard in the UK and Commonwealth Nations such as Australia, New Zealand and others), is an engineered wood product manufactured from wood chips, sawmill shavings, or saw dust, and a synthetic resin or other suitable binder, which is pressed and extruded. Particleboard is a composite material according to the standard EN 312. The density of standard particleboard can vary between 650 – 750 kg/m^3, whereas densities for low density particleboard can be as low as 250 kg/m^3 and range up to 1300 kg/m^3 for high density particleboard. Typical thickness is in a range of 3 to > 40 mm.

Particleboard is manufactured by mixing wood particles or flakes together with a resin and forming the mix into a sheet. The raw material to be used for the particles is fed into a disc chipper with between four and sixteen radially arranged blades. The particles are first dried, after which any oversized or undersized particles are screened out. Resin, in liquid form, is then sprayed through nozzles onto the particles. There are

several types of resins that are commonly used. Amino-formaldehyde based resins are the best performing when considering cost and ease of use. Urea melamine resins are used to offer water resistance with increased melamine offering enhanced resistance. Phenol formaldehyde is typically used where the panel was used in external applications due to the increased water resistance offered by phenolic resins and also the colour of the resin resulting in a darker panel. Melamine urea phenolic formaldehyde resins exist as a compromise. To enhance the panel properties even further the use of resorcinol resins typically mixed with phenolic resins are used, but this is usually used with plywood for marine applications and a rare occasion in panel production.

Panel production involves various other chemicals — including wax, dyes, wetting agents, release agents — to make the final product water resistant, fireproof, insect proof, or to give it some other quality.

Once the resin has been mixed with the particles, the liquid mixture is made into a sheet. A weighing device notes the weight of flakes, and they are distributed into position by rotating rakes. In graded-density particleboard, the flakes are spread by an air jet that throws finer particles further than coarse ones. Two such jets, reversed, allow the particles to build up from fine to coarse and back to fine.

The sheets formed are then cold-compressed to reduce their thickness and make them easier to transport. Later, they are compressed again, under pressures between two and three megapascals and temperatures between 140 °C and 220 °C. This process sets and hardens the glue. All aspects of this entire process must be carefully controlled to ensure the correct size, density and consistency of the board.

The boards are then cooled, trimmed and sanded. They can then be sold as raw board or surface improved through the addition of a wood veneer or laminate surface.

Seven types of boards are classified and are distinguished as follows (EN 312):

P1 General purpose boards for use in dry conditions,

P2 Boards for interior fitments (including furniture) for use in dry conditions,

P3 Non load-bearing boards for use in humid conditions,

P4 Load-bearing boards for use in dry conditions,

P5 Load-bearing boards for use in humid conditions,

P6 Heavy duty load-bearing boards for use in dry conditions,

P7 Heavy duty load-bearing boards for use in humid conditions.

Particleboard is mainly used in furniture manufacturing.

Particleboard can also be used for structural applications. Different types of speciality boards can be produced according to individual building application requirements; moisture resistance, fire retardance or acoustic insulation are all properties which can be achieved by using specific types of particleboard.

Particleboard can also be used for construction purposes in combination with other materials, for example in parquet or insulation materials.

Production is subject to the regulations of the Industrial Emissions Directive (EU-IED, 2011) if the production capacity exceeds 600 m^3 per day where one or more of the following wood-based panels are produced: particleboard, oriented strand board or fibreboard.

Particleboard is fully recyclable. It can show a broad range of variation of surfaces and characteristics (including e.g. fire retardation and moisture resistance).

All life cycle inventories refer to the production mix of 1 m^3 of uncoated particleboard[8] with a weighted average mix of adhesives[9]. The composition of the inventoried particleboard is reported in Table 4-1:

Table 4-1: Composition of the inventoried particleboard

	unit	amount
Water	kg/m^3	37.7
Moisture content		*6.3 %*
Wood	kg/m^3	535.8
Urea formaldehyde resin	kg/m^3	44.33
Melamine formaldehyde resin	kg/m^3	9.61
MDI	kg/m^3	3.19
Phenol formaldehyde resin	kg/m^3	1.19
Lignosulphonate	kg/m^3	0.0224
Aluminium sulphate, powder	kg/m^3	0.280
Hardener	kg/m^3	1.22
Urea	kg/m^3	0.409
Paraffin	kg/m^3	2.96
Flame retardant	kg/m^3	0.195
Dye	kg/m^3	0.153
Additives (unspecified)	kg/m^3	0.00827
Total	**kg/m^3**	**637.0**

4.2.2 Oriented strand board

Oriented Strand Board (OSB) is a structural panel made from wood strands, flaked from round wood.

OSB is a structural panel, consisting of a sheet material in which rather long strands of wood are bonded together with a synthetic resin adhesive. The strands are orientated in a particular direction in the two outer layers of the panel, and sometimes also in all three layers. OSB varies in colour from a light straw colour to a medium brown depending on the wood species, resin system and pressing conditions. Waterproof and boil proof resin binders are combined with the strands to improve internal strength, rigidity and moisture resistance.

Typical densities are 600-680 kg/m^3; typical thickness is in a range of 6 to 40 mm.

Key elements in the production are the stranders in which strands are produced. These strands retain the natural strength properties of the wood and are critical to the quality of the finished product. The

[8] for some of the inputs and outputs it was not possible to separate the coating process from the production process due to the lack of systematic data at plant level

[9] for the reason of data confidentiality, no life cycle inventories could be established for particleboard with specific adhesives due to a too small sample size for boards with PMDI or PF bonding.

dry strands are metered into the blender where they are tumbled into a rotating drum with a fine mist of wax and resin. The resin/wax bonds the strands in the pressing process and enhances the moisture resilience of the board. The coated strands are then conveyed overhead to the forming line where a "mat" of flakes is laid on a continuous belt conveyor by a cut-off saw. This mat is loaded in a press where, under high temperature and pressure, a sheet of OSB is formed. In the finishing area the product is trimmed and cut to produce the finished OSB board.

Production is subject to the regulations of the Industrial Emissions Directive (EU-IED, 2011) if the production capacity exceeds 600 m^3 per day where one or more of the following wood-based panels are produced: oriented strand board particle, board or fibreboard.

OSB is characterised by an excellent strength-to-weight ratio and high mechanical strength, resulting from the uninterrupted wood fibre, interweaving of the long strands and degree of orientation of strands in the surface layers. It is resistant to distortion, splitting and de-lamination. It is dimensionally stable, easy to work and flaw free. It is fully recyclable.

European standards describe different types of OSB:

OSB/1 : boards for general purpose use and interior use in dry conditions

OSB/2 : boards for load-bearing in dry conditions

OSB/3 : boards for load-bearing in wet/moist conditions

OSB/4 : high-specification boards for load-bearing in wet/moist conditions

In construction projects, OSB applications comprise for example:

- wall sheeting - high strength and racking performance under all types of exterior cladding,
- roof sheeting - uniformly sound and extra rigid to handle snow and wind loads, sacking for pitched tiles on slated roofs, structural decking on joists for flat roofs,
- subfloors - strong, rigid and impact-resistant for underlayment, carpet or tiles,
- single-layer floors - directly under carpet, lightweight concrete or hardwood,
- underlayment - uniformly thin yet strong and finely sanded, provides a smooth and uniform base for vinyl or tiles,
- I-joists - a high quality support system that minimizes deflection, provides for long spans and minimizes floor squeaking.

Because it's engineered, OSB can be custom manufactured to meet specific requirements in thickness, density, panel size, surface texture, strength and rigidity. OSB is also highly workable, making it easy to saw, drill, nail, plane, file, glue, paint and sand.

OSB is also used as concrete shuttering or framework and for high-quality and high specification packaging. Other OSB uses are (EPF website, 2011):

- in fair- and shop-fittings, for both structural and decorative components
- in furniture manufacture, as decorative furniture and to reduce thickness and weight of furniture components (chair seats and backs, furniture frames, desk tops under lamination);
- for vehicle and wagon interiors;
- for hoarding and barriers, shutters and fences;
- for dry storage pallets.

All life cycle inventories refer to the production mix of 1 m^3 of uncoated oriented strand board. The composition of the inventoried oriented strand board is reported in Table 4-2:

Table 4-2: ***Composition of the inventoried oriented strand board***

	unit	amount
Water content	kg/m³	25.3
Moisture content		*4.3 %*
Wood content	kg/m³	543.9
Melamine formaldehyde resin	kg/m³	4.87
MDI	kg/m³	17.6
Lignophenol formaldehyde	kg/m³	3.56
Paraffin	kg/m³	10.5
Additives (unspecified)	kg/m³	1.21
Total	**kg/m³**	**607.0**

4.2.3 Medium density board

Medium density fibreboard (MDF) is an engineered wood product according to the standard EN 622-5. It is formed by breaking down hardwood or softwood residuals into wood fibres, often in a defibrator, combining it with wax and a resin binder, and forming panels by applying high temperature and pressure.

Over time, the word "MDF" has become a generic name for any dry process fibre board. MDF density is typically between 500 kg/m³ and 1000 kg/m³. Standard boards are available in Europe with thicknesses in the range of 1.8 to 60 mm.

The general steps used to produce MDF include mechanical pulping of wood chips to fibres (refining), drying, blending fibres with resin and sometimes wax, forming the resinated material into a mat, and hot pressing.

The most raw materials used for MDF production are wooden materials, such as logs with diameter of 50 – 200 mm, small diameter wood, roundwood core and veneer wastes from plywood production, saw dust and wood strips from sawmills etc. If necessary, the chips are washed to remove dirt and other debris.

Clean chips are softened in a steam-pressurized digester, then transported into a pressurized refiner chamber. In the refiner chamber, single or double revolving disks are used to mechanically pulp the softened chips into fibres suitable for making the board.

From the refiners, the fibres move to the drying and blending area. A rotary pre-dryer may be used for initial drying of relatively wet furnish. Regardless of whether or not a pre-dryer was used, tube dryers typically are used to reduce the moisture content of the fibres to desired levels. Single-stage or multiple-stage tube drying systems are commonly used in MDF manufacture. Most of the multiple-stage tube drying systems incorporate two stages. In multiple-stage tube dryers, there is a primary tube dryer and a second stage tube dryer in series separated by an emission point such as a cyclonic collector. Heat is usually provided to tube dryers by the direct firing of propane, natural gas, or distillate oil or by indirect heating.

The sequence of the drying and blending operations depends on the method by which resins and other additives are blended with the fibres. Urea-formaldehyde (UF) resins are the most common resins used in the manufacture of MDF. Phenolic resins, melamine resins, and isocyanates are also used. Some

plants inject resins into a short-retention blender, while most facilities inject resin formulations into a blowline system. If resin is added in a separate blender, the fibres are first dried and separated from the gas stream by a fibre recovery cyclone, then conveyed to the blender. The fibres then are blended with resin, wax, and any other additives and conveyed to a dry fibre storage bin.

If a blowline system was used, the fibres are first blended with resin, wax, and other additives in a blowline, which is a duct that discharges the resinated fibres to the dryer. After drying, the fibres are separated from the gas stream by a fibre recovery cyclone and then conveyed to a dry fibre storage bin.

Air conveys the resinated fibres from the dry storage bin to the forming machine, where they are deposited on a continuously moving screen system. The continuously formed mat must be prepressed before being loaded into the hot press. After prepressing, some pre-trimming is done. The trimmed material is collected and recycled to the forming machine.

The prepressed and trimmed mats then are transferred to the hot press. The press applies heat and pressure to activate the resin and bond the fibres into a solid panel. The mat may be pressed in a continuous hot press, or the pre-compressed mat may be cut by a flying cut-off saw into individual mats that are then loaded into a multi-opening, batch-type hot press. Steam or hot oil heating of the press platens is common in European MDF plants. After pressing, the boards are cooled, sanded, trimmed, and sawed to final dimensions. The boards may also be painted or laminated. Finally, the finished product is packaged for shipment.

Unlike most other wood based sheet materials, the uniform and close packed fibre distribution throughout the thickness of MDF allows detailed machining operations to be carried out on the faces and edges without breakout or the exposure of voids within the core of the board.

Standard MDF is being used for the manufacture of table tops, door panels and drawer fronts with moulded edges or profiled surfaces. The smooth and stable surfaces of MDF provide an excellent substrate for painting or the application of decorative foils or wood veneers. The inherent stability, good machinability and high strength of MDF creates opportunities for it to be used as an alternative to solid wood for applications such as drawer sides, cabinet rails, mirror surrounds and mouldings.

Although primarily developed for use in furniture, standard MDF is being used increasingly for shop fitments, exhibition displays, wall panelling, architectural mouldings and many other applications where its good machining and finishing characteristics are used to advantage.

MDF product types are available for the use in more demanding situations like for moisture resistant, flame retardant, high density and exterior grades of MDF.

Moisture resistant boards are being used for bathroom fitments, doors, window boards and other interior building applications where resistance to damp conditions or intermittent wetting are important requirements.

Flame retardant boards are being used increasingly for fitted furniture, doors and panelling in public buildings and other areas which have to conform to national fire regulations.

All life cycle inventories refer to the production mix of 1 m^3 of uncoated medium density fibreboard[10]. The composition of the inventoried medium density fibreboard is reported in Table 4-3:

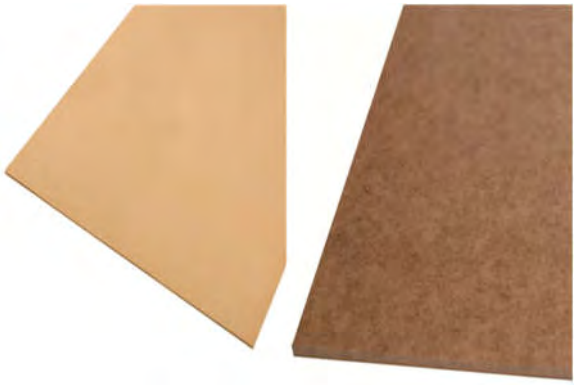
[10] for some of the inputs and outputs it was not possible to separate the coating process from the production process due to the lack of systematic data at plant level

Table 4-3: Composition of the inventoried medium density fibreboard

	unit	amount
Water content	kg/m³	44.4
Moisture content		*7.0 %*
Wood content	kg/m³	546
Urea formaldehyde resin	kg/m³	45.6
Melamine formaldehyde resin	kg/m³	41.6
Aluminium sulphate, powder	kg/m³	0.0228
Urea	kg/m³	0.694
Paraffin	kg/m³	4.63
Flame retardant	kg/m³	0.588
Dye	kg/m³	0.298
Total	**kg/m³**	**684**

4.2.4 Hard fibreboard/hardboard

Hard fibreboard, also called hardboard, is an engineered wood product in conformity with the standard EN 622-1. Hard fibreboard is produced in either the wet or dry process. The wet process leaves only one smooth side while the dry processed hardboard is smooth on both sides. Hardboard is similar to medium density fibreboard, but is denser, much stronger and harder because it is made out of exploded wood fibres that have been highly compressed. Consequently, the density of hardboard is usually about 800-1040 kg/m³. Typical thickness in a range from 2.2-4.0 mm. It differs from MDF in that the bonding of the wood fibres usually requires no additional materials, although resin is often added. Hard fibreboard is characterised by high dimensional stability.



Production is subject to the regulations of the Industrial Emissions Directive (EU-IED, 2011) if the production capacity exceeds 600 m³ per day where one or more of the following wood-based panels are produced: fibreboard, particleboard, or oriented strand board.

Raw and lacquered hardboard panels are used e.g. for construction, packaging, furniture, upholstery, door skins, toys, automobile and caravan interiors. Hard fibreboard is also used for packaging of fruits, vegetables and mineral water bottles. It is also used for specialized applications like perforated boards for moulding. Producers offer customers specific services including cut to size, and drilling and milling.

The major characteristics of hardboards – based on EN 622-2 with thickness of 3.5 mm or smaller – is shown in the Table 4-4.

Table 4-4: Major characteristics of hardboards, based on EN 622-2, thickness < 3.5 mm

Characteristics	unit	value	standard
Density	kg/m³	> 900	EN 323
Bending strength	N/mm²	> 30	EN 310
Internal bond	N/mm²	> 0.5	EN 319
Moisture content	%	> 4	EN 322
24 hour swelling	%	<35	EN 317
Formaldehyde emission	mg/m³	<0.03	JIS A 14 60/01, EN 120

The packaging sector is representing 28 %, Furniture industry 28 %, door industry 18 %, automotive 10 %, construction 7 %, picture frames 4 %, retailers 4 %, toys 1 % and others 2 %.

All life cycle inventories refer to the production mix of 1 m^3 of uncoated hard fibreboard produced in the wet process[11]. The composition of the inventoried hard fibreboard is reported in Table 4-5:

Table 4-5: Composition of the inventoried hard fibreboard

	unit	amount
Water content	kg/m³	50.7
Moisture content		*5.4 %*
Wood content	kg/m³	876.4
Phenol formaldehyde resin	kg/m³	11.90
Aluminium sulphide	kg/m³	0.576
Ammonia (20 %)	kg/m³	1.10
NaOH	kg/m³	0.01797
Paraffin	kg/m³	9.22
Linseed oil	kg/m³	4.19
Dye	kg/m³	0.680
Oleic acids	kg/m³	0.0840
Additives (unspecified)	kg/m³	1.21
Total	**kg/m³**	**956**

4.2.5 Soft fibreboard, wood insulation board

Soft fibreboard, also called softboard or wood insulation board is an engineered wood product in conformity with the standard EN 13171.

Soft fibreboard consists of up to 85 % of wood fibres which have been produced in either the dry or the wet process from wood residues from sawmills (e.g. sidings) and from wood chips. When produced in the dry process, it is also called low density fibre board. Softwood is preferred due to its higher fibre quality.

In the wet process, the raw material is grinded and then mixed into a mash with up to 98 % water. This mash is then formed into a so-called fibre cake. After pressing most water out of the mat, the fibre cake is the cut and dried in the drying channel with temperatures between 160 to 220 °C.

[11] for some of the inputs and outputs it was not possible to separate the coating process from the production process due to the lack of systematic data at plant level

The addition of binders is usually not required, as the heating of the liquid lignin as part of the wood bonds the fibres during cooling. For special purposes (higher strength, hydrophobic properties), resins or bitumen-containing agents can be added. Thicker board are produced from gluing together several standard boards.

In the dry process, the fibres are dried directly after grinding and mixed with up to 4 % resin, (e.g. PUR resin). For the production of flexible insulation boards, synthetic textile fibres or fibres from corn starch are added to the wood fibres. Subsequently, the fibres are sprinkled in desired thickness, pressed, hardened with a mixture of vapour and air and then cut, stacked and packed.

Table 4-6: Major characteristics of softboards (here: from wet process), based on EN 622-2, thickness < 3.5 mm

Characteristics	unit	value	standard
Density	kg/m³	140-300	EN 1602
Thermal conductivity	W/(m²K)	0.037-0.070	EN 12667/EN 12939
Thickness	mm	4-200	EN 823
Reaction to fire	EUROCLASS	E	EN 13501-1
Water absorption	kg/m³	UP TO 0.5	EN 1609
Water vapour diffusion resistance	µ	5	EN 12086
Formaldehyde emission	mg/m³	< 0.03	JIS A 1460/01, EN 317

Table 4-7: Composition of the inventoried soft fibreboard

	unit	amount
Water content	kg/m³	8.38
Moisture content		*5.2 %*
Wood content	kg/m³	140.8
MDI	kg/m³	0.286
Phenol formaldehyde resin	kg/m³	0.444
PVAc	kg/m³	0.778
Aluminium sulphate, powder	kg/m³	0.709
Aluminium sulphide	kg/m³	0.0569
Ammonia (20 %)	kg/m³	0.119
NaOH	kg/m³	0.0545
Paraffin	kg/m³	1.83
Latex	kg/m³	0.782
Flame retardant	kg/m³	1.46
Dye	kg/m³	0.0600
Oleic acids	kg/m³	0.119
Additives (unspecified)	kg/m³	0.0205
Recycled paper	kg/m³	0.596
Starch	kg/m³	1.28
Water glass	kg/m³	0.663
BiCo fibres	kg/m³	0.655
Total	**kg/m³**	**159**

Softboard is applied for building shell like roofs, walls and floors, acting as thermal and acoustic insulating material. Softboard regulates moisture balance permitting fully vapour permeable construction which avoids the risk of interstitial condensation or rot without the use of membranes or vented cavities.

All life cycle inventories refer to the production mix of 1 m^3 of uncoated soft fibreboard. The composition of the inventoried soft fibreboard is reported in Table 4-7.

Production is subject to the regulations of the Industrial Emissions Directive (EU-IED, 2011) if the production capacity exceeds 600 m^3 per day where one or more of the following wood-based panels are produced: fibreboard, particleboard or oriented strand board.

Typical thickness is in a range 4 - 32 mm.

The dataset covers both products produced in the wet process (roughly 69 % of the covered production volume) and in the dry process (roughly 31 % of the covered production volume); due to the limited number of data sources, no distinction of the different production technologies could be made for the reason of data confidentiality.

4.2.6 Coating with melamine-impregnated paper

Both particleboard and medium density fibreboard are frequently coated with melamine-impregnated paper. Such coated boards are particularly used for interior works such as for furniture or in kitchens.

Table 4-8 compiles the main inputs and outputs for the production of 1 kg of impregnated paper.

Table 4-8: Life cycle inventory for the production of 1 kg of melamine impregnated paper

		Average	Deviation from mean	
INPUT				
Paper, containing wood	kg	0.344	-19 %	15 %
MF resin	kg	0.377	-51 %	16 %
UF resin	kg	0.218	-	-
Urea	kg	0.0372	-	-
Formaldehyde	kg	0.3881	-	-
Pigments	kg	0.0201	-263 %	42 %
Water	kg	0.338	-19 %	14 %
Electricity	MJ	0.758	-58 %	27 %
Natural gas	MJ	3.01	-1 %	1 %
Steam from wood boiler	MJ	2.89	-	-
OUTPUT				
Impregnated paper	kg	1	-22 %	15 %
Waste unspecific	kg	0.00107	-	
Paper waste	kg	0.00538	-400 %	44 %
Resin	kg	0.0109	-	-

The life cycle inventory in Table 4-8 was compiled based on the available information from various plants covered in the survey and completed with additional information from e.g. EPDs. As such, the LCI does not represent a statistical average but a best guess based on the available information.

Table 4-9 compiles the main inputs and outputs needed for the double-sided coating of a wood based board.

Table 4-9: Life cycle inventory for the double-sided coating of a wood based board with melamine impregnated paper (wood not included)

		Average	Deviation from mean	
INPUT				
Impregnated paper	kg	0.302	-27 %	17 %
Electricity	MJ	0.705	-61 %	27 %
Thermal energy from natural gas	MJ	0.350	0 %	0 %
Water	kg	0.154	0 %	0 %
OUTPUT				
Coated area (double-sided)	m^2	1	-	-

Typically, particleboard and MDF of 15 mm to 18 mm are coated as reported in the survey.

The same considerations on the sampling procedure and data quality apply to Table 4-9 as outlined for Table 4-8.

4.3 Methodological considerations

4.3.1 System boundary

The life cycle inventories represent so-called gate-to-gate inventories and cover all inputs and outputs used in the production of the respective board. These inputs and output include material and energy inputs as well as all products, by-products, and exported energy, emissions into air from production processes and water, as well as the relevant waste streams (Figure 4-1).

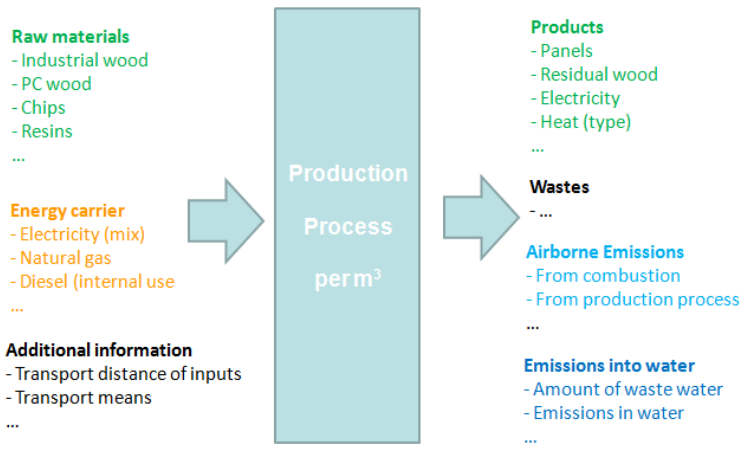


Figure 4-1: Illustration of a gate-to-gate life cycle inventory, including all input and output flows of the production plant for wood-based boards

In addition, information on transportation is provided for each of the relevant inputs and outputs where appropriate.

For the sake of consistency of the reported emission and to avoid bias from differing legal measurement requirements, emissions into air from combustion processes have not been included in the life

cycle inventories. These emissions have been included via generic datasets on the combustion of the respective fuels listed in the inventories.

For each inventory, the land covers are reported that are occupied by the production site in relation to the average annual production.

4.3.2 Allocation of plant-level data to different products

All plant-level data was provided by the companies. In the case the data referred to one average product as defined by the company, no further allocations were needed,

In cases where data on several products were provided, the following allocation principles were followed whenever possible:

- in all cases, electricity and heat consumption was modelled specifically for each product based on information from the manufacturers,
- adhesives and additives were inventoried based on the final average composition of each product, including a wastage between 1 % to 5 %, in accordance with producer information,
- further inputs to production such as diesel consumption for internal transport, lubricants, mineral oils, etc. were allocated based on the total mass of boards produced; the same holds for water consumption if the production processes of the different products were the same,
- emissions from the use of adhesives and drying of the boards were allocated based on the relative amount of glue and wood in the products,
- emissions into water were allocated based on the mass of the produced products if the production process of the different products is the same. In other cases, additional advice was gathered from the manufacturer to split the emissions into water in a process-related way.
- all waste flows were allocated based on mass of the produced products if not specifically related to an input, e.g. to a specific type of adhesive.
- packaging materials were allocated based on volume of the produced products.

4.3.3 Further co-product allocation

For each plant, a mass balance was established for wood and cross-checked with the indications by the manufacturer on woody biomass used as a fuel for the production of heat and eventually electricity. These amounts are inventoried as co-products and are subject to economic co-product allocation procedures based on the “global” prices as listed in Annex A.3.

4.3.4 Electricity mix

For the modelling of average European life cycle inventories for the wood-based boards represented in this report, an electricity mix to represent the major producing countries (national production volume > 3 % of production in Europe) for each of the wood-based boards has been implemented as derived in Table 4-10:

Table 4-10: Modelled electricity mix for average European life cycle inventories of wood-based boards represented by EPF [1)] (based on FAOStat; production volumes per selected country in 2011)

	Hardboard		Softboard		MDF		Particleboard		OSB	
	m³	%	m³	%	m³	%	m³	%	m³	%
Austria	100000	**3.4 %**	109292	**3.6 %**	650000	**6.2 %**	2250000	**6.0 %**		
Belgium							1809804	**4.8 %**	241000	**5.5 %**
Bulgaria									239000	**5.4 %**
Czech Republic							1350586	**3.6 %**	525000	**11.9 %**
France	126701	**4.3 %**			870000	**8.3 %**	4378000	**11.7 %**	400000	**9.1 %**
Germany	1976784	**67.3 %**	1177113	**38.8 %**	1593636	**15.1 %**	6940056	**18.5 %**	1140000	**25.8 %**
Hungary	167398	**5.7 %**			512000	**4.9 %**				
Ireland					373000	**3.5 %**			278000	**6.3 %**
Italy					760000	**7.2 %**	2976000	**7.9 %**		
Latvia									462000	**10.5 %**
Luxembourg									207000	**4.7 %**
Norway			134000	**4.4 %**						
Poland	158255	**5.4 %**	641792	**21.2 %**	2200000	**20.9 %**	4900000	**13.0 %**	462000	**10.5 %**
Portugal	93108	**3.2 %**			325669	**3.1 %**				
Romania					556000	**5.3 %**	1854670	**4.9 %**	200000	**4.5 %**
Slovakia			95000	**3.1 %**						
Spain			167582	**5.5 %**	807000	**7.7 %**	1584000	**4.2 %**		
Sweden									250000	**5.7 %**
Switzerland			300000	**9.9 %**						
United Kingdom					759000	**7.2 %**	2625000	**7.0 %**		
SUBTOTAL	***2622246***	***89.3 %***	***2624779***	***86.6 %***	***9406305***	***89.4 %***	***30668116***	***81.7 %***	***4404000***	***99.9 %***
others	313412	**10.7 %**	406927	**13.4 %**	1114817	**10.6 %**	6888947	**18.3 %**		**0.1 %**
TOTAL	**2935658**	**100 %**	**3031706**	**100.0 %**	**10521122**	**100 %**	**37557063**	**100 %**	**4410800**	**100 %**

[1)] The values in the tables represent total production volumes per country as reported by FAOStat; as not all companies in a country need to be members by EPF, the EPF specific values can deviate slightly.

4.4 Data collection

For the collection of plant-specific data, questionnaires were sent out to all member companies of EPF (and former FEROPA). This information was analysed and complemented in direct communication with each of the responding companies.

Alternatively, instead of filling out a questionnaire, existing LCA studies or project reports related to environmental product declarations were provided by some companies.

In addition, a thorough literature research was conducted with emphasis on European data, which provided additional life cycle inventories on wood-based panels (Rüter & Diederichs 2012, Rivela et al. 2007, Rivela et al. 2006, Mitchell & Stevens 2009) or complementary information for the setting up of the life cycle inventories (among them Bello et al. 2004, Benetto et al. 2009, Boveda & Vidal 2004, Gonzales et al. 2009, Gonzalez et al. 2011).

Due to high uncertainties related to the measurement of sporadic process-related airborne emissions from production processes, airborne emissions related to the application and drying of adhesives and related to the drying process of wood fibres and particles were estimated based on literature values taken from (Rüter & Diederichs 2012).

4.5 Calculation procedures to establish average life cycle inventories

4.5.1 General approach

As a general rule, all averages were calculated as weighted averages of production volumes for a weighted average density.

During data analysis, „zero“ values and lacking information were distinguished systematically for each input and output. While „zero“ values were considered in the calculation of the weighted averages, plants with lacking values were not considered for the calculation of all inputs and outputs where information was missing, i.e. the respective production volume was not taken into account when averaging the values of the individual plants and sources.

4.5.2 Cut-off criteria for the exclusion of inputs and outputs

No specific cut-off criteria for the exclusion of inputs and outputs were applied to the raw material inputs including wood, adhesives and further additives as reported by the companies. No cut-off criteria were also applied to all energy carriers and packaging materials as reported by the companies.

The collected data cover all inputs of process energy, raw material inputs as constituents of the boards as well as a broad variety of additional inputs such as fuels for internal transport, lubricants and mineral oils, water input and wear parts such as cutting knives, sanding belts, tyres etc. If data of such flows was lacking in the data compiled by a company, the input of the respective flow was extrapolated to represent the total production volume during the averaging of the datasets.

In doing so material and energy inputs were covered in the inventories much below 1 % of total material and total energy input, thereby neglecting no inputs that are known to have a significant environmental impact.

Data on wastes and emissions into water were collected and compiled in the same way. All available information from the survey was considered for the calculation of the respective output flows and – if necessary – was extrapolated to represent the total production volume during the averaging of the datasets.

4.5.3 Modelling of airborne emissions

The quantification of annual airborne emissions related to the use of glues and the drying particle- and fibre-based boards based on sporadic measurements was considered highly uncertain. Such sporadic measurements are made following legal requirements to demonstrate that legal emission limits are met; they are not intended to determine the total amount of annual emission within an acceptable level of confidence. One of the obstacles is, for instance, that the conversion of concentrations to flows depends e.g. on the moisture content of the used wood which depends on the season when the measurement is taken and can vary considerably). In addition, the dryers can be heated directly or indirectly, which makes a consistent quantification of airborne emissions from the use of fuels and from the drying of adhesives and wood very complex. Therefore the available data on airborne emissions was considered not statistically significant.

Instead, it was decided to model the fuel-related emissions with respective datasets from ecoinvent; the emissions from the use of glues during production and the emissions from the drying processes were quantified based on data from Rüter & Diederichs (2012). Rüter & Diederichs (2012) determine the following airborne emissions from the use of glue and from the technical drying of wood fibres and particles:

- 0.0015 kg of formaldehyde per kg dried UF/MUF/PF glue during the drying process
- 0.95 kg VOC, 0.012 kg formaldehyde, 0.00063 kg acetaldehyde and 0.033 kg methanol per ton of oven-dry fibre or particle in a wood-based board.

4.5.4 Transportation

Transport data was taken from the original ecoinvent 2.2 datasets .

4.5.5 Treatment of missing data

During data analysis, „zero“ values and lacking information “-“ were distinguished systematically for each input and output.

Companies reported the input of ancillary materials, emissions into water and also the waste flows at different levels of detail. For instance, waste resins could be reported specifically or as part of an unspecific (hazardous) waste flow; or lubricants could be reported as such or further distinguished into bio-based oils, greases, mineral oils, etc. While all flows were inventoried as reported, plausibility considerations were applied to decide whether information on a specific input/output was reported at higher/lower level of detail – in which case a zero value was applied – or if information on the input/output was lacking at all in the questionnaire – in which case a “-“ indicating lacking information was applied.

While „zero“ values were considered in the calculation of the weighted averages, plants with lacking values for a specific input/output were not considered during averaging, i.e. the respective production volume was not taken into account when averaging the values of the individual plants and sources.

4.6 Representativeness

All the plant-specific data are based on one-year averages; most plant-specific data – particularly the data that was provided in the questionnaires - refer to the year 2011, whereas data taken from literature sources could stem from 2003 (one plant) to 2010 (all data taken from Rüter & Diederichs 2012).

Table 4-12 indicates the share of production covered in this study.

Table 4-11: Representativeness of the datasets as production covered in dataset as compared to total production of all EPF member companies in 2011 (Source: personal communication by EPF, 12/2012)

	Total production in 2011 (1000 m^3)	Production covered in dataset (1000 m^3)	Coverage
Particleboard	30,220	4,731	15.7 %
Oriented strand board OSB	3,636	603	16.6 %
Medium density fibreboard (MDF)	11,665	1,170	10.0 %
Hardboard	3,804	164	4.3 %
Softboard/insulation board	1,807 [1)]	433	24.0 %

[1)] wet process only

5 Additional datasets „at regional storage/CH“

5.1 List of datasets

To depict the consumption mix in Switzerland, datasets „at regional storage/CH have been created, consisting of the appropriate share of production processes in Switzerland and abroad plus an estimation of transport from the production sites abroad and in Switzerland to a regional storage.

The following datasets have been created:

- fibreboard, hard, at regional storage/CH
- fibreboard, soft, at regional storage/CH
- glued laminated timber, indoor use, at regional storage/CH
- glued laminated timber, outdoor use, at regional storage/CH
- medium density fibreboard, at regional storage/CH
- oriented strand board, at regional storage/CH
- particleboard, uncoated, average glue mix, at regional storage/CH
- plywood, indoor use, at regional storage/CH
- plywood, outdoor use, at regional storage/CH
- sawnwood, hardwood, raw, dried (u=10 %), at regional storage/CH
- sawnwood, hardwood, raw, dried (u=10 %), planed, at regional storage/CH
- sawnwood, hardwood, raw, dried (u=20 %), at regional storage/CH
- sawnwood, softwood, raw, dried (u=10 %), at regional storage/CH
- sawnwood, softwood, raw, dried (u=10 %), planed, at regional storage/CH
- sawnwood, softwood, raw, dried (u=20 %), at regional storage/CH
- sawnwood, softwood, raw, dried (u=20 %), planed, at regional storage/CH
- three layered laminated board, at regional storage/CH
- wood wool board, cement bonded, at regional storage/CH

5.2 Market shares and transport distances

For the determination of the import share and for the most important countries of origin, the Jahrbuch Wald und Holz (BAFU 2016) respectively FAOStat for Switzerland and the years 2014 and 2015 were analysed. The countries included in this analysis delivered at least 2 % of the imports of the product to Switzerland:

- *roundwood:* imports for round wood add up to <2 % for softwood and 16 % for hardwood (BAFU 2016). It is thus assumed that 100 % of softwood processed in Switzerland is stemming from Swiss forests, whereas this share is considered to be 85 % for hardwood.
- *sawn timber, softwood:* imports add up to roughly 25 %; the most relevant countries of origin are Austria (40 %), Finland (15 %) and Germany (45 %) (BAFU 2016).
- *sawn timber, hardwood:* imports add up to roughly 42 %; the most relevant countries of origin are Austria (22.2 %), Croatia (12 %), France (25 %) and Germany (40 %) (BAFU 2016).

- *MDF and particleboard*: imports of MDF add up to about 22.6 % (FAOStat), imports of particleboard to 38.8 % (BAFU 2016). Statistically, particleboards include also OSB.
- *soft fibreboard*: imports add up to 37.8 % (FAOStat).
- *plywood*: imports supply 95 % to the Swiss market (BAFU 2016).
- *hard fibreboard/HDF*: hard fibreboard are imported 100 % to Switzerland.

For the import shares of these „at regional storage/CH“ datasets, transport distances were estimated based on expert knowledge on existing production plants in the neighbouring countries and taking the most relevant import countries into account (BAFU 2014) (Table 5-1):

Table 5-1: Import share of total consumption in Switzerland and assumptions regarding transport distances

	Import share	Transport distance (km)	Assumptions Imported from:
Sawn timber, softwood	25 %	250	Close to Swiss boarder; many production sites;
Sawn timber, hardwood	40 %	300	Neighbouring countries; many production sites
Glued laminated timber; sawn timber based boards	25 %	300	Close to Swiss boarder; many production sites; further processed product
Particleboard	38.8 %	600	Neighbouring countries; few production sites
OSB	100 %	600	Neighbouring countries; few production sites
MDF	22.6 %	600	Neighbouring countries; few production sites
Hard fibreboard	100 %	600	Neighbouring countries; few production sites
Wood insulation board	37.8 %	350	Close to Swiss boarder; few production sites
Plywood	95 %	600	Neighbouring countries; few production sites
Wood wool, cement-bonded	50 % [1)]	600	Neighbouring countries; few production sites

[1)] assumption, no specific data on production and imports available

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7 Annexes

Annex A.1: Name of the updated datasets and their original name in ecoinvent 3.2

Annex A.2: Decoupling of existing datasets from old wood data and linking with new datasets under ecoinvent 3 nomenclature (before re-naming)

Annex A.3: Prices used for co-product allocation in ecoinvent 3.2

Annex A.4: Derivation of the productivities of harvesting systems with cable yarding

Annex A.5: Properties of energy wood from forestry processes

Annex A.6 Updated life cycle inventories of the wood chain as integrated into the ecoinvent 2.2 structure, in alphabetic order

Annex A.1: Name of the updated datasets and their original name in ecoinvent 3.2

The following table lists the names of the original datasets in ecoinvent 3.2 and their new names in the ecoinvent 2.2 environment.

Table A.1-1: Name of the updated datasets and their original name in ecoinvent 3.2

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
bark chips, wet, measured as dry mass//kg/[CH] bark chips production, hardwood, at sawmill	bark chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH
bark chips, wet, measured as dry mass//kg/[CH] bark chips production, softwood, at sawmill	bark chips, softwood, wet, measured as dry mass, at sawmill/kg/CH
bark chips, wet, measured as dry mass//kg/[CH] market for bark chips, wet, measured as dry mass	bark chips, production mix, wet, measured as dry mass, at sawmill/kg/CH
bark chips, wet, measured as dry mass//kg/[Europe without Switzerland] fibreboard production, soft, from wet & dry processes	bark chips, wet, from soft fibreboard production, from wet & dry processes, measured as dry mass, at plant/kg/RER
bark chips, wet, measured as dry mass//kg/[RER] bark chips production, hardwood, at sawmill	bark chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER
bark chips, wet, measured as dry mass//kg/[RER] bark chips production, softwood, at sawmill	bark chips, softwood, wet, measured as dry mass, at sawmill/kg/RER
bark chips, wet, measured as dry mass//kg/[RER] fibreboard production, hard	bark chips, wet, from hard fibreboard production, measured as dry mass, at plant/kg/RER
bark chips, wet, measured as dry mass//kg/[RER] market for bark chips, wet, measured as dry mass	bark chips, production mix, wet, measured as dry mass, at sawmill & plant/kg/RER
bark chips, wet, measured as dry mass//kg/[RER] oriented strand board production	bark chips, wet, from oriented strand board production, measured as dry mass, at plant/kg/RER
bark chips, wet, measured as dry mass//kg/[RER] particle board production, uncoated, average glue mix	bark chips, wet, from particle board production, uncoated, average glue mix, measured as dry mass, at plant/kg/RER
bark//kg/[CH] market for bark	DELETE and relink to "at plant" DS
bark//kg/[CH] sawing, hardwood	bark, hardwood, after debarking, at sawmill/kg/CH
bark//kg/[CH] sawing, softwood	bark, softwood, after debarking, at sawmill/kg/CH
bark//kg/[RER] market for bark	DELETE and relink to "at plant" DS
bark//kg/[RER] sawing, hardwood	bark, hardwood, after debarking, at sawmill/kg/RER
bark//kg/[RER] sawing, softwood	bark, softwood, after debarking, at sawmill/kg/RER
bundle, energy wood, measured as dry mass//kg/[RER] market for bundle, energy wood, measured as dry mass	DELETE (not representative and not used)
bundle, energy wood, measured as dry mass//kg/[SE] hardwood forestry, birch, sustainable forest management	bundle, energy wood, birch, sustainable forest management, measured as dry mass, at forest road/kg/SE
bundle, energy wood, measured as dry mass//kg/[SE] softwood forestry, pine, sustainable forest management	bundle, energy wood, pine, sustainable forest management, measured as dry mass, at forest road/kg/SE
bundle, energy wood, measured as dry mass//kg/[SE] softwood forestry, spruce, sustainable forest management	bundle, energy wood, spruce, sustainable forest management, measured as dry mass, at forest road/kg/SE
cable yarder with sled winch//p/[RER] cable yarder with sled winch production	cable yarder with sled winch, at plant/p/RER/I
cable yarder with sled winch//p/[RER] market for cable yarder with sled winch	DELETE and relink to "at plant" DS
cable yarding//hr/[RER] market for cable yarding	DELETE (not used)
cable yarding//hr/[RER] yarding and processing, mobile cable yarder on truck	cable yarding and processing, mobile cable yarder on truck/hr/RER
cable yarding//hr/[RER] yarding, mobile cable yarder on trailer	cable yarding, mobile cable yarder on trailer/hr/RER
cable yarding//hr/[RER] yarding, sled yarder	cable yarding, sled yarder/hr/RER
cleft timber, measured as dry mass//kg/[CH] hardwood forestry, mixed species, sustainable forest management	cleft timber, hardwood, sustainable forest management, measured as dry mass, at forest road/kg/CH
cleft timber, measured as dry mass//kg/[CH] market for cleft timber, measured as dry mass	cleft timber, production mix, sustainable forest management, measured as dry mass, at regional storage/kg/CH

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
cleft timber, measured as dry mass//kg/[CH] softwood forestry, mixed species, sustainable forest management	cleft timber, softwood, sustainable forest management, measured as dry mass, at forest road/kg/CH
cleft timber, measured as dry mass//kg/[DE] hardwood forestry, beech, sustainable forest management	cleft timber, beech, sustainable forest management, measured as dry mass, at forest road/kg/DE
cleft timber, measured as dry mass//kg/[DE] hardwood forestry, oak, sustainable forest management	cleft timber, oak, sustainable forest management, measured as dry mass, at forest road/kg/DE
cleft timber, measured as dry mass//kg/[DE] softwood forestry, pine, sustainable forest management	cleft timber, pine, sustainable forest management, measured as dry mass, at forest road/kg/DE
cleft timber, measured as dry mass//kg/[DE] softwood forestry, spruce, sustainable forest management	cleft timber, spruce, sustainable forest management, measured as dry mass, at forest road/kg/DE
cleft timber, measured as dry mass//kg/[Europe without Switzerland] market for cleft timber, measured as dry mass	cleft timber, production mix, sustainable forest management, measured as dry mass, at forest/kg/RER
cleft timber, measured as dry mass//kg/[PT] cork forestry	cleft timber, cork, measured as dry mass, at forest road/kg/PT
cleft timber, measured as dry mass//kg/[SE] hardwood forestry, birch, sustainable forest management	cleft timber, birch, sustainable forest management, measured as dry mass, at forest road/kg/SE
cleft timber, measured as dry mass//kg/[SE] softwood forestry, pine, sustainable forest management	cleft timber, pine, sustainable forest management, measured as dry mass, at forest road/kg/SE
cleft timber, measured as dry mass//kg/[SE] softwood forestry, spruce, sustainable forest management	cleft timber, spruce, sustainable forest management, measured as dry mass, at forest road/kg/SE
clefting of energy wood//[RER] clefting/hr/splitting of energy wood	clefting of energy wood/hr/RER
clefting of energy wood//hr/[RER] market for clefting of energy wood	DELETE (not used)
coating, with melamine impregnated paper//m2/[RER] coating service, melamine impregnated paper, double-sided	coating, double-sided, with melamine impregnated paper/m2/RER
cork, raw//kg/[PT] cork forestry	cork, raw, at forest road/kg/PT
delimbing/sorting, excavator-based processor//[RER] market for delimbing/hr/sorting, excavator-based processor	DELETE (not used)
delimbing/sorting, excavator-based processor//hr/[RER] delimbing, with excavator-based processor	delimbing/sorting, excavator-based processor/hr/RER
energy wood harvester//p/[RER] energy wood harvester production	energy wood harvester, at plant/p/RER/I
energy wood harvester//p/[RER] market for energy wood harvester	DELETE and relink to "at plant" DS
fibreboard, hard, at regional storage/kg/CH	fibreboard, hard, at regional storage/kg/CH
fibreboard, hard//m3/[RER] fibreboard production, hard	fibreboard, hard, at plant/kg/RER
fibreboard, hard//m3/[RER] market for fibreboard, hard	DELETE (not used)
fibreboard, soft, at regional storage/kg/CH	fibreboard, soft, at regional storage/kg/CH
fibreboard, soft//m3/[CH] fibreboard production, soft, from wet processes DO NOT USE	DELETE (not used)
fibreboard, soft//m3/[Europe without Switzerland] fibreboard production, soft, from wet & dry processes	fibreboard, soft, from wet & dry processes, at plant/m3/RER
forestry harvester//p/[RER] forestry harvester production	forestry harvester, at plant/p/RER/I
forestry harvester//p/[RER] market for forestry harvester	DELETE and relink to "at plant" DS
forwarder//p/[RER] forwarder production	forwarder, at plant/p/RER/I
forwarder//p/[RER] market for forwarder	DELETE and relink to "at plant" DS
forwarding, forwarder//hr/[RER] forwarding, forwarder	forwarding, forwarder/hr/RER
forwarding, forwarder//hr/[RER] market for forwarding, forwarder	DELETE (not used)
glued laminated timber, for indoor use//m3/[RER] glued laminated timber production, for indoor use DO NOT USE	DELETE (not used)
glued laminated timber, for outdoor use//m3/[RER] glued laminated timber production, for outdoor use DO NOT USE	DELETE (not used)
harvesting, forestry harvester//hr/[RER] harvesting, forestry harvester	harvesting, forestry harvester/hr/RER
harvesting, forestry harvester//hr/[RER] market for harvesting, forestry harvester	DELETE (not used)
harvesting/bundling, energy wood harvester//[RER] harvesting/hr/bundling, energy wood harvester	harvesting/bundling, energy wood harvester/hr/RER
harvesting/bundling, energy wood harvester//[RER] market for harvesting/hr/bundling, energy wood harvester	DELETE (not used)

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
heat, district or industrial, other than natural gas//MJ/[RER] particle board production, uncoated, average glue mix	DELETE (irrelevant amount allocated to heat production)
laminated timber element, transversally prestressed, for outdoor use//m3/[RER] laminated timber element production, for outdoor use DO NOT USE	DELETE (not used)
medium density fibreboard//m3/[RER] medium density fibre board production, uncoated	medium density fibreboard, uncoated, at plant/m3/RER
mobile cable yarder, trailer-mounted//p/[RER] cable yarder production, trailer-mounted	mobile cable yarder, trailer-mounted, at plant/p/RER/I
mobile cable yarder, trailer-mounted//p/[RER] market for mobile cable yarder, trailer-mounted	DELETE and relink to "at plant" DS
mobile cable yarder, truck-mounted, incl. processor//p/[RER] cable yarder production, truck-mounted	mobile cable yarder, truck-mounted, incl. processor, at plant/p/RER/I
mobile cable yarder, truck-mounted, incl. processor//p/[RER] market for mobile cable yarder, truck-mounted, incl. processor	DELETE and relink to "at plant" DS
oriented strand board, at regional storage/kg/CH	oriented strand board, at regional storage/kg/CH
oriented strand board//m3/[RER] oriented strand board production	oriented strand board, at plant/m3/RER
paper, melamine impregnated//kg/[RER] market for paper, melamine impregnated	DELETE and relink to "at plant" DS
paper, melamine impregnated//kg/[RER] melamine impregnated paper production	paper, melamine impregnated, at plant/kg/RER
particle board, for indoor use//m3/[RER] particle board production, for indoor use DO NOT USE	DELETE (not used)
particle board, for outdoor use//m3/[RER] particle board production, for outdoor use DO NOT USE	DELETE (not used)
particleboard, uncoated//m3/[RER] market for particleboard, uncoated	DELETE (not used)
particleboard, uncoated//m3/[RER] particle board production, uncoated, average glue mix	particleboard, average glue mix, uncoated, at plant/m3/RER
plywood, for indoor use//m3/[RER] plywood production, for indoor use DO NOT USE	DELETE and relink with appropriate DS
plywood, for outdoor use//m3/[RER] plywood production, for outdoor use DO NOT USE	DELETE and relink with appropriate DS
power saw, without catalytic converter//p/[RER] market for power saw, without catalytic converter	DELETE and relink to "at plant" DS
power sawing, without catalytic converter//hr/[RER] market for power sawing, without catalytic converter	DELETE and relink activity DS
power sawing, without catalytic converter//hr/[RER] power sawing, without catalytic converter	power sawing, without catalytic converter/hr/RER
pulpwood, hardwood, measured as solid wood under bark//m3/[CH] hardwood forestry, mixed species, sustainable forest management	pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH
pulpwood, hardwood, measured as solid wood under bark//m3/[CH] market for pulpwood, hardwood, measured as solid wood under bark	DELETE and relink "at forest road" DS
pulpwood, hardwood, measured as solid wood under bark//m3/[DE] hardwood forestry, beech, sustainable forest management	pulpwood, beech, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
pulpwood, hardwood, measured as solid wood under bark//m3/[DE] hardwood forestry, oak, sustainable forest management	pulpwood, oak, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
pulpwood, hardwood, measured as solid wood under bark//m3/[Europe without Switzerland] market for pulpwood, hardwood, measured as solid wood under bark	pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
pulpwood, hardwood, measured as solid wood under bark//m3/[SE] hardwood forestry, birch, sustainable forest management	pulpwood, birch, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
pulpwood, softwood, measured as solid wood under bark//m3/[CH] market for pulpwood, softwood, measured as solid wood under bark	DELETE and relink "at forest road" DS

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
pulpwood, softwood, measured as solid wood under bark//m3/[CH] softwood forestry, mixed species, sustainable forest management	pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH
pulpwood, softwood, measured as solid wood under bark//m3/[DE] softwood forestry, pine, sustainable forest management	pulpwood, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
pulpwood, softwood, measured as solid wood under bark//m3/[DE] softwood forestry, spruce, sustainable forest management	pulpwood, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
pulpwood, softwood, measured as solid wood under bark//m3/[Europe without Switzerland] market for pulpwood, softwood, measured as solid wood under bark	pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
pulpwood, softwood, measured as solid wood under bark//m3/[SE] softwood forestry, pine, sustainable forest management	pulpwood, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
pulpwood, softwood, measured as solid wood under bark//m3/[SE] softwood forestry, spruce, sustainable forest management	pulpwood, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
residual hardwood, wet//m3/[CH] bark chips, wet, measured as dry mass to generic market for residual hardwood, wet	DELETE (not used)
residual hardwood, wet//m3/[CH] market for residual hardwood, wet	DELETE (not used)
residual hardwood, wet//m3/[CH] saw dust, wet, measured as dry mass to generic market for residual hardwood, wet	DELETE (not used)
residual hardwood, wet//m3/[CH] slab and siding, hardwood, wet, measured as dry mass to generic market for residual hardwood, wet	DELETE (not used)
residual hardwood, wet//m3/[RER] bark chips, wet, measured as dry mass to generic market for residual hardwood, wet	DELETE (not used)
residual hardwood, wet//m3/[RER] market for residual hardwood, wet	DELETE (not used)
residual hardwood, wet//m3/[RER] saw dust, wet, measured as dry mass to generic market for residual hardwood, wet	DELETE (not used)
residual hardwood, wet//m3/[RER] slab and siding, hardwood, wet, measured as dry mass to generic market for residual hardwood, wet	DELETE (not used)
residual softwood, wet//m3/[CH] bark chips, wet, measured as dry mass to generic market for residual softwood, wet	DELETE (not used)
residual softwood, wet//m3/[CH] market for residual softwood, wet	DELETE (not used)
residual softwood, wet//m3/[CH] saw dust, wet, measured as dry mass to generic market for residual softwood, wet	DELETE (not used)
residual softwood, wet//m3/[CH] slab and siding, softwood, wet, measured as dry mass to generic market for residual softwood, wet	DELETE (not used)
residual softwood, wet//m3/[RER] bark chips, wet, measured as dry mass to generic market for residual softwood, wet	DELETE (not used)
residual softwood, wet//m3/[RER] market for residual softwood, wet	DELETE (not used)
residual softwood, wet//m3/[RER] saw dust, wet, measured as dry mass to generic market for residual softwood, wet	DELETE (not used)
residual softwood, wet//m3/[RER] slab and siding, softwood, wet, measured as dry mass to generic market for residual softwood, wet	DELETE (not used)
residual wood, dry//m3/[CH] market for residual wood, dry	DELETE (not used)
residual wood, dry//m3/[CH] shavings, hardwood, measured as dry mass to generic market for residual wood, dry	DELETE (not used)
residual wood, dry//m3/[CH] shavings, softwood, measured as dry mass to generic market for residual wood, dry	DELETE (not used)
residual wood, dry//m3/[Europe without Switzerland] fibreboard production, soft, from wet & dry processes	residual wood, dry, from soft fibreboard production, from wet & dry processes, measured as dry mass, at plant/kg/RER

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
residual wood, dry//m3/[RER] fibreboard production, hard	residual wood, dry, from hard fibreboard production, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] glued laminated timber production, for indoor use	residual wood, dry, from glued laminated timber (indoor use) production, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] glued laminated timber production, for outdoor use	residual wood, dry, from glued laminated timber (outdoor use) production, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] laminated timber element production, for outdoor use	residual wood, dry, from laminated timber element production, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] market for residual wood, dry	residual wood, dry, production mix, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] medium density fibre board production, uncoated	residual wood, dry, from medium density fibreboard production, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] oriented strand board production	residual wood, dry, from oriented strand board production, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] particle board production, uncoated, average glue mix	residual wood, dry, from particle board production, uncoated, average glue mix, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] plywood production, for indoor use	residual wood, dry, from plywood (indoor use) production, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] plywood production, for outdoor use	residual wood, dry, from plywood (outdoor use) production, measured as dry mass, at plant/kg/RER
residual wood, dry//m3/[RER] shavings, hardwood, measured as dry mass to generic market for residual wood, dry	DELETE and relink activity DS
residual wood, dry//m3/[RER] shavings, softwood, measured as dry mass to generic market for residual wood, dry	DELETE and relink activity DS
residual wood, dry//m3/[RER] three layered laminated board production	residual wood, dry, from three layered laminated board production, at plant/kg/RER
residual wood, dry//m3/[RER] wood wool production	residual wood, dry, from wood wool production, at plant/m3 - CONVERT TO KG
saw dust, loose, wet, measured as dry mass//kg/[CH] market for saw dust, loose, wet, measured as dry mass	saw dust, loose, production mix, wet, measured as dry mass, at saw/kg/CH
saw dust, loose, wet, measured as dry mass//kg/[CH] sawing, hardwood	saw dust, loose, hardwood, wet, measured as dry mass, at saw/kg/CH
saw dust, loose, wet, measured as dry mass//kg/[CH] sawing, softwood	saw dust, loose, softwood, wet, measured as dry mass, at saw/kg/CH
saw dust, loose, wet, measured as dry mass//kg/[RER] market for saw dust, loose, wet, measured as dry mass	saw dust, loose, production mix, wet, measured as dry mass, at saw/kg/RER
saw dust, loose, wet, measured as dry mass//kg/[RER] sawing, hardwood	saw dust, loose, hardwood, wet, measured as dry mass, at saw/kg/RER
saw dust, loose, wet, measured as dry mass//kg/[RER] sawing, softwood	saw dust, loose, softwood, wet, measured as dry mass, at saw/kg/RER
saw dust, wet, measured as dry mass//kg/[CH] market for saw dust, wet, measured as dry mass	DELETE and relink to "at sawmill" DS
saw dust, wet, measured as dry mass//kg/[CH] suction, sawdust	saw dust, production mix, wet, measured as dry mass, at sawmill/kg/CH
saw dust, wet, measured as dry mass//kg/[RER] market for saw dust, wet, measured as dry mass	DELETE and relink to "at sawmill" DS
saw dust, wet, measured as dry mass//kg/[RER] suction, sawdust	saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER
sawlog and veneer log, hardwood, measured as solid wood under bark//m3/[CH] hardwood forestry, mixed species, sustainable forest management	sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH
sawlog and veneer log, hardwood, measured as solid wood under bark//m3/[CH] market for sawlog and veneer log, hardwood, measured as solid wood under bark	DELETE and relink "at forest road" DS
sawlog and veneer log, hardwood, measured as solid wood under bark//m3/[DE] hardwood forestry, beech, sustainable forest management	sawlog and veneer log, beech, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
sawlog and veneer log, hardwood, measured as solid wood under bark//m3/[DE] hardwood forestry, oak, sustainable forest management	sawlog and veneer log, oak, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
sawlog and veneer log, hardwood, measured as solid wood under bark//m3/[Europe without Switzerland] market for sawlog and veneer log, hardwood, measured as solid wood under bark	sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
sawlog and veneer log, hardwood, measured as solid wood under bark//m3/[SE] hardwood forestry, birch, sustainable forest management	sawlog and veneer log, birch, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
sawlog and veneer log, softwood, measured as solid wood under bark//m3/[CH] market for sawlog and veneer log, softwood, measured as solid wood under bark	DELETE and relink "at forest road" DS
sawlog and veneer log, softwood, measured as solid wood under bark//m3/[CH] softwood forestry, mixed species, sustainable forest management	sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH
sawlog and veneer log, softwood, measured as solid wood under bark//m3/[DE] softwood forestry, pine, sustainable forest management	sawlog and veneer log, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
sawlog and veneer log, softwood, measured as solid wood under bark//m3/[DE] softwood forestry, spruce, sustainable forest management	sawlog and veneer log, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE
sawlog and veneer log, softwood, measured as solid wood under bark//m3/[Europe without Switzerland] market for sawlog and veneer log, softwood, measured as solid wood under bark	sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER
sawlog and veneer log, softwood, measured as solid wood under bark//m3/[SE] softwood forestry, pine, sustainable forest management	sawlog and veneer log, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
sawlog and veneer log, softwood, measured as solid wood under bark//m3/[SE] softwood forestry, spruce, sustainable forest management	sawlog and veneer log, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE
sawmill//p/[CH] sawmill construction	sawmill/CH/I
sawnwood, beam, hardwood, dried (u=10 %), planed//m3/[CH] market for sawnwood, beam, hardwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, beam, hardwood, dried (u=10 %), planed//m3/[CH] planing, beam, hardwood, u=10 %	sawnwood, beam, hardwood, dried (u=10 %), planed, at sawmill/m3/CH
sawnwood, beam, hardwood, dried (u=10 %), planed//m3/[RER] market for sawnwood, beam, hardwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, beam, hardwood, dried (u=10 %), planed//m3/[RER] planing, beam, hardwood, u=10 %	sawnwood, beam, hardwood, dried (u=10 %), planed, at sawmill/m3/RER
sawnwood, beam, hardwood, dried (u=20 %), planed//m3/[CH] market for sawnwood, beam, hardwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, beam, hardwood, dried (u=20 %), planed//m3/[CH] planing, beam, hardwood, u=20 %	sawnwood, beam, hardwood, dried (u=20 %), planed, at sawmill/m3/CH
sawnwood, beam, hardwood, dried (u=20 %), planed//m3/[RER] market for sawnwood, beam, hardwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, beam, hardwood, dried (u=20 %), planed//m3/[RER] planing, beam, hardwood, u=20 %	sawnwood, beam, hardwood, dried (u=20 %), planed, at sawmill/m3/RER
sawnwood, beam, hardwood, raw, dried (u=10 %)//m3/[CH] beam, hardwood, raw, kiln drying to u=10 %	sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
sawnwood, beam, hardwood, raw, dried (u=10 %)//m3/[CH] market for sawnwood, beam, hardwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, beam, hardwood, raw, dried (u=10 %)//m3/[RER] beam, hardwood, raw, kiln drying to u=10 %	sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER
sawnwood, beam, hardwood, raw, dried (u=10 %)//m3/[RER] market for sawnwood, beam, hardwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, beam, hardwood, raw, dried (u=20 %)//m3/[CH] beam, hardwood, raw, air drying to u=20 %	sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH
sawnwood, beam, hardwood, raw, dried (u=20 %)//m3/[CH] beam, hardwood, raw, kiln drying to u=20 %	sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
sawnwood, beam, hardwood, raw, dried (u=20 %)//m3/[CH] market for sawnwood, beam, hardwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, beam, hardwood, raw, dried (u=20 %)//m3/[RER] beam, hardwood, raw, air drying to u=20 %	sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
sawnwood, beam, hardwood, raw, dried (u=20 %)//m3/[RER] beam, hardwood, raw, kiln drying to u=20 %	sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER
sawnwood, beam, hardwood, raw, dried (u=20 %)//m3/[RER] market for sawnwood, beam, hardwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, beam, softwood, dried (u=10 %), planed//m3/[CH] market for sawnwood, beam, softwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, beam, softwood, dried (u=10 %), planed//m3/[CH] planing, beam, softwood, u=10 %	sawnwood, beam, softwood, dried (u=10 %), planed, at sawmill/m3/CH
sawnwood, beam, softwood, dried (u=10 %), planed//m3/[RER] market for sawnwood, beam, softwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, beam, softwood, dried (u=10 %), planed//m3/[RER] planing, beam, softwood, u=10 %	sawnwood, beam, softwood, dried (u=10 %), planed, at sawmill/m3/RER
sawnwood, beam, softwood, dried (u=20 %), planed//m3/[CH] market for sawnwood, beam, softwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, beam, softwood, dried (u=20 %), planed//m3/[CH] planing, beam, softwood, u=20 %	sawnwood, beam, softwood, dried (u=20 %), planed, at sawmill/m3/CH
sawnwood, beam, softwood, dried (u=20 %), planed//m3/[RER] market for sawnwood, beam, softwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, beam, softwood, dried (u=20 %), planed//m3/[RER] planing, beam, softwood, u=20 %	sawnwood, beam, softwood, dried (u=20 %), planed, at sawmill/m3/RER
sawnwood, beam, softwood, raw, dried (u=10 %)//m3/[CH] beam, softwood, raw, kiln drying to u=10 %	sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
sawnwood, beam, softwood, raw, dried (u=10 %)//m3/[CH] market for sawnwood, beam, softwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, beam, softwood, raw, dried (u=10 %)//m3/[RER] beam, softwood, raw, kiln drying to u=10 %	sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER
sawnwood, beam, softwood, raw, dried (u=10 %)//m3/[RER] market for sawnwood, beam, softwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, beam, softwood, raw, dried (u=20 %)//m3/[CH] beam, softwood, raw, air drying to u=20 %	sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/CH
sawnwood, beam, softwood, raw, dried (u=20 %)//m3/[CH] beam, softwood, raw, kiln drying to u=20 %	sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
sawnwood, beam, softwood, raw, dried (u=20 %)//m3/[CH] market for sawnwood, beam, softwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, beam, softwood, raw, dried (u=20 %)//m3/[RER] beam, softwood, raw, air drying to u=20 %	sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/RER
sawnwood, beam, softwood, raw, dried (u=20 %)//m3/[RER] beam, softwood, raw, kiln drying to u=20 %	sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER
sawnwood, beam, softwood, raw, dried (u=20 %)//m3/[RER] market for sawnwood, beam, softwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, board, hardwood, dried (u=10 %), planed//m3/[CH] market for sawnwood, board, hardwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, board, hardwood, dried (u=10 %), planed//m3/[CH] planing, board, hardwood, u=10 %	sawnwood, board, hardwood, dried (u=10 %), planed, at sawmill/m3/CH
sawnwood, board, hardwood, dried (u=10 %), planed//m3/[RER] market for sawnwood, board, hardwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, board, hardwood, dried (u=10 %), planed//m3/[RER] planing, board, hardwood, u=10 %	sawnwood, board, hardwood, dried (u=10 %), planed, at sawmill/m3/RER
sawnwood, board, hardwood, dried (u=20 %), planed//m3/[CH] market for sawnwood, board, hardwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, board, hardwood, dried (u=20 %), planed//m3/[CH] planing, board, hardwood, u=20 %	sawnwood, board, hardwood, dried (u=20 %), planed, at sawmill/m3/CH
sawnwood, board, hardwood, dried (u=20 %), planed//m3/[RER] market for sawnwood, board, hardwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, board, hardwood, dried (u=20 %), planed//m3/[RER] planing, board, hardwood, u=20 %	sawnwood, board, hardwood, dried (u=20 %), planed, at sawmill/m3/RER
sawnwood, board, hardwood, raw, dried (u=10 %)//m3/[CH] board, hardwood, raw, kiln drying to u=10 %	sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
sawnwood, board, hardwood, raw, dried (u=10 %)//m3/[CH] market for sawnwood, board, hardwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, board, hardwood, raw, dried (u=10 %)//m3/[RER] board, hardwood, raw, kiln drying to u=10 %	sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER
sawnwood, board, hardwood, raw, dried (u=10 %)//m3/[RER] market for sawnwood, board, hardwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, board, hardwood, raw, dried (u=20 %)//m3/[CH] board, hardwood, raw, air drying to u=20 %	sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH
sawnwood, board, hardwood, raw, dried (u=20 %)//m3/[CH] board, hardwood, raw, kiln drying to u=20 %	sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
sawnwood, board, hardwood, raw, dried (u=20 %)//m3/[CH] market for sawnwood, board, hardwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, board, hardwood, raw, dried (u=20 %)//m3/[RER] board, hardwood, raw, air drying to u=20 %	sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER
sawnwood, board, hardwood, raw, dried (u=20 %)//m3/[RER] board, hardwood, raw, kiln drying to u=20 %	sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER
sawnwood, board, hardwood, raw, dried (u=20 %)//m3/[RER] market for sawnwood, board, hardwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, board, softwood, dried (u=10 %), planed//m3/[CH] market for sawnwood, board, softwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, board, softwood, dried (u=10 %), planed//m3/[CH] planing, board, softwood, u=10 %	sawnwood, board, softwood, dried (u=10 %), planed, at sawmill/m3/CH
sawnwood, board, softwood, dried (u=10 %), planed//m3/[RER] market for sawnwood, board, softwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, board, softwood, dried (u=10 %), planed//m3/[RER] planing, board, softwood, u=10 %	sawnwood, board, softwood, dried (u=10 %), planed, at sawmill/m3/RER
sawnwood, board, softwood, dried (u=20 %), planed//m3/[CH] market for sawnwood, board, softwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, board, softwood, dried (u=20 %), planed//m3/[CH] planing, board, softwood, u=20 %	sawnwood, board, softwood, dried (u=20 %), planed, at sawmill/m3/CH
sawnwood, board, softwood, dried (u=20 %), planed//m3/[RER] market for sawnwood, board, softwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, board, softwood, dried (u=20 %), planed//m3/[RER] planing, board, softwood, u=20 %	sawnwood, board, softwood, dried (u=20 %), planed, at sawmill/m3/RER
sawnwood, board, softwood, raw, dried (u=10 %)//m3/[CH] board, softwood, raw, kiln drying to u=10 %	sawnwood, board, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
sawnwood, board, softwood, raw, dried (u=10 %)//m3/[CH] market for sawnwood, board, softwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, board, softwood, raw, dried (u=10 %)//m3/[RER] board, softwood, raw, kiln drying to u=10 %	sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER
sawnwood, board, softwood, raw, dried (u=10 %)//m3/[RER] market for sawnwood, board, softwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, board, softwood, raw, dried (u=20 %)//m3/[CH] board, softwood, raw, air drying to u=20 %	sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/CH
sawnwood, board, softwood, raw, dried (u=20 %)//m3/[CH] board, softwood, raw, kiln drying to u=20 %	sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
sawnwood, board, softwood, raw, dried (u=20 %)//m3/[CH] market for sawnwood, board, softwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, board, softwood, raw, dried (u=20 %)//m3/[RER] board, softwood, raw, air drying to u=20 %	sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/RER
sawnwood, board, softwood, raw, dried (u=20 %)//m3/[RER] board, softwood, raw, kiln drying to u=20 %	sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER
sawnwood, board, softwood, raw, dried (u=20 %)//m3/[RER] market for sawnwood, board, softwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, dried (u=10 %), planed//m3/[CH] market for sawnwood, hardwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, dried (u=10 %), planed//m3/[CH] sawnwood production, hardwood, dried (u=10 %), planed	sawnwood, production mix, hardwood, dried (u=10 %), planed, at sawmill/m3/CH
sawnwood, hardwood, dried (u=10 %), planed//m3/[RER] market for sawnwood, hardwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, dried (u=10 %), planed//m3/[RER] sawnwood production, hardwood, dried (u=10 %), planed	sawnwood, production mix, hardwood, dried (u=10 %), planed, at sawmill/m3/RER

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
sawnwood, hardwood, dried (u=20 %), planed//m3/[CH] market for sawnwood, hardwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, dried (u=20 %), planed//m3/[CH] sawnwood production, hardwood, dried (u=20 %), planed	sawnwood, production mix, hardwood, dried (u=20 %), planed, at sawmill/m3/CH
sawnwood, hardwood, dried (u=20 %), planed//m3/[RER] market for sawnwood, hardwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, dried (u=20 %), planed//m3/[RER] sawnwood production, hardwood, dried (u=20 %), planed	sawnwood, production mix, hardwood, dried (u=20 %), planed, at sawmill/m3/RER
sawnwood, hardwood, raw, dried (u=10 %)//m3/[CH] market for sawnwood, hardwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, raw, dried (u=10 %)//m3/[CH] sawnwood production, hardwood, raw, dried (u=10 %)	sawnwood, production mix, hardwood, raw, dried (u=10 %), at sawmill/m3/CH
sawnwood, hardwood, raw, dried (u=10 %)//m3/[RER] market for sawnwood, hardwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, raw, dried (u=10 %)//m3/[RER] sawnwood production, hardwood, raw, dried (u=10 %)	sawnwood, production mix, hardwood, raw, dried (u=10 %), at sawmill/m3/RER
sawnwood, hardwood, raw, dried (u=20 %)//m3/[CH] market for sawnwood, hardwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, raw, dried (u=20 %)//m3/[CH] sawnwood production, hardwood, raw, dried (u=20 %)	sawnwood, production mix, hardwood, raw, dried (u=20 %), at sawmill/m3/CH
sawnwood, hardwood, raw, dried (u=20 %)//m3/[RER] market for sawnwood, hardwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, raw, dried (u=20 %)//m3/[RER] sawnwood production, hardwood, raw, dried (u=20 %)	sawnwood, production mix, hardwood, raw, dried (u=20 %), at sawmill/m3/RER
sawnwood, hardwood, raw//m3/[CH] market for sawnwood, hardwood, raw	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, raw//m3/[CH] sawing, hardwood	sawnwood, hardwood, raw, at saw/m3/CH
sawnwood, hardwood, raw//m3/[RER] market for sawnwood, hardwood, raw	DELETE and relink to "at sawmill" DS
sawnwood, hardwood, raw//m3/[RER] sawing, hardwood	sawnwood, hardwood, raw, at saw/m3/RER
sawnwood, lath, hardwood, dried (u=10 %), planed//m3/[CH] market for sawnwood, lath, hardwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, lath, hardwood, dried (u=10 %), planed//m3/[CH] planing, lath, hardwood, u=10 %	sawnwood, lath, hardwood, dried (u=10 %), planed, at sawmill/m3/CH
sawnwood, lath, hardwood, dried (u=10 %), planed//m3/[RER] market for sawnwood, lath, hardwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, lath, hardwood, dried (u=10 %), planed//m3/[RER] planing, lath, hardwood, u=10 %	sawnwood, lath, hardwood, dried (u=10 %), planed, at sawmill/m3/RER
sawnwood, lath, hardwood, dried (u=20 %), planed//m3/[CH] market for sawnwood, lath, hardwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, lath, hardwood, dried (u=20 %), planed//m3/[CH] planing, lath, hardwood, u=20 %	sawnwood, lath, hardwood, dried (u=20 %), planed, at sawmill/m3/CH
sawnwood, lath, hardwood, dried (u=20 %), planed//m3/[RER] market for sawnwood, lath, hardwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, lath, hardwood, dried (u=20 %), planed//m3/[RER] planing, lath, hardwood, u=20 %	sawnwood, lath, hardwood, dried (u=20 %), planed, at sawmill/m3/RER
sawnwood, lath, hardwood, raw, dried (u=10 %)//m3/[CH] lath, hardwood, raw, kiln drying to u=10 %	sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
sawnwood, lath, hardwood, raw, dried (u=10 %)//m3/[CH] market for sawnwood, lath, hardwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, lath, hardwood, raw, dried (u=10 %)//m3/[RER] lath, hardwood, raw, kiln drying to u=10 %	sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER
sawnwood, lath, hardwood, raw, dried (u=10 %)//m3/[RER] market for sawnwood, lath, hardwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, lath, hardwood, raw, dried (u=20 %)//m3/[CH] lath, hardwood, raw, air drying to u=20 %	sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH
sawnwood, lath, hardwood, raw, dried (u=20 %)//m3/[CH] lath, hardwood, raw, kiln drying to u=20 %	sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
sawnwood, lath, hardwood, raw, dried (u=20 %)//m3/[CH] market for sawnwood, lath, hardwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, lath, hardwood, raw, dried (u=20 %)//m3/[RER] lath, hardwood, raw, air drying to u=20 %	sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
sawnwood, lath, hardwood, raw, dried (u=20 %)//m3/[RER] lath, hardwood, raw, kiln drying to u=20 %	sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER
sawnwood, lath, hardwood, raw, dried (u=20 %)//m3/[RER] market for sawnwood, lath, hardwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, lath, softwood, dried (u=10 %), planed//m3/[CH] market for sawnwood, lath, softwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, lath, softwood, dried (u=10 %), planed//m3/[CH] planing, lath, softwood, u=10 %	sawnwood, lath, softwood, dried (u=10 %), planed, at sawmill/m3/CH
sawnwood, lath, softwood, dried (u=10 %), planed//m3/[RER] market for sawnwood, lath, softwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, lath, softwood, dried (u=10 %), planed//m3/[RER] planing, lath, softwood, u=10 %	sawnwood, lath, softwood, dried (u=10 %), planed, at sawmill/m3/RER
sawnwood, lath, softwood, dried (u=20 %), planed//m3/[CH] market for sawnwood, lath, softwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, lath, softwood, dried (u=20 %), planed//m3/[CH] planing, lath, softwood, u=20 %	sawnwood, lath, softwood, dried (u=20 %), planed, at sawmill/m3/CH
sawnwood, lath, softwood, dried (u=20 %), planed//m3/[RER] market for sawnwood, lath, softwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, lath, softwood, dried (u=20 %), planed//m3/[RER] planing, lath, softwood, u=20 %	sawnwood, lath, softwood, dried (u=20 %), planed, at sawmill/m3/RER
sawnwood, lath, softwood, raw, dried (u=10 %)//m3/[CH] lath, softwood, raw, kiln drying to u=10 %	sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH
sawnwood, lath, softwood, raw, dried (u=10 %)//m3/[CH] market for sawnwood, lath, softwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, lath, softwood, raw, dried (u=10 %)//m3/[RER] lath, softwood, raw, kiln drying to u=10 %	sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER
sawnwood, lath, softwood, raw, dried (u=10 %)//m3/[RER] market for sawnwood, lath, softwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, lath, softwood, raw, dried (u=20 %)//m3/[CH] lath, softwood, raw, air drying to u=20 %	sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/CH
sawnwood, lath, softwood, raw, dried (u=20 %)//m3/[CH] lath, softwood, raw, kiln drying to u=20 %	sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH
sawnwood, lath, softwood, raw, dried (u=20 %)//m3/[CH] market for sawnwood, lath, softwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, lath, softwood, raw, dried (u=20 %)//m3/[RER] lath, softwood, raw, air drying to u=20 %	sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/RER
sawnwood, lath, softwood, raw, dried (u=20 %)//m3/[RER] lath, softwood, raw, kiln drying to u=20 %	sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER
sawnwood, lath, softwood, raw, dried (u=20 %)//m3/[RER] market for sawnwood, lath, softwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, softwood, dried (u=10 %), planed//m3/[CH] market for sawnwood, softwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, softwood, dried (u=10 %), planed//m3/[CH] sawnwood production, softwood, dried (u=10 %), planed	sawnwood, softwood, dried (u=10 %), planed, at sawmill/m3/CH
sawnwood, softwood, dried (u=10 %), planed//m3/[RER] market for sawnwood, softwood, dried (u=10 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, softwood, dried (u=10 %), planed//m3/[RER] sawnwood production, softwood, dried (u=10 %), planed	sawnwood, softwood, dried (u=10 %), planed, at sawmill/m3/RER
sawnwood, softwood, dried (u=20 %), planed//m3/[CH] market for sawnwood, softwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, softwood, dried (u=20 %), planed//m3/[CH] sawnwood production, softwood, dried (u=20 %), planed	sawnwood, softwood, dried (u=20 %), planed, at sawmill/m3/CH
sawnwood, softwood, dried (u=20 %), planed//m3/[RER] market for sawnwood, softwood, dried (u=20 %), planed	DELETE and relink to "at sawmill" DS
sawnwood, softwood, dried (u=20 %), planed//m3/[RER] sawnwood production, softwood, dried (u=20 %), planed	sawnwood, softwood, dried (u=20 %), planed, at sawmill/m3/RER
sawnwood, softwood, raw, dried (u=10 %)//m3/[CH] market for sawnwood, softwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS
sawnwood, softwood, raw, dried (u=10 %)//m3/[CH] sawnwood production, softwood, raw, dried (u=10 %)	sawnwood, production mix, softwood, raw, dried (u=10 %), at sawmill/m3/CH
sawnwood, softwood, raw, dried (u=10 %)//m3/[RER] market for sawnwood, softwood, raw, dried (u=10 %)	DELETE and relink to "at sawmill" DS

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
sawnwood, softwood, raw, dried (u=10 %)//m3/[RER] sawnwood production, softwood, raw, dried (u=10 %)	sawnwood, production mix, softwood, raw, dried (u=10 %), at sawmill/m3/RER
sawnwood, softwood, raw, dried (u=20 %)//m3/[CH] market for sawnwood, softwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, softwood, raw, dried (u=20 %)//m3/[CH] sawnwood production, softwood, raw, dried (u=20 %)	sawnwood, production mix, softwood, raw, dried (u=20 %), at sawmill/m3/CH
sawnwood, softwood, raw, dried (u=20 %)//m3/[RER] market for sawnwood, softwood, raw, dried (u=20 %)	DELETE and relink to "at sawmill" DS
sawnwood, softwood, raw, dried (u=20 %)//m3/[RER] sawnwood production, softwood, raw, dried (u=20 %)	sawnwood, production mix, softwood, raw, dried (u=20 %), at sawmill/m3/RER
sawnwood, softwood, raw//m3/[CH] market for sawnwood, softwood, raw	DELETE and relink "at saw" DS
sawnwood, softwood, raw//m3/[CH] sawing, softwood	sawnwood, softwood, raw, at saw/m3/CH
sawnwood, softwood, raw//m3/[RER] market for sawnwood, softwood, raw	DELETE and relink "at saw" DS
sawnwood, softwood, raw//m3/[RER] sawing, softwood	sawnwood, softwood, raw, at saw/m3/RER
shavings, hardwood, loose, measured as dry mass//kg/[CH] market for shavings, hardwood, loose, measured as dry mass	shavings, loose, hardwood, from planing, measured as dry mass, at planing machine/kg/CH
shavings, hardwood, loose, measured as dry mass//kg/[CH] planing, beam, hardwood, u=10 %	shavings, loose, hardwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/CH
shavings, hardwood, loose, measured as dry mass//kg/[CH] planing, beam, hardwood, u=20 %	shavings, loose, hardwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/CH
shavings, hardwood, loose, measured as dry mass//kg/[CH] planing, board, hardwood, u=10 %	shavings, loose, hardwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/CH
shavings, hardwood, loose, measured as dry mass//kg/[CH] planing, board, hardwood, u=20 %	shavings, loose, hardwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/CH
shavings, hardwood, loose, measured as dry mass//kg/[CH] planing, lath, hardwood, u=10 %	shavings, loose, hardwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/CH
shavings, hardwood, loose, measured as dry mass//kg/[CH] planing, lath, hardwood, u=20 %	shavings, loose, hardwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/CH
shavings, hardwood, loose, measured as dry mass//kg/[RER] market for shavings, hardwood, loose, measured as dry mass	shavings, loose, hardwood, from planing, measured as dry mass, at planing machine/kg/RER
shavings, hardwood, loose, measured as dry mass//kg/[RER] planing, beam, hardwood, u=10 %	shavings, loose, hardwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/RER
shavings, hardwood, loose, measured as dry mass//kg/[RER] planing, beam, hardwood, u=20 %	shavings, loose, hardwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/RER
shavings, hardwood, loose, measured as dry mass//kg/[RER] planing, board, hardwood, u=10 %	shavings, loose, hardwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/RER
shavings, hardwood, loose, measured as dry mass//kg/[RER] planing, board, hardwood, u=20 %	shavings, loose, hardwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/RER
shavings, hardwood, loose, measured as dry mass//kg/[RER] planing, lath, hardwood, u=10 %	shavings, loose, hardwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/RER
shavings, hardwood, loose, measured as dry mass//kg/[RER] planing, lath, hardwood, u=20 %	shavings, loose, hardwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/RER
shavings, hardwood, measured as dry mass//kg/[CH] market for shavings, hardwood, measured as dry mass	DELETE and relink to "at sawmill" DS
shavings, hardwood, measured as dry mass//kg/[CH] suction, shavings, hardwood	shavings, hardwood, measured as dry mass, at planing mill/kg/CH
shavings, hardwood, measured as dry mass//kg/[RER] market for shavings, hardwood, measured as dry mass	DELETE and relink to "at sawmill" DS
shavings, hardwood, measured as dry mass//kg/[RER] suction, shavings, hardwood	shavings, hardwood, measured as dry mass, at planing mill/kg/RER
shavings, softwood, loose, measured as dry mass//kg/[CH] market for shavings, softwood, loose, measured as dry mass	shavings, loose, softwood, from planing, measured as dry mass, at planing machine/kg/CH
shavings, softwood, loose, measured as dry mass//kg/[CH] planing, beam, softwood, u=10 %	shavings, loose, softwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/CH
shavings, softwood, loose, measured as dry mass//kg/[CH] planing, beam, softwood, u=20 %	shavings, loose, softwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/CH
shavings, softwood, loose, measured as dry mass//kg/[CH] planing, board, softwood, u=10 %	shavings, loose, softwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/CH
shavings, softwood, loose, measured as dry mass//kg/[CH] planing, board, softwood, u=20 %	shavings, loose, softwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/CH

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
shavings, softwood, loose, measured as dry mass//kg/[CH] planing, lath, softwood, u=10 %	shavings, loose, softwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/CH
shavings, softwood, loose, measured as dry mass//kg/[CH] planing, lath, softwood, u=20 %	shavings, loose, softwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/CH
shavings, softwood, loose, measured as dry mass//kg/[RER] market for shavings, softwood, loose, measured as dry mass	shavings, loose, softwood, from planing, measured as dry mass, at planing machine/kg/RER
shavings, softwood, loose, measured as dry mass//kg/[RER] planing, beam, softwood, u=10 %	shavings, loose, softwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/RER
shavings, softwood, loose, measured as dry mass//kg/[RER] planing, beam, softwood, u=20 %	shavings, loose, softwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/RER
shavings, softwood, loose, measured as dry mass//kg/[RER] planing, board, softwood, u=10 %	shavings, loose, softwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/RER
shavings, softwood, loose, measured as dry mass//kg/[RER] planing, board, softwood, u=20 %	shavings, loose, softwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/RER
shavings, softwood, loose, measured as dry mass//kg/[RER] planing, lath, softwood, u=10 %	shavings, loose, softwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/RER
shavings, softwood, loose, measured as dry mass//kg/[RER] planing, lath, softwood, u=20 %	shavings, loose, softwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/RER
shavings, softwood, measured as dry mass//kg/[CH] market for shavings, softwood, measured as dry mass	DELETE and relink to "at sawmill" DS
shavings, softwood, measured as dry mass//kg/[CH] suction, shavings, softwood	shavings, softwood, measured as dry mass, at planing mill/kg/CH
shavings, softwood, measured as dry mass//kg/[RER] market for shavings, softwood, measured as dry mass	DELETE and relink to "at sawmill" DS
shavings, softwood, measured as dry mass//kg/[RER] suction, shavings, softwood	shavings, softwood, measured as dry mass, at planing mill/kg/RER
skidder//p/[RER] market for skidder	DELETE and relink to "at plant" DS
skidder//p/[RER] skidder production	skidder, at plant/p/RER/I
skidding, skidder//hr/[RER] market for skidding, skidder	DELETE and relink to activity DS
skidding, skidder//hr/[RER] skidding, skidder	skidding/hr/RER
slab and siding, hardwood, wet, measured as dry mass//kg/[CH] market for slab and siding, hardwood, wet, measured as dry mass	DELETE and relink to "at sawmill" DS
slab and siding, hardwood, wet, measured as dry mass//kg/[CH] sawing, hardwood	slab and siding, hardwood, wet, measured as dry mass, at sawmill/kg/CH
slab and siding, hardwood, wet, measured as dry mass//kg/[RER] market for slab and siding, hardwood, wet, measured as dry mass	DELETE and relink to "at sawmill" DS
slab and siding, hardwood, wet, measured as dry mass//kg/[RER] sawing, hardwood	slab and siding, hardwood, wet, measured as dry mass, at sawmill/kg/RER
slab and siding, softwood, wet, measured as dry mass//kg/[CH] market for slab and siding, softwood, wet, measured as dry mass	DELETE and relink to "at sawmill" DS
slab and siding, softwood, wet, measured as dry mass//kg/[CH] sawing, softwood	slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/CH
slab and siding, softwood, wet, measured as dry mass//kg/[RER] market for slab and siding, softwood, wet, measured as dry mass	DELETE and relink to "at sawmill" DS
slab and siding, softwood, wet, measured as dry mass//kg/[RER] sawing, softwood	slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER
terrain chipper on forwarder//p/[RER] forwarder production, with terrain chipper	terrain chipper on forwarder, at plant/p/RER/I
terrain chipper on forwarder//p/[RER] market for terrain chipper on forwarder	DELETE and relink to "at plant" DS
three layered laminated board, at regional storage/kg/CH	three layered laminated board, at regional storage/kg/CH
three layered laminated board//m3/[RER] three layered laminated board production DO NOT USE	VALIDITY OF DS TO BE CHECKED
tree seedling//p/[RER] market for tree seedling	DELETE not used)
tree seedling//p/[RER] tree seedling production, in heated greenhouse	tree seedling, from heated greenhouse, 1000 units, at nursery/p/RER

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
tree seedling//p/[RER] tree seedling production, in unheated greenhouse	tree seedling, from unheated greenhouse, 1000 units, at nursery/p/RER
wastewater from hard fibreboard production//[RER] treatment of wastewater from hard fibreboard production, capacity 5E9l/m3/year	Treatment hard fibreboard production effluent, to wastewater treatment, class 1/m3/RER
wastewater from hard fibreboard production//m3/[RER] market for wastewater from hard fibreboard production	DELETE and relink to activity DS
wastewater from medium density board production//[RER] treatment of wastewater from medium density fibreboard production, capacity 5E9l/m3/year	Treatment, medium density fibreboard production effluent, to wastewater treatment, class 1/m3/RER
wastewater from medium density board production//m3/[RER] market for wastewater from medium density board production	DELETE and relink to activity DS
wastewater from particle board production//[RER] treatment of wastewater from particle board production, capacity 5E9l/m3/year	Treatment, particle board production effluent, to wastewater treatment, class 1/m3/RER
wastewater from particle board production//m3/[RER] market for wastewater from particle board production	DELETE and relink to activity DS
wastewater from soft fibreboard production//[CH] treatment of wastewater from soft fibreboard production, capacity 5E9l/m3/year	Treatment, soft fibreboard production effluent, to wastewater treatment, class 1/m3/RER
wastewater from soft fibreboard production//m3/[RER] market for wastewater from soft fibreboard production	DELETE and relink to activity DS
wood chipping, chipper, mobile, diesel, at forest road//hr/[RER] market for wood chipping, chipper, mobile, diesel, at forest road	DELETE and relink to activity DS
wood chipping, chipper, mobile, diesel, at forest road//hr/[RER] wood chipping, mobile chipper, at forest road	wood chipping, chipper, mobile, diesel, at forest road/hr/RER
wood chipping, forwarder with terrain chipper, in forest//hr/[RER] market for wood chipping, forwarder with terrain chipper, in forest	DELETE and relink to activity DS
wood chipping, forwarder with terrain chipper, in forest//hr/[RER] wood chipping, terrain chipper, diesel	wood chipping, forwarder with terrain chipper, in forest/hr/RER
wood chipping, industrial residual wood, stationary electric chipper//kg/[RER] market for wood chipping, industrial residual wood, stationary electric chipper	DELETE and relink to activity DS
wood chipping, industrial residual wood, stationary electric chipper//kg/[RER] wood chipping, industrial residual wood, stationary electric chipper	wood chipping, industrial residual wood, stationary electric chipper/kg/RER
wood chips, dry, measured as dry mass//kg/[RER] glued laminated timber production, for indoor use	DELETED (not used)
wood chips, dry, measured as dry mass//kg/[RER] glued laminated timber production, for outdoor use	DELETED (not used)
wood chips, dry, measured as dry mass//kg/[RER] market for wood chips, dry, measured as dry mass	DELETED (not used); ARBITRARY COMPOSITION
wood chips, dry, measured as dry mass//kg/[RER] particle board production, for indoor use	DELETED (not used)
wood chips, dry, measured as dry mass//kg/[RER] particle board production, for outdoor use	DELETED (not used)
wood chips, dry, measured as dry mass//kg/[RER] plywood production, for indoor use	DELETED (not used)
wood chips, dry, measured as dry mass//kg/[RER] plywood production, for outdoor use	DELETED (not used)
wood chips, dry, measured as dry mass//kg/[RER] three layered laminated board production	DELETED (not used)
wood chips, wet, measured as dry mass//kg/[CH] hardwood forestry, mixed species, sustainable forest management	wood chips, hardwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH
wood chips, wet, measured as dry mass//kg/[CH] market for wood chips, wet, measured as dry mass	wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH
wood chips, wet, measured as dry mass//kg/[CH] softwood forestry, mixed species, sustainable forest management	wood chips, softwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH
wood chips, wet, measured as dry mass//kg/[CH] wood chips production, hardwood, at sawmill	wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH

Name in ecoinvent 3.2 [recycled content]	New name in ecoinvent 2.2 environment
wood chips, wet, measured as dry mass//kg/[CH] wood chips production, softwood, at sawmill	wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH
wood chips, wet, measured as dry mass//kg/[DE] hardwood forestry, beech, sustainable forest management	wood chips, beech, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE
wood chips, wet, measured as dry mass//kg/[DE] hardwood forestry, oak, sustainable forest management	wood chips, oak, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE
wood chips, wet, measured as dry mass//kg/[DE] softwood forestry, pine, sustainable forest management	wood chips, pine, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE
wood chips, wet, measured as dry mass//kg/[DE] softwood forestry, spruce, sustainable forest management	wood chips, spruce, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE
wood chips, wet, measured as dry mass//kg/[RER] market for wood chips, wet, measured as dry mass	wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER
wood chips, wet, measured as dry mass//kg/[RER] wood chips production, hardwood, at sawmill	wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER
wood chips, wet, measured as dry mass//kg/[RER] wood chips production, softwood, at sawmill	wood chips, softwood, wet, measured as dry mass, at sawmill/kg/RER
wood chips, wet, measured as dry mass//kg/[SE] hardwood forestry, birch, sustainable forest management	wood chips, birch, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE
wood chips, wet, measured as dry mass//kg/[SE] softwood forestry, pine, sustainable forest management	wood chips, pine, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE
wood chips, wet, measured as dry mass//kg/[SE] softwood forestry, spruce, sustainable forest management	wood chips, spruce, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE
wood pellet, measured as dry mass//kg/[RER] market for wood pellet	DELETE and relink to activity DS
wood pellet, measured as dry mass//kg/[RER] wood pellet production	wood pellet, measured as dry mass, at plant/kg/RER
wood wool//kg/[RER] market for wood wool	DELETE and relink to activity DS
wood wool//kg/[RER] wood wool production	wood wool, at plant/kg/RER

Annex A.2: Decoupling of existing datasets from old wood data and linking with new datasets under ecoinvent 3 nomenclature (before re-naming)

The following tables document the decoupling of other ecoinvent 2.2 datasets with wood inputs from the previous wood datasets of ecoinvent 2.2 and the re-linking with the new datasets under ecoinvent 3 nomenclature (before re-naming). In case of conversion of units, the dry matter content/m^3 was used as documented in the ecoinvent 2.2 datasets (or derived from them if not explicitly documented). Species mixes have been adopted from the ecoinvent 2.2 datasets, although they might not be representative for specific forestry products in all cases.

Table A.2-1: Decoupling of existing datasets from old wood data and linking with new datasets under ecoinvent 3 nomenclature (before re-naming)

Agricultural infrastructure

Product	**Dried roughage store, air dried, solar/CH/I U**	**1.00E+00**	**m3**	
previous	*Particle board, indoor use, at plant/RER U_old*	*5.56E-02*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	5.56E-02	m3	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*7.81E-02*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	7.81E-02	m3	

Product	**Dried roughage store, cold-air dried, conventional/CH/I U**	**1.00E+00**	**m3**	
previous	*Particle board, indoor use, at plant/RER U_old*	*2.93E-02*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	2.93E-02	m3	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*7.81E-02*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	7.81E-02	m3	

Product	**Dried roughage store, non ventilated/CH/I U**	**1.00E+00**	**m3**	
previous	*Particle board, indoor use, at plant/RER U_old*	*4.00E-03*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	4.00E-03	m3	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*4.33E-02*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	4.33E-02	m3	

Product	**Loose housing system, cattle/CH/I U**	**1.00E+00**	**p**	
previous	*Particle board, indoor use, at plant/RER U_old*	*1.10E+00*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	1.10E+00	m3	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*6.25E+00*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	6.25E+00	m3	

Product	Tied housing system, cattle/CH/I U	1.00E+00	p	
previous	*Particle board, indoor use, at plant/RER U_old*	*9.22E-01*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	9.22E-01	kg	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*5.65E+00*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	5.65E+00	m3	

Product	Dung slab/CH/I U	1.00E+00	m2	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*4.73E-04*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	4.73E-04	m3	

Product	Housing system with fully-slatted floor, pig/CH/I U	1.00E+00	p	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*1.27E-01*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	1.27E-01	m3	

Product	Label housing system, pig/CH/I U	1.00E+00	p	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*2.93E-01*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	2.93E-01	m3	

Product	Milking parlour/CH/I U	1.00E+00	p	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*1.48E+01*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	1.48E+01	m3	

Product	Shed/CH/I U	1.00E+00	m2	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*2.09E-01*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	2.09E-01	m3	

Product	Slurry store and processing/CH/I U	1.00E+00	m3	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*2.72E-03*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	2.72E-03	m3	

Product	Tower silo, plastic/CH/I U	1.00E+00	m3	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*7.62E-05*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	7.62E-05	m3	

Anodising

Product	Anodising, aluminium sheet/RER U	1.00E+00	m2	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*1.77E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	2.15E-02	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[RER] wood chips production, hardwood, at sawmill U	1.18E-02	kg	species composition as in original DS (72 % softwood)

Bricks

Product	Brick, at plant/RER U	1.00E+00	kg	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*5.30E-05*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, hardwood, at sawmill U	3.55E-03	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	4.32E-01	kg	species composition as in original DS (72 % softwood)

Buildings

Product	Building, hall, wood construction/CH/I U	1.00E+00	m2	
previous	*Particle board, indoor use, at plant/RER U_old*	*3.00E-02*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	3.00E-02	m3	
previous	*Sawn timber, softwood, planed, kiln dried, at plant/RER U*	*6.00E-03*	*m3*	
new_1	sawnwood, softwood, dried (u=10 %), planed//[CH] sawnwood production, softwood, dried (u=10 %), planed U	6.00E-03	m3	
previous	*Sawn timber, softwood, raw, kiln dried, u=20 %, at plant/RER U*	*1.05E-01*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[CH] sawnwood production, softwood, raw, dried (u=20 %) U	1.05E-01	m3	

Product	Building, multi-storey/RER/I U	1.00E+00	m3	
previous	*Sawn timber, softwood, planed, kiln dried, at plant/RER U*	*6.17E-02*	*m3*	
new_1	sawnwood, softwood, dried (u=10 %), planed//[CH] sawnwood production, softwood, dried (u=10 %), planed U	6.17E-02	m3	

Charcoal

Product	Charcoal, at plant/GLO U	1.00E+00	kg	
previous	*Logs, hardwood, at forest/RER U*	*5.13E-03*	*m3*	*linked to original process DS - not representative*
new_1	cleft timber, measured as dry mass//[DE] hardwood forestry, beech, sustainable forest management U	0.0051282 x 650 = 3.33333	kg	linked to original process DS - not representative

Chipless shaping

Product	Section bar extrusion, aluminium/RER U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*5.19E-05*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	5.19E-05	m3	

Product	Sheet rolling, aluminium/RER U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*1.85E-07*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	1.85E-07	m3	

Product	Sheet rolling, chromium steel/RER U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*1.85E-06*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	1.85E-06	m3	

Product	Sheet rolling, copper/RER U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*6.12E-07*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	6.12E-07	m3	

Product	Sheet rolling, steel/RER U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*1.85E-06*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	1.85E-06	m3	

Product	Wire drawing, copper/RER U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*6.12E-07*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	6.12E-07	m3	

Product	Wire drawing, steel/RER U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*1.60E-17*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	1.60E-17	m3	

Product	Hot rolling, steel/RER U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*1.60E-17*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	1.60E-17	m3	

Claddings

Product	Cladding, crossbar-pole, aluminium, at plant/RER U	1.00E+00	m2	
previous	*Sawn timber, hardwood, planed, air / kiln dried, u=10 %, at plant/RER U*	*2.79E-04*	*m3*	
new_1	sawnwood, hardwood, dried (u=10 %), planed//[RER] sawnwood production, hardwood, dried (u=10 %), planed U	2.79E-04	m3	

Co-generation buildings

Product	Cogen unit 6400kWth, wood burning, building/CH/I U	1.00E+00	p	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*1.50E+02*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[CH] sawnwood production, softwood, raw, dried (u=20 %) U	1.50E+02	m3	

Product	Cogen unit ORC 1400kWth, wood burning, building/CH/I U	1.00E+00	p	
previous	*Sawn timber, softwood, raw, air dried, u=20 %, at plant/RER U*	*1.20E+02*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[CH] sawnwood production, softwood, raw, dried (u=20 %) U	1.20E+02	m3	

Co-generation power units

Product	Wood chips, burned in cogen 6400kWth, emission control/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*2.88E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	3.50E-02	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	1.93E-02	kg	species composition as in original DS (72 % softwood)

Product	Wood chips, burned in cogen 6400kWth/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*2.88E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	3.50E-02	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	1.93E-02	kg	species composition as in original DS (72 % softwood)

Product	Wood chips, burned in cogen ORC 1400kWth, emission control/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*2.88E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	3.50E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	1.93E-02	kg	species composition as in original DS (72 % soft-wood)

Product	Wood chips, burned in cogen ORC 1400kWth/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*2.88E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	3.50E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	1.93E-02	kg	species composition as in original DS (72 % soft-wood)

Co-generation pellets

Product	Electricity, pellets, allocation exergy, at stirling cogen unit 3kWe, future/CH	1.00E+00	kWh	
previous	*Wood pellets, u=10 %, at storehouse/RER U_old*	*1.01E-03*	*m3*	
new_1	wood pellet, measured as dry mass//[RER] wood pellet production U	6.58E-01	kg	

Product	Heat, pellets, allocation exergy, at stirling cogen unit 3kWe, future/CH	1.00E+00	MJ	
previous	*Wood pellets, u=10 %, at storehouse/RER U_old*	*2.60E-05*	*m3*	
new_1	wood pellet, measured as dry mass//[RER] wood pellet production U	1.69E-02	kg	

Co-generation wood

Product	Electricity, at cogen 6400kWth, wood, allocation energy/CH	1.00E+00	kWh	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*1.21E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	2.29E-01	kg	

Product	Electricity, at cogen ORC 1400kWth, wood, allocation energy/CH	1.00E+00	kWh	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*1.29E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	2.44E-01	kg	

Product	Electricity, at cogen ORC 1400kWth, wood, allocation exergy/CH	1.00E+00	kWh	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*5.40E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	1.02E+00	kg	

Product	Electricity, at cogen ORC 1400kWth, wood, emission control, allocation energy/CH	1.00E+00	kWh	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*1.35E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	2.55E-01	kg	

Product	Electricity, at cogen ORC 1400kWth, wood, emission control, allocation exergy/CH	1.00E+00	kWh	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*5.72E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	1.08E+00	kg	

Product	Heat, at cogen 6400kWth, wood, allocation energy/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.39E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	6.39E-02	kg	

Product	Heat, at cogen 6400kWth, wood, allocation heat/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.75E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	7.08E-02	kg	

Product	Heat, at cogen 6400kWth, wood, emission control, allocation heat/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.75E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	7.08E-02	kg	

Product	Heat, at cogen ORC 1400kWth, wood, allocation energy/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.60E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	6.79E-02	kg	

Product	Heat, at cogen ORC 1400kWth, wood, allocation exergy/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.12E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	5.89E-02	kg	

Product	Heat, at cogen ORC 1400kWth, wood, allocation heat/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.75E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	7.07E-02	kg	

Product	Heat, at cogen ORC 1400kWth, wood, emission control, allocation energy/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.61E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	6.80E-02	kg	

Product	Heat, at cogen ORC 1400kWth, wood, emission control, allocation exergy/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.15E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	5.93E-02	kg	

Product	Heat, at cogen ORC 1400kWth, wood, emission control, allocation heat/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*3.75E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] market for wood chips, wet, measured as dry mass U	7.07E-02	kg	

Cobwork

Product	Cobwork, at plant/CH	1.00E+00	kg	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*6.14E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	7.47E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	4.11E-02	kg	species composition as in original DS (72 % soft-wood)

Cork slab

Product	Cork slab, at plant/RER U	1.00E+00	kg	
previous	*Raw cork, at forest road/kg/PT*	*1.06E+00*	*kg*	
new_1	cork, raw, at forest road/kg/PT	1.06E+00	kg	

Doors

Product	Door, inner, glass-wood, at plant/RER U	1.00E+00	m2	
previous	*Fibreboard hard, at plant/RER U_old*	*4.26E-03*	*m3*	
new_1	fibreboard, hard//[RER] fibreboard production, hard U	4.26E-03	m3	

Product	Door, inner, wood, at plant/RER U	1.00E+00	m2	
previous	*Fibreboard hard, at plant/RER U_old*	*6.87E-03*	*m3*	
new_1	fibreboard, hard//[RER] fibreboard production, hard U	6.87E-03	m3	

Electricity, wood, at distillery

Product	Electricity, wood, at distillery/CH	1.00E+00	kWh	
previous	*Wood chips, hardwood, u=80 %, at forest/RER U*	*1.14E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	2.73E-01	kg	

Product	Electricity, wood, at distillery/SE U	1.00E+00	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*6.46E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	2.91E-01	kg	

Ethanol from wood

Product	Ethanol, 95 % in H2O, from wood, at distillery/CH	1.00E+00	kg	
previous	*Wood chips, hardwood, u=80 %, at forest/RER U*	*1.61E-02*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	3.84E+00	kg	

Product	Ethanol, 95 % in H2O, from wood, at distillery/SE U	1.00E+00	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*9.06E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	4.08E+00	kg	

Extrusion plastic

Product	Extrusion, plastic film/RER U	1.00E+00	kg	
previous	*Particle board, outdoor use, at plant/RER U_old*	*2.15E-05*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	2.15E-05	m3	

Product	Extrusion, plastic pipes/RER U	1.00E+00	kg	
previous	*Particle board, outdoor use, at plant/RER U_old*	*1.32E-06*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	1.32E-06	m3	

Glycerine from rape seed

Product	glycerine, from rape oil, at esterification plant/kg/CH	1.00E+00	kg	
previous	*Sawdust, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*1.10E-07*	*m3*	
new_1	saw dust, wet, measured as dry mass//[CH] suction, sawdust U	4.95E-05	kg	

Hard coal at mine

Product	Hard coal, at mine/CN U	1.00E+00	kg	
previous	*Round wood, hardwood, under bark, u=70 %, at forest road/RER U*	*2.18E-06*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	2.18E-06	m3	

Heat from wood

Product	Logs, hardwood, burned in furnace 100kW/CH	1.00E+00	MJ	
previous	*Logs, hardwood, at forest/RER U*	*8.57E-05*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	5.57E-02	kg	

Product	Logs, hardwood, burned in furnace 30kW/CH	1.00E+00	MJ	
previous	*Logs, hardwood, at forest/RER U*	*8.57E-05*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	5.57E-02	kg	

Product	Logs, hardwood, burned in wood heater 6kW/CH	1.00E+00	MJ	
previous	*Logs, hardwood, at forest/RER U*	*8.57E-05*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	5.57E-02	kg	

Product	Logs, mixed, burned in furnace 100kW/CH	1.00E+00	MJ	
previous	*Logs, mixed, at forest/RER U*	*1.06E-04*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	3.43E-02	kg	species composition as in original DS (72 % softwood)
new_2	cleft timber, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	1.93E-02	kg	species composition as in original DS (72 % softwood)

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Logs, mixed, at forest/RER U*	*1.06E-04*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	3.43E-02	kg	species composition as in original DS (72 % softwood)
new_2	cleft timber, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	1.93E-02	kg	species composition as in original DS (72 % softwood)

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Logs, mixed, at forest/RER U*	*1.06E-04*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	3.43E-02	kg	species composition as in original DS (72 % softwood)
new_2	cleft timber, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	1.93E-02	kg	species composition as in original DS (72 % softwood)

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Logs, softwood, at forest/RER U*	*1.18E-04*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	5.31E-02	kg	

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Logs, softwood, at forest/RER U*	*1.18E-04*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	5.31E-02	kg	

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Logs, softwood, at forest/RER U*	*1.18E-04*	*m3*	
new_1	cleft timber, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	5.31E-02	kg	

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood pellets, u=10 %, at storehouse/RER U_old*	*8.21E-05*	*m3*	
new_1	wood pellet, measured as dry mass//[RER] wood pellet production U	5.34E-02	kg	

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood pellets, u=10 %, at storehouse/RER U_old*	*8.21E-05*	*m3*	
new_1	wood pellet, measured as dry mass//[RER] wood pellet production U	5.34E-02	kg	

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood chips, hardwood, u=80 %, at forest/RER U*	*2.47E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	5.90E-02	kg	

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood chips, hardwood, u=80 %, at forest/RER U*	*2.47E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	5.90E-02	kg	

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood chips, hardwood, u=80 %, at forest/RER U*	*2.47E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	5.90E-02	kg	

Product	Wood chips, from forest, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*3.03E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	3.69E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	2.03E-02	kg	species composition as in original DS (72 % soft-wood)

Product	Wood chips, from forest, mixed, burned in furnace 300kW/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*3.03E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	3.69E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	2.03E-02	kg	species composition as in original DS (72 % soft-wood)

Product	Wood chips, from forest, mixed, burned in furnace 50kW/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*3.03E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	3.69E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	2.03E-02	kg	species composition as in original DS (72 % soft-wood)

Product	Wood chips, from forest, softwood, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood chips, softwood, u=140 %, at forest/RER U*	*3.33E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	5.63E-02	kg	

Product	Wood chips, from forest, softwood, burned in furnace 300kW/CH	1.00E+00	MJ	
previous	*Wood chips, softwood, u=140 %, at forest/RER U*	*3.33E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	5.63E-02	kg	

Product	Wood chips, from forest, softwood, burned in furnace 50kW/CH	1.00E+00	MJ	
previous	*Wood chips, softwood, u=140 %, at forest/RER U*	*3.33E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	5.63E-02	kg	

Product	Wood chips, from industry, hardwood, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood chips, hardwood, from industry, u=40 %, at plant/RER U*	*2.38E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	5.69E-02	kg	

Product	Wood chips, from industry, hardwood, burned in furnace 300kW/CH	1.00E+00	MJ	
previous	*Wood chips, hardwood, from industry, u=40 %, at plant/RER U*	*2.38E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	5.69E-02	kg	

Product	Wood chips, from industry, hardwood, burned in furnace 50kW/CH	1.00E+00	MJ	
previous	*Wood chips, hardwood, from industry, u=40 %, at plant/RER U*	*2.38E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	5.69E-02	kg	

Product	Wood chips, from industry, mixed, burned in furnace 1000kW/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*2.88E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	3.50E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	1.93E-02	kg	species composition as in original DS (72 % soft-wood)

Product	Wood chips, from industry, mixed, burned in furnace 300kW/CH	1.00E+00	MJ	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*2.88E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	3.50E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	1.93E-02	kg	species composition as in original DS (72 % soft-wood)

Product	Wood chips, from industry, mixed, burned in furnace 50kW/CH	1.00E+00	MJ	

previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*2.88E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	3.50E-02	kg	species composition as in original DS (72 % soft-wood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	1.93E-02	kg	species composition as in original DS (72 % soft-wood)

Product	**Wood chips, from industry, softwood, burned in furnace 1000kW/CH**	**1.00E+00**	**MJ**	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*3.16E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	5.34E-02	kg	

Product	**Wood chips, from industry, softwood, burned in furnace 300kW/CH**	**1.00E+00**	**MJ**	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*3.16E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	5.34E-02	kg	

Product	**Wood chips, from industry, softwood, burned in furnace 50kW/CH**	**1.00E+00**	**MJ**	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*3.16E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	5.34E-02	kg	

Heat storage, water tanks

Product	**Heat storage 2000l, at plant/CH/I U**	**1.00E+00**	**p**	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*6.67E-02*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	6.67E-02	m3	

Product	**Hot water tank 600l, at plant/CH/I U**	**1.00E+00**	**p**	
previous	*Sawn timber, softwood, planed, air dried, at plant/RER U*	*2.22E-02*	*m3*	
new_1	sawnwood, softwood, dried (u=20 %), planed//[CH] sawnwood production, softwood, dried (u=20 %), planed U	2.22E-02	m3	

Paraná pine

Product	**Industrial residual wood, paraná pine (SFM), u=15 %, at sawmill/BR U**	**1.00E+00**	**m3**	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*-7.20E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-1.22E+00	kg	

Product	**Sawn timber, paraná pine (SFM), kiln dried, u=15 %, at sawmill/BR U**	**1.00E+00**	**m3**	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*-2.45E-01*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-4.14E+01	kg	

Methane from wood

Product	Methane, 96 vol.- %, from synthetic gas, wood, at plant/CH	1.00E+00	m3	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*1.26E-02*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	1.71E+00	kg	
new_2	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	6.63E-01	kg	
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*4.32E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	5.86E-01	kg	
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	2.28E-01	kg	

MG-silicon

Please note that the original amounts of wood input do not correspond to the cited literature values

Product	MG-silicon, at plant/kg/APAC U	1.00E+00	kg	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*3.25E-03*	*m3*	*(2,2,2,1,1,3); Literature, 1.35 kg*
new_1	wood chips, wet, measured as dry mass//[RER] market for wood chips, wet, measured as dry mass U	6.14E-01	kg	

Product	*MG-silicon, at plant/kg/CN U*	*1.00E+00*	*kg*	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*3.25E-03*	*m3*	*(2,2,2,1,1,3); Literature, 1.35 kg*
new_1	wood chips, wet, measured as dry mass//[RER] market for wood chips, wet, measured as dry mass U	6.14E-01	kg	

Product	MG-silicon, at plant/kg/NO U	1.00E+00	kg	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*3.25E-03*	*m3*	*(2,2,2,1,1,3); Literature, 1.35 kg*
new_1	wood chips, wet, measured as dry mass//[RER] market for wood chips, wet, measured as dry mass U	6.14E-01	kg	

Product	MG-silicon, at plant/kg/US U	1.00E+00	kg	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*3.25E-03*	*m3*	*(2,2,2,1,1,3); Literature, 1.35 kg*
new_1	wood chips, wet, measured as dry mass//[RER] market for wood chips, wet, measured as dry mass U	6.14E-01	kg	

PV supply

Product	open ground construction, on ground, Mont Soleil/m2/CH/I U	1.00E+00	m2	
previous	*Particle board, indoor use, at plant/RER U_old*	*9.99E-04*	*m3*	
new_1	particleboard, uncoated//[RER] particle board production, uncoated, average glue mix U	9.99E-04	m3	

Rape methyl ester

Product	rape methyl ester, at esterification plant/kg/CH	1.00E+00	kg	
previous	*Sawdust, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*5.33E-07*	*m3*	
new_1	saw dust, wet, measured as dry mass//[CH] suction, sawdust U	2.40E-04	kg	

Silicon carbide

Product	Silicon carbide, at plant/RER U	1.00E+00	kg	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*1.90E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] market for wood chips, wet, measured as dry mass U	3.58E-02	kg	

Slurry with bark chips

Product	slurry solids and bark chips, at farm/CH	1.00E+00	m3	
previous	*Bark chips, softwood, u=140 %, at forest road/RER U*	*8.45E-01*	*m3*	
new_1	bark chips, wet, measured as dry mass//[CH] market for bark chips, wet, measured as dry mass U	3.80E+02	kg	

Small hydro power plants

Product	small hydropower plant, in waterworks infrastructure/p/CH/I U	1.00E+00	p	
previous	*Sawn timber, softwood, raw, plant-debarked, u=70 %, at plant/RER U*	*3.12E-02*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[CH] sawnwood production, softwood, raw, dried (u=20 %) U	3.12E-02	m3	

Product	small hydropower plant, in waterworks infrastructure/p/RER/I U	1.00E+00	p	
previous	*Sawn timber, softwood, raw, plant-debarked, u=70 %, at plant/RER U*	*3.12E-02*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	3.12E-02	m3	

Product	small hydropower plant/p/CH/I U	1.00E+00	p	
previous	*Sawn timber, softwood, raw, plant-debarked, u=70 %, at plant/RER U*	*3.59E-02*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[CH] sawnwood production, softwood, raw, dried (u=20 %) U	3.59E-02	m3	

Product	small hydropower plant/p/RER/I U	1.00E+00	p	
previous	*Sawn timber, softwood, raw, plant-debarked, u=70 %, at plant/RER U*	*3.59E-02*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	3.59E-02	m3	

Synthetic gas from wood

Product	Synthetic gas, from wood, at fixed bed gasifier/CH	1.00E+00	m3	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*1.77E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	2.40E-01	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	9.33E-02	kg	species composition as in original DS (72 % softwood)
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*6.07E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	8.24E-02	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	3.21E-02	kg	species composition as in original DS (72 % softwood)

Product	Synthetic gas, from wood, at fluidized bed gasifier/CH	1.00E+00	m3	
previous	*Wood chips, mixed, u=120 %, at forest/RER U*	*1.71E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] softwood forestry, mixed species, sustainable forest management U	2.32E-01	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[CH] hardwood forestry, mixed species, sustainable forest management U	9.03E-02	kg	species composition as in original DS (72 % softwood)
previous	*Wood chips, mixed, from industry, u=40 %, at plant/RER U*	*5.88E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	7.98E-02	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	3.10E-02	kg	species composition as in original DS (72 % softwood)

Transmission network

Product	transmission network, electricity, medium voltage/km/CH/I U	1.00E+00	km	
previous	*Round wood, softwood, debarked, u=70 % at forest road/RER U*	*2.54E+00*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[CH] softwood forestry, mixed species, sustainable forest management U	2.54E+00	m3	

Underground deposit

Product	Disposal, catalyst for EDC production, 0 % water, to underground deposit/DE U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, kiln dried, u=20 %, at plant/RER U*	*4.63E-05*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	4.63E-05	m3	

Product	Disposal, catalytic converter for cars, 0 % water, to underground deposit/DE U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, kiln dried, u=20 %, at plant/RER U*	*4.63E-05*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	4.63E-05	m3	

Product	Disposal, catalytic converter NOx reduction, 0 % water, to underground deposit/DE U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, kiln dried, u=20 %, at plant/RER U*	*4.63E-05*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	4.63E-05	m3	

Product	Disposal, hazardous waste, 0 % water, to underground deposit/DE U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, kiln dried, u=20 %, at plant/RER U*	*4.63E-05*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	4.63E-05	m3	

Product	Disposal, sludge from FeCl3 production, 30 % water, to underground deposit/DE U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, kiln dried, u=20 %, at plant/RER U*	*6.17E-05*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	6.17E-05	m3	

Product	Disposal, spent activated carbon with mercury, 0 % water, to underground deposit/DE U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, kiln dried, u=20 %, at plant/RER U*	*1.10E-05*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	1.10E-05	m3	

Product	Disposal, waste, silicon wafer production, 0 % water, to underground deposit/DE U	1.00E+00	kg	
previous	*Sawn timber, softwood, raw, kiln dried, u=20 %, at plant/RER U*	*1.65E-05*	*m3*	
new_1	sawnwood, softwood, raw, dried (u=20 %)//[RER] sawnwood production, softwood, raw, dried (u=20 %) U	1.65E-05	m3	

Underground mine

Product	Underground mine, hard coal/CN/I U	1.00E+00	p	
previous	*Sawn timber, hardwood, raw, air dried, u=20 %, at plant/RER U*	*3.89E+05*	*m3*	
new_1	sawnwood, hardwood, raw, dried (u=20 %)//[RER] sawnwood production, hardwood, raw, dried (u=20 %) U	3.89E+05	m3	

Product	Underground mine, hard coal/GLO/I U	1.00E+00	p	
previous	*Sawn timber, hardwood, raw, air dried, u=20 %, at plant/RER U*	*3.89E+05*	*m3*	
new_1	sawnwood, hardwood, raw, dried (u=20 %)//[RER] sawnwood production, hardwood, raw, dried (u=20 %) U	3.89E+05	m3	

Updated processes for wood products

Product	glued laminated timber, indoor use, at plant/CH	1.00E+00	m3	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*-8.48E-01*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-1.43E+02	kg	

Product	glued laminated timber, indoor use, at plant/m3/RER U	1.00E+00	m3	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*-8.48E-01*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-1.43E+02	kg	

Product	glued laminated timber, outdoor use, at plant/CH	1.00E+00	m3	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*-8.41E-01*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-1.42E+02	kg	

Product	glued laminated timber, outdoor use, at plant/m3/RER U	1.00E+00	m3	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*-8.41E-01*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-1.42E+02	kg	

Product	plywood, indoor use, at plant/m3/RER U	1.00E+00	m3	
previous	*Wood chips, hardwood, from industry, u=40 %, at plant/RER U*	*-1.93E+00*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	-4.61E+02	kg	

Product	plywood, outdoor use, at plant/m3/RER U	1.00E+00	m3	
previous	*Wood chips, hardwood, from industry, u=40 %, at plant/RER U*	*-1.93E+00*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, hardwood, at sawmill U	-4.61E+02	kg	

Product	three layered laminated board, at plant/CH	1.00E+00	m3	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*-5.20E-01*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-8.78E+01	kg	

Product	three layered laminated board, at plant/m3/RER U	1.00E+00	m3	
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*-5.20E-01*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-8.78E+01	kg	

Waste wood chipping

Product	Waste wood chips, mixed, from industry, u=40 %, at plant/CH	1.00E+00	m3	
previous	*Industrial residual wood chopping, stationary electric chopper, at plant/RER U*	*1.89E+02*	*kg*	
new_1	wood chipping, industrial residual wood, stationary electric chipper//[RER] wood chipping, industrial residual wood, stationary electric chipper U	1.89E+02	kg	

Pulp

Product	Chemi-thermomechanical pulp, at plant/RER U	1.00E+00	kg	
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*9.67E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	4.35E-01	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*2.12E-03*	*kg*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	9.54E-01		

Product	Stone groundwood pulp, SGW, at plant/RER U	1.00E+00	kg	
previous	*Round wood, Scandinavian softwood, under bark, u=70 % at forest road/NORDEL U*	*2.18E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	1.09E-03	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	1.09E-03	m3	species mix based on ecoinvent 3.2 DS
previous	*Round wood, softwood, under bark, u=70 % at forest road/RER U*	*9.95E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	9.95E-04	m3	

Product	Sulphate pulp, TCF bleached, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*6.11E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	6.11E-04	m3	
previous	Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U	8.20E-04	m3	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	8.20E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*8.88E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	8.88E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*1.19E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	5.95E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	5.95E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*3.81E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	1.71E-01	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*5.12E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	2.30E-01	kg	

Product	Sulphate pulp, unbleached, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*5.05E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	5.05E-04	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*6.78E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	6.78E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*7.31E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	7.31E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*9.81E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	4.91E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	4.91E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*3.14E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	1.41E-01	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*4.21E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	1.89E-01	kg	

Product	Sulphite pulp, bleached, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*4.68E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	4.68E-04	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*3.26E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	3.26E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*2.03E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	2.03E-03	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*1.41E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	7.05E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	7.05E-04	m3	species mix based on ecoinvent 3.2 DS

Product	Thermo-mechanical pulp, at plant/RER U	1.00E+00	kg	
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*9.54E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	4.29E-01	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*2.09E-03*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	9.41E-01	kg	

Product	Sulphate pulp, ECF bleached, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*5.97E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	5.97E-04	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*8.02E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	8.02E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*8.65E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	8.65E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*1.16E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	5.80E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	5.80E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*3.71E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	1.67E-01	m3	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*4.97E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	2.24E-01	m3	

Product	Sulphate pulp, from eucalyptus ssp. (SFM), unbleached, at pulpmill/TH U	1.00E+00	kg	
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*-3.14E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	-1.41E-01	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*-5.05E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	-5.05E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*-7.31E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	-7.31E-04	m3	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*-4.21E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[CH] wood chips production, softwood, at sawmill U	-1.89E-01	kg	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*-6.78E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	-6.78E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*-9.81E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	-4.91E-04	m3	
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	-4.91E-04	m3	

Kraft paper

Product	Kraft paper, unbleached, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*2.26E-03*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	2.26E-03	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*1.99E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	9.95E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	9.95E-04	m3	species mix based on ecoinvent 3.2 DS

Graphical paper

Product	Paper, newsprint, 0 % DIP, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*7.22E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	7.22E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*6.00E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	3.00E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	3.00E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*7.49E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	3.37E-01	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*6.22E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	2.80E-01	kg	

Product	Paper, newsprint, at plant/CH	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*1.23E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[CH] softwood forestry, mixed species, sustainable forest management U	1.23E-04	m3	
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*4.93E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[CH] sawing, softwood U	2.22E-01	kg	

Product	Paper, newsprint, DIP containing, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*3.76E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	3.76E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*3.13E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	1.57E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	1.57E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*2.16E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	9.72E-02	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*1.79E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	8.06E-02	kg	

Product	Paper, woodcontaining, LWC, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*6.29E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	6.29E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*4.92E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	2.46E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	2.46E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*2.09E-05*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	9.41E-03	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*1.64E-05*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	7.38E-03	kg	

Product	Paper, woodcontaining, supercalendred (SC), at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*6.54E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	6.54E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*7.47E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	3.74E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	3.74E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*9.07E-05*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	4.08E-02	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*1.03E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	4.64E-02	kg	

Product	Paper, woodfree, coated, at integrated mill/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*1.21E-03*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	1.21E-03	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*3.51E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	3.51E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*8.09E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	8.09E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*2.35E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	1.18E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	1.18E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*1.59E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	7.16E-02	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*4.62E-05*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	2.08E-02	kg	

Product	Paper, woodfree, uncoated, at integrated mill/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*1.24E-03*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	1.24E-03	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*4.56E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	4.56E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*8.31E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	8.31E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*3.06E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	1.53E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	1.53E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*2.26E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	1.02E-01	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*8.30E-05*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	3.74E-02	kg	

Cardboard

Product	Core board, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*8.16E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	8.16E-04	m3	

Product	Liquid packaging board, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*1.67E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	1.67E-04	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*6.68E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	6.68E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*3.24E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	3.24E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*1.30E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	6.50E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	6.50E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*5.50E-05*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	2.48E-02	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*2.20E-04*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	9.90E-02	kg	

Product	Solid bleached board, SBB, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*7.52E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	7.52E-04	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*3.51E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	3.51E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*1.29E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	1.29E-03	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*6.02E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	3.01E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	1.51E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*1.37E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	6.17E-02	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*6.40E-05*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	2.88E-02	kg	

Product	Solid unbleached board, SUB, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*2.26E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	2.26E-03	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*1.99E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	6.50E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	6.50E-04	m3	species mix based on ecoinvent 3.2 DS

Product	Whitelined chipboard, WLC, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*8.34E-05*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	8.34E-05	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*3.89E-05*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	1.95E-05	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	1.95E-05	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*3.92E-06*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	1.76E-03	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*1.83E-06*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	8.24E-04	kg	

Corrugated board

Product	Corrugated board base paper, kraftliner, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*1.46E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	1.46E-04	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*2.84E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	2.84E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*6.04E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	6.04E-04	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*1.17E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	5.87E-04	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	5.87E-04	m3	species mix based on ecoinvent 3.2 DS
previous	*Industrial residue wood, softwood, forest-debarked, u=70 %, at plant/RER U*	*4.83E-04*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, softwood U	2.18E-01	kg	
previous	*Chips, Scandinavian softwood (plant-debarked), u=70 %, at plant/NORDEL U*	*7.87E-05*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	3.54E-02	kg	
previous	*Industrial residue wood, hardwood, including bark, air dried, u=20 %, at plant/RER U*	*1.41E-06*	*m3*	
new_1	slab and siding, softwood, wet, measured as dry mass//[RER] sawing, hardwood U	9.17E-04	kg	

Product	Corrugated board base paper, semichemical fluting, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, hardwood, under bark, u=80 %, at forest road/RER U*	*5.88E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[DE] hardwood forestry, beech, sustainable forest management U	5.88E-04	m3	
previous	*Industrial wood, Scandinavian hardwood, under bark, u=80 %, at forest road/NORDEL U*	*9.20E-04*	*m3*	
new_1	pulpwood, hardwood, measured as solid wood under bark//[SE] hardwood forestry, birch, sustainable forest management U	9.20E-04	m3	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*3.99E-05*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	3.99E-05	m3	
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*6.24E-05*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	3.12E-05	m3	species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	3.12E-05	m3	species mix based on ecoinvent 3.2 DS

Folding box

Product	Folding boxboard, FBB, at plant/RER U	1.00E+00	kg	
previous	*Industrial wood, softwood, under bark, u=140 %, at forest road/RER U*	*1.18E-03*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, spruce, sustainable forest management U	5.90E-04		species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[DE] softwood forestry, pine, sustainable forest management U	5.90E-04		species mix based on ecoinvent 3.2 DS
previous	*Industrial wood, Scandinavian softwood, under bark, u=140 %, at forest road/NORDEL U*	*5.49E-04*	*m3*	
new_1	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, pine, sustainable forest management U	2.75E-04		species mix based on ecoinvent 3.2 DS
new_2	pulpwood, softwood, measured as solid wood under bark//[SE] softwood forestry, spruce, sustainable forest management U	2.75E-04		species mix based on ecoinvent 3.2 DS
previous	*Wood chips, softwood, from industry, u=40 %, at plant/RER U*	*2.07E-05*	*m3*	
new_1	wood chips, wet, measured as dry mass//[RER] wood chips production, softwood, at sawmill U	2.52E-03	kg	species composition as in original DS (72 % softwood)
new_2	wood chips, wet, measured as dry mass//[RER] wood chips production, hardwood, at sawmill U	1.39E-03	kg	species composition as in original DS (72 % softwood)

Annex A.3: Global price information used in ecoinvent 3.2 for co-product allocation

The following table contains price information that was used in ecoinvent 3.2 for the allocation of co-products along the wood chain. Prices reflect "global" prices as derived by the ecoinvent centre.

Table A.3.1: "Global" price information used in ecoinvent 3.2 for co-product allocation (source: ecoinvent centre 2015, personal electronic commu-

product name v3.1	unit	location	price [Euro2005]	price comment
bark chips, wet, measured as dry mass	kg	GLO	7.50E-02	Literature value; FAOSTAT database; http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor; Average import/export prices of EU for 'chips and particles'. Price: 48.76 Euro/m3. The density of the wood chips is 650 kg/m3. The price is recalculated accordingly.
bark	kg	GLO	7.50E-02	Literature value; FAOSTAT database; http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor; Average import/export prices of EU for 'chips and particles'. Price: 48.76 Euro/m3. The density of the wood chips is 650 kg/m3. The price is recalculated accordingly.
cable yarder with sled winch	unit	GLO	4.08E+04	Calculated based on knowledge of products entering the activity and their price. Labour costs are not included. This price is likely to be underestimated, since, for example, the costs of waste treatment are not included.
cleft timber, measured as dry mass	kg	GLO	7.22E-02	Calculated based on data from FAOSTAT (accessed 20140429). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 3411751 m3 of Wood Fuel Trd was imported in the world in 2005. The import value was 161229000 USD. The calculated price is thus (161229000/3411751=47.3*0.8=) 38.1 Euro/m3. The density of cleft timber, measured as dry mass is 541.2 kg/m3. The recalculated price is (1/541.2*38.1=) 0.07 Euro/kg. Using the same approach the calculated price for 2010 was 0.112 Euro/kg.
fibreboard, hard	m3	GLO	4.11E+02	Export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
fibreboard, soft	m3	GLO	1.48E+02	Export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
fibreboard, soft, latex bonded	m3	GLO	1.48E+02	Calculated by 2.O for fibreboard, soft - Export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
fibreboard, soft, without adhesives	m3	GLO	1.48E+02	Calculated by 2.O for fibreboard, soft - Export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
forestry harvester	unit	GLO	7.36E+04	Calculated based on knowledge of products entering the activity and their price. Labour costs are not included. This price is likely to be underestimated, since, for example, the costs of waste treatment are not included.
forwarder	unit	GLO	4.88E+04	Calculated based on knowledge of products entering the activity and their price. Labour costs are not included. This price is likely to be underestimated, since, for example, the costs of waste treatment are not included.

glued laminated timber, for indoor use	m3	GLO	2.98E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: Price for plywood applied (from 2004 World Import/Export (USD/cubic meter) from FAOStat http://faostat.fao.org/site/626/default.aspx#ancor, accessed 14th June 2010)
glued laminated timber, for outdoor use	m3	GLO	2.98E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: Price for plywood applied (from 2004 World Import/Export (USD/cubic meter) from FAOStat http://faostat.fao.org/site/626/default.aspx#ancor, accessed 14th June 2010)
log, hardwood, piled in forest, air-dried, measured as solid wood under bark	m3	GLO	3.21E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export (USD/cubic meter) from FAOStat (http://faostat.fao.org/site/626/default.aspx#ancor, [accessed 10th June 2010]) Commodity: 'Wood Fuel +'.
log, softwood, piled in forest, air-dried, measured as solid wood under bark	m3	GLO	2.22E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export (USD/cubic meter) from FAOStat (http://faostat.fao.org/site/626/default.aspx#ancor, [accessed 10th June 2010]) Commodity: 'Wood Fuel +'.
mobile cable yarder, trailer-mounted	unit	GLO	5.35E+04	Calculated based on knowledge of products entering the activity and their price. Labour costs are not included. This price is likely to be underestimated, since, for example, the costs of waste treatment are not included.
mobile cable yarder, truck-mounted, incl. processor	unit	GLO	9.27E+04	Calculated based on knowledge of products entering the activity and their price. Labour costs are not included. This price is likely to be underestimated, since, for example, the costs of waste treatment are not included.
oriented strand board	m3	GLO	5.65E+02	Calculated from EU prices by use of exchange rates.
particle board, cement bonded	m3	GLO	2.16E+02	Export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
particle board, for indoor use	m3	GLO	2.16E+02	Export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
particle board, for outdoor use	m3	GLO	2.16E+02	Export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
particleboard, uncoated	m3	GLO	2.16E+02	Export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
plywood, for indoor use	m3	GLO	2.98E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 World Import/Export prices (USD/cubic meter) from FAOStat http://faostat.fao.org/site/626/default.aspx#ancor, accessed 14th June 2010
plywood, for outdoor use	m3	GLO	2.98E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 World Import/Export prices (USD/cubic meter) from FAOStat http://faostat.fao.org/site/626/default.aspx#ancor, accessed 14th June 2010
power saw, without catalytic converter	unit	GLO	2.19E+01	Calculated based on knowledge of products entering the activity and their price. Labour costs are not included. This price is likely to be underestimated, since, for example, the costs of waste treatment are not included.
power sawing, without catalytic converter	hour	GLO	1.77E+00	Calculated from prices on inputs to the activity. Transport inputs are excluded, as they both appear with positive and negative values.
pulpwood, hardwood, measured as solid wood under bark	m3	GLO	2.50E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export (USD/kg) from FAOStat (http://faostat.fao.org/site/626/default.aspx#ancor, [accessed 14th June 2010]) Commodity: 'Wood Pulp +'. A density of 670 kg/m3 was assumed.
pulpwood, softwood, measured as solid wood under bark	m3	GLO	1.68E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export (USD/kg) from FAOStat (http://faostat.fao.org/site/626/default.aspx#ancor, [accessed 14th June 2010]) Commodity: 'Wood Pulp +'. A density of 450 kg/m3 was assumed.

residual hardwood, wet	m3	GLO	4.18E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 World Export prices from FAOStat http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 29 April 2009; calculated as export value divided by export volume. Commodity: 'wood residues'.
residual softwood, wet	m3	GLO	1.94E+01	Data on Import/Export (USD/kg) from UN data was used. (http://data.un.org/Data.aspx?d=ComTrade&f=_l1Code %3a45, [accessed 10th June 2010]) Commodity: 'Sawdust, wood waste or scrap'. A density of 250 kg/m3 was used to convert from M3 to kg (data on density: http://wiki.answers.com/Q/What_is_the_density_of_sawdust, [Accessed 13 June 2010]).
residual wood, dry	m3	GLO	2.69E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export (USD/cubic meter) from FAOStat (http://faostat.fao.org/site/626/default.aspx#ancor, [accessed 10th June 2010]) Commodity: 'Chips and Particles' assuming this is for air-dry chips (10 % water on a dry matter basis at 650 kg/m3) and no price difference for water content (i.e. assuming air-drying).
saw dust, wet, measured as dry mass	kg	GLO	7.66E-02	Calculated based on data from FAOSTAT (accessed 20140429). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 13564451 m3 of Wood Residues was imported in the world in 2005. The import value was 690978000 USD. The calculated price is thus (690978000/13564451=50.9*0.8=) 41.1 Euro/m3. The density of saw dust, wet, measured as dry mass is 550 kg/m3. The recalculated price is (1/550*41.1=) 0.075 Euro/kg. Using the same approach the calculated price for 2010 was 0.121 Euro/kg.
sawlog and veneer log, hardwood, debarked, measured as solid wood	kg	GLO	7.61E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export data (USD/m3) from UN Commodity Trade Statistics Database (http://data.un.org/Data.aspx?d=ComTrade&f=_l1Code %3a45, [accessed 10th June 2010]) Commodity: 'Logs, poles, coniferous not treated or painted'.
sawlog and veneer log, hardwood, measured as solid wood under bark	m3	GLO	6.84E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 Import/Export prices (USD/m3) from UN data was used. (http://data.un.org/Data.aspx?d=ComTrade&f=_l1Code %3a45, [accessed 10th June 2010]) Commodity: 'Logs, non-coniferous not treated or painted'.
sawlog and veneer log, softwood, debarked, measured as solid wood	m3	GLO	7.61E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export data (USD/m3) from UN Commodity Trade Statistics Database (http://data.un.org/Data.aspx?d=ComTrade&f=_l1Code %3a45, [accessed 10th June 2010]) Commodity: 'Logs, poles, coniferous not treated or painted'.
sawlog and veneer log, softwood, measured as solid wood under bark	m3	GLO	6.84E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export data (USD/m3) from UN Commodity Trade Statistics Database (http://data.un.org/Data.aspx?d=ComTrade&f=_l1Code %3a45, [accessed 10th June 2010]) Commodity: 'Logs, poles, coniferous not treated or painted'.
sawmill	unit	GLO	1.12E+08	Convert from EU 27 price to the world by currency exchange rate.
sawnwood, azobe from sustainable forest management, planed, air dried	m3	GLO	2.65E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, beam, hardwood, air dried, planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus (9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, beam, hardwood, dried (u=10 %), planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus

				(9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, beam, hardwood, dried (u=20 %), planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus (9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, beam, hardwood, kiln dried, planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus (9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, beam, softwood, air dried, planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, beam, softwood, dried (u=10 %), planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, beam, softwood, dried (u=20 %), planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, beam, softwood, kiln dried, planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, board, hardwood, air dried, planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus (9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, board, hardwood, dried (u=10 %), planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus

				(9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, board, hardwood, dried (u=20 %), planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus (9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, board, hardwood, kiln dried, planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus (9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, board, softwood, air dried, planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, board, softwood, dried (u=10 %), planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, board, softwood, dried (u=20 %), planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, board, softwood, kiln dried, planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, hardwood, air / kiln dried, planed	m3	GLO	2.65E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, hardwood, air dried, planed	m3	GLO	2.65E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, hardwood, kiln dried, planed	m3	GLO	2.65E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.

sawnwood, hardwood, raw	m3	GLO	2.65E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, hardwood, raw, debarked	m3	GLO	2.65E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, lath, hardwood, dried (u=10 %), planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus (9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, lath, hardwood, dried (u=20 %), planed	m3	GLO	3.11E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 25656806 m3 of Sawnwood (NC) - coniferous was imported in the world in 2005. The import value was 9652714000 USD. The calculated price is thus (9652714000/25656806=376*0.8=) 303 Euro. Using the same approach the calculated price for 2010 was 355 Euro.
sawnwood, lath, softwood, dried (u=10 %), planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, lath, softwood, dried (u=20 %), planed	m3	GLO	1.68E+02	Calculated based on data from FAOSTAT (accessed 20140428). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 109432798 m3 of Sawnwood (C) - coniferous was imported in the world in 2005. The import value was 22249842000 USD. The calculated price is thus (22249842000/109432798=203*0.8=) 164 Euro. Using the same approach the calculated price for 2010 was 186 Euro.
sawnwood, paraná pine from sustainable forest management, kiln dried	m3	GLO	1.51E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, softwood, air dried, planed	m3	GLO	1.51E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, softwood, kiln dried, planed	m3	GLO	1.51E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, softwood, raw	kg	GLO	1.51E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
sawnwood, softwood, raw, debarked	m3	GLO	1.51E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.

sawnwood, softwood, raw, kiln dried	m3	GLO	1.51E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 export prices for the World+ according to: http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor downloaded 28 April 2009; calculated as export value divided by export volume.
shaving, hardwood, measured as dry mass	kg	GLO	1.12E-01	Calculated based on data from FAOSTAT (accessed 20140429). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 40461924 m3 of Chips and Particles was imported in the world in 2005. The import value was 3022227000 USD. The calculated price is thus (3022227000/40461924=74.7*0.8=) 62.2 Euro/m3. It is estimated, that the chips and particles are half hardwood (of density 650 kg/m3) and half softwood (of density 450 kg/m3), thus the remaining mixture has a density of 550 kg/m3. The recalculated price is (1/550*62.2=) 0.11 Euro/kg. Using the same approach the calculated price for 2010 was 0.123 Euro/kg.
shaving, softwood, measured as dry mass	kg	GLO	1.12E-01	Calculated based on data from FAOSTAT (accessed 20140429). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 40461924 m3 of Chips and Particles was imported in the world in 2005. The import value was 3022227000 USD. The calculated price is thus (3022227000/40461924=74.7*0.8=) 62.2 Euro/m3. It is estimated, that the chips and particles are half hardwood (of density 650 kg/m3) and half softwood (of density 450 kg/m3), thus the remaining mixture has a density of 550 kg/m3. The recalculated price is (1/550*62.2=) 0.11 Euro/kg. Using the same approach the calculated price for 2010 was 0.123 Euro/kg.
slab and siding, hardwood, wet, measured as dry mass	kg	GLO	1.12E-01	Calculated based on data from FAOSTAT (accessed 20140429). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 40461924 m3 of Chips and Particles was imported in the world in 2005. The import value was 3022227000 USD. The calculated price is thus (3022227000/40461924=74.7*0.8=) 62.2 Euro/m3. It is estimated, that the chips and particles are half hardwood (of density 650 kg/m3) and half softwood (of density 450 kg/m3), thus the remaining mixture has a density of 550 kg/m3. The recalculated price is (1/550*62.2=) 0.11 Euro/kg. Using the same approach the calculated price for 2010 was 0.123 Euro/kg.
slab and siding, softwood, wet, measured as dry mass	kg	GLO	1.12E-01	Calculated based on data from FAOSTAT (accessed 20140429). The price is calculated by using data on total world import quantity (m3) and import value (1000 USD), year 2005. 40461924 m3 of Chips and Particles was imported in the world in 2005. The import value was 3022227000 USD. The calculated price is thus (3022227000/40461924=74.7*0.8=) 62.2 Euro/m3. It is estimated, that the chips and particles are half hardwood (of density 650 kg/m3) and half softwood (of density 450 kg/m3), thus the remaining mixture has a density of 550 kg/m3. The recalculated price is (1/550*62.2=) 0.11 Euro/kg. Using the same approach the calculated price for 2010 was 0.123 Euro/kg.
technical wood drying facility	unit	GLO	4.80E+04	Convert from EU 27 price to the world by currency exchange rate.
terrain chipper on forwarder	unit	GLO	2.27E+05	Calculated based on knowledge of products entering the activity and their price. Labour costs are not included. This price is likely to be underestimated, since, for example, the costs of waste treatment are not included.
three layered laminated board	m3	GLO	2.98E+02	Temporary price data. Calculated as 90 % of purchasers' price based on: Price for plywood applied (from 2004 World Import/Export (USD/cubic meter) from FAOStat http://faostat.fao.org/site/626/default.aspx#ancor, accessed 14th June 2010)
wood chips, dry, measured as dry mass	kg	GLO	7.50E-02	Literature value; FAOSTAT database; http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor; Average import/export prices of EU for 'chips and particles'. Price: 48.76 Euro/m3. The density of the wood chips is 650 kg/m3. The price is recalculated accordingly.

wood chips, from post-consumer wood, measured as dry mass	kg	GLO	7.50E-02	Literature value; FAOSTAT database; http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor; Average import/export prices of EU for 'chips and particles'. Price: 48.76 Euro/m3. The density of the wood chips is 650 kg/m3. The price is recalculated accordingly.
wood chips, wet, measured as dry mass	kg	GLO	7.50E-02	Estimated to be the same as the price for wood chips, dry, measured as dry mass (Literature value; FAOSTAT database; http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor; Average import/export prices of EU for 'chips and particles'. Price: 48.76 Euro/m3. The density of the wood chips is 650 kg/m3. The price is recalculated accordingly.).
wood cladding, softwood	m2	GLO	2.50E+00	Estimated based on the price and amount of the input materials.
wood fuel, hardwood, wet, measured as solid wood under bark	m3	GLO	3.21E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export (USD/cubic meter) from FAOStat (http://faostat.fao.org/site/626/default.aspx#ancor, [accessed 10th June 2010]) Commodity: 'Wood Fuel +'.
wood fuel, softwood, wet, measured as solid wood under bark	m3	GLO	2.22E+01	Temporary price data. Calculated as 90 % of purchasers' price based on: 2004 prices for World Import/Export (USD/cubic meter) from FAOStat was used. (http://faostat.fao.org/site/626/default.aspx#ancor, [accessed 10th June 2010]) Commodity: 'Wood Fuel +'.
wood pellet factory	unit	GLO	4.06E+06	Calculated value based on inputs from technosphere. Cross-referenced with a literature value; world largest green wood pellet factory in the US state of Georgia has been built by RWE with an investment of 120 million Euro (http://www.rwe.com/web/cms/mediablob/en/641972/data/522380/2/rwe-innogy/technologies/biomass/procurement-international/waycross-georgia/blob.pdf). The capacity of this factory is 750,000,000 kg/year. Using linear relationship between price and capacity, the price of the wood pellet factory in this dataset should be around (50/750*120=) 8 million Euro.
wood pellet, measured as dry mass	kg	GLO	9.00E-02	Calculated value. The price of wood chips which are used for wood pellet production is 48.76 Euro/m3 (FAOSTAT database; http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor). The density of the wood pellet is 650 kg/m3. It is estimated that processing the wood chips into a pellets will add 20 % to the value of the pellets.
wood wool	kg	GLO	3.74E-01	Temporary price data. Calculated as 90 % of purchasers' price based on: Price for wood pulp applied (World Import/Export (USD/kg) from FAOStat (http://faostat.fao.org/site/626/default.aspx#ancor, [accessed 14th June 2010])
wooden board factory, cement bonded boards	unit	GLO	3.93E+07	Convert from EU 27 price to the world by currency exchange rate.
wooden board factory, organic bonded boards	unit	GLO	1.29E+09	Convert from EU 27 price to the world by currency exchange rate.

Annex A.4: Derivation of the productivities of harvesting systems with cable yarding

3 Power saw + mobile yarding, mounted on truck

Assumption: the installation/de-installation (I/D) of a combined yarding system, mounted on a truck lasts 1 day = 9 hours, whereas a machine running time of 30 % of I/D have been assumed.

Line length (m)	wood stock (m^3/m)	wood amounts (m^3)	productivity yarding (m^3/h)	time yarding (h)	machine hours I/D (PMH)	productivity (m^3/PMH)
600	0.5	300	8	37.5	4	**7.2** *)
450	0.75	337.5	15	22.5	3	**13.2**
300	1.0	300	20	15	2	**17.6**

*) calculation: 300m^3 : (37.5+4) = 7.2

4 Power saw + mobile yarding system, not uphill

Assumption: machine running time of 30 % of I/D have been assumed.

Line length (m)	wood stock (m^3/m)	wood amounts (m^3)	productivity yarding (m^3/h)	time yarding (h)	machine hours I/D (PMH)	productivity (m^3/PMH)
600	0.5	300	6	50	4	**5.5**
450	0,75	337.5	9	37.5	3	**8.3**
300	1.0	300	12	25	2	**11.1**

5 Power saw + yarding system with sled winch

For a conventional yarding system with a sled winch, the machine running time is about 20 % of the time for I/D (more time needed for installation, lower degree of mechanisation).

Assumption: installation/de-installation lasts 2 days = 18 hours / (Line length>600m!)

Line length (m)	wood stock (m^3/m)	wood amounts (m^3)	productivity yarding (m^3/h)	time yarding (h)	machine hours I/D (PMH)	productivity (m^3/PMH)
1400	0.5	700	5	140	5	**4.8**
1000	0,75	750	8	94	4	**7.7**
600	1.0	600	10	60	3	**9.5**

The machine working hours for the installation/de-installation affect the lowering of the productivity only in the decimal range; when rounding up the calculated values, the initial values for productivity (the productivity of the yarding) can be used.

Annex A.5: Properties of energy wood from forestry processes

Table A.5.1: Properties of energy wood from forestry processes

Parameter	Unit	Beech DE	Birch SE	Oak DE	Hard-wood CH	Pine DE	Pine SE	Spruce DE	Spruce SE	Soft-wood CH
Wood chips, at forest road										
Dry mass	kg	1	1	1	1	1	1	1	1	1
Wet mass	kg	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.7
Water content (mass water/dry mass) [1)]	kg/kg	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.7
Water in wet mass	kg	1	0.8	1	1	1	1	1	1	1
Carbon content, non fossil	kg/kg	0.494	0.494	0.494	0.494	0.494	0.494	0.494	0.494	0.494
Carbon content, fossil	kg/kg	0	0	0	0	0	0	0	0	0
Dry wood density (dry m./dry v.)	kg/m3	660	640	640	650	490	490	430	430	430
Basic wood density (dry m./wet v.)	kg/m3	541	561	561	572	431	431	378	378	378
Apparent wood density (wet m./wet v.)	kg/m3	974	1010	1010	972	776	776	681	681	643
Energy content (Hupper, oven-dry)	MJ/kg	19.6	19.6	19.6	19.6	20.4	20.4	20.4	20.4	20.4
Energy content (Hlower)	MJ/kg	9.39	9.39	9.39	10.0	10.2	10.2	10.2	10.2	10.8
Shrinkage ratio	%/ %	0.006	0.0041	0.0041	0.004	0.004	0.004	0.004	0.004	0.004
Cleft timber, at forest road										
Dry mass	kg	1	1	1	1	1	1	1	1	1
Wet mass	kg	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Water content (mass water/dry mass) [1)]	kg/kg	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Water in wet mass	kg	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Carbon content, non fossil	kg/kg	0.494	0.494	0.494	0.494	0.494	0.494	0.494	0.494	0.494
Carbon content, fossil	kg/kg	0	0	0	0	0	0	0	0	0
Dry wood density (dry m./dry v.)	kg/m3	660	640	640	650	490	490	430	430	430
Basic wood density (dry m./wet v.)	kg/m3	541	561	561	572	431	431	378	378	378
Apparent wood density (wet m./wet v.)	kg/m3	731	758	758	772	582	582	511	511	511
Energy content (Hupper, oven-dry)	MJ/kg	19.6	19.6	19.6	19.6	20.4	20.4	20.4	20.4	20.4
Energy content (Hlower)	MJ/kg	13.09	13.09	13.09	13.1	13.9	13.9	13.9	13.9	13.9
Shrinkage ratio	%/ %	0.006	0.0041	0.0041	0.004	0.004	0.004	0.004	0.004	0.004
Bundles, at forest road										
Dry mass	kg		1				1		1	
Wet mass	kg		1.5				1.5		1.5	
Water content (mass water/dry mass) [1)]	kg/kg		0.5				0.5		0.5	
Water in wet mass	kg		0.5				0.5		0.5	
Carbon content, non fossil	kg/kg		0.494				0.494		0.494	
Carbon content, fossil	kg/kg		0				0		0	
Dry wood density (dry m./dry v.)	kg/m3		640				490		430	
Basic wood density (dry m./wet v.)	kg/m3		561				431		378	
Apparent wood density (wet m./wet v.)	kg/m3		842				647		568	
Energy content (Hupper, oven-dry)	MJ/kg		19.6				20.4		20.4	
Energy content (Hlower)	MJ/kg		11.61				12.4		12.4	
Shrinkage ratio	%/ %		0.0041				0.004		0.004	

[1)]= "moisture content"

Annex A.5: Updated life cycle inventories of the wood chain as integrated into the ecoinvent 2.2 structure, in alphabetic order

The following table lists the updated life cycle inventories of the wood chain as integrated into the ecoinvent 2.2 structure in alphabetic order.

Some of the datasets contain corrections, as explained in Chapter 1.3.

The datasets "at regional storage" are listed at the end of this compilation.

Table A.5.1: Updated life cycle inventories of the wood chain as integrated into the ecoinvent 2.2 structure, in alphabetic order

Products				
bark chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	
Materials/fuels				
bark, hardwood, after debarking, at sawmill/kg/CH		1.00E+00	kg	Pedigree: (2,1,2,1,1)
electricity, medium voltage, at grid/kWh/CH		1.42E-02	kWh	Pedigree: (2,1,2,1,1)

Products				
bark chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	
Materials/fuels				
bark, hardwood, after debarking, at sawmill/kg/RER		1.00E+00	kg	Pedigree: (2,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.42E-02	kWh	Pedigree: (2,1,2,1,1)

Products				
bark chips, production mix, wet, measured as dry mass, at sawmill & plant/kg/RER		1.00E+00	kg	
Materials/fuels				
bark chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		5.17E-01	kg	Pedigree: (1,1,4,5,4)
bark chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		4.72E-01	kg	Pedigree: (1,1,4,5,4)
bark chips, wet, measured as dry mass, from hard fibreboard production, at plant/kg/RER		5.92E-03	kg	Pedigree: (1,1,4,5,4)
bark chips, wet, measured as dry mass, from soft fibreboard production, at plant/kg/RER		8.24E-05	kg	Pedigree: (1,1,4,5,4)
bark chips, wet, measured as dry mass, from oriented strand board production, at plant/kg/RER		3.82E-03	kg	Pedigree: (1,1,4,5,4)
bark chips, wet, measured as dry mass, from particle board production, at plant/kg/RER		4.64E-04	kg	Pedigree: (1,1,4,5,4)

Products				
bark chips, production mix, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	
Materials/fuels				
bark chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		1.82E-01	kg	Pedigree: (1,1,4,5,4)
bark chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		8.18E-01	kg	Pedigree: (1,1,4,5,4)

Products				
bark chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	

Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.07E-02	kWh	Pedigree: (2,1,2,1,1)
bark, softwood, after debarking, at sawmill/kg/CH		1.00E+00	kg	Pedigree: (2,1,2,1,1)

Products				
bark chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	
Materials/fuels				
bark, softwood, after debarking, at sawmill/kg/RER		1.00E+00	kg	Pedigree: (2,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.07E-02	kWh	Pedigree: (2,1,2,1,1)

Products				
bark chips, wet, measured as dry mass, from hard fibreboard production, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	1.85E-04	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		4.81E-05	kg	Pedigree: (1,3,2,1,1)
Biowaste, at collection point/CH		7.74E-03	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		1.64E-04	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		3.46E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		1.41E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		2.80E-02	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		1.79E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/HU		2.37E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		2.25E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PT		1.33E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		4.45E-03	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		2.13E-09	p	Pedigree: (1,3,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		8.99E-09	p	Pedigree: (1,1,2,1,1)
Heat, at hard coal industrial furnace 1-10MW/RER		2.84E-01	MJ	Pedigree: (1,3,2,1,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		1.57E-03	MJ	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		2.18E-06	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		2.52E-05	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		7.65E-04	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		9.88E-04	kg	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		9.33E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		3.36E-05	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.06E-06	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.21E-04	m3	Pedigree: (1,3,2,1,1)
Rape oil, at oil mill/RER		3.50E-04	kg	Pedigree: (1,1,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		1.63E-03	kg	Pedigree: (1,3,2,1,1)
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		7.41E-07	kg	Pedigree: (1,1,2,1,1)
tap water, at user/kg/RER		1.04E-01	kg	Pedigree: (1,3,2,1,1)

Treatment hard fibreboard production effluent, to wastewater treatment, class 1/m3/RER		1.84E-04	m3	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		1.70E-02	kg	Pedigree: (1,1,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.14E-12	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	6.51E-08	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	5.57E-07	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	3.22E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	2.93E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	9.65E-09	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	2.32E-15	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	1.61E-10	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	1.93E-08	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	2.25E-10	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	1.88E-06	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	3.28E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	6.44E-05	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	5.79E-08	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	1.27E-09	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	1.29E-11	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	7.08E-09	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	7.40E-07	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	9.65E-15	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	1.61E-08	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	2.59E-06	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	2.93E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	9.98E-07	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	8.05E-09	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	1.16E-07	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	5.47E-08	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	9.65E-11	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	4.83E-07	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	2.38E-06	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	3.86E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	1.93E-09	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	3.86E-05	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.48E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	3.57E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	8.05E-07	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		1.36E-05	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	2.61E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	9.65E-08	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	7.53E-06	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	4.18E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	8.05E-07	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	9.65E-08	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	9.65E-08	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		1.53E-04	kg	

Products

bark chips, wet, from oriented strand board production, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	1.80E-05	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Biowaste, at collection point/CH		1.58E-05	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		3.14E-04	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		2.02E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/BE		3.85E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/BG		3.78E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/CZ		8.33E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		1.81E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		6.37E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IE		4.41E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/LU		3.29E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		7.35E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		3.15E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/SE		3.99E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		7.42E-04	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		7.43E-09	p	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		1.50E-04	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		2.07E-02	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		3.63E-06	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		1.10E-03	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		6.58E-04	kg	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.00E-06	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.14E-04	m3	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		1.23E-02	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		2.28E-12	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	3.37E-08	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	3.72E-07	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	2.15E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	1.96E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	6.46E-09	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	1.55E-15	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	1.08E-10	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	1.29E-08	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	1.51E-10	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	1.26E-06	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	2.20E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	4.30E-05	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	3.87E-08	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	8.52E-10	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	8.61E-12	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	4.74E-09	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	4.95E-07	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	6.46E-15	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	1.08E-08	kg	Pedigree: (2,3,4,1,1)

Formaldehyde	high. pop.	1.18E-06	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.96E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	6.67E-07	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	5.38E-09	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	7.75E-08	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	3.66E-08	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	6.46E-11	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	3.23E-07	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	1.07E-06	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	2.58E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	1.29E-09	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	2.58E-05	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.98E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	2.39E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	5.38E-07	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		5.95E-06	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	1.74E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	6.46E-08	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	5.04E-06	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	2.80E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	5.38E-07	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	6.46E-08	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	6.46E-08	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		1.02E-04	kg	

Products				
bark chips, wet, from particle board production, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	9.62E-06	m3	Pedigree: (1,3,2,1,1)
Water, well, in ground	in water	3.06E-07	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		2.43E-04	kg	Pedigree: (1,3,2,1,1)
Biowaste, at collection point/CH		7.48E-04	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		6.03E-05	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		4.45E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		9.70E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/BE		7.76E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/CZ		5.82E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		2.99E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		6.79E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		1.89E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/GB		1.13E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IT		1.28E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		2.10E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		7.92E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.96E-03	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		8.94E-09	p	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		3.88E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		3.49E-03	MJ	Pedigree: (1,3,2,1,1)

Heat, natural gas, at boiler condensing modulating >100kW/RER		3.09E-02	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		3.90E-05	kg	Pedigree: (1,3,2,1,1)
Melamine formaldehyde resin, at plant/RER		1.53E-03	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		5.01E-04	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		4.69E-04	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		1.88E-04	kg	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.01E-08	m3	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		3.65E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		3.53E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		4.01E-05	m3	Pedigree: (1,3,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		3.78E-03	kg	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.95E-02	kg	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		2.73E-02	kg	Pedigree: (1,3,2,1,1)
Treatment, particle board production effluent, to wastewater treatment, class 1/m3/RER		1.10E-05	m3	Pedigree: (1,3,2,1,1)
Urea formaldehyde resin, at plant/RER		6.96E-03	kg	Pedigree: (1,3,2,1,1)
Urea, as N, at regional storehouse/RER		3.03E-05	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH		2.43E-04	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		3.12E-02	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		2.96E-03	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		5.92E-12	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	6.83E-08	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	4.48E-07	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	2.59E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	2.35E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	7.76E-09	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	1.86E-15	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	1.29E-10	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	1.55E-08	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	1.81E-10	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	1.51E-06	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	2.64E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	5.17E-05	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	4.66E-08	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	1.02E-09	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	1.03E-11	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	5.69E-09	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	5.95E-07	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	7.76E-15	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	1.29E-08	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	1.43E-05	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	2.35E-07	kg	Pedigree: (2,3,4,1,1)

Hydrocarbons, aliphatic, unsaturated	high. pop.	8.02E-07	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	6.47E-09	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	9.31E-08	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	4.40E-08	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	7.76E-11	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	3.88E-07	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	2.75E-06	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	3.10E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	1.55E-09	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	3.10E-05	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.29E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	2.87E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	6.47E-07	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		1.21E-05	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	2.10E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	7.76E-08	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	6.05E-06	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	3.36E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	6.47E-07	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	7.76E-08	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	7.76E-08	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		1.23E-04	kg	

Products				
bark chips, wet, from soft fibreboard production, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	1.03E-04	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		1.75E-04	kg	Pedigree: (1,3,2,1,1)
Ammonia, liquid, at regional storehouse/RER		5.44E-06	kg	Pedigree: (1,1,2,1,1)
Biowaste, at collection point/CH		3.63E-05	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		5.29E-04	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		1.85E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		7.22E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		7.78E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		1.11E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/NO		8.86E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		4.24E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/SK		6.28E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.69E-03	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		4.55E-09	p	Pedigree: (1,3,2,1,1)
Glass wool mat, at plant/CH		1.52E-04	kg	Pedigree: (1,1,2,1,1)
Heat, at hard coal industrial furnace 1-10MW/RER		9.09E-02	MJ	Pedigree: (1,3,2,1,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		4.36E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		5.82E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		3.29E-02	MJ	Pedigree: (1,3,2,1,1)
Latex, at plant/RER S		1.79E-04	kg	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		1.57E-05	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		6.54E-05	kg	Pedigree: (1,3,2,1,1)

Nylon 6, at plant/RER		1.50E-04	kg	Pedigree: (1,1,2,5,1)
Paraffin, at plant/RER		4.19E-04	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		1.02E-04	kg	Pedigree: (1,3,2,1,1)
Potato starch, at plant/DE		2.93E-04	kg	Pedigree: (1,1,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.62E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		5.20E-05	m3	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		8.74E-03	kg	Pedigree: (1,3,2,1,1)
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		6.23E-06	kg	Pedigree: (1,1,2,1,1)
tap water, at user/kg/RER		4.76E-02	kg	Pedigree: (1,3,2,1,1)
Treatment, soft fibreboard production effluent, to wastewater treatment, class 1/m3/RER		1.74E-05	m3	Pedigree: (1,3,2,1,1)
Vinyl acetate, at plant/RER		1.78E-04	kg	Pedigree: (1,1,2,1,1)
Waste paper, sorted, for further treatment/RER		1.36E-04	kg	Pedigree: (1,1,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		6.54E-03	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		6.54E-03	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		8.72E-12	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	2.83E-08	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	2.28E-07	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	1.32E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	1.20E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	3.95E-09	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	6.58E-11	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	7.90E-09	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	9.22E-11	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	7.70E-07	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	1.34E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	2.63E-05	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	2.37E-08	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	5.21E-10	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	5.27E-12	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	2.90E-09	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	3.03E-07	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	3.95E-15	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	6.58E-09	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	8.59E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.20E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	4.08E-07	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	3.29E-09	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	4.74E-08	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	2.24E-08	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	3.95E-11	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	1.98E-07	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	1.06E-06	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	1.58E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	7.90E-10	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	1.58E-05	kg	Pedigree: (2,3,4,1,1)

NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	2.81E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.46E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	3.29E-07	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		1.59E-06	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	1.07E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	3.95E-08	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	3.08E-06	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	1.71E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	3.29E-07	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	3.95E-08	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	3.95E-08	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		6.27E-05	kg	

Products				
bark, hardwood, after debarking, at sawmill/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.58E+00~~ 1.67E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.71E+01~~ 1.81E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
sawmill/CH/I		~~2.65E-11~~ 2.50E-11	p	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		~~3.56E-03~~ 3.36E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, at grid/kWh/CH		~~2.58E-03~~ 2.44E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~1.29E-05~~ 1.22E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		~~1.68E-04~~ 1.59E-04	m3	Pedigree: (2,1,2,1,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~2.97E-05~~ 2.80E-05	m3	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~1.94E-06~~ 1.83E-06	kg	

Products				
bark, hardwood, after debarking, at sawmill/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.58E+00~~ 1.67E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.71E+01~~ 1.81E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Sawmill/RER/I		~~2.65E-11~~ 2.50E-11	p	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		~~3.56E-03~~ 3.36E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		~~2.58E-03~~ 2.44E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~1.29E-05~~ 1.22E-05	kg	Pedigree: (1,5,2,3,1)

sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~1.98E-04~~ 1.87E-04	m3	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~1.94E-06~~ 1.83E-06	kg	

Products				
bark, softwood, after debarking, at sawmill/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.55E+00~~ 1.66E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.75E+01~~ 1.88E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~5.91E-03~~ 5.51E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, at grid/kWh/CH		~~3.95E-03~~ 3.68E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~2.15E-05~~ 2.01E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		~~3.30E-04~~ 3.08E-04	m3	Pedigree: (2,1,2,1,1)
sawmill/CH/I		~~4.40E-11~~ 4.10E-11	p	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~3.22E-06~~ 3.00E-06	kg	

Products				
bark, softwood, after debarking, at sawmill/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.55E+00~~ 1.66E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.75E+01~~ 1.88E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~5.91E-03~~ 5.51E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		~~3.95E-03~~ 3.68E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~2.15E-05~~ 2.01E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~3.30E-04~~ 3.08E-04	m3	Pedigree: (2,1,2,1,1)
Sawmill/RER/I		~~4.40E-11~~ 4.10E-11	p	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~3.22E-06~~ 3.00E-06	kg	

Products				
bundle, energy wood, birch, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Resources				
Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.97E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	7.50E-03	m2a	Pedigree: (1,1,2,1,1)

Transformation, from forest, intensive, normal	land	3.29E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.25E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	3.29E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.25E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.60E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.26E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~3.45E-05~~ 1.38E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.31E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~2.23E-04~~ 1.57E-04	hr	Pedigree: (2,1,2,1,1)
harvesting/bundling, energy wood harvester/hr/RER		2.15E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.97E-04	hr	Pedigree: (2,1,2,1,1)

Products				
bundle, energy wood, production mix, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Materials/fuels				
bundle, energy wood, birch, sustainable forest management, measured as dry mass, at forest road/kg/SE		5.51E-01	kg	Pedigree: (1,1,4,5,4)
bundle, energy wood, pine, sustainable forest management, measured as dry mass, at forest road/kg/SE		2.16E-01	kg	Pedigree: (1,1,4,5,4)
bundle, energy wood, spruce, sustainable forest management, measured as dry mass, at forest road/kg/SE		2.34E-01	kg	Pedigree: (1,1,4,5,4)

Products				
bundle, energy wood, pine, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Resources				
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	3.82E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	1.45E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	4.77E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.82E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	4.77E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.82E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.04E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		3.22E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~4.58E-05~~ 1.84E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.91E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~2.84E-04~~ 2.00E-04	hr	Pedigree: (2,1,2,1,1)
harvesting/bundling, energy wood harvester/hr/RER		3.57E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		2.14E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		6.81E-03	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.62E-02	p	Pedigree: (3,1,2,1,1)

Products				
bundle, energy wood, spruce, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	

Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	3.42E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	1.30E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	4.27E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.63E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	4.27E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.63E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.33E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		2.49E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~5.01E-05~~ 2.01E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.71E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~3.23E-04~~ 2.27E-04	hr	Pedigree: (2,1,2,1,1)
harvesting/bundling, energy wood harvester/hr/RER		2.94E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.28E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		3.81E-03	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		9.06E-03	p	Pedigree: (3,1,2,1,1)

Products				
cable yarder with sled winch, at plant/p/RER/I		1.00E+00	p	
Materials/fuels				
Acetylene, at regional storehouse/CH		5.00E-01	kg	Pedigree: (3,4,3,1,5)
Aluminium alloy, AlMg3, at plant/RER		1.17E+02	kg	Pedigree: (1,1,2,1,1)
Cast iron, at plant/RER		7.58E+02	kg	Pedigree: (3,5,3,1,4)
Chromium steel 18/8, at plant/RER		1.77E+00	kg	Pedigree: (1,1,2,1,1)
Copper, primary, at refinery/GLO		7.73E+00	kg	Pedigree: (3,4,3,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.50E+03	kWh	Pedigree: (1,1,2,1,1)
Electronics for control units/RER		7.73E+00	kg	Pedigree: (3,4,3,1,4)
Heat, natural gas, at boiler condensing modulating >100kW/RER		6.98E+03	MJ	Pedigree: (1,1,2,1,1)
Injection moulding/RER		6.50E+00	kg	Pedigree: (1,1,2,1,1)
Iron scrap, at plant/RER		7.46E+03	kg	Pedigree: (1,1,2,1,1)
Lead, at regional storage/RER		2.95E+01	kg	Pedigree: (3,4,3,1,1)
Oxygen, liquid, at plant/RER		1.20E+01	kg	Pedigree: (3,4,3,1,5)
Polypropylene, granulate, at plant/RER		6.50E+00	kg	Pedigree: (1,1,2,1,1)
Powder coating, steel/RER		1.76E+01	m2	Pedigree: (1,1,2,1,1)
Road vehicle plant/RER/I		8.73E-08	p	Pedigree: (4,5,3,3,4)
Steel, low-alloyed, at plant/RER		7.45E+03	kg	Pedigree: (1,1,2,1,1)
Steel, low-alloyed, at plant/RER		4.08E+00	kg	Pedigree: (1,1,2,1,1)
Synthetic rubber, at plant/RER		9.66E+00	kg	Pedigree: (3,4,3,1,4)
tap water, at user/kg/RER		3.36E+03	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		4.80E+02	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		2.11E+03	tkm	Pedigree: (1,1,4,5,4)
Water, completely softened, at plant/RER		6.04E+00	kg	Pedigree: (3,4,3,1,4)
Wire drawing, copper/RER		7.73E+00	kg	Pedigree: (1,1,2,1,1)
Wire drawing, steel/RER		5.55E+03	kg	Pedigree: (1,1,2,1,1)
Zinc coating, coils/RER		2.43E+02	m2	Pedigree: (3,4,3,1,1)
Emissions to air				

Carbon dioxide, fossil	low. pop.	1.69E+00	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, electronics for control units/RER		7.73E+00	kg	
disposal, polypropylene, 15.9 % water, to municipal incineration/kg/CH		7.73E+00	kg	
disposal, rubber, unspecified, 0 % water, to municipal incineration/kg/CH		9.66E+00	kg	
Treatment, lorry production effluent, to wastewater treatment, class 1/CH		4.42E-01	m3	Pedigree: (1,1,2,1,1)
Treatment, sewage, to wastewater treatment, class 3/CH		3.37E+00	m3	Pedigree: (1,1,2,1,1)

Products				
cable yarding and processing, mobile cable yarder on truck/hr/RER		1.00E+00	hr	
Materials/fuels				
diesel, low-sulphur, at regional storage/kg/CH		2.97E+01	kg	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		8.82E-02	kg	Pedigree: (2,3,3,1,1)
mobile cable yarder, truck-mounted, incl. processor, at plant/p/RER/I		5.88E-05	p	Pedigree: (1,1,2,1,1)
Transport, lorry 16-32t, EURO5/RER		9.30E+00	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Carbon dioxide, fossil	low. pop.	9.26E+01	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	1.78E-12	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	3.30E-01	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	5.04E-05	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	4.85E-01	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	2.97E-07	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	8.90E-07	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	1.19E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	7.94E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	1.79E-02	kg	Pedigree: (1,1,2,1,1)
Ammonia	low. pop.	5.93E-04	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	2.97E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	3.55E-03	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	2.97E-07	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	5.94E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	9.96E-05	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	1.46E-03	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	2.08E-06	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		9.80E-02	kg	

Products				
cable yarding, mobile cable yarder on trailer/hr/RER		1.00E+00	hr	
Materials/fuels				
diesel, low-sulphur, at regional storage/kg/CH		1.47E+01	kg	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		8.82E-02	kg	Pedigree: (2,3,3,1,1)
mobile cable yarder, trailer-mounted, at plant/p/RER/I		5.88E-05	p	Pedigree: (1,1,2,1,1)
Transport, lorry 16-32t, EURO5/RER		9.30E+00	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Ammonia	low. pop.	2.94E-04	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	4.41E-07	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	1.47E-07	kg	Pedigree: (1,1,2,1,1)

Carbon dioxide, fossil	low. pop.	4.59E+01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	1.64E-01	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	2.50E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	1.76E-03	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	8.81E-13	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	5.07E-04	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	1.03E-06	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	1.68E-01	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	2.06E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	4.94E-05	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	6.20E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	4.13E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	2.76E-04	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	1.47E-07	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	1.47E-05	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		9.80E-02	kg	

Products				
cable yarding, sled yarder/hr/RER		1.00E+00	hr	
Materials/fuels				
cable yarder with sled winch, at plant/p/RER/I		6.67E-05	p	Pedigree: (1,1,2,1,1)
diesel, low-sulphur, at regional storage/kg/CH		4.62E+00	kg	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		8.82E-02	kg	Pedigree: (2,3,3,1,1)
Transport, lorry 16-32t, EURO5/RER		9.30E+00	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Ammonia	low. pop.	9.23E-05	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	1.39E-07	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	4.63E-08	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, fossil	low. pop.	1.44E+01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	5.14E-02	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	7.85E-06	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	5.54E-04	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	2.77E-13	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	1.59E-04	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	3.24E-07	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	6.55E-02	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	6.48E-03	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	1.55E-05	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	2.82E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	1.88E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	1.25E-04	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	4.63E-08	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	4.63E-06	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		9.80E-02	kg	

Products				
cleft timber, beech, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)

Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	2.77E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	6.12E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.98E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	4.37E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.98E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	4.37E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.66E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
skidding/hr/RER		~~1.66E-03~~ 1.39E-04	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.96E-01	kg	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		3.24E-05	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.62E-02	p	Pedigree: (3,1,2,1,1)
harvesting, forestry harvester/hr/RER		2.59E-05	hr	Pedigree: (2,1,2,1,1)
clefting of energy wood/hr/RER		4.92E-04	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		2.48E-02	MJ	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		7.56E-04	hr	Pedigree: (2,1,2,1,1)

Products				
cleft timber, birch, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Resources				
Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.97E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	7.50E-03	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	3.29E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.25E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	3.29E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.25E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.60E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
clefting of energy wood/hr/RER		4.74E-04	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		1.26E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~1.78E-04~~ 7.14E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.31E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~2.23E-04~~ 1.57E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.97E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~1.60E-03~~ 1.91E-06	hr	Pedigree: (2,1,2,1,1)

Products				
cleft timber, hardwood, sustainable forest management, measured as dry mass, at forest road/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest		2.82E+00	m2a	
Occupation, traffic area, rail/road embankment	land	3.11E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest	land	2.16E-02	m2	Pedigree: (1,1,2,1,1)

Transformation, from traffic area, rail/road embankment	land	2.39E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest	land	2.16E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.39E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.57E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
cable yarding and processing, mobile cable yarder on truck/hr/RER		4.22E-06	hr	Pedigree: (2,1,2,1,1)
cable yarding, mobile cable yarder on trailer/hr/RER		8.84E-06	hr	Pedigree: (2,1,2,1,1)
cable yarding, sled yarder/hr/RER		1.18E-07	hr	Pedigree: (2,1,2,1,1)
clefting of energy wood/hr/RER		4.65E-04	hr	Pedigree: (2,1,2,1,1)
delimbing/sorting, excavator-based processor/hr/RER		7.71E-06	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		3.34E-03	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		3.07E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		7.76E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		2.45E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		6.07E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~1.57E-03~~ 1.18E-04	hr	Pedigree: (2,1,2,1,1)
Transport, helicopter/GLO		7.17E-07	hr	Pedigree: (2,1,2,1,1)

Products				
cleft timber, production mix, sustainable forest management, measured as dry mass, at forest road/kg/CH		1.00E+00	kg	
Materials/fuels				
cleft timber, hardwood, sustainable forest management, measured as dry mass, at forest road/kg/CH		7.77E-01	kg	Pedigree: (1,1,4,5,4)
cleft timber, softwood, sustainable forest management, measured as dry mass, at forest road/kg/CH		2.23E-01	kg	Pedigree: (1,1,4,5,4)

Products				
cleft timber, production mix, sustainable forest management, measured as dry mass, at forest road/kg/RER		1.00E+00	kg	
Materials/fuels				
cleft timber, cork, measured as dry mass, at forest road/kg/PT		1.04E-01	kg	Pedigree: (1,1,4,5,4)
cleft timber, beech, sustainable forest management, measured as dry mass, at forest road/kg/DE		4.01E-01	kg	Pedigree: (1,1,4,5,4)
cleft timber, birch, sustainable forest management, measured as dry mass, at forest road/kg/SE		5.25E-02	kg	Pedigree: (1,1,4,5,4)
cleft timber, oak, sustainable forest management, measured as dry mass, at forest road/kg/DE		7.86E-02	kg	Pedigree: (1,1,4,5,4)
cleft timber, pine, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.23E-01	kg	Pedigree: (1,1,4,5,4)
cleft timber, pine, sustainable forest management, measured as dry mass, at forest road/kg/SE		2.06E-02	kg	Pedigree: (1,1,4,5,4)
cleft timber, spruce, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.98E-01	kg	Pedigree: (1,1,4,5,4)
cleft timber, spruce, sustainable forest management, measured as dry mass, at forest road/kg/SE		2.24E-02	kg	Pedigree: (1,1,4,5,4)

Products				
cleft timber, oak, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	2.69E+00	m2a	Pedigree: (1,1,2,1,1)

Occupation, traffic area, rail/road embankment	land	5.95E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.93E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	4.25E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.93E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	4.25E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.60E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
clefting of energy wood/hr/RER		4.74E-04	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		2.66E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		5.26E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.90E-01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		4.22E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		6.02E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~1.60E-03~~ 1.35E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.97E-02	p	Pedigree: (3,1,2,1,1)

Products				
cleft timber, pine, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	3.12E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	6.89E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	2.60E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	5.74E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	2.60E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	5.74E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.04E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
clefting of energy wood/hr/RER		6.17E-04	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		3.19E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		5.31E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		2.20E-01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		3.98E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		9.45E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~2.04E-03~~ 1.35E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		2.13E-02	p	Pedigree: (3,1,2,1,1)

Products				
cleft timber, pine, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Resources				
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	3.82E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	1.45E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	4.77E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.82E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	4.77E-02	m2	Pedigree: (1,1,2,1,1)

Transformation, to traffic area, rail/road embankment	land	1.82E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.04E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
clefting of energy wood/hr/RER		6.17E-04	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		3.22E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~2.27E-04~~ 9.10E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.91E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~2.84E-04~~ 2.00E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		2.14E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~2.04E-03~~ 2.43E-06	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		6.81E-03	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.62E-02	p	Pedigree: (3,1,2,1,1)

Products				
cleft timber, softwood, sustainable forest management, measured as dry mass, at forest road/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest		3.42E+00	m2a	
Occupation, traffic area, rail/road embankment	land	3.77E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest	land	2.63E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.90E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest	land	2.63E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.90E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.33E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
cable yarding and processing, mobile cable yarder on truck/hr/RER		7.81E-06	hr	Pedigree: (2,1,2,1,1)
cable yarding, mobile cable yarder on trailer/hr/RER		1.90E-05	hr	Pedigree: (2,1,2,1,1)
cable yarding, sled yarder/hr/RER		3.51E-06	hr	Pedigree: (2,1,2,1,1)
clefting of energy wood/hr/RER		7.03E-04	hr	Pedigree: (2,1,2,1,1)
delimbing/sorting, excavator-based processor/hr/RER		2.14E-05	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		4.05E-03	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		2.49E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		9.43E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.87E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.46E-03	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~2.33E-03~~ 1.77E-04	hr	Pedigree: (2,1,2,1,1)
Transport, helicopter/GLO		3.00E-06	hr	Pedigree: (2,1,2,1,1)

Products				
cleft timber, spruce, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	~~2.77E+00~~ 2.33E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	~~6.11E-02~~ 5.14E-02	m2a	Pedigree: (1,1,2,1,1)

Transformation, from forest, intensive, normal	land	~~2.77E-02~~ 2.33E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	~~6.11E-04~~ 5.14E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	~~2.77E-02~~ 2.33E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	~~6.11E-04~~ 5.14E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.33E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
clefting of energy wood/hr/RER		~~7.03E-04~~ 5.91E-04	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		~~2.27E-02~~ 1.19E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~5.16E-05~~ 4.34E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		~~1.96E-01~~ 1.65E-01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~3.86E-05~~ 3.25E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		~~1.12E-03~~ 9.42E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~2.33E-03~~ 1.42E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		~~8.49E-03~~ 7.14E-03	p	Pedigree: (3,1,2,1,1)

Products				
cleft timber, spruce, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	3.42E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	1.30E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	4.27E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.63E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	4.27E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.63E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.33E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
clefting of energy wood/hr/RER		7.03E-04	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		2.49E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~2.57E-04~~ 1.03E-04	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.71E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~3.23E-04~~ 2.27E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.28E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~2.33E-03~~ 2.77E-06	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		3.81E-03	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		9.06E-03	p	Pedigree: (3,1,2,1,1)

Products				
clefting of energy wood/hr/RER		1.00E+00	hr	
Materials/fuels				

diesel, low-sulphur, at regional storage/kg/CH		5.88E+00	kg	Pedigree: (2,3,2,3,1)
Lubricating oil, at plant/RER		5.21E-01	kg	Pedigree: (2,3,2,3,1)
Tractor, production/CH/I		5.68E-05	kg	Pedigree: (2,3,2,3,1)
Emissions to air				
Ammonia	low. pop.	1.18E-04	kg	Pedigree: (2,3,2,3,1)
Benzo(a)pyrene	low. pop.	1.76E-07	kg	Pedigree: (2,3,2,3,1)
Cadmium	low. pop.	5.89E-08	kg	Pedigree: (2,3,2,3,1)
Carbon dioxide, fossil	low. pop.	1.84E+01	kg	Pedigree: (2,3,2,3,1)
Carbon monoxide, fossil	low. pop.	6.54E-02	kg	Pedigree: (2,3,2,3,1)
Copper	low. pop.	9.99E-06	kg	Pedigree: (2,3,2,3,1)
Dinitrogen monoxide	low. pop.	7.05E-04	kg	Pedigree: (2,3,2,3,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	3.52E-13	kg	Pedigree: (2,3,2,3,1)
Methane, fossil	low. pop.	3.31E-04	kg	Pedigree: (2,3,2,3,1)
Nickel	low. pop.	4.13E-07	kg	Pedigree: (2,3,2,3,1)
Nitrogen oxides	low. pop.	1.36E-01	kg	Pedigree: (2,3,2,3,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	1.35E-02	kg	Pedigree: (2,3,2,3,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	1.98E-05	kg	Pedigree: (2,3,2,3,1)
Particulates, < 2.5 um	low. pop.	5.85E-03	kg	Pedigree: (2,3,2,3,1)
Particulates, > 10 um	low. pop.	3.90E-04	kg	Pedigree: (2,3,2,3,1)
Particulates, > 2.5 um, and < 10um	low. pop.	2.60E-04	kg	Pedigree: (2,3,2,3,1)
Selenium	low. pop.	5.89E-08	kg	Pedigree: (2,3,2,3,1)
Zinc	low. pop.	5.89E-06	kg	Pedigree: (2,3,2,3,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		5.79E-01	kg	

Products				
coating, with melamine impregnated paper, double-sided/m2/RER		1.00E+00	m2	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.96E-01	kWh	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		3.60E-01	MJ	Pedigree: (1,3,2,1,1)
paper, melamine impregnated, at plant/kg/RER		6.04E-01	kg	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		1.54E-01	kg	Pedigree: (1,3,2,1,1)
Emissions to air				
Water		1.54E-01	kg	Pedigree: (1,3,2,1,1)

Products				
delimbing/sorting, excavator-based processor/hr/RER		1.00E+00	hr	
Materials/fuels				
diesel, low-sulphur, at regional storage/kg/CH		1.34E+01	kg	Pedigree: (1,1,2,1,1)
Hydraulic digger/RER/I		7.58E-05	p	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		5.13E-01	kg	Pedigree: (2,3,3,1,1)
Transport, lorry 16-32t, EURO5/RER		6.25E+01	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Ammonia	low. pop.	2.69E-04	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	4.03E-07	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	1.35E-07	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, fossil	low. pop.	4.20E+01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	1.50E-01	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	2.28E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	1.61E-03	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	8.05E-13	kg	Pedigree: (1,1,2,1,1)

Methane, fossil	low. pop.	4.97E-04	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	9.43E-07	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	2.04E-01	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	2.02E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	4.52E-05	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	8.78E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	5.84E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	3.90E-04	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	1.35E-07	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	1.35E-05	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		5.70E-01	kg	

Products				
energy wood harvester, at plant/p/RER/I		1.00E+00	p	
Materials/fuels				
Acetylene, at regional storehouse/CH		5.00E+00	kg	Pedigree: (3,4,3,1,5)
Aluminium alloy, AlMg3, at plant/RER		6.27E+02	kg	Pedigree: (1,1,2,1,1)
Cast iron, at plant/RER		7.59E+03	kg	Pedigree: (3,4,3,1,1)
Chromium steel 18/8, at plant/RER		1.72E+03	kg	Pedigree: (1,1,2,1,1)
Copper, primary, at refinery/GLO		6.05E+01	kg	Pedigree: (3,4,3,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		6.74E+04	kWh	Pedigree: (3,4,3,1,1)
Electronics for control units/RER		1.07E+02	kg	Pedigree: (3,4,3,1,1)
Flat glass, uncoated, at plant/RER		1.19E+02	kg	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		9.93E+04	MJ	Pedigree: (1,1,2,1,1)
Injection moulding/RER		8.54E+02	kg	Pedigree: (1,1,2,1,1)
Iron scrap, at plant/RER		1.91E+04	kg	Pedigree: (1,1,2,1,1)
Lead, at regional storage/RER		7.69E+01	kg	Pedigree: (3,4,3,1,1)
Oxygen, liquid, at plant/RER		1.20E+01	kg	Pedigree: (3,4,3,1,5)
Polypropylene, granulate, at plant/RER		8.54E+02	kg	Pedigree: (1,1,2,1,1)
Powder coating, steel/RER		5.11E+02	m2	Pedigree: (1,1,2,1,1)
Road vehicle plant/RER/I		8.73E-07	p	Pedigree: (4,5,3,3,4)
Steel, low-alloyed, at plant/RER		1.74E+04	kg	Pedigree: (1,1,2,1,1)
Steel, low-alloyed, at plant/RER		3.08E+01	kg	Pedigree: (1,1,2,1,1)
Synthetic rubber, at plant/RER		1.46E+03	kg	Pedigree: (3,4,3,1,1)
tap water, at user/kg/RER		5.54E+04	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		2.14E+03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		9.42E+03	tkm	Pedigree: (1,1,4,5,4)
Water, completely softened, at plant/RER		1.57E+01	kg	Pedigree: (3,4,3,1,1)
Wire drawing, copper/RER		6.05E+01	kg	Pedigree: (1,1,2,1,1)
Emissions to air				
Carbon dioxide, fossil	low. pop.	1.69E+01	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, electronics for control units/RER		1.07E+02	kg	
disposal, polypropylene, 15.9 % water, to municipal incineration/kg/CH		1.02E+03	kg	
disposal, rubber, unspecified, 0 % water, to municipal incineration/kg/CH		1.46E+03	kg	
Treatment, lorry production effluent, to wastewater treatment, class 1/CH		6.63E+00	m3	Pedigree: (1,1,2,1,1)
Treatment, sewage, to wastewater treatment, class 3/CH		5.54E+01	m3	Pedigree: (1,1,2,1,1)

Products				
fibreboard, hard, at plant/kg/RER		1.00E+00	m3	
Resources				
Water, river	in water	2.24E+00	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		5.82E-01	kg	Pedigree: (1,3,2,1,1)
Biowaste, at collection point/CH		9.36E+01	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		1.98E+00	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		4.18E+01	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		1.71E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		3.38E+02	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		2.16E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/HU		2.87E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		2.72E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PT		1.61E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		5.38E+01	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		1.35E-04	p	Pedigree: (1,3,2,1,1)
Heat, at hard coal industrial furnace 1-10MW/RER		3.43E+03	MJ	Pedigree: (1,3,2,1,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		1.90E+01	MJ	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		2.64E-02	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		3.05E-01	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		9.25E+00	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		1.19E+01	kg	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.13E-02	m3	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		4.06E-01	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.28E-02	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.46E+00	m3	Pedigree: (1,3,2,1,1)
Rape oil, at oil mill/RER		4.23E+00	kg	Pedigree: (1,1,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		1.97E+01	kg	Pedigree: (1,3,2,1,1)
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		8.96E-03	kg	Pedigree: (1,1,2,1,1)
tap water, at user/kg/RER		1.25E+03	kg	Pedigree: (1,3,2,1,1)
Transport, freight, rail/RER		2.05E+02	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		9.95E+01	tkm	Pedigree: (1,1,4,5,4)
Treatment hard fibreboard production effluent, to wastewater treatment, class 1/m3/RER		2.22E+00	m3	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		2.05E+02	kg	Pedigree: (1,1,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.79E-08	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	7.87E-04	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	6.73E-03	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	3.89E-06	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	3.54E-03	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	1.17E-04	kg	Pedigree: (2,3,4,1,1)

Benzene, hexachloro-	high. pop.	2.80E-11	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	1.95E-06	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	2.33E-04	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	2.72E-06	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	2.28E-02	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	3.97E+02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	7.78E-01	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	7.00E-04	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	1.54E-05	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	1.56E-07	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	8.56E-05	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	8.95E-03	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.17E-10	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	1.95E-04	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	3.13E-02	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	3.54E-03	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.21E-02	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	9.73E-05	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	1.40E-03	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	6.61E-04	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	1.17E-06	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	5.84E-03	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	2.88E-02	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	4.67E-04	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	2.33E-05	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	4.67E-01	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	7.83E-01	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	4.32E-05	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	9.73E-03	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		1.64E-01	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	3.15E-08	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	1.17E-03	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	9.10E-02	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	5.06E-03	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	9.73E-03	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	1.17E-03	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	1.17E-03	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		1.85E+00	kg	

Products				
fibreboard, soft, from wet & dry processes, at plant/m3/RER		1.00E+00	m3	
Resources				
Water, river	in water	4.45E-01	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		7.61E-01	kg	Pedigree: (1,3,2,1,1)
Ammonia, liquid, at regional storehouse/RER		2.36E-02	kg	Pedigree: (1,1,2,1,1)
Biowaste, at collection point/CH		1.57E-01	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		2.30E+00	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		8.05E+00	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		3.14E+00	kWh	Pedigree: (1,1,2,1,1)

electricity, medium voltage, at grid/kWh/DE		3.38E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		4.80E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/NO		3.85E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		1.84E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/SK		2.73E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.17E+01	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		1.98E-05	p	Pedigree: (1,3,2,1,1)
Glass wool mat, at plant/CH		6.59E-01	kg	Pedigree: (1,1,2,1,1)
Heat, at hard coal industrial furnace 1-10MW/RER		3.95E+02	MJ	Pedigree: (1,3,2,1,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		1.89E+01	MJ	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		2.53E+01	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		1.43E+02	MJ	Pedigree: (1,3,2,1,1)
Latex, at plant/RER S		7.77E-01	kg	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		6.82E-02	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		2.84E-01	kg	Pedigree: (1,3,2,1,1)
Nylon 6, at plant/RER		6.51E-01	kg	Pedigree: (1,1,2,5,1)
Paraffin, at plant/RER		1.82E+00	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		4.41E-01	kg	Pedigree: (1,3,2,1,1)
Potato starch, at plant/DE		1.27E+00	kg	Pedigree: (1,1,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		7.02E-04	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		2.26E-01	m3	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		3.79E+01	kg	Pedigree: (1,3,2,1,1)
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		2.71E-02	kg	Pedigree: (1,1,2,1,1)
tap water, at user/kg/RER		2.07E+02	kg	Pedigree: (1,3,2,1,1)
Transport, lorry >16t, fleet average/RER		1.23E+01	tkm	Pedigree: (1,1,4,5,4)
Treatment, soft fibreboard production effluent, to wastewater treatment, class 1/m3/RER		7.54E-02	m3	Pedigree: (1,3,2,1,1)
Vinyl acetate, at plant/RER		7.73E-01	kg	Pedigree: (1,1,2,1,1)
Waste paper, sorted, for further treatment/RER		5.92E-01	kg	Pedigree: (1,1,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		2.84E+01	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		2.84E+01	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.78E-08	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	1.23E-04	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	9.89E-04	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	5.72E-07	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	5.20E-04	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	1.72E-05	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	4.12E-12	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	2.86E-07	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	3.43E-05	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	4.00E-07	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	3.35E-03	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	5.83E+01	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	1.14E-01	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	1.03E-04	kg	Pedigree: (2,3,4,1,1)

Chromium	high. pop.	2.26E-06	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	2.29E-08	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	1.26E-05	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	1.32E-03	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.72E-11	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	2.86E-05	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	3.73E-03	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	5.20E-04	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.77E-03	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	1.43E-05	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	2.06E-04	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	9.72E-05	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	1.72E-07	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	8.58E-04	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	4.62E-03	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	6.86E-05	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	3.43E-06	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	6.86E-02	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.22E-01	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	6.35E-06	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	1.43E-03	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		6.88E-03	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	4.63E-09	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	1.72E-04	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	1.34E-02	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	7.43E-04	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	1.43E-03	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	1.72E-04	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	1.72E-04	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		2.72E-01	kg	

Products				
forestry harvester, at plant/p/RER/I		1.00E+00	p	
Materials/fuels				
Acetylene, at regional storehouse/CH		5.00E+00	kg	Pedigree: (3,4,3,1,5)
Aluminium alloy, AlMg3, at plant/RER		4.14E+01	kg	Pedigree: (3,4,3,1,1)
Cast iron, at plant/RER		1.99E+03	kg	Pedigree: (3,4,3,1,1)
Chromium steel 18/8, at plant/RER		2.38E+03	kg	Pedigree: (3,4,3,1,1)
Copper, primary, at refinery/GLO		2.12E+00	kg	Pedigree: (3,4,3,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		7.39E+04	kWh	Pedigree: (3,4,3,1,1)
Electronics for control units/RER		6.99E+01	kg	Pedigree: (3,4,3,1,1)
Flat glass, uncoated, at plant/RER		1.39E+02	kg	Pedigree: (3,4,3,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		8.96E+04	MJ	Pedigree: (3,4,3,1,1)
Injection moulding/RER		5.04E+02	kg	Pedigree: (1,1,2,1,1)
Iron scrap, at plant/RER		2.00E+04	kg	Pedigree: (1,1,2,1,1)
Lead, at regional storage/RER		8.60E+01	kg	Pedigree: (3,4,3,1,1)
Oxygen, liquid, at plant/RER		1.20E+01	kg	Pedigree: (3,4,3,1,5)
Polypropylene, granulate, at plant/RER		5.04E+02	kg	Pedigree: (3,4,3,1,1)
Powder coating, steel/RER		7.14E+01	m2	Pedigree: (3,4,3,1,5)
Road vehicle plant/RER/I		8.73E-07	p	Pedigree: (4,5,3,3,4)

Steel, low-alloyed, at plant/RER		1.76E+04	kg	Pedigree: (3,4,3,1,1)
Synthetic rubber, at plant/RER		2.60E+02	kg	Pedigree: (3,4,3,1,1)
tap water, at user/kg/RER		4.00E+04	kg	Pedigree: (3,4,3,1,5)
Transport, freight, rail/RER		1.40E+03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		6.16E+03	tkm	Pedigree: (1,1,4,5,4)
Water, completely softened, at plant/RER		1.80E+01	kg	Pedigree: (3,4,3,1,1)
Wire drawing, copper/RER		2.12E+00	kg	Pedigree: (3,4,3,1,1)
Emissions to air				
Carbon dioxide, fossil	low. pop.	1.69E+01	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, electronics for control units/RER		6.99E+01	kg	
disposal, polypropylene, 15.9 % water, to municipal incineration/kg/CH		5.99E+02	kg	
disposal, rubber, unspecified, 0 % water, to municipal incineration/kg/CH		2.60E+02	kg	
Treatment, lorry production effluent, to wastewater treatment, class 1/CH		5.32E+00	m3	Pedigree: (1,1,2,1,1)
Treatment, sewage, to wastewater treatment, class 3/CH		4.00E+01	m3	Pedigree: (1,1,2,1,1)

Products				
forwarder, at plant/p/RER/I		1.00E+00	p	
Materials/fuels				
Acetylene, at regional storehouse/CH		5.00E+00	kg	Pedigree: (3,4,3,1,5)
Aluminium alloy, AlMg3, at plant/RER		8.06E+01	kg	Pedigree: (1,1,2,1,1)
Cast iron, at plant/RER		2.67E+03	kg	Pedigree: (3,4,3,1,1)
Chromium steel 18/8, at plant/RER		1.63E+03	kg	Pedigree: (1,1,2,1,1)
Copper, primary, at refinery/GLO		1.10E+01	kg	Pedigree: (3,4,3,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.90E+04	kWh	Pedigree: (1,1,2,1,1)
Electronics for control units/RER		5.50E+01	kg	Pedigree: (3,4,3,1,1)
Flat glass, uncoated, at plant/RER		1.19E+02	kg	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		4.45E+04	MJ	Pedigree: (1,1,2,1,1)
Injection moulding/RER		2.60E+02	kg	Pedigree: (1,1,2,1,1)
Iron scrap, at plant/RER		1.23E+04	kg	Pedigree: (1,1,2,1,1)
Lead, at regional storage/RER		7.69E+01	kg	Pedigree: (3,4,3,1,1)
Oxygen, liquid, at plant/RER		1.20E+01	kg	Pedigree: (3,4,3,1,5)
Polypropylene, granulate, at plant/RER		2.60E+02	kg	Pedigree: (1,1,2,1,1)
Powder coating, steel/RER		5.11E+01	m2	Pedigree: (1,1,2,1,1)
Road vehicle plant/RER/I		8.73E-07	p	Pedigree: (4,5,3,3,4)
Steel, low-alloyed, at plant/RER		1.07E+04	kg	Pedigree: (1,1,2,1,1)
Synthetic rubber, at plant/RER		1.39E+03	kg	Pedigree: (3,4,3,1,1)
tap water, at user/kg/RER		2.86E+04	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		1.22E+03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		5.37E+03	tkm	Pedigree: (1,1,4,5,4)
Water, completely softened, at plant/RER		1.57E+01	kg	Pedigree: (3,4,3,1,1)
Wire drawing, copper/RER		1.10E+01	kg	Pedigree: (1,1,2,1,1)
Emissions to air				
Carbon dioxide, fossil	low. pop.	1.69E+01	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, electronics for control units/RER		5.50E+01	kg	
disposal, polypropylene, 15.9 % water, to municipal incineration/kg/CH		3.09E+02	kg	
disposal, rubber, unspecified, 0 % water, to municipal incineration/kg/CH		1.39E+03	kg	

Treatment, lorry production effluent, to wastewater treatment, class 1/CH		3.10E+00	m3	Pedigree: (1,1,2,1,1)
Treatment, sewage, to wastewater treatment, class 3/CH		2.86E+01	m3	Pedigree: (1,1,2,1,1)

Products				
forwarding, forwarder/hr/RER		1.00E+00	hr	
Materials/fuels				
diesel, low-sulphur, at regional storage/kg/CH		9.24E+00	kg	Pedigree: (1,1,2,1,1)
forwarder, at plant/p/RER/I		5.68E-05	p	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		3.54E-01	kg	Pedigree: (2,3,3,1,1)
Transport, lorry 16-32t, EURO5/RER		3.45E+01	tkm	Pedigree: (3,3,3,1,1)
Electricity/heat				
Emissions to air				
Ammonia	low. pop.	1.85E-04	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	2.77E-07	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	9.25E-08	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, fossil	low. pop.	2.89E+01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	1.03E-01	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	1.57E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	1.11E-03	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	5.54E-13	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	4.55E-04	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	6.49E-07	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	1.87E-01	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	1.85E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	3.10E-05	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	8.04E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	5.36E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	3.57E-04	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	9.25E-08	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	9.25E-06	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		3.94E-01	kg	

Products				
harvesting, forestry harvester/hr/RER		1.00E+00	hr	
Materials/fuels				
diesel, low-sulphur, at regional storage/kg/CH		1.08E+01	kg	Pedigree: (1,1,2,1,1)
forestry harvester, at plant/p/RER/I		5.68E-05	p	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		5.13E-01	kg	Pedigree: (2,3,3,1,1)
Rape oil, at oil mill/RER		3.53E-01	kg	Pedigree: (2,3,3,1,1)
Transport, lorry 16-32t, EURO5/RER		4.38E+01	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Ammonia	low. pop.	2.15E-04	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	3.23E-07	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	1.08E-07	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, fossil	low. pop.	3.36E+01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	1.20E-01	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	1.83E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	1.29E-03	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	6.44E-13	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	4.14E-04	kg	Pedigree: (1,1,2,1,1)

Nickel	low. pop.	7.55E-07	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	1.70E-01	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	1.68E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	3.61E-05	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	7.31E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	4.87E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	3.25E-04	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	1.08E-07	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	1.08E-05	kg	Pedigree: (1,1,2,1,1)
Emissions to soil				
Oils, biogenic	forestry	3.53E-02	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		5.70E-01	kg	

Products				
harvesting/bundling, energy wood harvester/hr/RER		1.00E+00	hr	
Materials/fuels				
diesel, low-sulphur, at regional storage/kg/CH		9.70E+00	kg	Pedigree: (1,1,2,1,1)
energy wood harvester, at plant/p/RER/I		5.68E-05	p	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		3.54E-01	kg	Pedigree: (2,3,3,1,1)
Packaging film, LDPE, at plant/RER		1.60E+00	kg	Pedigree: (5,5,2,1,1)
Rape oil, at oil mill/RER		3.53E-01	kg	Pedigree: (2,3,3,1,1)
Transport, lorry 16-32t, EURO5/RER		1.61E+02	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Ammonia	low. pop.	1.94E-04	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	2.91E-07	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	9.72E-08	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, fossil	low. pop.	3.03E+01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	1.08E-01	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	1.65E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	1.16E-03	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	5.81E-13	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	5.59E-04	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	6.81E-07	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	1.86E-01	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	2.27E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	3.26E-05	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	6.83E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	4.55E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	3.04E-04	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	9.72E-08	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	9.72E-06	kg	Pedigree: (1,1,2,1,1)
Emissions to soil				
Oils, biogenic	forestry	3.53E-02	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		3.94E-01	kg	

Products				
heat, district or industrial, other than natural gas//[RER] particle board production, uncoated, average glue mix		1.00E+00	MJ	
Resources				

Water, river	in water	3.00E-06	m3	Pedigree: (1,3,2,1,1)
Water, well, in ground	in water	9.55E-08	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		7.58E-05	kg	Pedigree: (1,3,2,1,1)
Biowaste, at collection point/CH		2.33E-04	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		1.88E-05	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		1.39E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		3.02E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/BE		2.42E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/CZ		1.81E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		9.32E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		2.12E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		5.90E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/GB		3.53E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IT		3.98E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		6.55E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		2.47E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		9.22E-04	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		2.78E-09	p	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		1.21E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		1.09E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		9.63E-03	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		1.22E-05	kg	Pedigree: (1,3,2,1,1)
Melamine formaldehyde resin, at plant/RER		4.78E-04	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		1.56E-04	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		1.46E-04	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		5.86E-05	kg	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		3.16E-09	m3	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.14E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.10E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.25E-05	m3	Pedigree: (1,3,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		1.18E-03	kg	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		6.07E-03	kg	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		8.53E-03	kg	Pedigree: (1,3,2,1,1)
Treatment, particle board production effluent, to wastewater treatment, class 1/m3/RER		3.44E-06	m3	Pedigree: (1,3,2,1,1)
Urea formaldehyde resin, at plant/RER		2.17E-03	kg	Pedigree: (1,3,2,1,1)
Urea, as N, at regional storehouse/RER		9.45E-06	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH		7.58E-05	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		9.72E-03	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		9.23E-04	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		1.85E-12	p	Pedigree: (1,3,2,1,1)

Emissions to air				
Acetaldehyde	high. pop.	2.13E-08	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	1.40E-07	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	8.06E-11	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	7.34E-08	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	2.42E-09	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	4.03E-11	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	4.84E-09	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	5.65E-11	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	4.72E-07	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	8.23E-03	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	1.61E-05	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	1.45E-08	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	3.19E-10	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	3.23E-12	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	1.77E-09	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	1.85E-07	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.42E-15	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	4.03E-09	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	4.47E-06	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	7.34E-08	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.50E-07	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	2.02E-09	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	2.90E-08	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	1.37E-08	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	2.42E-11	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	1.21E-07	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	8.58E-07	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	9.68E-09	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	4.84E-10	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	9.68E-06	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.96E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	8.95E-10	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	2.02E-07	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		3.79E-06	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	6.53E-13	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	2.42E-08	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	1.89E-06	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	1.05E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	2.02E-07	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	2.42E-08	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	2.42E-08	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		3.84E-05	kg	

Products				
medium density fibreboard, uncoated, at plant/m3/RER		1.00E+00	m3	
Resources				
Water, river	in water	6.07E-01	m3	Pedigree: (1,3,2,1,1)
Water, well, in ground	in water	2.80E-04	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		2.27E-02	kg	Pedigree: (1,3,2,1,1)

Biowaste, at collection point/CH		8.99E-01	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		8.91E-01	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		3.54E+01	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		1.36E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		3.32E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		1.69E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		1.83E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/GB		1.58E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/HU		1.08E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IE		7.70E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IT		1.58E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		4.60E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PT		6.82E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		1.17E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.33E+01	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		1.45E-04	p	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		2.52E+01	MJ	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		1.54E+01	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		1.07E+03	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		1.30E-01	kg	Pedigree: (1,3,2,1,1)
Melamine formaldehyde resin, at plant/RER		4.18E+01	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		4.70E+00	kg	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		2.00E-04	m3	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		7.21E-03	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		5.42E-03	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		6.16E-01	m3	Pedigree: (1,3,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		2.99E+01	kg	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.02E+01	kg	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		2.86E+02	kg	Pedigree: (1,3,2,1,1)
Transport, freight, rail/RER		2.02E+02	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		8.56E+01	tkm	Pedigree: (1,1,4,5,4)
Treatment, medium density fibreboard production effluent, to wastewater treatment, class 1/m3/RER		4.05E-01	m3	Pedigree: (1,3,2,1,1)
Urea formaldehyde resin, at plant/RER		4.64E+01	kg	Pedigree: (1,3,2,1,1)
Urea, as N, at regional storehouse/RER		3.26E-01	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH		4.38E-02	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		3.66E+02	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		5.32E-01	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.79E-08	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.98E-04	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	7.25E-03	kg	Pedigree: (2,3,4,1,1)

Arsenic	high. pop.	4.19E-06	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	3.81E-03	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	1.26E-04	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	3.02E-11	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	2.10E-06	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	2.51E-04	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	2.93E-06	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	2.45E-02	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	4.28E+02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	8.38E-01	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	7.54E-04	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	1.66E-05	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	1.68E-07	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	9.22E-05	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	9.64E-03	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.26E-10	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	2.10E-04	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	1.38E-01	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	3.81E-03	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.30E-02	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	1.05E-04	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	1.51E-03	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	7.13E-04	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	1.26E-06	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	6.29E-03	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	1.79E-02	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	5.03E-04	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	2.51E-05	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	5.03E-01	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	3.93E-01	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	4.65E-05	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	1.05E-02	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		7.98E-02	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	3.40E-08	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	1.26E-03	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	9.81E-02	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	5.45E-03	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	1.05E-02	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	1.26E-03	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	1.26E-03	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		2.00E+00	kg	

Products				
mobile cable yarder, trailer-mounted, at plant/p/RER/I		1.00E+00	p	
Materials/fuels				
Acetylene, at regional storehouse/CH		5.00E+00	kg	Pedigree: (3,4,3,1,5)
Aluminium alloy, AlMg3, at plant/RER		5.43E+02	kg	Pedigree: (1,1,2,1,1)
Cast iron, at plant/RER		4.80E+03	kg	Pedigree: (3,4,3,1,1)
Chromium steel 18/8, at plant/RER		1.40E+01	kg	Pedigree: (1,1,2,1,1)
Copper, primary, at refinery/GLO		4.90E+01	kg	Pedigree: (3,4,3,1,1)

electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.93E+04	kWh	Pedigree: (1,1,2,1,1)
Electronics for control units/RER		4.90E+01	kg	Pedigree: (3,4,3,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		5.84E+04	MJ	Pedigree: (1,1,2,1,1)
Injection moulding/RER		5.43E+02	kg	Pedigree: (1,1,2,1,1)
Iron scrap, at plant/RER		1.28E+04	kg	Pedigree: (1,1,2,1,1)
Lead, at regional storage/RER		8.10E+01	kg	Pedigree: (3,4,3,1,1)
Oxygen, liquid, at plant/RER		2.58E+00	kg	Pedigree: (3,4,3,1,5)
Oxygen, liquid, at plant/RER		9.42E+00	kg	Pedigree: (3,4,3,1,5)
Polypropylene, granulate, at plant/RER		5.43E+02	kg	Pedigree: (1,1,2,1,1)
Powder coating, steel/RER		1.95E+02	m2	Pedigree: (1,1,2,1,1)
Road vehicle plant/RER/I		8.73E-07	p	Pedigree: (4,5,3,3,4)
Steel, low-alloyed, at plant/RER		1.39E+03	kg	Pedigree: (1,1,2,1,1)
Steel, low-alloyed, at plant/RER		1.14E+04	kg	Pedigree: (1,1,2,1,1)
Synthetic rubber, at plant/RER		2.79E+02	kg	Pedigree: (3,4,3,1,1)
tap water, at user/kg/RER		2.82E+04	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		1.35E+03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		5.94E+03	tkm	Pedigree: (1,1,4,5,4)
Water, completely softened, at plant/RER		1.70E+01	kg	Pedigree: (3,4,3,1,1)
Wire drawing, copper/RER		4.90E+01	kg	Pedigree: (1,1,2,1,1)
Wire drawing, steel/RER		5.22E+03	kg	Pedigree: (3,4,3,1,1)
Zinc coating, coils/RER		2.47E+02	m2	Pedigree: (3,4,3,1,1)
Emissions to air				
Carbon dioxide, fossil	low. pop.	1.69E+01	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, electronics for control units/RER		4.90E+01	kg	
disposal, polypropylene, 15.9 % water, to municipal incineration/kg/CH		6.46E+02	kg	
disposal, rubber, unspecified, 0 % water, to municipal incineration/kg/CH		2.79E+02	kg	
Treatment, lorry production effluent, to wastewater treatment, class 1/CH		3.75E+00	m3	Pedigree: (1,1,2,1,1)
Treatment, sewage, to wastewater treatment, class 3/CH		2.82E+01	m3	Pedigree: (1,1,2,1,1)

Products				
mobile cable yarder, truck-mounted, incl. processor, at plant/p/RER/I		1.00E+00	p	
Materials/fuels				
Acetylene, at regional storehouse/CH		5.00E+00	kg	Pedigree: (3,4,3,1,5)
Aluminium alloy, AlMg3, at plant/RER		5.78E+02	kg	Pedigree: (1,1,2,1,1)
Cast iron, at plant/RER		6.68E+03	kg	Pedigree: (3,4,3,1,1)
Chromium steel 18/8, at plant/RER		1.70E+03	kg	Pedigree: (1,1,2,1,1)
Copper, primary, at refinery/GLO		5.10E+01	kg	Pedigree: (3,4,3,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		7.81E+04	kWh	Pedigree: (1,1,2,1,1)
Electronics for control units/RER		1.15E+02	kg	Pedigree: (3,4,3,1,1)
Flat glass, uncoated, at plant/RER		2.33E+02	kg	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		1.56E+05	MJ	Pedigree: (1,1,2,1,1)
Injection moulding/RER		1.02E+03	kg	Pedigree: (1,1,2,1,1)
Iron scrap, at plant/RER		3.61E+04	kg	Pedigree: (1,1,2,1,1)
Lead, at regional storage/RER		2.95E+02	kg	Pedigree: (3,4,3,1,1)
Oxygen, liquid, at plant/RER		1.20E+01	kg	Pedigree: (3,4,3,1,5)
Polypropylene, granulate, at plant/RER		1.02E+03	kg	Pedigree: (1,1,2,1,1)
Powder coating, steel/RER		5.19E+02	m2	Pedigree: (1,1,2,1,1)

Road vehicle plant/RER/I		8.73E-07	p	Pedigree: (4,5,3,3,4)
Steel, low-alloyed, at plant/RER		1.83E+04	kg	Pedigree: (1,1,2,1,1)
Steel, low-alloyed, at plant/RER		1.61E+04	kg	Pedigree: (1,1,2,1,1)
Synthetic rubber, at plant/RER		2.20E+03	kg	Pedigree: (3,4,3,1,1)
tap water, at user/kg/RER		7.50E+04	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		3.10E+03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		1.36E+04	tkm	Pedigree: (1,1,4,5,4)
Water, completely softened, at plant/RER		6.04E+01	kg	Pedigree: (3,4,3,1,1)
Wire drawing, copper/RER		5.10E+01	kg	Pedigree: (1,1,2,1,1)
Wire drawing, steel/RER		4.01E+03	kg	Pedigree: (3,4,3,1,1)
Zinc coating, coils/RER		1.64E+02	m2	Pedigree: (3,4,3,1,1)
Emissions to air				
Carbon dioxide, fossil	low. pop.	1.69E+01	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, electronics for control units/RER		1.15E+02	kg	
disposal, polypropylene, 15.9 % water, to municipal incineration/kg/CH		1.21E+03	kg	
disposal, rubber, unspecified, 0 % water, to municipal incineration/kg/CH		2.20E+03	kg	
Treatment, lorry production effluent, to wastewater treatment, class 1/CH		9.98E+00	m3	Pedigree: (1,1,2,1,1)
Treatment, sewage, to wastewater treatment, class 3/CH		7.51E+01	m3	Pedigree: (1,1,2,1,1)

Products				
oriented strand board, at plant/m3/RER		1.00E+00	m3	
Resources				
Water, river	in water	2.98E-01	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Biowaste, at collection point/CH		2.63E-01	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		5.21E+00	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		3.35E+01	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/BE		6.40E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/BG		6.28E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/CZ		1.38E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		3.00E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		1.06E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IE		7.33E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/LU		5.47E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		1.22E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		5.24E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/SE		6.63E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.23E+01	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		1.24E-04	p	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		2.49E+00	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		3.45E+02	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		6.03E-02	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		1.83E+01	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		1.09E+01	kg	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.66E-02	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.89E+00	m3	Pedigree: (1,3,2,1,1)

tap water, at user/kg/RER		2.04E+02	kg	Pedigree: (1,3,2,1,1)
Transport, freight, rail/RER		1.77E+02	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		7.87E+01	tkm	Pedigree: (1,1,4,5,4)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.79E-08	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.59E-04	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	6.19E-03	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	3.58E-06	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	3.26E-03	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	1.07E-04	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	2.58E-11	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	1.79E-06	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	2.15E-04	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	2.50E-06	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	2.09E-02	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	3.65E+02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	7.15E-01	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	6.44E-04	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	1.42E-05	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	1.43E-07	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	7.87E-05	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	8.23E-03	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.07E-10	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	1.79E-04	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	1.96E-02	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	3.26E-03	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.11E-02	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	8.94E-05	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	1.29E-03	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	6.08E-04	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	1.07E-06	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	5.37E-03	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	1.78E-02	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	4.29E-04	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	2.15E-05	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	4.29E-01	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	3.29E-01	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	3.97E-05	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	8.94E-03	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		9.89E-02	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	2.90E-08	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	1.07E-03	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	8.37E-02	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	4.65E-03	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	8.94E-03	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	1.07E-03	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	1.07E-03	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		1.70E+00	kg	

Products				
paper, melamine impregnated, at plant/kg/RER		1.00E+00	kg	

Materials/fuels				
Chemicals inorganic, at plant/GLO		2.10E-02	kg	Pedigree: (1,3,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.11E-01	kWh	Pedigree: (1,3,2,1,1)
Formaldehyde, production mix, at plant/RER		3.88E-01	kg	Pedigree: (1,3,2,1,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		2.89E+00	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		3.01E+00	MJ	Pedigree: (1,3,2,1,1)
Kraft paper, unbleached, at plant/RER		3.44E-01	kg	Pedigree: (1,3,2,1,1)
Melamine formaldehyde resin, at plant/RER		3.77E-01	kg	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		3.38E-01	kg	Pedigree: (1,3,2,1,1)
Transport, lorry >16t, fleet average/RER		5.00E-01	tkm	Pedigree: (1,1,4,5,4)
Urea formaldehyde resin, at plant/RER		2.18E-01	kg	Pedigree: (1,3,2,1,1)
Urea, as N, at regional storehouse/RER		1.74E-02	kg	Pedigree: (1,3,2,1,1)
Emissions to air				
Water		7.05E-04	kg	Pedigree: (1,3,2,1,1)
Waste to treatment				
disposal, municipal solid waste, 22.9 % water, to municipal incineration/kg/CH		1.07E-03	kg	

Products				
particleboard, average glue mix, uncoated, at plant/m3/RER		1.00E+00	m3	
Resources				
Water, river	in water	6.13E-02	m3	Pedigree: (1,3,2,1,1)
Water, well, in ground	in water	1.95E-03	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		1.55E+00	kg	Pedigree: (1,3,2,1,1)
Biowaste, at collection point/CH		4.76E+00	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		3.84E-01	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		2.83E+01	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		6.18E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/BE		4.94E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/CZ		3.71E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		1.90E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		4.32E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		1.20E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/GB		7.21E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IT		8.13E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		1.34E+01	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		5.04E+00	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.88E+01	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		5.69E-05	p	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		2.47E+01	MJ	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		2.22E+01	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		1.97E+02	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		2.49E-01	kg	Pedigree: (1,3,2,1,1)
Melamine formaldehyde resin, at plant/RER		9.76E+00	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		3.19E+00	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		2.99E+00	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		1.20E+00	kg	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		6.45E-05	m3	Pedigree: (1,3,2,1,1)

pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		2.32E-03	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		2.25E-03	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		2.55E-01	m3	Pedigree: (1,3,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		2.41E+01	kg	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.24E+02	kg	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		1.74E+02	kg	Pedigree: (1,3,2,1,1)
Transport, freight, rail/RER		1.52E+02	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		6.33E+01	tkm	Pedigree: (1,1,4,5,4)
Treatment, particle board production effluent, to wastewater treatment, class 1/m3/RER		7.03E-02	m3	Pedigree: (1,3,2,1,1)
Urea formaldehyde resin, at plant/RER		4.43E+01	kg	Pedigree: (1,3,2,1,1)
Urea, as N, at regional storehouse/RER		1.93E-01	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH		1.55E+00	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		1.99E+02	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		1.88E+01	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.77E-08	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	4.35E-04	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	2.85E-03	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	1.65E-06	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	1.50E-03	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	4.94E-05	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	1.19E-11	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	8.23E-07	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	9.88E-05	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	1.15E-06	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	9.63E-03	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	1.68E+02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	3.29E-01	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	2.96E-04	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	6.52E-06	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	6.59E-08	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	3.62E-05	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	3.79E-03	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	4.94E-11	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	8.23E-05	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	9.13E-02	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.50E-03	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	5.11E-03	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	4.12E-05	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	5.93E-04	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	2.80E-04	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	4.94E-07	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	2.47E-03	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	1.75E-02	kg	Pedigree: (3,3,4,1,1)

m-Xylene	high. pop.	1.98E-04	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	9.88E-06	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	1.98E-01	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	4.01E-01	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.83E-05	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	4.12E-03	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		7.73E-02	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	1.33E-08	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	4.94E-04	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	3.85E-02	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	2.14E-03	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	4.12E-03	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	4.94E-04	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	4.94E-04	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		7.84E-01	kg	

Products				
power sawing, without catalytic converter/hr/RER		1.00E+00	hr	
Materials/fuels				
Petrol, two-stroke blend, at regional storage/RER		1.60E+00	kg	Pedigree: (4,5,2,1,1)
Power saw, without catalytic converter/RER/I		4.00E-04	p	Pedigree: (4,5,2,1,1)
Rape oil, at oil mill/RER		5.40E-01	kg	Pedigree: (3,5,2,1,1)
Emissions to air				
Acetaldehyde	low. pop.	6.87E-04	kg	Pedigree: (1,5,2,1,5)
Acetone	low. pop.	1.57E-04	kg	Pedigree: (1,5,2,1,5)
Acrolein	low. pop.	4.41E-05	kg	Pedigree: (1,5,5,1,5)
Benzaldehyde	low. pop.	4.61E-04	kg	Pedigree: (1,5,5,1,5)
Benzo(a)pyrene	low. pop.	2.38E-07	kg	Pedigree: (1,5,5,1,5)
Carbon dioxide, fossil	low. pop.	2.15E+00	kg	Pedigree: (1,5,4,3,1)
Carbon monoxide, fossil	low. pop.	9.81E-01	kg	Pedigree: (2,5,2,1,1)
Dinitrogen monoxide	low. pop.	8.64E-05	kg	Pedigree: (1,5,2,1,5)
Formaldehyde	low. pop.	3.51E-02	kg	Pedigree: (1,5,2,1,5)
Methane, fossil	low. pop.	4.13E-02	kg	Pedigree: (1,5,2,1,5)
Nitrogen oxides	low. pop.	8.60E-03	kg	Pedigree: (1,5,2,1,5)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	2.98E-01	kg	Pedigree: (3,5,2,3,5)
PAH, polycyclic aromatic hydrocarbons	low. pop.	5.95E-05	kg	Pedigree: (1,5,2,1,5)
Pentane	low. pop.	3.42E-02	kg	Pedigree: (1,5,2,1,5)
Propanal	low. pop.	1.24E-04	kg	Pedigree: (1,5,2,1,5)
Sulfur dioxide	low. pop.	3.20E-05	kg	Pedigree: (1,1,2,1,1)
Toluene	low. pop.	3.32E-02	kg	Pedigree: (1,5,2,1,5)
Emissions to soil				
Oils, biogenic	forestry	5.40E-02	kg	Pedigree: (1,5,4,3,1)

Products				
pulpwood, beech, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	1.09E+03	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.18E+04	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.67E+03	m2a	Pedigree: (1,1,2,1,1)

Occupation, traffic area, rail/road embankment	land	3.68E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.19E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.63E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.19E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.63E-01	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.49E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		1.95E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.18E+02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.56E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		4.55E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		8.52E-02	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		9.73E+00	p	Pedigree: (3,1,2,1,1)

Products				
pulpwood, birch, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		1.00E+00	m3	
Resources				
Energy, gross calorific value, in biomass	biotic	1.22E+04	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	1.13E+03	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.23E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	4.68E+00	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	2.05E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	7.80E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	2.05E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	7.80E-02	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		7.88E+00	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~1.11E-01~~ 4.45E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		8.19E+00	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~1.39E-01~~ 9.79E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.23E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.34E-03	hr	Pedigree: (2,1,2,1,1)

Products				
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	1.15E+03	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.25E+04	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest		1.79E+03	m2a	
Occupation, traffic area, rail/road embankment	land	1.97E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest	land	1.38E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.52E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest	land	1.38E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.52E-01	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)

Materials/fuels				
cable yarding and processing, mobile cable yarder on truck/hr/RER		2.68E-03	hr	Pedigree: (2,1,2,1,1)
cable yarding, mobile cable yarder on trailer/hr/RER		5.62E-03	hr	Pedigree: (2,1,2,1,1)
cable yarding, sled yarder/hr/RER		7.50E-05	hr	Pedigree: (2,1,2,1,1)
delimbing/sorting, excavator-based processor/hr/RER		4.90E-03	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		2.12E+00	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		1.95E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		4.93E+01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.56E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		3.86E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		7.49E-02	hr	Pedigree: (2,1,2,1,1)
Transport, helicopter/GLO		4.56E-04	hr	Pedigree: (2,1,2,1,1)

Products				
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.00E+00	m3	
Materials/fuels				
pulpwood, beech, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		3.98E-01	m3	Pedigree: (1,1,4,5,4)
pulpwood, birch, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		5.55E-01	m3	Pedigree: (1,1,4,5,4)
pulpwood, oak, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		4.62E-02	m3	Pedigree: (1,1,4,5,4)

Products				
pulpwood, oak, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	1.13E+03	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.22E+04	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.68E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	3.71E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.20E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.65E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.20E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.65E-01	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.66E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		3.28E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.19E+02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		2.63E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		3.75E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		6.73E-02	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.23E+01	p	Pedigree: (3,1,2,1,1)

Products				
pulpwood, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.00E+00	m3	

Resources				
Carbon dioxide, in air	in air	8.88E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.00E+04	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.53E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	3.38E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.27E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.81E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.27E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.81E-01	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.56E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		2.60E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.08E+02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.95E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		4.63E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		6.77E-02	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.04E+01	p	Pedigree: (3,1,2,1,1)

Products				
pulpwood, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		1.00E+00	m3	
Resources				
Energy, gross calorific value, in biomass	biotic	1.00E+04	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	8.88E+02	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.87E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	7.12E+00	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	2.34E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	8.90E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	2.34E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	8.90E-02	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.58E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~1.11E-01~~ 4.45E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		9.34E+00	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~1.39E-01~~ 9.79E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.05E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.34E-03	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		3.34E+00	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		7.93E+00	p	Pedigree: (3,1,2,1,1)

Products				
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	7.79E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	8.77E+03	MJ	Pedigree: (1,1,2,1,1)

Occupation, forest		1.47E+03	m2a	
Occupation, traffic area, rail/road embankment	land	1.62E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest	land	1.13E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.25E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest	land	1.13E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.25E-01	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
cable yarding and processing, mobile cable yarder on truck/hr/RER		3.36E-03	hr	Pedigree: (2,1,2,1,1)
cable yarding, mobile cable yarder on trailer/hr/RER		8.18E-03	hr	Pedigree: (2,1,2,1,1)
cable yarding, sled yarder/hr/RER		1.51E-03	hr	Pedigree: (2,1,2,1,1)
delimbing/sorting, excavator-based processor/hr/RER		9.21E-03	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		1.74E+00	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		1.07E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		4.05E+01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		8.04E-03	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		6.26E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		7.62E-02	hr	Pedigree: (2,1,2,1,1)
Transport, helicopter/GLO		1.29E-03	hr	Pedigree: (2,1,2,1,1)

Products				
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.00E+00	m3	
Materials/fuels				
pulpwood, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.77E-01	m3	Pedigree: (1,1,4,5,4)
pulpwood, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		2.94E-01	m3	Pedigree: (1,1,4,5,4)
pulpwood, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.67E-01	m3	Pedigree: (1,1,4,5,4)
pulpwood, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		3.62E-01	m3	Pedigree: (1,1,4,5,4)

Products				
pulpwood, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	7.79E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	8.77E+03	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	~~1.19E+03~~ 1.00E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	~~2.63E+01~~ 2.21E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	~~1.19E+01~~ 1.00E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	~~2.63E-01~~ 2.21E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	~~1.19E+01~~ 1.00E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	~~2.63E-01~~ 2.21E-01	m2	Pedigree: (1,1,2,1,1)

Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~9.76E+00~~ 8.21E+00	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~2.22E-02~~ 1.87E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		~~8.41E+01~~ 7.08E+01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~1.66E-02~~ 1.40E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		~~4.80E-01~~ 4.04E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~7.41E-02~~ 6.23E-02	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		~~3.65E+00~~ 3.07E+00	p	Pedigree: (3,1,2,1,1)

Products				
pulpwood, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	7.79E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	8.77E+03	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.47E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	5.59E+00	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.84E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	6.99E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.84E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	6.99E-02	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.07E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~1.11E-01~~ 4.45E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		7.34E+00	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.39E-01	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		5.49E-02	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.34E-03	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		1.64E+00	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		3.90E+00	p	Pedigree: (3,1,2,1,1)

Products				
residual wood, dry, from fibreboard production, hard, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	1.62E-04	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		4.21E-05	kg	Pedigree: (1,3,2,1,1)
Biowaste, at collection point/CH		6.77E-03	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		1.42E-04	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		3.03E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		1.24E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		2.44E-02	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		1.57E-03	kWh	Pedigree: (1,1,2,1,1)

electricity, medium voltage, at grid/kWh/HU		2.08E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		1.97E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PT		1.16E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.89E-03	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		9.71E-09	p	Pedigree: (1,3,2,1,1)
Heat, at hard coal industrial furnace 1-10MW/RER		2.47E-01	MJ	Pedigree: (1,3,2,1,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		1.37E-03	MJ	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		1.91E-06	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		2.20E-05	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		6.68E-04	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		8.64E-04	kg	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		8.15E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		2.94E-05	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		9.29E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.06E-04	m3	Pedigree: (1,3,2,1,1)
Rape oil, at oil mill/RER		3.06E-04	kg	Pedigree: (1,1,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		1.42E-03	kg	Pedigree: (1,3,2,1,1)
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		6.47E-07	kg	Pedigree: (1,1,2,1,1)
tap water, at user/kg/RER		9.06E-02	kg	Pedigree: (1,3,2,1,1)
Treatment hard fibreboard production effluent, to wastewater treatment, class 1/m3/RER		1.60E-04	m3	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		1.48E-02	kg	Pedigree: (1,1,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		2.74E-12	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.69E-08	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	4.87E-07	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	2.82E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	2.56E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	8.44E-09	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	2.02E-15	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	1.40E-10	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	1.69E-08	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	1.97E-10	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	1.65E-06	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	2.87E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	5.62E-05	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	5.06E-08	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	1.12E-09	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	1.13E-11	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	6.19E-09	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	6.47E-07	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	8.44E-15	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	1.40E-08	kg	Pedigree: (2,3,4,1,1)

Formaldehyde	high. pop.	2.26E-06	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	2.56E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	8.72E-07	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	7.04E-09	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	1.01E-07	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	4.78E-08	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	8.44E-11	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	4.22E-07	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	2.08E-06	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	3.38E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	1.69E-09	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	3.38E-05	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	5.67E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	3.13E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	7.04E-07	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		1.19E-05	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	2.28E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	8.44E-08	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	6.58E-06	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	3.66E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	7.04E-07	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	8.44E-08	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	8.44E-08	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		1.34E-04	kg	

Products				
residual wood, dry, from fibreboard production, soft, from wet & dry processes, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	5.40E-04	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		9.23E-04	kg	Pedigree: (1,3,2,1,1)
Ammonia, liquid, at regional storehouse/RER		2.86E-05	kg	Pedigree: (1,1,2,1,1)
Biowaste, at collection point/CH		1.91E-04	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		2.78E-03	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		9.76E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		3.79E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		4.08E-02	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		5.81E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/NO		4.65E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		2.22E-02	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/SK		3.30E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.41E-02	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		2.39E-08	p	Pedigree: (1,3,2,1,1)
Glass wool mat, at plant/CH		7.97E-04	kg	Pedigree: (1,1,2,1,1)
Heat, at hard coal industrial furnace 1-10MW/RER		4.77E-01	MJ	Pedigree: (1,3,2,1,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		2.29E-02	MJ	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		3.05E-02	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		1.73E-01	MJ	Pedigree: (1,3,2,1,1)

Latex, at plant/RER S		9.43E-04	kg	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		8.23E-05	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		3.44E-04	kg	Pedigree: (1,3,2,1,1)
Nylon 6, at plant/RER		7.90E-04	kg	Pedigree: (1,1,2,5,1)
Paraffin, at plant/RER		2.20E-03	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		5.34E-04	kg	Pedigree: (1,3,2,1,1)
Potato starch, at plant/DE		1.54E-03	kg	Pedigree: (1,1,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		8.50E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		2.73E-04	m3	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		4.59E-02	kg	Pedigree: (1,3,2,1,1)
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		3.27E-05	kg	Pedigree: (1,1,2,1,1)
tap water, at user/kg/RER		2.50E-01	kg	Pedigree: (1,3,2,1,1)
Treatment, soft fibreboard production effluent, to wastewater treatment, class 1/m3/RER		9.10E-05	m3	Pedigree: (1,3,2,1,1)
Vinyl acetate, at plant/RER		9.36E-04	kg	Pedigree: (1,1,2,1,1)
Waste paper, sorted, for further treatment/RER		7.17E-04	kg	Pedigree: (1,1,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		3.44E-02	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		3.44E-02	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		4.58E-11	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	1.49E-07	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	1.20E-06	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	6.90E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	6.29E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	2.08E-08	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	4.98E-15	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	3.46E-10	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	4.15E-08	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	4.84E-10	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	4.04E-06	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	7.04E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	1.38E-04	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	1.25E-07	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	2.74E-09	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	2.77E-11	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	1.52E-08	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	1.59E-06	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.08E-14	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	3.46E-08	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	4.51E-06	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	6.29E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.14E-06	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	1.73E-08	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	2.49E-07	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	1.18E-07	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	2.08E-10	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	1.04E-06	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	5.59E-06	kg	Pedigree: (3,3,4,1,1)

m-Xylene	high. pop.	8.30E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	4.15E-09	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	8.30E-05	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.48E-04	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	7.70E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	1.73E-06	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		8.30E-06	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	5.60E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	2.08E-07	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	1.62E-05	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	8.96E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	1.73E-06	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	2.08E-07	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	2.08E-07	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		3.29E-04	kg	

Products				
residual wood, dry, from glued laminated timber production, for indoor use, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.78E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.00E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		7.54E-03	MJ	Pedigree: (1,4,5,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.89E-02	kWh	Pedigree: (1,4,5,3,1)
Heat, hardwood chips from industry, at furnace 50kW/CH		4.99E-01	MJ	Pedigree: (1,4,5,3,1)
sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER		3.07E-04	m3	Pedigree: (1,4,5,3,1)
Urea formaldehyde resin, at plant/RER		2.71E-03	kg	Pedigree: (1,4,5,3,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		7.49E-12	p	Pedigree: (4,5,5,3,4)
Emissions to air				
Formaldehyde		2.71E-06	kg	Pedigree: (4,5,5,5,5)

Products				
residual wood, dry, from glued laminated timber production, for oudoor use, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.78E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.00E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		7.54E-03	MJ	Pedigree: (1,4,5,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.89E-02	kWh	Pedigree: (1,4,5,3,1)
Heat, hardwood chips from industry, at furnace 50kW/CH		4.94E-01	MJ	Pedigree: (1,4,5,3,1)
Melamine formaldehyde resin, at plant/RER		2.71E-03	kg	Pedigree: (1,4,5,3,1)
sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER		3.07E-04	m3	Pedigree: (1,4,5,3,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		7.49E-12	p	Pedigree: (4,5,5,3,4)

Emissions to air				
Formaldehyde		2.71E-06	kg	Pedigree: (4,5,5,5,5)
Waste to treatment				
disposal, polyurethane, 0.2 % water, to municipal incineration/kg/CH		2.19E-04	kg	

Products				
residual wood, dry, from laminated timber element production, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.83E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.05E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.29E-03	kWh	Pedigree: (4,5,5,3,3)
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		2.11E-05	m3	Pedigree: (4,5,5,3,3)
sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER		2.94E-04	m3	Pedigree: (4,5,5,3,3)
Steel, low-alloyed, at plant/RER		1.20E-02	kg	Pedigree: (4,5,5,3,3)
Transport, freight, rail/RER		1.61E-02	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		2.05E-04	tkm	Pedigree: (1,1,4,5,4)
Wooden board manufacturing plant, organic bonded boards/RER/I		7.65E-12	p	Pedigree: (4,5,5,3,4)

Products				
residual wood, dry, from medium denstity fibre board production, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	1.02E-04	m3	Pedigree: (1,3,2,1,1)
Water, well, in ground	in water	4.67E-08	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		3.80E-06	kg	Pedigree: (1,3,2,1,1)
Biowaste, at collection point/CH		1.50E-04	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		1.49E-04	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		5.93E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		2.28E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		5.57E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		2.85E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		3.06E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/GB		2.66E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/HU		1.81E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IE		1.29E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IT		2.66E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		7.71E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PT		1.14E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		1.95E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.91E-03	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		2.41E-08	p	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		4.22E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		2.56E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		1.78E-01	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		2.19E-05	kg	Pedigree: (1,3,2,1,1)
Melamine formaldehyde resin, at plant/RER		7.00E-03	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		7.86E-04	kg	Pedigree: (1,3,2,1,1)

pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		3.36E-08	m3	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.21E-06	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		9.07E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.03E-04	m3	Pedigree: (1,3,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		5.00E-03	kg	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.70E-03	kg	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		4.78E-02	kg	Pedigree: (1,3,2,1,1)
Treatment, medium density fibreboard production effluent, to wastewater treatment, class 1/m3/RER		6.79E-05	m3	Pedigree: (1,3,2,1,1)
Urea formaldehyde resin, at plant/RER		7.77E-03	kg	Pedigree: (1,3,2,1,1)
Urea, as N, at regional storehouse/RER		5.46E-05	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH		7.33E-06	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		6.13E-02	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		8.91E-05	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		6.35E-12	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	1.00E-07	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	1.21E-06	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	7.02E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	6.39E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	2.11E-08	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	5.05E-15	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	3.50E-10	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	4.21E-08	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	4.91E-10	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	4.11E-06	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	7.16E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	1.40E-04	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	1.26E-07	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	2.78E-09	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	2.81E-11	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	1.54E-08	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	1.61E-06	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.11E-14	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	3.50E-08	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	2.31E-05	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	6.39E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.17E-06	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	1.75E-08	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	2.53E-07	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	1.19E-07	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	2.11E-10	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	1.05E-06	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	3.00E-06	kg	Pedigree: (3,3,4,1,1)

m-Xylene	high. pop.	8.43E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	4.21E-09	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	8.43E-05	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.58E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	7.79E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	1.75E-06	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		1.34E-05	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	5.69E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	2.11E-07	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	1.64E-05	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	9.13E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	1.75E-06	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	2.11E-07	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	2.11E-07	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		3.34E-04	kg	

Products				
residual wood, dry, from oriented strand board production, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	2.44E-05	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				
Biowaste, at collection point/CH		2.15E-05	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		4.26E-04	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		2.75E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/BE		5.24E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/BG		5.14E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/CZ		1.13E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		2.46E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		8.66E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IE		6.00E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/LU		4.47E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		1.00E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		4.28E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/SE		5.43E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.01E-03	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		1.01E-08	p	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		2.05E-04	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		2.82E-02	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		4.93E-06	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		1.50E-03	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		8.96E-04	kg	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.36E-06	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.55E-04	m3	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		1.67E-02	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.09E-12	p	Pedigree: (1,3,2,1,1)
Emissions to air				

Acetaldehyde	high. pop.	4.57E-08	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	5.07E-07	kg	Pedigree: (2,3,4,1,1)
Arsenic	high. pop.	2.92E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	2.66E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	8.78E-09	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	2.11E-15	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	1.46E-10	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	1.75E-08	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	2.05E-10	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	1.71E-06	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	2.99E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	5.86E-05	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	5.28E-08	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	1.16E-09	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	1.17E-11	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	6.45E-09	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	6.74E-07	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	8.78E-15	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	1.46E-08	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	1.60E-06	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	2.66E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	9.08E-07	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	7.32E-09	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	1.05E-07	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	4.97E-08	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	8.78E-11	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	4.38E-07	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	1.46E-06	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	3.51E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	1.75E-09	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	3.51E-05	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	2.70E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	3.25E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	7.32E-07	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		8.10E-06	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	2.37E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	8.78E-08	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	6.84E-06	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	3.80E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	7.32E-07	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	8.78E-08	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	8.78E-08	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		1.39E-04	kg	

Products				
residual wood, dry, from particle board production, uncoated, average glue mix, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	1.27E-05	m3	Pedigree: (1,3,2,1,1)
Water, well, in ground	in water	4.04E-07	m3	Pedigree: (1,3,2,1,1)
Materials/fuels				

Aluminium sulphate, powder, at plant/RER		3.20E-04	kg	Pedigree: (1,3,2,1,1)
Biowaste, at collection point/CH		9.88E-04	kg	Pedigree: (2,3,2,1,1)
Chemicals organic, at plant/GLO		7.96E-05	kg	Pedigree: (1,3,2,1,1)
Diesel, burned in building machine/GLO		5.87E-03	MJ	Pedigree: (1,3,2,1,1)
electricity, medium voltage, at grid/kWh/AT		1.28E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/BE		1.02E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/CZ		7.68E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/DE		3.95E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/ES		8.96E-04	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/FR		2.50E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/GB		1.49E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/IT		1.69E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/PL		2.77E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, at grid/kWh/RO		1.05E-03	kWh	Pedigree: (1,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.90E-03	kWh	Pedigree: (1,1,2,1,1)
Furnace, wood chips, mixed, 1000kW/CH/I		1.18E-08	p	Pedigree: (1,3,2,1,1)
Heat, heavy fuel oil, at industrial furnace 1MW/RER		5.12E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		4.61E-03	MJ	Pedigree: (1,3,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		4.07E-02	MJ	Pedigree: (1,3,2,1,1)
Lubricating oil, at plant/RER		5.16E-05	kg	Pedigree: (1,3,2,1,1)
Melamine formaldehyde resin, at plant/RER		2.02E-03	kg	Pedigree: (1,3,2,1,1)
Methylene diphenyl diisocyanate, at plant/RER		6.61E-04	kg	Pedigree: (1,3,2,1,1)
Paraffin, at plant/RER		6.19E-04	kg	Pedigree: (1,3,2,1,1)
Phenolic resin, at plant/RER		2.49E-04	kg	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.34E-08	m3	Pedigree: (1,3,2,1,1)
pulpwood, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		4.82E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		4.66E-07	m3	Pedigree: (1,3,2,1,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		5.29E-05	m3	Pedigree: (1,3,2,1,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		4.99E-03	kg	Pedigree: (1,3,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		2.57E-02	kg	Pedigree: (1,3,2,1,1)
tap water, at user/kg/RER		3.60E-02	kg	Pedigree: (1,3,2,1,1)
Treatment, particle board production effluent, to wastewater treatment, class 1/m3/RER		1.46E-05	m3	Pedigree: (1,3,2,1,1)
Urea formaldehyde resin, at plant/RER		9.19E-03	kg	Pedigree: (1,3,2,1,1)
Urea, as N, at regional storehouse/RER		4.00E-05	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH		3.20E-04	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		4.12E-02	kg	Pedigree: (1,3,2,1,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		3.90E-03	kg	Pedigree: (1,3,2,1,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		7.83E-12	p	Pedigree: (1,3,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	9.03E-08	kg	Pedigree: (2,3,4,1,1)
Ammonia	high. pop.	5.91E-07	kg	Pedigree: (2,3,4,1,1)

Arsenic	high. pop.	3.42E-10	kg	Pedigree: (2,3,4,1,1)
Benzene	high. pop.	3.10E-07	kg	Pedigree: (2,3,4,1,1)
Benzene, ethyl-	high. pop.	1.02E-08	kg	Pedigree: (2,3,4,1,1)
Benzene, hexachloro-	high. pop.	2.45E-15	kg	Pedigree: (2,3,4,1,1)
Benzo(a)pyrene	high. pop.	1.70E-10	kg	Pedigree: (2,3,4,1,1)
Bromine	high. pop.	2.05E-08	kg	Pedigree: (2,3,4,1,1)
Cadmium	high. pop.	2.39E-10	kg	Pedigree: (2,3,4,1,1)
Calcium	high. pop.	2.00E-06	kg	Pedigree: (2,3,4,1,1)
Carbon dioxide, biogenic	high. pop.	3.49E-02	kg	Pedigree: (2,3,4,1,1)
Carbon monoxide, biogenic	high. pop.	6.82E-05	kg	Pedigree: (2,3,4,1,1)
Chlorine	high. pop.	6.14E-08	kg	Pedigree: (2,3,4,1,1)
Chromium	high. pop.	1.35E-09	kg	Pedigree: (2,3,4,1,1)
Chromium VI	high. pop.	1.37E-11	kg	Pedigree: (2,3,4,1,1)
Copper	high. pop.	7.51E-09	kg	Pedigree: (2,3,4,1,1)
Dinitrogen monoxide	high. pop.	7.86E-07	kg	Pedigree: (2,3,4,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.02E-14	kg	Pedigree: (2,3,4,1,1)
Fluorine	high. pop.	1.70E-08	kg	Pedigree: (2,3,4,1,1)
Formaldehyde	high. pop.	1.89E-05	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	3.10E-07	kg	Pedigree: (2,3,4,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.06E-06	kg	Pedigree: (2,3,4,1,1)
Lead	high. pop.	8.54E-09	kg	Pedigree: (2,3,4,1,1)
Magnesium	high. pop.	1.23E-07	kg	Pedigree: (2,3,4,1,1)
Manganese	high. pop.	5.81E-08	kg	Pedigree: (2,3,4,1,1)
Mercury	high. pop.	1.02E-10	kg	Pedigree: (2,3,4,1,1)
Methane, biogenic	high. pop.	5.12E-07	kg	Pedigree: (2,3,4,1,1)
Methanol	low. pop.	3.64E-06	kg	Pedigree: (3,3,4,1,1)
m-Xylene	high. pop.	4.10E-08	kg	Pedigree: (2,3,4,1,1)
Nickel	high. pop.	2.05E-09	kg	Pedigree: (2,3,4,1,1)
Nitrogen oxides	high. pop.	4.10E-05	kg	Pedigree: (2,3,4,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	8.31E-05	kg	Pedigree: (2,3,4,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	3.79E-09	kg	Pedigree: (2,3,4,1,1)
Particulates, < 2.5 um	high. pop.	8.54E-07	kg	Pedigree: (2,3,4,1,1)
Particulates, > 10 um		1.60E-05	kg	Pedigree: (3,3,2,1,1)
Phenol, pentachloro-	high. pop.	2.77E-12	kg	Pedigree: (2,3,4,1,1)
Phosphorus	high. pop.	1.02E-07	kg	Pedigree: (2,3,4,1,1)
Potassium	high. pop.	7.99E-06	kg	Pedigree: (2,3,4,1,1)
Sodium	high. pop.	4.44E-07	kg	Pedigree: (2,3,4,1,1)
Sulfur dioxide	high. pop.	8.54E-07	kg	Pedigree: (2,3,4,1,1)
Toluene	high. pop.	1.02E-07	kg	Pedigree: (2,3,4,1,1)
Zinc	high. pop.	1.02E-07	kg	Pedigree: (2,3,4,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		1.63E-04	kg	

Products				
residual wood, dry, from plywood production, for indoor use, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	2.19E-04	m3	Pedigree: (1,4,5,3,1)
Carbon dioxide, in air	in air	1.12E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.21E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		3.82E-04	MJ	Pedigree: (1,4,5,3,1)

electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.65E-02	kWh	Pedigree: (1,4,5,3,1)
Heat, hardwood chips from industry, at furnace 50kW/CH		7.73E-01	MJ	Pedigree: (1,4,5,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		2.37E-05	m3	Pedigree: (1,4,5,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		2.99E-04	m3	Pedigree: (1,4,5,3,1)
Urea formaldehyde resin, at plant/RER		9.92E-03	kg	Pedigree: (1,4,5,3,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.97E-12	p	Pedigree: (4,5,5,3,4)
Emissions to air				
Water		8.50E-05	kg	Pedigree: (4,4,5,2,4)
Formaldehyde		9.92E-06	kg	Pedigree: (4,5,5,5,5)
Waste to treatment				
Treatment, plywood production effluent, to wastewater treatment, class 3/CH		2.19E-04	m3	Pedigree: (1,4,5,3,1)

Products				
residual wood, dry, from plywood production, for out-door use, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	2.19E-04	m3	Pedigree: (1,4,5,3,1)
Materials/fuels				
Diesel, burned in building machine/GLO		3.82E-04	MJ	Pedigree: (1,4,5,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.65E-02	kWh	Pedigree: (1,4,5,3,1)
Heat, hardwood chips from industry, at furnace 50kW/CH		7.73E-01	MJ	Pedigree: (1,4,5,3,1)
Melamine formaldehyde resin, at plant/RER		9.92E-03	kg	Pedigree: (1,4,5,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		2.37E-05	m3	Pedigree: (1,4,5,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		2.99E-04	m3	Pedigree: (1,4,5,3,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		3.97E-12	p	Pedigree: (4,5,5,3,4)
Emissions to air				
Formaldehyde		9.92E-06	kg	Pedigree: (4,5,5,5,5)
Water		8.50E-05	kg	Pedigree: (4,4,5,2,4)
Waste to treatment				
Treatment, plywood production effluent, to wastewater treatment, class 3/CH		2.19E-04	m3	Pedigree: (1,4,5,3,1)

Products				
residual wood, dry, from three layered laminated board production, for outdoor use, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.62E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.82E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		3.71E-03	MJ	Pedigree: (2,4,5,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.99E-02	kWh	Pedigree: (2,4,5,3,1)
Heat, hardwood chips from industry, at furnace 50kW/CH		2.86E-01	MJ	Pedigree: (2,4,5,3,1)

Lubricating oil, at plant/RER		8.67E-07	kg	Pedigree: (2,4,5,3,1)
sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER		5.15E-04	m3	Pedigree: (2,4,5,3,1)
Transport, freight, rail/RER		8.49E-03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		4.12E-03	tkm	Pedigree: (1,1,4,5,4)
Vinyl acetate, at plant/RER		1.65E-03	kg	Pedigree: (2,4,5,3,1)
Wooden board manufacturing plant, organic bonded boards/RER/I		6.86E-12	p	Pedigree: (4,5,5,3,4)

Products				
residual wood, dry, from wood wool production, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.50E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.69E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		9.40E-03	kWh	Pedigree: (1,4,5,3,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		3.36E-04	m3	Pedigree: (1,4,5,3,1)
Sawmill/RER/I		1.35E-10	p	Pedigree: (4,5,5,3,4)

Products				
residual wood, dry, production mix, from industry, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Materials/fuels				
residual wood, dry, from fibreboard production, hard, measured as dry mass, at plant/kg/RER		1.70E-02	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from fibreboard production, soft, from wet & dry processes, measured as dry mass, at plant/kg/RER		3.47E-03	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from glued laminated timber production, for indoor use, measured as dry mass, at plant/kg/RER		3.60E-03	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from glued laminated timber production, for oudoor use, measured as dry mass, at plant/kg/RER		9.43E-04	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from laminated timber element production, measured as dry mass, at plant/kg/RER		6.49E-03	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from medium denstity fibre board production, measured as dry mass, at plant/kg/RER		1.42E-01	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from oriented strand board production, measured as dry mass, at plant/kg/RER		3.16E-02	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from particle board production, uncoated, average glue mix, measured as dry mass, at plant/kg/RER		2.32E-01	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from plywood production, for indoor use, measured as dry mass, at plant/kg/RER		1.80E-01	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from plywood production, for outdoor use, measured as dry mass, at plant/kg/RER		1.88E-01	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from three layered laminated board production, for outdoor use, measured as dry mass, at plant/kg/RER		1.93E-01	kg	Pedigree: (4,4,4,5,3)
residual wood, dry, from wood wool production, measured as dry mass, at plant/kg/RER		8.58E-04	kg	Pedigree: (4,4,4,5,3)
shavings, hardwood, measured as dry mass, at planing mill/kg/RER		1.10E-04	kg	Pedigree: (4,4,4,5,3)
shavings, softwood, measured as dry mass, at planing mill/kg/RER		2.19E-03	kg	Pedigree: (4,4,4,5,3)

Products				
saw dust, loose, hardwood, wet, measured as dry mass, at saw/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.58E+00~~ 1.67E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.71E+01~~ 1.81E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~3.56E-03~~ 3.36E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, at grid/kWh/CH		~~2.58E-03~~ 2.44E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~1.29E-05~~ 1.22E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		~~1.68E-04~~ 1.59E-04	m3	Pedigree: (2,1,2,1,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~2.97E-05~~ 2.80E-05	m3	Pedigree: (2,1,2,1,1)
sawmill/CH/I		~~2.65E-11~~ 2.50E-11	p	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~1.94E-06~~ 1.83E-06	kg	

Products				
saw dust, loose, hardwood, wet, measured as dry mass, at saw/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.58E+00~~ 1.67E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.71E+01~~ 1.81E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~3.56E-03~~ 3.36E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		~~2.58E-03~~ 2.44E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~1.29E-05~~ 1.22E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~1.98E-04~~ 1.87E-04	m3	Pedigree: (2,1,2,1,1)
Sawmill/RER/I		~~2.65E-11~~ 2.50E-11	p	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~1.94E-06~~ 1.83E-06	kg	

Products				
saw dust, loose, softwood, wet, measured as dry mass, at saw/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.55E+00~~ 1.66E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.75E+01~~ 1.88E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~5.91E-03~~ 5.51E-03	MJ	Pedigree: (1,3,2,3,1)

electricity, medium voltage, at grid/kWh/CH		~~3.95E-03~~ 3.68E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~2.15E-05~~ 2.01E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		~~3.30E-04~~ 3.08E-04	m3	Pedigree: (2,1,2,1,1)
sawmill/CH/I		~~4.40E-11~~ 4.10E-11	p	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~3.22E-06~~ 3.00E-06	kg	

Products				
saw dust, loose, softwood, wet, measured as dry mass, at saw/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.55E+00~~ 1.66E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.75E+01~~ 1.88E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~5.91E-03~~ 5.51E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		~~3.95E-03~~ 3.68E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~2.15E-05~~ 2.01E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~3.30E-04~~ 3.08E-04	m3	Pedigree: (2,1,2,1,1)
Sawmill/RER/I		~~4.40E-11~~ 4.10E-11	p	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~3.22E-06~~ 3.00E-06	kg	

Products				
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		3.00E-02	kWh	Pedigree: (1,1,2,1,1)
saw dust, loose, hardwood, wet, measured as dry mass, at saw/kg/CH		3.65E-01	kg	Pedigree: (1,1,2,1,1)
saw dust, loose, softwood, wet, measured as dry mass, at saw/kg/CH		6.35E-01	kg	

Products				
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.00E-02	kWh	Pedigree: (1,1,2,1,1)
saw dust, loose, hardwood, wet, measured as dry mass, at saw/kg/RER		3.65E-01	kg	
saw dust, loose, softwood, wet, measured as dry mass, at saw/kg/RER		6.35E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawlog and veneer log, beech, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.00E+00	m3	

Resources				
Carbon dioxide, in air	in air	1.09E+03	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.18E+04	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.67E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	3.68E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.19E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.63E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.19E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.63E-01	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.49E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		1.95E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.18E+02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.56E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		4.55E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		8.52E-02	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		9.73E+00	p	Pedigree: (3,1,2,1,1)

Products				
sawlog and veneer log, birch, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		1.00E+00	m3	
Resources				
Energy, gross calorific value, in biomass	biotic	1.22E+04	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	1.13E+03	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.23E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	4.68E+00	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	2.05E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	7.80E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	2.05E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	7.80E-02	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		7.88E+00	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~1.11E-01~~ 4.45E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		8.19E+00	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~1.39E-01~~ 9.79E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.23E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.34E-03	hr	Pedigree: (2,1,2,1,1)

Products				
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	1.15E+03	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.25E+04	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest		1.79E+03	m2a	
Occupation, traffic area, rail/road embankment	land	1.97E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest	land	1.38E+01	m2	Pedigree: (1,1,2,1,1)

Transformation, from traffic area, rail/road embankment	land	1.52E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest	land	1.38E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.52E-01	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
cable yarding and processing, mobile cable yarder on truck/hr/RER		2.68E-03	hr	Pedigree: (2,1,2,1,1)
cable yarding, mobile cable yarder on trailer/hr/RER		5.62E-03	hr	Pedigree: (2,1,2,1,1)
cable yarding, sled yarder/hr/RER		7.50E-05	hr	Pedigree: (2,1,2,1,1)
delimbing/sorting, excavator-based processor/hr/RER		4.90E-03	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		2.12E+00	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		1.95E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		4.93E+01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.56E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		3.86E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		7.49E-02	hr	Pedigree: (2,1,2,1,1)
Transport, helicopter/GLO		4.56E-04	hr	Pedigree: (2,1,2,1,1)

Products				
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.00E+00	m3	
Materials/fuels				
sawlog and veneer log, beech, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		3.38E-01	m3	Pedigree: (1,1,4,5,4)
sawlog and veneer log, birch, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		5.82E-01	m3	Pedigree: (1,1,4,5,4)
sawlog and veneer log, oak, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		7.99E-02	m3	Pedigree: (1,1,4,5,4)

Products				
sawlog and veneer log, oak, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	1.13E+03	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.22E+04	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.68E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	3.71E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.20E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.65E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.20E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.65E-01	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.66E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		3.28E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.19E+02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		2.63E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		3.75E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		6.73E-02	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.23E+01	p	Pedigree: (3,1,2,1,1)

Products				
sawlog and veneer log, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	8.88E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.00E+04	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.53E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	3.38E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.27E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.81E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.27E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.81E-01	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.56E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		2.60E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.08E+02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.95E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		4.63E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		6.77E-02	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.04E+01	p	Pedigree: (3,1,2,1,1)

Products				
sawlog and veneer log, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		1.00E+00	m3	
Resources				
Energy, gross calorific value, in biomass	biotic	1.00E+04	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	8.88E+02	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.87E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	7.12E+00	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	2.34E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	8.90E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	2.34E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	8.90E-02	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.58E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~1.11E-01~~ 4.45E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		8.19E+00	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~1.39E-01~~ 9.79E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.05E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.34E-03	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		3.34E+00	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		7.93E+00	p	Pedigree: (3,1,2,1,1)

Products

sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	7.79E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	8.77E+03	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest		1.47E+03	m2a	
Occupation, traffic area, rail/road embankment	land	1.62E+01	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest	land	1.13E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.25E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest	land	1.13E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.25E-01	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
cable yarding and processing, mobile cable yarder on truck/hr/RER		3.36E-03	hr	Pedigree: (2,1,2,1,1)
cable yarding, mobile cable yarder on trailer/hr/RER		8.18E-03	hr	Pedigree: (2,1,2,1,1)
cable yarding, sled yarder/hr/RER		1.51E-03	hr	Pedigree: (2,1,2,1,1)
delimbing/sorting, excavator-based processor/hr/RER		9.21E-03	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		1.74E+00	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		1.07E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		4.05E+01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		8.04E-03	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		6.26E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		7.62E-02	hr	Pedigree: (2,1,2,1,1)
Transport, helicopter/GLO		1.29E-03	hr	Pedigree: (2,1,2,1,1)

Products				
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		1.00E+00	m3	
Materials/fuels				
sawlog and veneer log, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		7.59E-02	m3	Pedigree: (1,1,4,5,4)
sawlog and veneer log, pine, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		2.98E-01	m3	Pedigree: (1,1,4,5,4)
sawlog and veneer log, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		2.22E-01	m3	Pedigree: (1,1,4,5,4)
sawlog and veneer log, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		3.68E-01	m3	Pedigree: (1,1,4,5,4)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		3.61E-02	m3	Pedigree: (1,1,4,5,4)

Products				
sawlog and veneer log, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/DE		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	7.79E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	8.77E+03	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	~~1.19E+03~~ 1.00E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	~~2.63E+01~~	m2a	Pedigree: (1,1,2,1,1)

		2.21E+01		
Transformation, from forest, intensive, normal	land	~~1.19E+01~~ 1.00E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	~~2.63E-01~~ 2.21E-01	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	~~1.19E+01~~ 1.00E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	~~2.63E-01~~ 2.21E-01	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~9.76E+00~~ 8.21E+00	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~2.22E-02~~ 1.87E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		~~8.41E+01~~ 7.08E+01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~1.66E-02~~ 1.40E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		~~4.80E-01~~ 4.04E-01	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		~~7.41E-02~~ 6.23E-02	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		~~3.65E+00~~ 3.07E+00	p	Pedigree: (3,1,2,1,1)

Products				
sawlog and veneer log, spruce, sustainable forest management, measured as solid wood under bark, at forest road/m3/SE		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	7.79E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	8.77E+03	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.47E+03	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	5.59E+00	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.84E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	6.99E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.84E+01	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	6.99E-02	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	1.00E+00	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.07E+01	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~1.11E-01~~ 4.45E-02	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		8.19E+00	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~1.39E-01~~ 9.79E-02	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		5.49E-02	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.34E-03	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		1.64E+00	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		3.90E+00	p	Pedigree: (3,1,2,1,1)

Products				
sawmill/CH/I		1.00E+00	p	
Resources				
Occupation, industrial area	land	9.85E+05	m2a	Pedigree: (3,5,2,1,3)

Transformation, from unknown	land	1.97E+04	m2	Pedigree: (3,5,2,1,3)
Transformation, to industrial area	land	1.97E+04	m2	Pedigree: (3,5,2,1,3)
Materials/fuels				
Building, hall/CH/I		4.28E+03	m2	Pedigree: (3,5,2,1,3)
Cast iron, at plant/RER		4.49E+05	kg	Pedigree: (3,5,2,1,3)
Concrete, sole plate and foundation, at plant/CH		4.18E+02	m3	Pedigree: (3,5,2,1,3)
Conveyor belt, at plant/RER/I		1.23E+03	m	Pedigree: (3,5,2,1,3)
Reinforcing steel, at plant/RER		3.34E+04	kg	Pedigree: (4,3,2,1,1)
Sheet rolling, steel/RER		4.70E+05	kg	Pedigree: (3,5,2,1,3)
Steel, low-alloyed, at plant/RER		4.70E+05	kg	Pedigree: (3,5,2,1,3)
Transport, freight, rail/RER		2.51E+05	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		3.35E+05	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, concrete, 5 % water, to inert material land-fill/CH		8.78E+05	kg	

Products				
sawnwood, beam, hardwood, dried (u=10 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-5.56E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-6.02E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		8.68E+00	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.97E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.05E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, hardwood, dried (u=10 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-5.56E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-6.02E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		8.68E+00	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.97E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.05E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, hardwood, dried (u=20 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-5.57E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-6.03E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		8.69E+00	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.97E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		2.09E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		8.38E-01	m3	Pedigree: (1,1,2,1,1)

Products

sawnwood, beam, hardwood, dried (u=20 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-5.57E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-6.03E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		8.69E+00	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.97E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		2.09E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		8.38E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Resources				
Occupation, industrial area	land	8.58E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.43E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.43E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, hardwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.93E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Resources				
Occupation, industrial area	land	8.58E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.43E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.43E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, hardwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.93E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		3.50E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		2.92E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/CH		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		9.64E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	1.02E-04	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	2.91E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.68E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.53E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	5.04E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	1.21E-11	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	8.40E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	1.01E-04	kg	Pedigree: (2,1,2,1,1)

Cadmium	high. pop.	1.18E-06	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	9.83E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.75E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	4.20E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	3.02E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	6.65E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	6.72E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	3.70E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	3.86E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	5.21E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	8.40E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	2.18E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.53E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	5.21E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	4.20E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	6.05E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	2.86E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	5.04E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	4.03E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	2.02E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	1.01E-05	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	3.02E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.76E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.86E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.51E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		8.40E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	1.36E-08	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	5.04E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	3.93E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	2.18E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	4.20E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	5.04E-04	kg	Pedigree: (2,1,2,1,1)
Water		3.67E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	5.04E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		8.40E-01	kg	

Products				
sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.50E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		2.92E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/RER		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		9.64E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	1.02E-04	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	2.91E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.68E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.53E-03	kg	Pedigree: (2,1,2,1,1)

Benzene, ethyl-	high. pop.	5.04E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	1.21E-11	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	8.40E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	1.01E-04	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	1.18E-06	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	9.83E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.75E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	4.20E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	3.02E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	6.65E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	6.72E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	3.70E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	3.86E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	5.21E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	8.40E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	2.18E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.53E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	5.21E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	4.20E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	6.05E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	2.86E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	5.04E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	4.03E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	2.02E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	1.01E-05	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	3.02E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.76E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.86E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.51E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		8.40E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	1.36E-08	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	5.04E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	3.93E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	2.18E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	4.20E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	5.04E-04	kg	Pedigree: (2,1,2,1,1)
Water		3.67E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	5.04E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		8.40E-01	kg	

Products				
sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.33E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.94E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		6.43E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	6.83E-05	kg	Pedigree: (2,1,2,1,1)

Ammonia	high. pop.	1.94E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.12E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.02E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	3.36E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	8.06E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	5.60E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	6.72E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	7.84E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	6.55E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.16E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.80E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	2.02E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	4.44E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	4.48E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.46E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.58E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	3.47E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	5.60E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.46E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.02E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	3.47E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.80E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	4.03E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.90E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	3.36E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.69E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.34E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	6.72E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	2.02E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.18E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.24E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.01E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		5.60E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	9.07E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	3.36E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.62E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.46E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.80E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	3.36E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.93E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	3.36E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		5.60E-01	kg	

Products				
sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.33E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.94E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)

wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		6.43E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	6.83E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.94E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.12E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.02E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	3.36E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	8.06E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	5.60E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	6.72E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	7.84E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	6.55E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.16E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.80E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	2.02E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	4.44E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	4.48E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.46E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.58E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	3.47E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	5.60E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.46E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.02E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	3.47E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.80E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	4.03E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.90E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	3.36E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.69E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.34E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	6.72E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	2.02E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.18E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.24E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.01E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		5.60E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	9.07E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	3.36E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.62E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.46E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.80E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	3.36E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.93E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	3.36E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.48E-01	kg	

Products				
sawnwood, beam, softwood, dried (u=10 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-3.06E+01	kg	Pedigree: (1,1,2,1,1)

Energy, gross calorific value, in biomass	biotic	-3.45E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		8.67E+00	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.95E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.04E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, softwood, dried (u=10 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-3.06E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-3.45E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		8.67E+00	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.95E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.04E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, softwood, dried (u=20 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-3.30E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-3.72E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		8.67E+00	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.96E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		2.09E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		8.36E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, softwood, dried (u=20 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-3.30E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-3.72E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		8.67E+00	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.96E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		2.09E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		8.36E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Resources				
Occupation, industrial area	land	3.43E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.43E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.43E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, softwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)

Emissions to air				
Water		2.01E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Resources				
Occupation, industrial area	land	3.43E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.43E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.43E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, softwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.01E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.50E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.98E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/CH		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		6.14E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	6.97E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.98E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.14E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.04E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	3.43E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	8.23E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	5.71E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	6.86E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	8.00E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	6.68E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.11E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	3.43E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	2.06E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	4.52E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	4.57E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.51E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.63E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	3.54E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	5.71E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.49E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.04E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	3.54E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.86E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	4.11E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.94E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	3.43E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	4.57E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.37E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	6.86E-06	kg	Pedigree: (2,1,2,1,1)

Nitrogen oxides	high. pop.	2.06E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.20E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.27E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.03E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		5.71E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	9.26E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	3.43E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.67E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.49E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.86E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	3.43E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.52E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	3.43E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		5.44E-01	kg	

Products				
sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.50E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.98E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/RER		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		6.14E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	6.97E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.98E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.14E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.04E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	3.43E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	8.23E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	5.71E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	6.86E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	8.00E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	6.68E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.11E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	3.43E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	2.06E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	4.52E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	4.57E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.51E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.63E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	3.54E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	5.71E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.49E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.04E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	3.54E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.86E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	4.11E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.94E-04	kg	Pedigree: (2,1,2,1,1)

Mercury	high. pop.	3.43E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	4.57E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.37E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	6.86E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	2.06E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.20E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.27E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.03E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		5.71E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	9.26E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	3.43E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.67E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.49E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.86E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	3.43E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.52E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	3.43E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		5.44E-01	kg	

Products				
sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.67E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.32E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		4.09E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	4.64E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.32E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	7.61E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	6.93E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.28E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	5.48E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	3.81E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	4.57E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	5.33E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	4.45E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	7.41E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.28E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.37E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.01E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.05E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.67E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	1.75E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.36E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	3.81E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	9.90E-05	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	6.93E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.36E-03	kg	Pedigree: (2,1,2,1,1)

Lead	high. pop.	1.90E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	2.74E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.29E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.28E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.05E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	9.14E-05	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	4.57E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.37E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	7.99E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	8.45E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	6.85E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		3.81E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	6.17E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.28E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	1.78E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	9.90E-04	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	1.90E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.28E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.01E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	2.28E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		3.62E-01	kg	

Products				
sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.67E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.32E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		4.09E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	4.64E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.32E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	7.61E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	6.93E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.28E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	5.48E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	3.81E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	4.57E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	5.33E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	4.45E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	7.41E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.28E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.37E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.01E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.05E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.67E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	1.75E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.36E-11	kg	Pedigree: (2,1,2,1,1)

Fluorine	high. pop.	3.81E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	9.90E-05	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	6.93E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.36E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	1.90E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	2.74E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.29E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.28E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.05E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	9.14E-05	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	4.57E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.37E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	7.99E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	8.45E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	6.85E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		3.81E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	6.17E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.28E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	1.78E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	9.90E-04	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	1.90E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.28E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.01E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	2.28E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		3.62E-01	kg	

Products				
sawnwood, board, hardwood, dried (u=10 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-8.90E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-9.63E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.87E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		7.19E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.08E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, hardwood, dried (u=10 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-8.90E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-9.63E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.87E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		7.19E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.08E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, hardwood, dried (u=20 %), planed, at sawmill/m3/CH		1.00E+00	m3	

Resources				
Carbon dioxide, in air	in air	-8.64E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-9.35E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.87E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		7.20E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		2.16E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		8.65E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, hardwood, dried (u=20 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-8.64E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-9.35E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.87E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		7.20E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		2.16E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		8.65E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Resources				
Occupation, industrial area	land	3.92E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, hardwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.93E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Resources				
Occupation, industrial area	land	3.92E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, hardwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Electricity/heat				
Emissions to air				
Water		2.93E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
Furnace, wood chips, mixed, 300kW/CH/I		2.34E-05	p	Pedigree: (2,1,2,1,1)
electricity, medium voltage, at grid/kWh/CH		3.00E+01	kWh	Pedigree: (2,1,2,1,1)

Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		7.73E+01	kg	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/CH		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	8.21E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	2.33E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.35E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.23E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	4.04E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	9.70E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	6.73E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	8.08E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	9.43E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	7.88E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.40E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	3.37E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	2.42E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	5.33E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	5.39E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.96E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	3.10E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	4.17E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	6.73E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.75E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.23E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	4.17E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	3.37E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	4.85E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	2.29E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	4.04E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.23E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.62E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	8.08E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	2.42E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.41E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.49E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.21E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		6.73E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	1.09E-08	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	3.15E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.75E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	3.37E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Water		3.67E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		6.73E-01	kg	

Products				
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.00E+00	m3	

Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		2.34E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/RER		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		7.73E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	8.21E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	2.33E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.35E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.23E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	4.04E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	9.70E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	6.73E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	8.08E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	9.43E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	7.88E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.40E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	3.37E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	2.42E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	5.33E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	5.39E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.96E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	3.10E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	4.17E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	6.73E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.75E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.23E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	4.17E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	3.37E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	4.85E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	2.29E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	4.04E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.23E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.62E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	8.08E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	2.42E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.41E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.49E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.21E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		6.73E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	1.09E-08	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	3.15E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.75E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	3.37E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Water		3.67E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		6.73E-01	kg	

Products				
sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.56E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		5.14E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.47E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.55E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	8.96E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	8.15E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.69E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	6.45E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	4.48E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	5.38E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	6.27E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	5.24E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	9.32E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.24E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.61E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.55E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.58E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.97E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.06E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.78E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	4.48E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.16E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	8.15E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.78E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.24E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	3.23E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.52E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.69E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.15E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.08E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	5.38E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.61E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	9.41E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	9.95E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	8.06E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		4.48E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	7.26E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.10E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.16E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.24E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.93E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)

Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.48E-01	kg	

Products				
sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.56E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		5.14E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.47E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.55E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	8.96E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	8.15E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.69E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	6.45E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	4.48E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	5.38E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	6.27E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	5.24E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	9.32E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.24E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.61E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.55E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.58E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.97E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.06E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.78E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	4.48E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.16E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	8.15E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.78E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.24E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	3.23E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.52E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.69E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.15E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.08E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	5.38E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.61E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	9.41E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	9.95E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	8.06E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		4.48E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	7.26E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.10E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.16E-03	kg	Pedigree: (2,1,2,1,1)

Sulfur dioxide	high. pop.	2.24E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.93E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.48E-01	kg	

Products				
sawnwood, board, softwood, dried (u=10 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-6.12E+01	kg	Pedigree: (2,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-6.89E+02	MJ	Pedigree: (2,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.86E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		7.16E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, board, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.08E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, softwood, dried (u=10 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-6.12E+01	kg	Pedigree: (2,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-6.89E+02	MJ	Pedigree: (2,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.86E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		7.16E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER		1.08E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, softwood, dried (u=20 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-5.65E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-6.36E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.86E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		7.17E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		2.15E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		8.62E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, softwood, dried (u=20 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-5.65E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-6.36E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.86E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		7.17E-07	p	Pedigree: (2,1,2,1,1)

sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		2.15E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		8.62E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Resources				
Occupation, industrial area	land	1.96E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, softwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.01E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Resources				
Occupation, industrial area	land	1.96E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, softwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.01E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.63E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/RER		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		5.03E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.71E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.62E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	9.36E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	8.52E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.81E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	6.74E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	4.68E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	5.62E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	6.55E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	5.48E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	9.11E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.81E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.68E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.71E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.74E-08	kg	Pedigree: (2,1,2,1,1)

Copper	high. pop.	2.06E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.15E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.90E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	4.68E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.22E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	8.52E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.90E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.34E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	3.37E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.59E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.81E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.74E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.12E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	5.62E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.68E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	9.83E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.04E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	8.42E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		4.68E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	7.58E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.19E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.22E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.34E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.52E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.46E-01	kg	

Products				
sawnwood, board, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.63E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/CH		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		5.03E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.71E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.62E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	9.36E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	8.52E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.81E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	6.74E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	4.68E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	5.62E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	6.55E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	5.48E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	9.11E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.81E-01	kg	Pedigree: (2,1,2,1,1)

Chlorine	high. pop.	1.68E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.71E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.74E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.06E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.15E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.90E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	4.68E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.22E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	8.52E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.90E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.34E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	3.37E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.59E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.81E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.74E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.12E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	5.62E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.68E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	9.83E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.04E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	8.42E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		4.68E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	7.58E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.19E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.22E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.34E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.52E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.46E-01	kg	

Products				
sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.33E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.08E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		3.35E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	3.81E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.08E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	6.24E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	5.68E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	1.87E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	4.49E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	3.12E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	3.74E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	4.37E-07	kg	Pedigree: (2,1,2,1,1)

Calcium	high. pop.	3.65E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	6.07E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	1.87E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.12E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	2.47E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	2.50E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.37E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	1.44E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.93E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	3.12E-05	kg	Pedigree: (2,5,2,1,1)
Formaldehyde	high. pop.	8.11E-05	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	5.68E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.93E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	1.56E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	2.25E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.06E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	1.87E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.50E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	7.49E-05	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	3.74E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.12E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.55E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	6.93E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	5.62E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		3.12E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	5.05E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	1.46E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	8.11E-04	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	1.56E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.01E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		-2.97E-01	kg	

Products				
sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.33E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.08E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		3.35E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	3.81E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.08E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	6.24E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	5.68E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	1.87E-05	kg	Pedigree: (2,1,2,1,1)

Benzene, hexachloro-	high. pop.	4.49E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	3.12E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	3.74E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	4.37E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	3.65E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	6.07E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	1.87E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.12E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	2.47E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	2.50E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.37E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	1.44E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.93E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	3.12E-05	kg	Pedigree: (2,5,2,1,1)
Formaldehyde	high. pop.	8.11E-05	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	5.68E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.93E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	1.56E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	2.25E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.06E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	1.87E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.50E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	7.49E-05	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	3.74E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.12E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.55E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	6.93E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	5.62E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		3.12E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	5.05E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	1.46E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	8.11E-04	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	1.56E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.01E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		2.97E-01	kg	

Products				
sawnwood, hardwood, raw, at saw/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	~~-6.33E+02~~ -6.70E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~-6.85E+03~~ -7.25E+03	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~2.77E+01~~ 2.62E+01	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, at grid/kWh/CH		~~2.01E+01~~ 1.90E+01	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~1.01E-01~~ 9.54E-02	kg	Pedigree: (1,5,2,3,1)

sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		~~1.32E+00~~ 1.25E+00	m3	Pedigree: (2,1,2,1,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~2.32E-01~~ 2.19E-01	m3	Pedigree: (2,1,2,1,1)
sawmill/CH/I		~~2.06E-07~~ 1.95E-07	p	Pedigree: (2,1,2,1,1)
Transport, lorry 20-28t, fleet average/CH		~~6.82E+01~~ 6.44E+01	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~1.51E-02~~ 1.42E-02	kg	

Products				
sawnwood, hardwood, raw, at saw/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	~~-6.33E+02~~ -6.70E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~-6.85E+03~~ -7.25E+03	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~2.77E+01~~ 2.62E+01	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		~~2.01E+01~~ 1.90E+01	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~1.01E-01~~ 9.54E-02	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~1.55E+00~~ 1.46E+00	m3	Pedigree: (2,1,2,1,1)
Sawmill/RER/I		~~2.06E-07~~ 1.95E-07	p	Pedigree: (2,1,2,1,1)
Transport, lorry >16t, fleet average/RER		~~6.82E+01~~ 6.44E+01	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~1.51E-02~~ 1.42E-02	kg	

Products				
sawnwood, lath, hardwood, dried (u=10 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-1.22E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-1.32E+03	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.15E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.82E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.11E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, lath, hardwood, dried (u=10 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-1.22E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-1.32E+03	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.15E+01	kWh	Pedigree: (2,1,2,1,1)

Planing mill/RER/I		6.82E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.11E+00	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, lath, hardwood, dried (u=20 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-1.15E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-1.25E+03	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.15E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.83E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		2.22E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		8.86E-01	m3	Pedigree: (5,5,5,5,5)

Products				
sawnwood, lath, hardwood, dried (u=20 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-1.15E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-1.25E+03	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.15E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.83E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		2.22E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		8.86E-01	m3	Pedigree: (5,5,5,5,5)

Products				
sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Resources				
Occupation, industrial area	land	3.92E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, hardwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.93E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Resources				
Occupation, industrial area	land	3.92E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, hardwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.93E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		3.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		2.34E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/CH		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		7.73E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	8.21E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	2.33E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.35E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.23E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	4.04E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	9.70E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	6.73E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	8.08E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	9.43E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	7.88E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.40E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	3.37E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	2.42E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	5.33E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	5.39E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.96E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	3.10E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	4.17E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	6.73E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.75E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.23E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	4.17E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	3.37E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	4.85E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	2.29E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	4.04E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.23E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.62E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	8.08E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	2.42E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.41E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.49E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.21E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		6.73E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	1.09E-08	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	3.15E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.75E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	3.37E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Water		3.67E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				

Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		6.73E-01	kg	

Products				
sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		2.34E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/RER		1.09E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		7.73E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	8.21E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	2.33E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	1.35E-06	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	1.23E-03	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	4.04E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	9.70E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	6.73E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	8.08E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	9.43E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	7.88E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.40E+02	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	3.37E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	2.42E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	5.33E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	5.39E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.96E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	3.10E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	4.17E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	6.73E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.75E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	1.23E-03	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	4.17E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	3.37E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	4.85E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	2.29E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	4.04E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.23E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.62E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	8.08E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	2.42E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.41E-02	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.49E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	1.21E-01	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		6.73E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	1.09E-08	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	3.15E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.75E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	3.37E-03	kg	Pedigree: (2,1,2,1,1)

Toluene	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Water		3.67E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	4.04E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		6.73E-01	kg	

Products				
sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.56E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		5.14E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.47E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.55E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	8.96E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	8.15E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.69E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	6.45E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	4.48E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	5.38E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	6.27E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	5.24E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	9.32E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.24E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.61E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.55E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.58E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.97E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.06E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.78E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	4.48E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.16E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	8.15E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.78E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.24E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	3.23E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.52E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.69E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.15E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.08E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	5.38E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.61E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	9.41E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	9.95E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	8.06E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		4.48E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	7.26E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)

Potassium	high. pop.	2.10E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.16E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.24E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.93E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.48E-01	kg	

Products				
sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.56E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, hardwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		5.14E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.47E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.55E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	8.96E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	8.15E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.69E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	6.45E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	4.48E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	5.38E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	6.27E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	5.24E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	9.32E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.24E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.61E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.55E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.58E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.97E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.06E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.78E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	4.48E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.16E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	8.15E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.78E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.24E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	3.23E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.52E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.69E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.15E-03	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.08E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	5.38E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.61E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	9.41E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	9.95E-06	kg	Pedigree: (2,1,2,1,1)

Particulates, < 2.5 um	high. pop.	8.06E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		4.48E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	7.26E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.10E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.16E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.24E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.93E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	2.69E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.48E-01	kg	

Products				
sawnwood, lath, softwood, dried (u=10 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-7.65E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-8.62E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.14E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.78E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.10E+00	m3	Pedigree: (5,5,5,5,5)

Products				
sawnwood, lath, softwood, dried (u=10 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-7.65E+01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-8.62E+02	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.14E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.78E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.10E+00	m3	Pedigree: (5,5,5,5,5)

Products				
sawnwood, lath, softwood, dried (u=20 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	-1.10E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-1.24E+03	MJ	Pedigree: (1,1,4,5,4)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.14E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.80E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		2.21E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		8.82E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, lath, softwood, dried (u=20 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Resources				

Carbon dioxide, in air	in air	-1.10E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-1.24E+03	MJ	Pedigree: (1,1,4,5,4)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.14E+01	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		6.80E-07	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		2.21E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		8.82E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Resources				
Occupation, industrial area	land	1.96E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, softwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.01E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Resources				
Occupation, industrial area	land	1.96E-03	m2a	Pedigree: (2,1,2,1,1)
Transformation, from unknown	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Transformation, to industrial area	land	3.92E-03	m2	Pedigree: (2,1,2,1,1)
Materials/fuels				
sawnwood, softwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Emissions to air				
Water		2.01E-01	kg	Pedigree: (1,1,2,1,1)

Products				
sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		2.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.63E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/CH		1.09E+00	m3	Pedigree: (1,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		5.03E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.71E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.62E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	9.36E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	8.52E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.81E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	6.74E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	4.68E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	5.62E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	6.55E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	5.48E-03	kg	Pedigree: (2,1,2,1,1)

Carbon dioxide, biogenic	high. pop.	9.11E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.81E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.68E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.71E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.74E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.06E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.15E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.90E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	4.68E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.22E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	8.52E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.90E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.34E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	3.37E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.59E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.81E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.74E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.12E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	5.62E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.68E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	9.83E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.04E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	8.42E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		4.68E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	7.58E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.19E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.22E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.34E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.52E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.46E-01	kg	

Products				
sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.00E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.63E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/RER		1.09E+00	m3	Pedigree: (1,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		5.03E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	5.71E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.62E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	9.36E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	8.52E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	2.81E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	6.74E-12	kg	Pedigree: (2,1,2,1,1)

Benzo(a)pyrene	high. pop.	4.68E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	5.62E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	6.55E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	5.48E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	9.11E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	2.81E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.68E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	3.71E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	3.74E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	2.06E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	2.15E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	2.90E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	4.68E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	1.22E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	8.52E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	2.90E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	2.34E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	3.37E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.59E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	2.81E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	3.74E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	1.12E-04	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	5.62E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.68E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	9.83E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	1.04E-05	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	8.42E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		4.68E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	7.58E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	2.19E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	1.22E-03	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	2.34E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.52E-01	kg	Pedigree: (1,1,2,1,1)
Zinc	high. pop.	2.81E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		4.46E-01	kg	

Products				
sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.33E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.08E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/CH		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		3.35E+01	kg	Pedigree: (2,1,2,1,1)
Emissions to air				
Acetaldehyde	high. pop.	3.81E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.08E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	6.24E-07	kg	Pedigree: (2,1,2,1,1)

Benzene	high. pop.	5.68E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	1.87E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	4.49E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	3.12E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	3.74E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	4.37E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	3.65E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	6.07E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	1.87E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.12E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	2.47E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	2.50E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.37E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	1.44E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.93E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	3.12E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	8.11E-05	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	5.68E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.93E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	1.56E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	2.25E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.06E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	1.87E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.50E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	7.49E-05	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	3.74E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.12E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.55E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	6.93E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	5.62E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		3.12E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	5.05E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	1.46E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	8.11E-04	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	1.56E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.01E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		2.97E-01	kg	

Products				
sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.33E+01	kWh	Pedigree: (2,1,2,1,1)
Furnace, wood chips, mixed, 300kW/CH/I		1.08E-05	p	Pedigree: (2,1,2,1,1)
sawnwood, softwood, raw, at saw/m3/RER		1.04E+00	m3	Pedigree: (2,1,2,1,1)
Technical wood drying, infrastructure/RER/I		3.66E-06	p	Pedigree: (2,1,2,1,1)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		3.35E+01	kg	Pedigree: (2,1,2,1,1)

Emissions to air				
Acetaldehyde	high. pop.	3.81E-05	kg	Pedigree: (2,1,2,1,1)
Ammonia	high. pop.	1.08E-03	kg	Pedigree: (2,1,2,1,1)
Arsenic	high. pop.	6.24E-07	kg	Pedigree: (2,1,2,1,1)
Benzene	high. pop.	5.68E-04	kg	Pedigree: (2,1,2,1,1)
Benzene, ethyl-	high. pop.	1.87E-05	kg	Pedigree: (2,1,2,1,1)
Benzene, hexachloro-	high. pop.	4.49E-12	kg	Pedigree: (2,1,2,1,1)
Benzo(a)pyrene	high. pop.	3.12E-07	kg	Pedigree: (2,1,2,1,1)
Bromine	high. pop.	3.74E-05	kg	Pedigree: (2,1,2,1,1)
Cadmium	high. pop.	4.37E-07	kg	Pedigree: (2,1,2,1,1)
Calcium	high. pop.	3.65E-03	kg	Pedigree: (2,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	6.07E+01	kg	Pedigree: (2,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	1.87E-01	kg	Pedigree: (2,1,2,1,1)
Chlorine	high. pop.	1.12E-04	kg	Pedigree: (2,1,2,1,1)
Chromium	high. pop.	2.47E-06	kg	Pedigree: (2,1,2,1,1)
Chromium VI	high. pop.	2.50E-08	kg	Pedigree: (2,1,2,1,1)
Copper	high. pop.	1.37E-05	kg	Pedigree: (2,1,2,1,1)
Dinitrogen monoxide	high. pop.	1.44E-03	kg	Pedigree: (2,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	high. pop.	1.93E-11	kg	Pedigree: (2,1,2,1,1)
Fluorine	high. pop.	3.12E-05	kg	Pedigree: (2,1,2,1,1)
Formaldehyde	high. pop.	8.11E-05	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, alkanes, unspecified	high. pop.	5.68E-04	kg	Pedigree: (2,1,2,1,1)
Hydrocarbons, aliphatic, unsaturated	high. pop.	1.93E-03	kg	Pedigree: (2,1,2,1,1)
Lead	high. pop.	1.56E-05	kg	Pedigree: (2,1,2,1,1)
Magnesium	high. pop.	2.25E-04	kg	Pedigree: (2,1,2,1,1)
Manganese	high. pop.	1.06E-04	kg	Pedigree: (2,1,2,1,1)
Mercury	high. pop.	1.87E-07	kg	Pedigree: (2,1,2,1,1)
Methane, biogenic	high. pop.	2.50E-04	kg	Pedigree: (2,1,2,1,1)
m-Xylene	high. pop.	7.49E-05	kg	Pedigree: (2,1,2,1,1)
Nickel	high. pop.	3.74E-06	kg	Pedigree: (2,1,2,1,1)
Nitrogen oxides	high. pop.	1.12E-01	kg	Pedigree: (2,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.55E-03	kg	Pedigree: (2,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	high. pop.	6.93E-06	kg	Pedigree: (2,1,2,1,1)
Particulates, < 2.5 um	high. pop.	5.62E-02	kg	Pedigree: (2,1,2,1,1)
Particulates, > 2.5 um, and < 10um		3.12E-03	kg	Pedigree: (2,1,2,1,1)
Phenol, pentachloro-	high. pop.	5.05E-09	kg	Pedigree: (2,1,2,1,1)
Phosphorus	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Potassium	high. pop.	1.46E-02	kg	Pedigree: (2,1,2,1,1)
Sodium	high. pop.	8.11E-04	kg	Pedigree: (2,1,2,1,1)
Sulfur dioxide	high. pop.	1.56E-03	kg	Pedigree: (2,1,2,1,1)
Toluene	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Water		2.01E-01	kg	Pedigree: (2,1,2,1,1)
Zinc	high. pop.	1.87E-04	kg	Pedigree: (2,1,2,1,1)
Waste to treatment				
Disposal, wood ash mixture, pure, 0 % water, to sanitary landfill/CH		2.97E-01	kg	

Products				
sawnwood, production mix, hardwood, dried (u=10 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
sawnwood, board, hardwood, dried (u=10 %), planed, at sawmill/m3/CH		3.30E-01	m3	Pedigree: (1,1,4,5,4)

sawnwood, beam, hardwood, dried (u=10 %), planed, at sawmill/m3/CH		5.00E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, lath, hardwood, dried (u=10 %), planed, at sawmill/m3/CH		1.70E-01	m3	Pedigree: (1,1,4,5,4)

Products				
sawnwood, production mix, hardwood, dried (u=10 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
sawnwood, board, hardwood, dried (u=10 %), planed, at sawmill/m3/RER		3.30E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, beam, hardwood, dried (u=10 %), planed, at sawmill/m3/RER		5.00E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, lath, hardwood, dried (u=10 %), planed, at sawmill/m3/RER		1.70E-01	m3	Pedigree: (1,1,4,5,4)

Products				
sawnwood, production mix, hardwood, dried (u=20 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
sawnwood, beam, hardwood, dried (u=20 %), planed, at sawmill/m3/CH		5.00E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, hardwood, dried (u=20 %), planed, at sawmill/m3/CH		3.30E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, hardwood, dried (u=20 %), planed, at sawmill/m3/CH		1.70E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, hardwood, dried (u=20 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
sawnwood, beam, hardwood, dried (u=20 %), planed, at sawmill/m3/RER		5.00E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, hardwood, dried (u=20 %), planed, at sawmill/m3/RER		3.30E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, hardwood, dried (u=20 %), planed, at sawmill/m3/RER		1.70E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, hardwood, raw, dried (u=10 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.70E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		3.30E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		5.00E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, hardwood, raw, dried (u=10 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.70E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		3.30E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		5.00E-01	m3	Pedigree: (1,1,2,1,1)

Products

sawnwood, production mix, hardwood, raw, dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		6.60E-02	m3	Pedigree: (1,5,2,3,1)
sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		2.64E-01	m3	
sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.00E-01	m3	Pedigree: (1,5,2,3,1)
sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		4.00E-01	m3	
sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		3.40E-02	m3	Pedigree: (1,5,2,3,1)
sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.36E-01	m3	

Products				
sawnwood, production mix, hardwood, raw, dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		6.60E-02	m3	Pedigree: (1,5,2,3,1)
sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		2.64E-01	m3	
sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.00E-01	m3	Pedigree: (1,5,2,3,1)
sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		4.00E-01	m3	
sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		3.40E-02	m3	Pedigree: (1,5,2,3,1)
sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.36E-01	m3	

Products				
sawnwood, production mix, raw, dried (u=10 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER		4.50E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		3.90E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		1.60E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, softwood, dried (u=10 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
sawnwood, board, softwood, dried (u=10 %), planed, at sawmill/m3/CH		4.50E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, dried (u=10 %), planed, at sawmill/m3/CH		3.90E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, dried (u=10 %), planed, at sawmill/m3/CH		1.60E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, softwood, dried (u=10 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
sawnwood, board, softwood, dried (u=10 %), planed, at sawmill/m3/RER		4.50E-01	m3	Pedigree: (1,1,2,1,1)

sawnwood, beam, softwood, dried (u=10 %), planed, at sawmill/m3/RER		3.90E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, dried (u=10 %), planed, at sawmill/m3/RER		1.60E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, softwood, dried (u=20 %), planed, at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
sawnwood, board, softwood, dried (u=20 %), planed, at sawmill/m3/CH		4.50E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, dried (u=20 %), planed, at sawmill/m3/CH		3.90E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, dried (u=20 %), planed, at sawmill/m3/CH		1.60E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, softwood, dried (u=20 %), planed, at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
sawnwood, board, softwood, dried (u=20 %), planed, at sawmill/m3/RER		4.50E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, dried (u=20 %), planed, at sawmill/m3/RER		3.90E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, dried (u=20 %), planed, at sawmill/m3/RER		1.60E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, softwood, raw, dried (u=10 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
sawnwood, board, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		4.50E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		3.90E-01	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		1.60E-01	m3	Pedigree: (1,1,2,1,1)

Products				
sawnwood, production mix, softwood, raw, dried (u=20 %), at sawmill/m3/CH		1.00E+00	m3	
Materials/fuels				
sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		3.15E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.35E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		2.70E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		1.20E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.13E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		4.68E-02	m3	Pedigree: (1,1,4,5,4)

Products				
sawnwood, production mix, softwood, raw, dried (u=20 %), at sawmill/m3/RER		1.00E+00	m3	
Materials/fuels				
sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		3.15E-01	m3	Pedigree: (1,1,4,5,4)

sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.35E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		2.70E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		1.20E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.13E-01	m3	Pedigree: (1,1,4,5,4)
sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		4.68E-02	m3	Pedigree: (1,1,4,5,4)

Products				
sawnwood, softwood, raw, at saw/m3/CH		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	~~-4.28E+02~~ -4.59E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~-4.82E+03~~ -5.17E+03	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~2.78E+01~~ 2.59E+01	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, at grid/kWh/CH		~~1.86E+01~~ 1.73E+01	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~1.01E-01~~ 9.42E-02	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		~~1.55E+00~~ 1.45E+00	m3	Pedigree: (2,1,2,1,1)
sawmill/CH/I		~~2.07E-07~~ 1.93E-07	p	Pedigree: (2,1,2,1,1)
Transport, lorry 20-28t, fleet average/CH		~~5.73E+01~~ 5.35E+01	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~1.51E-02~~ 1.41E-02	kg	

Products				
sawnwood, softwood, raw, at saw/m3/RER		1.00E+00	m3	
Resources				
Carbon dioxide, in air	in air	~~-4.28E+02~~ -4.59E+02	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~-4.82E+03~~ -5.17E+03	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~2.78E+01~~ 2.59E+01	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		~~1.86E+01~~ 1.73E+01	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~1.01E-01~~ 9.42E-02	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~1.55E+00~~ 1.45E+00	m3	Pedigree: (2,1,2,1,1)
Sawmill/RER/I		~~2.07E-07~~ 1.93E-07	p	Pedigree: (2,1,2,1,1)
Transport, lorry >16t, fleet average/RER		~~5.73E+01~~ 5.35E+01	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~1.51E-02~~ 1.41E-02	kg	

Products

shavings, hardwood, measured as dry mass, at planing mill/kg/CH		1.00E+00	kg	
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		3.49E-02	kWh	Pedigree: (1,1,2,1,1)
shavings, loose, hardwood, from planing, average, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	Pedigree: (1,1,2,1,1)

Products				
shavings, hardwood, measured as dry mass, at planing mill/kg/RER		1.00E+00	kg	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.49E-02	kWh	Pedigree: (1,1,2,1,1)
shavings, loose, hardwood, from planing, average, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, average, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Materials/fuels				
shavings, loose, hardwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/CH		2.54E-02	kg	
shavings, loose, hardwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/CH		2.63E-02	kg	
shavings, loose, hardwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/CH		8.84E-02	kg	
shavings, loose, hardwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/CH		9.17E-02	kg	
shavings, loose, hardwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/CH		6.37E-01	kg	
shavings, loose, hardwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/CH		1.23E-01	kg	

Products				
shavings, loose, hardwood, from planing, average, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Materials/fuels				
shavings, loose, hardwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/RER		2.54E-02	kg	
shavings, loose, hardwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/RER		2.63E-02	kg	
shavings, loose, hardwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/RER		8.84E-02	kg	
shavings, loose, hardwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/RER		9.17E-02	kg	
shavings, loose, hardwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/RER		6.37E-01	kg	
shavings, loose, hardwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/RER		1.23E-01	kg	

Products				
shavings, loose, hardwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.32E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.43E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		3.68E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		2.95E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		4.44E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.32E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.43E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.68E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		2.95E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		4.44E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.34E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.45E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		3.68E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		2.96E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		8.88E-05	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		3.55E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.34E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.45E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.68E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		2.96E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		8.88E-05	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		3.55E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.30E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.41E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		7.92E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		3.05E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		4.58E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	

Resources				
Carbon dioxide, in air	in air	1.30E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.41E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		7.92E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		3.05E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		4.58E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.32E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.43E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		7.93E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		3.05E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		9.17E-05	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		3.67E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.32E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.43E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		7.93E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		3.05E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, board, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		9.17E-05	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		3.67E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.29E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.40E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		9.10E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		2.89E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		4.69E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.29E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.40E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				

Planing mill/RER/I		2.89E-10	p	Pedigree: (2,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		9.10E-03	kWh	Pedigree: (2,1,2,1,1)
sawnwood, lath, hardwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		4.69E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, hardwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.31E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.42E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		9.11E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		2.90E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/CH		9.39E-05	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		3.76E-04	m3	Pedigree: (5,5,5,5,5)

Products				
shavings, loose, hardwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.31E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.42E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		9.11E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		2.90E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, hardwood, raw, air dried (u=20 %), at sawmill/m3/RER		9.39E-05	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, hardwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		3.76E-04	m3	Pedigree: (5,5,5,5,5)

Products				
shavings, loose, softwood, from planing, average, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Materials/fuels				
shavings, loose, softwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/CH		1.28E-01	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/CH		6.89E-02	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/CH		2.23E-01	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/CH		1.20E-01	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/CH		2.99E-01	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/CH		1.61E-01	kg	Pedigree: (1,1,4,5,4)

Products				
shavings, loose, softwood, from planing, average, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Materials/fuels				
shavings, loose, softwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/RER		1.28E-01	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/RER		6.89E-02	kg	Pedigree: (1,1,4,5,4)

shavings, loose, softwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/RER		2.23E-01	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/RER		1.20E-01	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/RER		2.99E-01	kg	Pedigree: (1,1,4,5,4)
shavings, loose, softwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/RER		1.61E-01	kg	Pedigree: (1,1,4,5,4)

Products				
shavings, loose, softwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.25E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.41E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		6.08E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		4.88E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		7.33E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, beam, u=10 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.25E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.41E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		6.08E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		4.88E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		7.33E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.03E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.16E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		6.09E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		4.89E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.47E-04	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		5.87E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, beam, u=20 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.03E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.16E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		6.09E-03	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		4.89E-10	p	Pedigree: (2,1,2,1,1)

sawnwood, beam, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.47E-04	m3	Pedigree: (1,1,2,1,1)
sawnwood, beam, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		5.87E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.23E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.39E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.31E-02	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		5.03E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, board, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		7.55E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, board, u=10 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.23E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.39E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.31E-02	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		5.03E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, board, softwood, raw, dried (u=10 %), at sawmill/m3/RER		7.55E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.26E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.36E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.31E-02	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		5.04E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.51E-04	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		6.05E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, board, u=20 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.26E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.36E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.31E-02	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		5.04E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, board, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.51E-04	m3	Pedigree: (1,1,2,1,1)
sawnwood, board, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		6.05E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.22E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.37E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.50E-02	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		4.76E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/CH		7.73E-04	m3	Pedigree: (5,5,5,5,5)

Products				
shavings, loose, softwood, from planing, lath, u=10 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.22E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.37E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.50E-02	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		4.76E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=10 %), at sawmill/m3/RER		7.73E-04	m3	Pedigree: (5,5,5,5,5)

Products				
shavings, loose, softwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.24E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.40E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, at grid/kWh/CH		1.50E-02	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		4.77E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/CH		1.55E-04	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/CH		6.19E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, loose, softwood, from planing, lath, u=20 %, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.24E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.40E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.50E-02	kWh	Pedigree: (2,1,2,1,1)
Planing mill/RER/I		4.77E-10	p	Pedigree: (2,1,2,1,1)
sawnwood, lath, softwood, raw, air dried (u=20 %), at sawmill/m3/RER		1.55E-04	m3	Pedigree: (1,1,2,1,1)
sawnwood, lath, softwood, raw, kiln dried (u=20 %), at sawmill/m3/RER		6.19E-04	m3	Pedigree: (1,1,2,1,1)

Products				
shavings, softwood, measured as dry mass, at planing mill/kg/CH		1.00E+00	kg	
Materials/fuels				

electricity, medium voltage, at grid/kWh/CH		6.45E-02	kWh	Pedigree: (1,1,2,1,1)
shavings, loose, softwood, from planing, average, measured as dry mass, at planing machine/kg/CH		1.00E+00	kg	Pedigree: (1,1,2,1,1)

Products				
shavings, softwood, measured as dry mass, at planing mill/kg/RER		1.00E+00	kg	
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		6.45E-02	kWh	Pedigree: (1,1,2,1,1)
shavings, loose, softwood, from planing, average, measured as dry mass, at planing machine/kg/RER		1.00E+00	kg	Pedigree: (1,1,2,1,1)

Products				
skidder, at plant/p/RER/I		1.00E+00	p	
Materials/fuels				
Acetylene, at regional storehouse/CH		5.00E+00	kg	Pedigree: (3,4,3,1,5)
Aluminium alloy, AlMg3, at plant/RER		1.17E+02	kg	Pedigree: (1,1,2,1,1)
Chromium steel 18/8, at plant/RER		1.42E+03	kg	Pedigree: (1,1,2,1,1)
Copper, primary, at refinery/GLO		6.00E+01	kg	Pedigree: (3,4,3,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		3.57E+04	kWh	Pedigree: (1,1,2,1,1)
Flat glass, uncoated, at plant/RER		1.04E+02	kg	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		4.07E+04	MJ	Pedigree: (1,1,2,1,1)
Injection moulding/RER		1.82E+02	kg	Pedigree: (1,1,2,1,1)
Iron scrap, at plant/RER		1.42E+04	kg	Pedigree: (1,1,2,1,1)
Lead, at regional storage/RER		8.39E+01	kg	Pedigree: (3,4,3,1,1)
Oxygen, liquid, at plant/RER		1.20E+01	kg	Pedigree: (3,4,3,1,5)
Polypropylene, granulate, at plant/RER		1.82E+02	kg	Pedigree: (1,1,2,1,1)
Powder coating, steel/RER		4.68E+01	m2	Pedigree: (1,1,2,1,1)
Road vehicle plant/RER/I		8.73E-07	p	Pedigree: (4,5,3,3,4)
Steel, low-alloyed, at plant/RER		7.09E+02	kg	Pedigree: (1,1,2,1,1)
Steel, low-alloyed, at plant/RER		1.20E+04	kg	Pedigree: (1,1,2,1,1)
Synthetic rubber, at plant/RER		7.30E+02	kg	Pedigree: (1,1,2,1,1)
tap water, at user/kg/RER		2.61E+04	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		1.20E+03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		5.28E+03	tkm	Pedigree: (1,1,4,5,4)
Water, completely softened, at plant/RER		1.71E+01	kg	Pedigree: (3,4,3,1,1)
Wire drawing, copper/RER		6.00E+01	kg	Pedigree: (1,1,2,1,1)
Emissions to air				
Carbon dioxide, fossil	low. pop.	1.69E+01	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, electronics for control units/RER		6.00E+01	kg	
disposal, polypropylene, 15.9 % water, to municipal incineration/kg/CH		2.16E+02	kg	
disposal, rubber, unspecified, 0 % water, to municipal incineration/kg/CH		7.30E+02	kg	
Treatment, lorry production effluent, to wastewater treatment, class 1/CH		2.83E+00	m3	Pedigree: (1,1,2,1,1)
Treatment, sewage, to wastewater treatment, class 3/CH		2.62E+01	m3	Pedigree: (1,1,2,1,1)

Products				
skidding/hr/RER		1.00E+00	hr	
Materials/fuels				
diesel, low-sulphur, at regional storage/kg/CH		1.09E+01	kg	Pedigree: (1,1,2,1,1)

Lubricating oil, at plant/RER		3.23E-01	kg	Pedigree: (2,3,3,1,1)
skidder, at plant/p/RER/I		8.33E-05	p	Pedigree: (1,1,2,1,1)
Transport, lorry 16-32t, EURO5/RER		3.75E+01	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Ammonia	low. pop.	2.18E-04	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	3.28E-07	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	1.09E-07	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, fossil	low. pop.	3.41E+01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	1.22E-01	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	1.86E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	1.31E-03	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	6.54E-13	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	4.31E-04	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	7.66E-07	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	1.43E-01	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	1.75E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	3.67E-05	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	5.27E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	3.51E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	2.34E-04	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	1.09E-07	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	1.09E-05	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		3.59E-01	kg	

Products				
slab and siding, hardwood, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.29E+00~~ 1.37E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.40E+01~~ 1.48E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~8.06E-03~~ 7.61E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, at grid/kWh/CH		~~5.84E-03~~ 5.52E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~2.93E-05~~ 2.77E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		~~3.82E-04~~ 3.61E-04	m3	Pedigree: (2,1,2,1,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~6.73E-05~~ 6.36E-05	m3	Pedigree: (2,1,2,1,1)
sawmill/CH/I		~~6.00E-11~~ 5.67E-11	p	Pedigree: (2,1,2,1,1)
Transport, lorry 20-28t, fleet average/CH		~~6.80E-02~~ 6.42E-02	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~4.38E-06~~ 4.14E-06	kg	

Products				
slab and siding, hardwood, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	

Resources				
Carbon dioxide, in air	in air	~~1.29E+00~~ 1.37E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.40E+01~~ 1.48E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~8.06E-03~~ 7.61E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		~~5.84E-03~~ 5.52E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~2.93E-05~~ 2.77E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, hardwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~4.49E-04~~ 4.24E-04	m3	Pedigree: (2,1,2,1,1)
Sawmill/RER/I		~~6.00E-11~~ 5.67E-11	p	Pedigree: (2,1,2,1,1)
Transport, lorry >16t, fleet average/RER		~~6.80E-02~~ 6.42E-02	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~4.38E-06~~ 4.14E-06	kg	

Products				
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.40E+00~~ 1.50E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.57E+01~~ 1.68E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~9.57E-03~~ 8.93E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, at grid/kWh/CH		~~6.40E-03~~ 5.97E-03	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		~~3.48E-05~~ 3.25E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/CH		~~5.33E-04~~ 4.97E-04	m3	Pedigree: (2,1,2,1,1)
sawmill/CH/I		~~7.12E-11~~ 6.64E-11	p	Pedigree: (2,1,2,1,1)
Transport, lorry 20-28t, fleet average/CH		~~7.80E-02~~ 7.37E-02	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~5.20E-06~~ 4.85E-06	kg	

Products				
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	~~1.40E+00~~ 1.50E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	~~1.57E+01~~ 1.68E+01	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		~~9.57E-03~~ 8.93E-03	MJ	Pedigree: (1,3,2,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		~~6.40E-03~~ 5.97E-03	kWh	Pedigree: (2,1,2,1,1)

Lubricating oil, at plant/RER		~~3.48E-05~~ 3.25E-05	kg	Pedigree: (1,5,2,3,1)
sawlog and veneer log, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		~~5.33E-04~~ 4.97E-04	m3	Pedigree: (2,1,2,1,1)
Sawmill/RER/I		~~7.12E-11~~ 6.64E-11	p	Pedigree: (2,1,2,1,1)
Transport, lorry >16t, fleet average/RER		~~7.80E-02~~ 7.37E-02	tkm	Pedigree: (1,1,4,5,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		~~5.20E-06~~ 4.85E-06	kg	

Products				
terrain chipper on forwarder, at plant/p/RER/I		1.00E+00	p	
Materials/fuels				
Acetylene, at regional storehouse/CH		5.00E+00	kg	Pedigree: (3,4,3,1,5)
Aluminium alloy, AlMg3, at plant/RER		8.06E+01	kg	Pedigree: (1,1,2,1,1)
Cast iron, at plant/RER		5.21E+01	kg	Pedigree: (3,4,3,1,1)
Chromium steel 18/8, at plant/RER		1.63E+03	kg	Pedigree: (1,1,2,1,1)
Copper, primary, at refinery/GLO		1.95E+01	kg	Pedigree: (3,4,3,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		6.89E+04	kWh	Pedigree: (1,1,2,1,1)
Electronics for control units/RER		9.72E+01	kg	Pedigree: (3,4,3,1,1)
Flat glass, uncoated, at plant/RER		1.09E+02	kg	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		7.86E+04	MJ	Pedigree: (1,1,2,1,1)
Injection moulding/RER		2.60E+02	kg	Pedigree: (1,1,2,1,1)
Iron scrap, at plant/RER		6.07E+04	kg	Pedigree: (1,1,2,1,1)
Lead, at regional storage/RER		7.69E+01	kg	Pedigree: (3,4,3,1,1)
Oxygen, liquid, at plant/RER		1.20E+01	kg	Pedigree: (3,4,3,1,5)
Polypropylene, granulate, at plant/RER		2.60E+02	kg	Pedigree: (1,1,2,1,1)
Powder coating, steel/RER		5.11E+01	m2	Pedigree: (1,1,2,1,1)
Road vehicle plant/RER/I		8.73E-07	p	Pedigree: (4,5,3,3,4)
Steel, low-alloyed, at plant/RER		3.95E+03	kg	Pedigree: (1,1,2,1,1)
Steel, low-alloyed, at plant/RER		5.51E+04	kg	Pedigree: (1,1,2,1,1)
Synthetic rubber, at plant/RER		1.39E+03	kg	Pedigree: (3,4,3,1,1)
tap water, at user/kg/RER		5.04E+04	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		1.96E+03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		8.62E+03	tkm	Pedigree: (1,1,4,5,4)
Water, completely softened, at plant/RER		1.57E+01	kg	Pedigree: (3,4,3,1,1)
Wire drawing, copper/RER		1.95E+01	kg	Pedigree: (1,1,2,1,1)
Emissions to air				
Carbon dioxide, fossil	low. pop.	1.69E+01	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, electronics for control units/RER		9.72E+01	kg	
disposal, polypropylene, 15.9 % water, to municipal incineration/kg/CH		3.09E+02	kg	
disposal, rubber, unspecified, 0 % water, to municipal incineration/kg/CH		1.39E+03	kg	
Treatment, lorry production effluent, to wastewater treatment, class 1/CH		6.71E+00	m3	Pedigree: (1,1,2,1,1)
Treatment, sewage, to wastewater treatment, class 3/CH		5.05E+01	m3	Pedigree: (1,1,2,1,1)

Products				
Treatment hard fibreboard production effluent, to wastewater treatment, class 1/m3/RER		1.00E+00	m3	

Resources				
Water, process, unspecified natural origin/m3		9.00E-01	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		1.90E-03	kg	Pedigree: (1,1,2,1,1)
Ammonia, liquid, at regional storehouse/RER		2.64E-05	kg	Pedigree: (1,1,2,1,1)
Cement, unspecified, at plant/CH		6.89E-08	kg	Pedigree: (1,1,2,1,1)
Chemicals inorganic, at plant/GLO		1.49E-07	kg	Pedigree: (1,1,2,1,1)
Chromium oxide, flakes, at plant/RER		1.54E-08	kg	Pedigree: (1,1,2,1,1)
electricity, low voltage, production ENTSO, at grid/kWh/ENTSO		2.77E-02	kWh	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		2.57E-03	MJ	Pedigree: (4,2,2,1,1)
Hydrochloric acid, 30 % in H2O, at plant/RER		8.92E-08	kg	Pedigree: (1,1,2,1,1)
Iron (III) chloride, 40 % in H2O, at plant/CH		9.90E-03	kg	Pedigree: (1,1,2,1,1)
Iron sulphate, at plant/RER		7.20E-03	kg	Pedigree: (1,1,2,1,1)
Municipal waste incineration plant/CH/I		1.70E-10	p	Pedigree: (1,1,2,1,1)
Quicklime, milled, packed, at plant/CH		7.07E-07	kg	Pedigree: (1,1,2,1,1)
Sewer grid, class 1/CH/I		2.18E-07	km	Pedigree: (1,1,2,1,1)
Slag compartment/CH/I		2.01E-11	p	
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		3.90E-06	kg	Pedigree: (1,1,2,1,1)
Titanium dioxide, production mix, at plant/RER		7.56E-07	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		4.81E-04	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		4.75E-02	tkm	Pedigree: (1,1,4,5,4)
Wastewater treatment plant, class 1/CH/I		5.69E-09	p	Pedigree: (1,1,2,1,1)
Emissions to air				
Aluminium	high. pop.	4.81E-07	kg	Pedigree: (1,1,2,1,1)
Ammonia	high. pop.	1.67E-05	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.68E+00	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	1.35E-03	kg	Pedigree: (1,1,2,1,1)
Cyanide	high. pop.	4.71E-07	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	high. pop.	3.13E-05	kg	Pedigree: (1,1,2,1,1)
Iron	high. pop.	2.01E-07	kg	Pedigree: (1,1,2,1,1)
Methane, biogenic	high. pop.	4.12E-03	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	high. pop.	1.63E-04	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.87E-05	kg	Pedigree: (1,1,2,1,1)
Phosphorus	high. pop.	1.03E-06	kg	Pedigree: (1,1,2,1,1)
Water		1.00E-01	kg	Pedigree: (2,2,2,1,1)
Emissions to water				
Aluminium	groundwater, long-t.	2.28E-04	kg	Pedigree: (1,1,2,1,1)
Aluminium	river	2.56E-08	kg	Pedigree: (1,1,2,1,1)
Ammonium, ion	river	2.48E-03	kg	Pedigree: (1,1,2,1,1)
BOD5, Biological Oxygen Demand	groundwater, long-t.	1.14E-03	kg	Pedigree: (1,1,2,1,1)
BOD5, Biological Oxygen Demand	river	7.96E-02	kg	Pedigree: (1,1,2,1,1)
Chloride	river	6.46E-03	kg	Pedigree: (1,1,2,1,1)
COD, Chemical Oxygen Demand	groundwater, long-t.	3.50E-03	kg	Pedigree: (1,1,2,1,1)
COD, Chemical Oxygen Demand	river	2.42E-01	kg	Pedigree: (1,1,2,1,1)
DOC, Dissolved Organic Carbon	river	6.06E-02	kg	Pedigree: (1,1,2,1,1)
DOC, Dissolved Organic Carbon	groundwater, long-t.	1.38E-03	kg	Pedigree: (1,1,2,1,1)
Iron	groundwater, long-t.	2.80E-03	kg	Pedigree: (1,1,2,1,1)

Iron	river	2.07E-06	kg	Pedigree: (1,1,2,1,1)
Nitrate	river	1.08E-02	kg	Pedigree: (1,1,2,1,1)
Nitrate	groundwater, long-t.	1.88E-05	kg	Pedigree: (1,1,2,1,1)
Nitrite	river	1.45E-04	kg	Pedigree: (1,1,2,1,1)
Nitrogen	river	1.10E-04	kg	Pedigree: (1,1,2,1,1)
Phosphate	groundwater, long-t.	1.21E-04	kg	Pedigree: (1,1,2,1,1)
Phosphate	river	1.64E-03	kg	Pedigree: (1,1,5,1,1)
Sulfate	river	6.20E-03	kg	Pedigree: (1,1,2,1,1)
TOC, Total Organic Carbon	river	6.49E-02	kg	Pedigree: (1,1,2,1,1)
TOC, Total Organic Carbon	groundwater, long-t.	1.38E-03	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, cement, hydrated, 0 % water, to residual material landfill/CH		1.72E-03	kg	
disposal, plastics, mixture, 15.3 % water, to municipal incineration/kg/CH		1.55E-02	kg	
Process-specific burdens, municipal waste incineration/CH		6.78E-01	kg	Pedigree: (1,1,2,1,1)
Process-specific burdens, residual material landfill/CH		1.72E-03	kg	Pedigree: (1,1,2,1,1)
Process-specific burdens, slag compartment/CH		1.13E-02	kg	Pedigree: (1,1,2,1,1)

Products				
Treatment, medium density fibreboard production effluent, to wastewater treatment, class 1/m3/RER		1.00E+00	m3	
Resources				
Water, process, unspecified natural origin/m3		9.00E-01	m3	
Materials/fuels				
Aluminium sulphate, powder, at plant/RER		1.34E-05	kg	Pedigree: (1,1,2,1,1)
Ammonia, liquid, at regional storehouse/RER		2.85E-05	kg	Pedigree: (1,1,2,1,1)
Cement, unspecified, at plant/CH		5.58E-05	kg	Pedigree: (1,1,2,1,1)
Chemicals inorganic, at plant/GLO		3.26E-08	kg	Pedigree: (1,1,2,1,1)
Chromium oxide, flakes, at plant/RER		1.66E-08	kg	Pedigree: (1,1,2,1,1)
electricity, low voltage, production ENTSO, at grid/kWh/ENTSO		6.13E-02	kWh	Pedigree: (1,1,2,1,1)
Hydrochloric acid, 30 % in H2O, at plant/RER		1.84E-08	kg	Pedigree: (1,1,2,1,1)
Iron (III) chloride, 40 % in H2O, at plant/CH		7.26E-05	kg	Pedigree: (1,1,2,1,1)
Iron sulphate, at plant/RER		4.95E-05	kg	Pedigree: (1,1,2,1,1)
Municipal waste incineration plant/CH/I		1.41E-11	p	Pedigree: (1,1,2,1,1)
Quicklime, milled, packed, at plant/CH		2.60E-07	kg	Pedigree: (1,1,2,1,1)
Residual material landfill facility/CH/I		2.54E-13	p	Pedigree: (1,1,2,1,1)
Sewer grid, class 1/CH/I		2.17E-07	km	Pedigree: (1,1,2,1,1)
Slag compartment/CH/I		4.06E-13	p	
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		1.43E-06	kg	Pedigree: (1,1,2,1,1)
Titanium dioxide, production mix, at plant/RER		8.15E-07	kg	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		9.93E-03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		2.50E-06	tkm	Pedigree: (1,1,4,5,4)
Wastewater treatment plant, class 1/CH/I		5.69E-09	p	Pedigree: (1,1,2,1,1)
Emissions to air				
Aluminium	high. pop.	3.30E-09	kg	Pedigree: (1,1,2,1,1)
Ammonia	high. pop.	1.81E-05	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, biogenic	high. pop.	1.75E-01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	1.12E-04	kg	Pedigree: (1,1,2,1,1)
Chromium	high. pop.	2.44E-12	kg	Pedigree: (1,1,2,1,1)
Copper	high. pop.	1.82E-10	kg	Pedigree: (1,1,2,1,1)

Cyanide	high. pop.	5.08E-07	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	high. pop.	3.37E-05	kg	Pedigree: (1,1,2,1,1)
Iron	high. pop.	1.39E-09	kg	Pedigree: (1,1,2,1,1)
Methane, biogenic	high. pop.	3.41E-04	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	high. pop.	1.76E-04	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	1.55E-06	kg	Pedigree: (1,1,2,1,1)
Phosphorus	high. pop.	6.63E-09	kg	Pedigree: (1,1,2,1,1)
Water		1.00E-01	kg	Pedigree: (2,2,2,1,1)
Zinc	high. pop.	5.41E-10	kg	Pedigree: (1,1,2,1,1)
Emissions to water				
Aluminium	groundwater, long-t.	1.56E-06	kg	Pedigree: (1,1,2,1,1)
Aluminium	river	1.76E-10	kg	Pedigree: (1,1,2,1,1)
Ammonium, ion	river	2.67E-03	kg	Pedigree: (1,1,2,1,1)
BOD5, Biological Oxygen Demand	river	6.17E-04	kg	Pedigree: (1,1,2,1,1)
BOD5, Biological Oxygen Demand	groundwater, long-t.	9.49E-05	kg	Pedigree: (1,1,2,1,1)
Chloride	river	4.44E-05	kg	Pedigree: (1,1,2,1,1)
Chromium	river	1.05E-07	kg	Pedigree: (1,1,2,1,1)
Chromium VI	river	3.50E-05	kg	Pedigree: (1,1,2,1,1)
Chromium VI	groundwater, long-t.	3.48E-06	kg	Pedigree: (1,1,2,1,1)
COD, Chemical Oxygen Demand	river	3.83E-02	kg	Pedigree: (1,1,2,1,1)
COD, Chemical Oxygen Demand	groundwater, long-t.	2.90E-04	kg	Pedigree: (1,1,2,1,1)
Copper	groundwater, long-t.	1.99E-05	kg	Pedigree: (1,1,2,1,1)
Copper	river	8.66E-06	kg	Pedigree: (1,1,2,1,1)
DOC, Dissolved Organic Carbon	groundwater, long-t.	1.15E-04	kg	Pedigree: (1,1,2,1,1)
DOC, Dissolved Organic Carbon	river	9.31E-03	kg	Pedigree: (1,1,2,1,1)
Iron	groundwater, long-t.	1.95E-05	kg	Pedigree: (1,1,2,1,1)
Iron	river	1.42E-08	kg	Pedigree: (1,1,2,1,1)
Nitrate	river	1.17E-02	kg	Pedigree: (1,1,2,1,1)
Nitrate	groundwater, long-t.	2.03E-05	kg	Pedigree: (1,1,2,1,1)
Nitrite	river	1.56E-04	kg	Pedigree: (1,1,2,1,1)
Nitrogen	river	1.19E-04	kg	Pedigree: (1,1,2,1,1)
Phosphate	river	1.13E-05	kg	Pedigree: (1,1,2,1,1)
Phosphate	groundwater, long-t.	7.76E-07	kg	Pedigree: (1,1,2,1,1)
Sulfate	river	4.26E-05	kg	Pedigree: (1,1,2,1,1)
TOC, Total Organic Carbon	groundwater, long-t.	1.15E-04	kg	Pedigree: (1,1,2,1,1)
TOC, Total Organic Carbon	river	9.70E-03	kg	Pedigree: (1,1,2,1,1)
Zinc	groundwater, long-t.	5.14E-07	kg	Pedigree: (1,1,2,1,1)
Zinc	river	1.48E-05	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, cement, hydrated, 0 % water, to residual material landfill/CH		1.39E-04	kg	
disposal, plastics, mixture, 15.3 % water, to municipal incineration/kg/CH		1.55E-02	kg	
Process-specific burdens, municipal waste incinera-tion/CH		5.65E-02	kg	Pedigree: (1,1,2,1,1)
Process-specific burdens, residual material landfill/CH		1.22E-04	kg	Pedigree: (1,1,2,1,1)

Process-specific burdens, slag compartment/CH		2.29E-04	kg	Pedigree: (1,1,2,1,1)

Products				
Treatment, particle board production effluent, to wastewater treatment, class 1/m3/RER		1.00E+00	m3	
Resources				
Water, process, unspecified natural origin/m3		9.00E-01	m3	
Materials/fuels				
Cement, unspecified, at plant/CH		6.89E-08	kg	Pedigree: (1,1,2,1,1)
Chemicals inorganic, at plant/GLO		3.21E-12	kg	Pedigree: (1,1,2,1,1)
electricity, low voltage, production ENTSO, at grid/kWh/ENTSO		2.79E-02	kWh	Pedigree: (1,1,2,1,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		1.26E-02	MJ	Pedigree: (1,1,2,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		1.70E-02	MJ	Pedigree: (4,2,2,1,1)
Hydrochloric acid, 30 % in H2O, at plant/RER		1.93E-12	kg	Pedigree: (1,1,2,1,1)
Municipal waste incineration plant/CH/I		5.65E-14	p	Pedigree: (1,1,2,1,1)
Sewer grid, class 1/CH/I		2.17E-07	km	Pedigree: (1,1,2,1,1)
Transport, freight, rail/RER		9.93E-03	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		2.50E-06	tkm	Pedigree: (1,1,4,5,4)
Wastewater treatment plant, class 1/CH/I		5.69E-09	p	Pedigree: (1,1,2,1,1)
Emissions to air				
Carbon dioxide, biogenic	high. pop.	5.90E-04	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, biogenic	high. pop.	4.73E-07	kg	Pedigree: (1,1,2,1,1)
Methane, biogenic	high. pop.	1.45E-06	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.59E-09	kg	Pedigree: (1,1,2,1,1)
Water		1.00E-01	kg	Pedigree: (2,2,2,1,1)
Emissions to water				
BOD5, Biological Oxygen Demand	groundwater, long-t.	4.03E-07	kg	Pedigree: (1,1,2,1,1)
BOD5, Biological Oxygen Demand	river	5.84E-06	kg	Pedigree: (1,1,2,1,1)
COD, Chemical Oxygen Demand	groundwater, long-t.	1.23E-06	kg	Pedigree: (1,1,2,1,1)
COD, Chemical Oxygen Demand	river	8.53E-05	kg	Pedigree: (1,1,2,1,1)
DOC, Dissolved Organic Carbon	groundwater, long-t.	4.87E-07	kg	Pedigree: (1,1,2,1,1)
DOC, Dissolved Organic Carbon	river	2.13E-05	kg	Pedigree: (1,1,2,1,1)
TOC, Total Organic Carbon	groundwater, long-t.	4.88E-07	kg	Pedigree: (1,1,2,1,1)
TOC, Total Organic Carbon	river	4.88E-07	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, cement, hydrated, 0 % water, to residual material landfill/CH		1.73E-07	kg	
disposal, plastics, mixture, 15.3 % water, to municipal incineration/kg/CH		1.55E-02	kg	
Process-specific burdens, municipal waste incinera-tion/CH		2.26E-04	kg	Pedigree: (1,1,2,1,1)
Process-specific burdens, residual material landfill/CH		1.72E-07	kg	Pedigree: (1,1,2,1,1)
Process-specific burdens, slag compartment/CH		3.73E-07	kg	Pedigree: (1,1,2,1,1)

Products				
Treatment, soft fibreboard production effluent, to wastewater treatment, class 1/m3/RER		1.00E+00	m3	
Resources				
Water, process, unspecified natural origin/m3		9.00E-01	m3	
Materials/fuels				

Aluminium sulphate, powder, at plant/RER		6.62E-05	kg	Pedigree: (1,1,3,1,1)
Ammonia, liquid, at regional storehouse/RER		8.22E-06	kg	Pedigree: (1,1,3,1,1)
Cement, unspecified, at plant/CH		7.31E-04	kg	Pedigree: (1,1,3,1,1)
Chemicals inorganic, at plant/GLO		3.85E-08	kg	Pedigree: (1,1,3,1,1)
Chromium oxide, flakes, at plant/RER		4.80E-09	kg	Pedigree: (1,1,3,1,1)
electricity, high voltage, at grid/kWh/CH		3.37E-01	kWh	Pedigree: (1,1,3,1,1)
electricity, low voltage, at grid/kWh/CH		8.32E-01	kWh	Pedigree: (1,1,3,1,1)
Heat, light fuel oil, at industrial furnace 1MW/RER		1.97E+00	MJ	Pedigree: (1,1,3,1,1)
Heat, natural gas, at boiler condensing modulating >100kW/RER		7.21E-04	MJ	Pedigree: (1,1,3,1,1)
Hydrochloric acid, 30 % in H2O, at plant/RER		2.31E-08	kg	Pedigree: (1,1,3,1,1)
Iron (III) chloride, 40 % in H2O, at plant/CH		3.35E-04	kg	Pedigree: (1,1,3,1,1)
Iron sulphate, at plant/RER		2.45E-04	kg	Pedigree: (1,1,3,1,1)
Municipal waste incineration plant/CH/I		5.86E-10	p	Pedigree: (1,1,3,1,1)
Quicklime, milled, packed, at plant/CH		9.00E-08	kg	Pedigree: (1,1,3,1,1)
Residential sewer grid/CH/I		2.87E-07	km	Pedigree: (1,1,3,1,1)
Residual material landfill facility/CH/I		3.81E-12	p	Pedigree: (1,1,3,1,1)
Sewer grid, class 1/CH/I		2.18E-07	km	Pedigree: (1,1,3,1,1)
Slag compartment/CH/I		7.51E-12	p	
Sodium hydroxide, 50 % in H2O, production mix, at plant/RER		4.96E-07	kg	Pedigree: (1,1,3,1,1)
Titanium dioxide, production mix, at plant/RER		2.35E-07	kg	Pedigree: (1,1,3,1,1)
Transport, freight, rail/RER		4.81E-04	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		4.75E-02	tkm	Pedigree: (1,1,4,5,4)
Wastewater treatment plant, class 1/CH/I		5.69E-09	p	Pedigree: (1,1,3,1,1)
Emissions to air				
Aluminium	high. pop.	1.63E-08	kg	Pedigree: (1,1,3,1,1)
Ammonia	high. pop.	5.21E-06	kg	Pedigree: (1,1,3,1,1)
Carbon dioxide, biogenic	high. pop.	6.12E+00	kg	Pedigree: (1,1,3,1,1)
Carbon monoxide, biogenic	high. pop.	4.90E-03	kg	Pedigree: (1,1,3,1,1)
Cyanide	high. pop.	1.47E-07	kg	Pedigree: (1,1,3,1,1)
Dinitrogen monoxide	high. pop.	9.73E-06	kg	Pedigree: (1,1,3,1,1)
Iron	high. pop.	6.85E-09	kg	Pedigree: (1,1,3,1,1)
Methane, biogenic	high. pop.	1.50E-02	kg	Pedigree: (1,1,3,1,1)
Nitrogen oxides	high. pop.	5.09E-05	kg	Pedigree: (1,1,3,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	high. pop.	6.83E-05	kg	Pedigree: (1,1,3,1,1)
Phosphorus	high. pop.	3.51E-08	kg	Pedigree: (1,1,3,1,1)
Water		1.00E-01	kg	Pedigree: (2,2,3,1,1)
Emissions to water				
Aluminium	river	8.69E-10	kg	Pedigree: (1,1,3,1,1)
Aluminium	groundwater, long-t.	7.73E-06	kg	Pedigree: (1,1,3,1,1)
Ammonium, ion	river	7.71E-04	kg	Pedigree: (1,1,3,1,1)
BOD5, Biological Oxygen Demand	groundwater, long-t.	4.18E-03	kg	Pedigree: (1,1,3,1,1)
BOD5, Biological Oxygen Demand	river	2.90E-01	kg	Pedigree: (1,1,3,1,1)
Chloride	river	2.19E-04	kg	Pedigree: (1,1,3,1,1)
COD, Chemical Oxygen Demand	groundwater, long-t.	1.28E-02	kg	Pedigree: (1,1,3,1,1)
COD, Chemical Oxygen Demand	river	8.83E-01	kg	Pedigree: (1,1,3,1,1)
DOC, Dissolved Organic Carbon	river	2.21E-01	kg	Pedigree: (1,1,3,1,1)
DOC, Dissolved Organic Carbon	groundwater, long-t.	5.05E-03	kg	Pedigree: (1,1,3,1,1)
Iron	river	7.02E-08	kg	Pedigree: (1,1,3,1,1)

Iron	groundwater, long-t.	9.62E-05	kg	Pedigree: (1,1,3,1,1)
Nitrate	river	3.38E-03	kg	Pedigree: (1,1,3,1,1)
Nitrate	groundwater, long-t.	5.85E-06	kg	Pedigree: (1,1,3,1,1)
Nitrite	river	4.50E-05	kg	Pedigree: (1,1,3,1,1)
Nitrogen	river	3.43E-05	kg	Pedigree: (1,1,3,1,1)
Phosphate	river	5.57E-05	kg	Pedigree: (1,1,3,1,1)
Phosphate	groundwater, long-t.	4.11E-06	kg	Pedigree: (1,1,3,1,1)
Sulfate	river	2.10E-04	kg	Pedigree: (1,1,3,1,1)
TOC, Total Organic Carbon	river	2.37E-01	kg	Pedigree: (1,1,3,1,1)
TOC, Total Organic Carbon	groundwater, long-t.	5.05E-03	kg	Pedigree: (1,1,3,1,1)
Waste to treatment				
Disposal, cement, hydrated, 0 % water, to residual material landfill/CH		1.83E-03	kg	
disposal, plastics, mixture, 15.3 % water, to municipal incineration/kg/CH		1.55E-02	kg	
Process-specific burdens, municipal waste incineration/CH		2.34E+00	kg	Pedigree: (1,1,3,1,1)
Process-specific burdens, residual material landfill/CH		1.83E-03	kg	Pedigree: (1,1,3,1,1)
Process-specific burdens, slag compartment/CH		4.22E-03	kg	Pedigree: (1,1,3,1,1)

Products				
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		1.00E+00	p	
Resources				
Occupation, industrial area	land	1.33E-03	m2a	Pedigree: (1,1,5,1,2)
Transformation, from industrial area	land	1.33E-03	m2	Pedigree: (1,3,5,1,1)
Transformation, to industrial area	land	1.33E-03	m2	Pedigree: (1,3,5,1,1)
Materials/fuels				
Ammonium nitrate, as N, at regional storehouse/RER		6.09E-04	kg	Pedigree: (5,5,5,5,5)
Diesel, burned in building machine/GLO		1.84E-02	MJ	Pedigree: (5,5,5,5,5)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		7.04E-02	kWh	Pedigree: (5,5,5,5,5)
Extrusion, plastic film/RER		1.16E-03	kg	Pedigree: (5,5,5,5,5)
Heat, light fuel oil, at boiler 100kW condensing, non-modulating/CH		8.01E-01	MJ	Pedigree: (5,5,5,5,5)
Packaging film, LDPE, at plant/RER		1.66E-04	kg	Pedigree: (5,5,5,5,5)
Polyethylene, HDPE, granulate, at plant/RER		1.16E-03	kg	Pedigree: (5,5,5,5,5)
Polystyrene, extruded (XPS), at plant/RER		4.50E-05	kg	Pedigree: (5,5,5,5,5)
Waste to treatment				
disposal, polyethylene, 0.4 % water, to municipal incineration/kg/CH		1.33E-03	kg	

Products				
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.00E+00	p	
Resources				
Occupation, industrial area	land	1.33E-03	m2a	Pedigree: (1,1,5,1,2)
Transformation, from industrial area	land	1.33E-03	m2	Pedigree: (1,3,5,1,1)
Transformation, to industrial area	land	1.33E-03	m2	Pedigree: (1,3,5,1,1)
Materials/fuels				
Ammonium nitrate, as N, at regional storehouse/RER		6.09E-04	kg	Pedigree: (5,5,5,5,5)
Diesel, burned in building machine/GLO		1.84E-02	MJ	Pedigree: (5,5,5,5,5)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		7.04E-02	kWh	Pedigree: (5,5,5,5,5)

Extrusion, plastic film/RER		1.16E-03	kg	Pedigree: (5,5,5,5,5)
Heat, light fuel oil, at boiler 100kW condensing, non-modulating/CH		2.70E-03	MJ	Pedigree: (5,5,5,5,5)
Packaging film, LDPE, at plant/RER		1.66E-04	kg	Pedigree: (5,5,5,5,5)
Polyethylene, HDPE, granulate, at plant/RER		1.16E-03	kg	Pedigree: (5,5,5,5,5)
Polystyrene, extruded (XPS), at plant/RER		4.50E-05	kg	Pedigree: (5,5,5,5,5)
Waste to treatment				
disposal, polyethylene, 0.4 % water, to municipal incineration/kg/CH		1.33E-03	kg	

Products				
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		1.00E+00	hr	
Materials/fuels				
Chipper, mobile, diesel/RER/I		6.67E-05	p	Pedigree: (1,1,2,1,1)
diesel, low-sulphur, at regional storage/kg/CH		5.88E+01	kg	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		9.25E-01	kg	Pedigree: (2,3,3,1,1)
Transport, lorry 16-32t, EURO5/RER		2.18E+02	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Ammonia	low. pop.	1.18E-03	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	1.76E-06	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	5.89E-07	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, fossil	low. pop.	1.84E+02	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	6.54E-01	kg	Pedigree: (1,1,2,1,1)
Copper	low. pop.	9.99E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	7.05E-03	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	3.52E-12	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	1.97E-03	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	4.13E-06	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	6.53E-01	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	7.99E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	1.98E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	2.40E-02	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	1.60E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	1.07E-03	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	5.89E-07	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	5.89E-05	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		1.03E+00	kg	

Products				
wood chipping, forwarder with terrain chipper, in forest/hr/RER		1.00E+00	hr	
Materials/fuels				
diesel, low-sulphur, at regional storage/kg/CH		2.48E+01	kg	Pedigree: (1,1,2,1,1)
Lubricating oil, at plant/RER		3.18E-01	kg	Pedigree: (2,3,3,1,1)
terrain chipper on forwarder, at plant/p/RER/I		5.68E-05	p	Pedigree: (1,1,2,1,1)
Transport, lorry 16-32t, EURO5/RER		6.13E+01	tkm	Pedigree: (3,3,3,1,1)
Emissions to air				
Ammonia	low. pop.	4.95E-04	kg	Pedigree: (1,1,2,1,1)
Benzo(a)pyrene	low. pop.	7.43E-07	kg	Pedigree: (1,1,2,1,1)
Cadmium	low. pop.	2.48E-07	kg	Pedigree: (1,1,2,1,1)
Carbon dioxide, fossil	low. pop.	7.74E+01	kg	Pedigree: (1,1,2,1,1)
Carbon monoxide, fossil	low. pop.	2.76E-01	kg	Pedigree: (1,1,2,1,1)

Copper	low. pop.	4.21E-05	kg	Pedigree: (1,1,2,1,1)
Dinitrogen monoxide	low. pop.	2.97E-03	kg	Pedigree: (1,1,2,1,1)
Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	low. pop.	1.48E-12	kg	Pedigree: (1,1,2,1,1)
Methane, fossil	low. pop.	3.93E-04	kg	Pedigree: (1,1,2,1,1)
Nickel	low. pop.	1.74E-06	kg	Pedigree: (1,1,2,1,1)
Nitrogen oxides	low. pop.	1.62E-01	kg	Pedigree: (1,1,2,1,1)
NMVOC, non-methane volatile organic compounds, unspecified origin	low. pop.	1.60E-02	kg	Pedigree: (1,1,2,1,1)
PAH, polycyclic aromatic hydrocarbons	low. pop.	8.33E-05	kg	Pedigree: (1,1,2,1,1)
Particulates, < 2.5 um	low. pop.	6.95E-03	kg	Pedigree: (1,1,2,1,1)
Particulates, > 10 um	low. pop.	4.63E-04	kg	Pedigree: (1,1,2,1,1)
Particulates, > 2.5 um, and < 10um	low. pop.	3.09E-04	kg	Pedigree: (1,1,2,1,1)
Selenium	low. pop.	2.48E-07	kg	Pedigree: (1,1,2,1,1)
Zinc	low. pop.	2.48E-05	kg	Pedigree: (1,1,2,1,1)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		3.54E-01	kg	

Products				
wood chipping, industrial residual wood, stationary electric chipper/kg/RER		1.00E+00	kg	
Materials/fuels				
Chipper, stationary, electric/RER/I		5.30E-08	p	Pedigree: (4,5,5,3,4)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.00E-02	kWh	Pedigree: (3,3,5,3,3)
Lubricating oil, at plant/RER		2.04E-06	kg	Pedigree: (3,3,5,3,3)
Steel, low-alloyed, at plant/RER		4.08E-06	kg	Pedigree: (3,3,5,3,3)

Products				
wood chips, beech, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	2.77E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	6.12E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.98E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	4.37E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.98E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	4.37E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.66E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		2.48E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		3.31E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.96E-01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		2.59E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		7.56E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.39E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.62E-02	p	Pedigree: (3,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		4.23E-05	hr	Pedigree: (2,1,2,1,1)
wood chipping, forwarder with terrain chipper, in forest/hr/RER		4.14E-06	hr	Pedigree: (2,1,2,1,1)

Products

wood chips, birch, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Resources				
Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	1.97E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	7.50E-03	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	3.29E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.25E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	3.29E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.25E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.60E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		1.26E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~1.65E-04~~ 6.61E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.31E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~2.23E-04~~ 1.57E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.97E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.91E-06	hr	Pedigree: (2,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		3.70E-05	hr	Pedigree: (2,1,2,1,1)
wood chipping, forwarder with terrain chipper, in forest/hr/RER		2.21E-05	hr	Pedigree: (2,1,2,1,1)

Products				
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	
Materials/fuels				
Chipper, stationary, electric/RER/I		5.30E-08	p	Pedigree: (2,1,2,1,1)
electricity, medium voltage, at grid/kWh/CH		1.97E-02	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		2.04E-06	kg	Pedigree: (2,1,2,1,1)
slab and siding, hardwood, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	Pedigree: (2,1,2,1,1)
Steel, low-alloyed, at plant/RER		4.08E-06	kg	Pedigree: (2,1,2,1,1)
Transport, lorry 20-28t, fleet average/CH		7.00E-02	tkm	Pedigree: (1,1,4,5,4)

Products				
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	
Materials/fuels				
Chipper, stationary, electric/RER/I		5.30E-08	p	Pedigree: (2,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		1.97E-02	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		2.04E-06	kg	Pedigree: (2,1,2,1,1)
slab and siding, hardwood, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	Pedigree: (2,1,2,1,1)
Steel, low-alloyed, at plant/RER		4.08E-06	kg	Pedigree: (2,1,2,1,1)
Transport, lorry >16t, fleet average/RER		7.00E-02	tkm	Pedigree: (1,1,4,5,4)

Products				
wood chips, hardwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)

Occupation, forest		2.82E+00	m2a	
Occupation, traffic area, rail/road embankment	land	3.11E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest	land	2.16E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.39E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest	land	2.16E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.39E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.57E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
cable yarding and processing, mobile cable yarder on truck/hr/RER		4.22E-06	hr	Pedigree: (2,1,2,1,1)
cable yarding, mobile cable yarder on trailer/hr/RER		8.84E-06	hr	Pedigree: (2,1,2,1,1)
cable yarding, sled yarder/hr/RER		1.18E-07	hr	Pedigree: (2,1,2,1,1)
delimbing/sorting, excavator-based processor/hr/RER		7.71E-06	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		3.34E-03	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		3.07E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		7.76E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		2.45E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		6.07E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.18E-04	hr	Pedigree: (2,1,2,1,1)
Transport, helicopter/GLO		7.17E-07	hr	Pedigree: (2,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		4.08E-05	hr	Pedigree: (2,1,2,1,1)

Products				
wood chips, oak, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	1.96E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	2.69E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	5.95E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	1.93E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	4.25E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	1.93E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	4.25E-04	m2	Pedigree: (1,1,2,1,1)
Wood, hard, standing	biotic	1.60E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		2.66E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		5.28E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.90E-01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		4.22E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		6.02E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.06E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.97E-02	p	Pedigree: (3,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		4.07E-05	hr	Pedigree: (2,1,2,1,1)
wood chipping, forwarder with terrain chipper, in forest/hr/RER		3.99E-06	hr	Pedigree: (2,1,2,1,1)

Products				
wood chips, pine, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)

Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	3.12E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	6.89E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	2.60E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	5.74E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	2.60E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	5.74E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.04E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		3.19E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		5.36E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		2.20E-01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		3.98E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		9.45E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.35E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		2.13E-02	p	Pedigree: (3,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		5.30E-05	hr	Pedigree: (2,1,2,1,1)
wood chipping, forwarder with terrain chipper, in forest/hr/RER		5.19E-06	hr	Pedigree: (2,1,2,1,1)

Products				
wood chips, pine, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Resources				
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	3.82E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	1.45E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	4.77E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.82E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	4.77E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.82E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.04E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		3.22E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~2.12E-04~~ 8.50E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.91E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~2.84E-04~~ 2.00E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		2.14E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		2.43E-06	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		6.81E-03	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		1.62E-02	p	Pedigree: (3,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		4.81E-05	hr	Pedigree: (2,1,2,1,1)
wood chipping, forwarder with terrain chipper, in forest/hr/RER		2.88E-05	hr	Pedigree: (2,1,2,1,1)

Products				
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH		1.00E+00	kg	

Materials/fuels				
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/CH		1.27E-02	kg	Pedigree: (4,4,4,5,3)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		1.45E-01	kg	Pedigree: (4,4,4,5,3)
wood chips, hardwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH		6.55E-01	kg	Pedigree: (4,4,4,5,3)
wood chips, softwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH		1.87E-01	kg	Pedigree: (4,4,4,5,3)

Products				
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		1.00E+00	kg	
Materials/fuels				
wood chips, beech, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE		2.08E-01	kg	Pedigree: (1,1,4,5,4)
wood chips, birch, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.60E-01	kg	Pedigree: (1,1,4,5,4)
wood chips, oak, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE		4.08E-02	kg	Pedigree: (1,1,4,5,4)
wood chips, pine, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE		4.41E-02	kg	Pedigree: (1,1,4,5,4)
wood chips, pine, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.25E-01	kg	Pedigree: (1,1,4,5,4)
wood chips, spruce, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE		7.13E-02	kg	Pedigree: (1,1,4,5,4)
wood chips, spruce, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.36E-01	kg	Pedigree: (1,1,4,5,4)
wood chips, hardwood, wet, measured as dry mass, at sawmill/kg/RER		1.27E-02	kg	Pedigree: (4,4,4,5,3)
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.45E-01	kg	Pedigree: (4,4,4,5,3)
wood chips, hardwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH		4.43E-02	kg	Pedigree: (4,4,4,5,3)
wood chips, softwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH		1.27E-02	kg	Pedigree: (4,4,4,5,3)

Products				
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	
Materials/fuels				
Chipper, stationary, electric/RER/I		5.30E-08	p	Pedigree: (2,1,2,1,1)
electricity, medium voltage, at grid/kWh/CH		2.58E-02	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		2.04E-06	kg	Pedigree: (2,1,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/CH		1.00E+00	kg	Pedigree: (2,1,2,1,1)
Steel, low-alloyed, at plant/RER		4.08E-06	kg	Pedigree: (2,1,2,1,1)
Transport, lorry 20-28t, fleet average/CH		7.00E-02	tkm	Pedigree: (1,1,4,5,4)

Products				
wood chips, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	
Materials/fuels				
Chipper, stationary, electric/RER/I		5.30E-08	p	Pedigree: (2,1,2,1,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		2.58E-02	kWh	Pedigree: (2,1,2,1,1)
Lubricating oil, at plant/RER		2.04E-06	kg	Pedigree: (2,1,2,1,1)
slab and siding, softwood, wet, measured as dry mass, at sawmill/kg/RER		1.00E+00	kg	Pedigree: (2,1,2,1,1)
Steel, low-alloyed, at plant/RER		4.08E-06	kg	Pedigree: (2,1,2,1,1)
Transport, lorry >16t, fleet average/RER		7.00E-02	tkm	Pedigree: (1,1,4,5,4)

Products				
wood chips, softwood, wet, sustainable forest management, measured as dry mass, at forest road/kg/CH		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest		3.42E+00	m2a	
Occupation, traffic area, rail/road embankment	land	3.77E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest	land	2.63E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	2.90E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest	land	2.63E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	2.90E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.33E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
cable yarding and processing, mobile cable yarder on truck/hr/RER		7.81E-06	hr	Pedigree: (2,1,2,1,1)
cable yarding, mobile cable yarder on trailer/hr/RER		1.90E-05	hr	Pedigree: (2,1,2,1,1)
cable yarding, sled yarder/hr/RER		3.51E-06	hr	Pedigree: (2,1,2,1,1)
delimbing/sorting, excavator-based processor/hr/RER		2.14E-05	hr	Pedigree: (2,1,2,1,1)
Diesel, burned in building machine/GLO		4.05E-03	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		2.49E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		9.43E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		1.87E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.46E-03	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.77E-04	hr	Pedigree: (2,1,2,1,1)
Transport, helicopter/GLO		3.00E-06	hr	Pedigree: (2,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		6.17E-05	hr	Pedigree: (2,1,2,1,1)

Products				
wood chips, spruce, wet, sustainable forest management, measured as dry mass, at forest road/kg/DE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	2.77E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	6.11E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	2.77E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	6.11E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	2.77E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	6.11E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.33E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		2.27E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		5.24E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.96E-01	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		3.86E-05	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.12E-03	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		1.69E-04	hr	Pedigree: (2,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		8.49E-03	p	Pedigree: (3,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		6.04E-05	hr	Pedigree: (2,1,2,1,1)

wood chipping, forwarder with terrain chipper, in forest/hr/RER		5.92E-06	hr	Pedigree: (2,1,2,1,1)

Products				
wood chips, spruce, wet, sustainable forest management, measured as dry mass, at forest road/kg/SE		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	1.81E+00	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	2.04E+01	MJ	Pedigree: (1,1,2,1,1)
Occupation, forest, intensive	land	3.42E+00	m2a	Pedigree: (1,1,2,1,1)
Occupation, traffic area, rail/road embankment	land	1.30E-02	m2a	Pedigree: (1,1,2,1,1)
Transformation, from forest, intensive, normal	land	4.27E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, from traffic area, rail/road embankment	land	1.63E-04	m2	Pedigree: (1,1,2,1,1)
Transformation, to forest, intensive	land	4.27E-02	m2	Pedigree: (1,1,2,1,1)
Transformation, to traffic area, rail/road embankment	land	1.63E-04	m2	Pedigree: (1,1,2,1,1)
Wood, soft, standing	biotic	2.33E-03	m3	Pedigree: (1,1,2,1,1)
Materials/fuels				
Diesel, burned in building machine/GLO		2.49E-02	MJ	Pedigree: (2,1,2,1,1)
forwarding, forwarder/hr/RER		~~2.39E-04~~ 8.50E-05	hr	Pedigree: (2,1,2,1,1)
Gravel, crushed, at mine/CH		1.71E-02	kg	Pedigree: (2,1,2,1,1)
harvesting, forestry harvester/hr/RER		~~3.23E-04~~ 2.00E-04	hr	Pedigree: (2,1,2,1,1)
power sawing, without catalytic converter/hr/RER		1.28E-04	hr	Pedigree: (2,1,2,1,1)
skidding/hr/RER		2.77E-06	hr	Pedigree: (2,1,2,1,1)
tree seedling, from heated greenhouse, 1000 units, at tree nursery/p/RER		3.81E-03	p	Pedigree: (3,1,2,1,1)
tree seedling, from unheated greenhouse, 1000 units, at tree nursery/p/RER		9.06E-03	p	Pedigree: (3,1,2,1,1)
wood chipping, chipper, mobile, diesel, at forest road/hr/RER		5.48E-05	hr	Pedigree: (2,1,2,1,1)
wood chipping, forwarder with terrain chipper, in forest/hr/RER		3.29E-05	hr	Pedigree: (2,1,2,1,1)

Products				
wood pellet, measured as dry mass, at plant/kg/RER		1.00E+00	kg	
Resources				
Water, river	in water	3.00E-05	m3	Pedigree: (2,3,2,4,1)
Water, process, unspecified natural origin/m3		2.55E-05	m3	
Materials/fuels				
Desktop computer, without screen, at plant/GLO		8.00E-09	p	Pedigree: (2,3,2,4,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		9.60E-02	kWh	Pedigree: (2,3,2,4,1)
Heat, wood pellets, at furnace 50kW/CH		1.12E-01	MJ	Pedigree: (2,3,2,4,1)
Keyboard, standard version, at plant/GLO		8.00E-09	p	Pedigree: (2,3,2,4,1)
LCD flat screen, 17 inches, at plant/GLO		1.60E-08	p	Pedigree: (2,3,2,4,1)
Lubricating oil, at plant/RER		8.40E-05	kg	Pedigree: (2,3,2,4,1)
Maize starch, at plant/DE		5.00E-03	kg	Pedigree: (2,3,2,4,1)
Mouse device, optical, with cable, at plant/GLO		8.00E-09	p	Pedigree: (2,3,2,4,1)
Packaging film, LDPE, at plant/RER		2.28E-03	kg	Pedigree: (2,3,2,4,1)
saw dust, production mix, wet, measured as dry mass, at sawmill/kg/RER		5.70E-01	kg	Pedigree: (2,3,2,4,1)
shavings, hardwood, measured as dry mass, at planing mill/kg/RER		1.50E-01	kg	Pedigree: (2,3,2,4,1)
shavings, softwood, measured as dry mass, at planing mill/kg/RER		1.50E-01	kg	Pedigree: (2,3,2,4,1)
Transport, freight, rail/RER		1.10E-01	tkm	Pedigree: (1,1,4,5,4)

Transport, lorry >16t, fleet average/RER		6.00E-02	tkm	Pedigree: (1,1,4,5,4)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/CH		9.87E-03	kg	Pedigree: (2,3,2,4,1)
wood chips, production mix, wet, measured as dry mass, at forest road & at sawmill/kg/RER		1.20E-01	kg	Pedigree: (2,3,2,4,1)
Wood pellet manufacturing, infrastructure/RER/I		4.00E-10	p	Pedigree: (2,3,2,4,1)
Emissions to air				
Water		4.50E-06	kg	Pedigree: (4,4,4,2,4)
Waste to treatment				
Disposal, used mineral oil, 10 % water, to hazardous waste incineration/CH		8.40E-05	kg	

Products				
wood wool boards, cement bonded, at plant/m3/RER		1.00E+00	m3	
Resources				
Water, river	in water	2.45E-01	m3	Pedigree: (1,4,5,3,1)
Water, process, unspecified natural origin/m3		1.50E-01	m3	Pedigree: (1,4,5,3,1)
Materials/fuels				
Cement, unspecified, at plant/CH		2.15E+02	kg	Pedigree: (1,4,5,3,1)
Chemicals organic, at plant/GLO		7.00E+00	kg	Pedigree: (1,4,5,3,1)
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		9.12E+00	kWh	Pedigree: (1,4,5,3,1)
Heat, hardwood chips from industry, at furnace 300kW/CH		7.33E+01	MJ	Pedigree: (1,4,5,3,1)
Transport, freight, rail/RER		2.57E+01	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		2.22E+01	tkm	Pedigree: (1,1,4,5,4)
wood wool, at plant/kg/RER		1.50E+02	kg	Pedigree: (1,4,5,3,1)
Wooden board manufacturing plant, cement bonded boards/RER/I		4.00E-07	p	Pedigree: (4,5,5,3,4)
Emissions to air				
Water		9.49E-02	kg	Pedigree: (2,2,5,1,1)

Products				
wood wool, at plant/kg/RER		1.00E+00	kg	
Resources				
Carbon dioxide, in air	in air	-1.43E-01	kg	Pedigree: (1,1,2,1,1)
Energy, gross calorific value, in biomass	biotic	-1.61E+00	MJ	Pedigree: (1,1,2,1,1)
Materials/fuels				
electricity, medium voltage, production ENTSO, at grid/kWh/ENTSO		5.88E-02	kWh	Pedigree: (1,4,5,3,1)
pulpwood, softwood, sustainable forest management, measured as solid wood under bark, at forest road/m3/RER		2.11E-03	m3	Pedigree: (1,4,5,3,1)
Sawmill/RER/I		8.42E-10	p	Pedigree: (4,5,5,3,4)
Transport, freight, rail/RER		1.62E-01	tkm	Pedigree: (1,1,4,5,4)
Transport, lorry >16t, fleet average/RER		8.11E-02	tkm	Pedigree: (1,1,4,5,4)

Datasets “at regional storage”

Products				
fibreboard, hard, at regional storage/CH U		1	kg	
Materials/fuels				
fibreboard, hard, at plant/kg/RER		0.00105	m3	955 kg/m3
Transport, lorry >16t, fleet average/RER U		0.6	tkm	600 km

Products

fibreboard, soft, at regional storage/CH U		1	kg	
Materials/fuels				
fibreboard soft, at plant (u=7%)/m3/CH U		0.00446	m3	62.5% market share; 140 kg/m3
fibreboard, soft, from wet & dry processes, at plant/m3/RER		0.00234	m3	37.5% market share; 160 kg/m3
Transport, lorry >16t, fleet average/RER U		0.131	tkm	37.5% market share; 350 km

Products				
glued laminated timber, indoor use, at regional storage/CH U		1	kg	
Materials/fuels				
glued laminated timber, indoor use, at plant/CH U		0.0016	m3	75% market share; 470 kg/m3
glued laminated timber, indoor use, at plant/m3/RER U		0.000532	m3	25% market share; 470 kg/m3
Transport, lorry >16t, fleet average/RER U		0.075	tkm	25% market share; 300 km

Products				
glued laminated timber, oudoor use, at regional storage/CH U		1	kg	
Materials/fuels				
glued laminated timber, outdoor use, at plant/CH U		0.0016	m3	75% market share; 470 kg/m3
glued laminated timber, outdoor use, at plant/m3/RER U		0.000532	m3	25% market share; 470 kg/m3
Transport, lorry >16t, fleet average/RER U		0.075	tkm	25% market share; 300 km

Products				
medium density fibreboard, at regional storage/CH U		1	kg	
Materials/fuels				
medium density fibreboard, uncoated, at plant/m3/RER		0.00146	m3	685 kg/m3
Transport, lorry >16t, fleet average/RER U		0.136	tkm	22.6% market share; 600 km

Products				
oriented strand board, at regional storage/CH U		1	kg	
Materials/fuels				
oriented strand board, at plant/m3/RER		0.00165	m3	605 kg/m3
Transport, lorry >16t, fleet average/RER U		0.6	tkm	100% market share; 600 km

Products				
particleboard 18 mm, average glue mix, melamine faced, at regional storage/CH U		1	kg	
Materials/fuels				
particleboard, average glue mix, uncoated, at plant/m3/RER		0.0015625	m3	640 kg/m3
Transport, lorry >16t, fleet average/RER U		0.233	tkm	38.8% market share; 600 km
coating, with melamine impregnated paper, double-sided/m2/RER		0.0868	m2	for 640 kg/1000mm*18mm= 11.52 kg/m2

Products				
particleboard, uncoated, average glue mix, at regional storage/CH U		1	kg	

Materials/fuels				
particleboard, average glue mix, uncoated, at plant/m3/RER		0.00156	m3	640 kg/m3
Transport, lorry >16t, fleet average/RER U		0.233	tkm	38.8% market share; 600 km

Products				
plywood, indoor use, at regional storage/CH U		1	kg	
Materials/fuels				
plywood, indoor use, at plant/m3/RER U		0.002	m3	500 kg/m3
Transport, lorry >16t, fleet average/RER U		0.57	tkm	95% market share; 600 km

Products				
plywood, outdoor use, at regional storage/CH U		1	kg	
Materials/fuels				
plywood, outdoor use, at plant/m3/RER U		0.002	m3	500 kg/m3
Transport, lorry >16t, fleet average/RER U		0.57	tkm	95% market share; 600 km

Products				
sawnwood, hardwood, raw, dried (u=10%), at regional storage/CH U		1	kg	
Materials/fuels				
sawnwood, production mix, hardwood, raw, dried (u=10%), at sawmill/m3/CH		0.000889	m3	60% market share; 675 kg/m3
sawnwood, production mix, hardwood, raw, dried (u=10%), at sawmill/m3/RER		0.000593	m3	40% market share; 675 kg/m3
Transport, lorry >16t, fleet average/RER U		0.12	tkm	40% market share; 300 km

Products				
sawnwood, hardwood, raw, dried (u=10%), planed, at regional storage/CH U		1	kg	
Materials/fuels				
sawnwood, production mix, hardwood, dried (u=10%), planed, at sawmill/m3/CH		0.000889	m3	60% market share; 675 kg/m3
sawnwood, production mix, hardwood, dried (u=10%), planed, at sawmill/m3/RER		0.000593	m3	40% market share; 675 kg/m3
Transport, lorry >16t, fleet average/RER U		0.12	tkm	40% market share; 300 km

Products				
sawnwood, hardwood, raw, dried (u=20%), at regional storage/CH U		1	kg	
Materials/fuels				
sawnwood, production mix, hardwood, raw, dried (u=20%), at sawmill/m3/CH		0.000851	m3	60% market share; 705 kg/m3
sawnwood, production mix, hardwood, raw, dried (u=20%), at sawmill/m3/RER		0.000567	m3	40% market share; 705 kg/m3
Transport, lorry >16t, fleet average/RER U		0.12	tkm	40% market share; 300 km

Products				
sawnwood, softwood, raw, dried (u=10%), at regional storage/CH U		1	kg	
Materials/fuels				
sawnwood, production mix, softwood, raw, dried (u=10%), at sawmill/m3/CH		0.00161	m3	75% market share; 465 kg/m3

sawnwood, production mix, raw, dried (u=10%), at sawmill/m3/RER		0.000538	m3	25% market share; 465 kg/m3
Transport, lorry >16t, fleet average/RER U		0.0625	tkm	25% market share; 250 km

Products				
sawnwood, softwood, raw, dried (u=10%), planed, at regional storage/CH U		1	kg	
Materials/fuels				
sawnwood, production mix, softwood, dried (u=10%), planed, at sawmill/m3/CH		0.00161	m3	75% market share; 465 kg/m3
sawnwood, production mix, softwood, dried (u=10%), planed, at sawmill/m3/RER		0.000538	m3	25% market share; 465 kg/m3
Transport, lorry >16t, fleet average/RER U		0.0625	tkm	25% market share; 250 km

Products				
sawnwood, softwood, raw, dried (u=20%), at regional storage/CH U		1	kg	
Materials/fuels				
sawnwood, production mix, softwood, raw, dried (u=20%), at sawmill/m3/CH		0.00155	m3	75% market share; 485 kg/m3
sawnwood, production mix, softwood, raw, dried (u=20%), at sawmill/m3/RER		0.000515	m3	25% market share; 485 kg/m3
Transport, lorry >16t, fleet average/RER U		0.0625	tkm	25% market share; 250 km

Products				
sawnwood, softwood, raw, dried (u=20%), planed, at regional storage/CH U		1	kg	
Materials/fuels				
sawnwood, production mix, softwood, dried (u=20%), planed, at sawmill/m3/CH		0.00155	m3	75% market share; 485 kg/m3
sawnwood, production mix, softwood, dried (u=20%), planed, at sawmill/m3/RER		0.000515	m3	25% market share; 485 kg/m3
Transport, lorry >16t, fleet average/RER U		0.0625	tkm	25% market share; 250 km

Products				
three layered laminated board, at regional storage/CH U		1	kg	
Materials/fuels				
three layered laminated board, at plant/CH U		0.0016	m3	75% market share; 470 kg/m3
three layered laminated board, at plant/m3/RER U		0.000532	m3	25% market share; 470 kg/m3
Transport, lorry >16t, fleet average/RER U		0.075	tkm	25% market share; 300 km

Products				
wood wool board, cement bonded, at regional storage/CH U		1	kg	
Materials/fuels				
wood wool boards, cement bonded, at plant/m3/RER		0.0025	m3	400 kg/m3
Transport, lorry >16t, fleet average/RER U		0.3	tkm	50% market share; 600 km