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Life Cycle Assessment Background Report

Corkeen 40, 50, 70, 90, 110 and 135 mm

Customer:

Amorim Cork Solutions, S.A.

Rua Comendador Américo Ferreira Amorim, 260
4535-186 Mozelos
Santa Maria da Feira

REPORT
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INSTITUTE FOR RESEARCH AND TECHNOLOGICAL DEVELOPMENT IN **CONSTRUCTION, ENERGY, ENVIRONMENT AND SUSTAINABILITY**

Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt

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1. Introduction

This document is the Life Cycle Assessment (LCA) background report for the Environmental Product Declaration (EPD) of Corkeen products (40, 50, 70, 90, 110 and 135 mm) from Amorim Cork Solutions, S.A. (ACS). This EPD will be submitted to The International EPD® System. The Life Cycle Assessment (LCA) study was commissioned by ACS to Itecons – Institute for Research and Technological Development in Construction, Energy, Environment and Sustainability. The LCA was performed following the requirements of EN 15804:2012+A2:2019, and Product Category Rules (PCR) "PCR 2019:14 Construction Products" produced by The International EPD® System. This background report was finished in march of 2026. It explains the results, data sources, hypotheses, limits and conclusions of the LCA, and is not intended for public communication.

2. Objectives

The developed study aims to assess the environmental impacts of the Corkeen (40, 50, 70, 90, 110 and 135 mm) produced by ACS, to obtain an EPD of these products based on EN 15804:2012+A2:2019, for submission to The International EPD® System. This background report includes all calculations, assumptions and interpretation of the LCA results for 6 Corkeen references produced by ACS. The life cycle impact assessment results represent Corkeen 50 mm and were calculated based on production data for 2024.

The development of the EPDs supported by this report aims at communicating verifiable, accurate, non-misleading information on the declared product and its applications. The information on the EPD of these products is intended for both business-to-business and business-to-consumer communication. The results of this report will also be used in the improvement of the production process, since the LCA should identify the critical hotspots.

3. Methodology

To develop this study, it was used the Life Cycle Assessment (LCA) methodology, according to the following standards and guidance documents:

- EN ISO 14040:2006 – Environmental management – Life cycle assessment – Principles and framework [1];
- EN ISO 14044:2006 – Environmental management – Life cycle assessment – Requirements and guidelines [2];

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- ISO 14025:2006 - Environmental labels and declarations – Type III environmental declarations – Principles and procedures [3];
- EN 15804:2012+A2:2019/AC:2021 – Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products [4];
- EN 15941:2024 – Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data [5];
- General Programme Instructions of the International EPD® System, Version 5.0.1 [6];
- PCR 2019:14 Construction Products, Version 2.0.1 [7].

These standards and guidance documents were used as basis of developing a LCA and Background Report in order to obtain a Type III Environmental Product Declaration. SimaPro version 10.2.0.2 software [8] was used to model the life cycle impacts, as can be confirmed by the print screens in Annex A.

4. Scope

4.1. Product Description and Area of Application

This background report refers to the Environmental Product Declarations of Corkeen Products (40, 50, 70, 90, 110 and 135 mm) from one single manufacture (Figure 1), produced in Santa Maria da Feira, Portugal. The product is a surfacing system made from cork, cork co-products, and a polyurethane binder, developed by Amorim Cork Solutions (ACS). Due to cork characteristics, Corkeen has a high impact absorption, high drainage capacity and lower surface temperatures than comparable materials, providing a safe and stable solution for playgrounds.

Figure 1: Corkeen illustration.

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Table 1 presents information about the composition of Corkeen products.

Table 1: General product information for Corkeen products.

	Components	% Weight	Materials	% Weight	Pre-consumer recycled material, % weight	Post-consumer recycled material, % weight
Corkeen 40 mm	Product	92,48%	Cork granules	44,91%	62,39%	1,61%
			Binder	55,09%	--	--
	Packaging	7,52%	--	--	--	--
Corkeen 50 mm	Product	92,03%	Cork granules	47,96%	62,39%	1,61%
			Binder	52,04%	--	--
	Packaging	7,97%	--	--	--	--
Corkeen 70 mm	Product	91,37%	Cork granules	52,45%	62,39%	1,61%
			Binder	47,55%	--	--
	Packaging	8,63%	--	--	--	--
Corkeen 90 mm	Product	90,96%	Cork granules	55,33%	62,39%	1,61%
			Binder	44,67%	--	--
	Packaging	9,04%	--	--	--	--
Corkeen 110 mm	Product	90,68%	Cork granules	57,28%	62,39%	1,61%
			Binder	42,72%	--	--
	Packaging	9,32%	--	--	--	--
Corkeen 135 mm	Product	90,43%	Cork granules	59,01%	62,39%	1,61%
			Binder	40,99%	--	--
	Packaging	9,57%	--	--	--	--

Table 2 presents technical information on the formulation components and the Corkeen products.

Table 2: Technical product information on the formulation components and the Corkeen products.

	Corkeen 40 mm	Corkeen 50 mm	Corkeen 70 mm	Corkeen 90 mm	Corkeen 110 mm	Corkeen 135 mm
Cork Granule Size | Top Layer (mm)	2-3	2-3	2-3	2-3	2-3	2-3
Density | Top Layer (kg/m³)	100-130	100-130	100-130	100-130	100-130	100-130
Weight | Top Layer (kg/m²)	2,22E+00	2,22E+00	2,22E+00	2,22E+00	2,22E+00	2,22E+00
Weight- packed | Top Layer (kg/m²)	3,30E-01	4,52E-01	7,08E-01	9,60E-01	1,21E+00	1,50E+00
Cork Granule Size | Base Layer (mm)	4-5	4-5	4-5	4-5	4-5	4-5
Density | Base Layer (kg/m³)	65-75	65-75	65-75	65-75	65-75	65-75
Weight | Base Layer (kg/m²)	1,96E+00	2,68E+00	4,20E+00	5,70E+00	7,17E+00	8,91E+00
Weight- packed | Base Layer (kg/m²)	1,84E-01	1,84E-01	1,84E-01	1,84E-01	1,84E-01	1,84E-01
Density | Binder (kg/m³)	1100	1100	1100	1100	1100	1100
Weight | Binder (kg/m²)	2,93E+00	3,26E+00	3,94E+00	4,61E+00	5,28E+00	6,06E+00
Weight- packed | Binder (kg/m²)	6,45E-02	7,17E-02	8,67E-02	1,01E-01	1,16E-01	1,33E-01
Viscosity (cP)	3000–5000	3000–5000	3000–5000	3000–5000	3000–5000	3000–5000

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4.2. Declared/Functional Unit

The inventory and impact assessment stages of this study were developed considering a unit that may be used to compare other products with the same function. The functional unit adopted was 1 m^2 of surfacing system for playgrounds made of Corkeen with a service reference lifetime of 20 years (packaging included).

4.3. System Boundary

This is a cradle-to-gate with modules C1-C4 and module D type of EPD, and it covers (Figure 2): [A1] raw material extraction and processing, processing of secondary material input; [A2] transport to the manufacturer; [A3] manufacturing; [A4] transport; [A5] construction installation; [C1] de-construction, demolition; [C2] transport; [C3] waste processing; [C4] disposal; and [D] benefits and loads beyond the system boundary. In the manufacturing process (module A3) the following steps were considered: xxx and packaging.

4.3.1. Product stage [A1-A3]

Modules A1-A3 cover the extraction, production and acquisition of the main raw materials and pre-products, as well as electricity and fuel generation, transport of all raw materials considered in module A1 to the factory gate, and production of the final products, including waste management and emissions.

4.3.2. Construction process stage [A4-A5]

Modules A4 and A5 cover the transport of the finished products to the construction site, as well as the construction of the playground's surface system.

4.3.3. Use stage [B1-B7]

The use stage is not included.

4.3.4. End of life stage [C1-C4]

Module C1

This module includes the deconstruction of the product from the playground, carried out with the use of appropriate equipment.

Module C2

This module includes the transportation of the waste to a waste processing facility, recycling facility and final disposal.

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Module C3

This model includes waste processing for recycling.

Module C4

Module C4 includes the landfill disposal of the waste.

4.3.5. Benefits and loads beyond the system boundary [D]

This module includes the net benefits and loads from net flows of secondary materials leaving the product system.

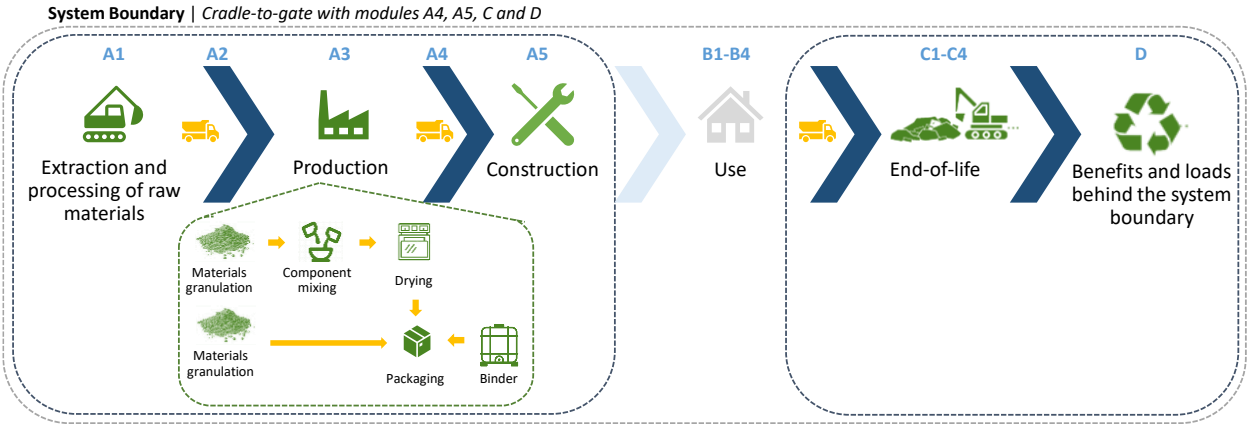

Figure 2: Life cycle model (cradle-to-gate with modules A4, A5, C and D) of Corkeen products.

4.3.6. Criteria for the exclusion of inputs and outputs

The LCA considered all the production processes of the materials and energy consumed in the system, as well as the management processes of the wastes generated, for which inventory data were available. Personnel-related processes, such as transportation of employees to and from work, production and end-of-life processes of infrastructure and capital goods used in the product system as well as in upstream and downstream processes, and consumption and emissions in administrative areas and laboratories were not taken into account (except capital goods related to on-site energy generation equipment, such as photovoltaic panels and boilers). No material or energy flows were excluded from the modelling for which the project managers would have known that a significant contribution could be expected on the indicators; therefore, the cut-off criteria defined in EN 15804+A2 has been followed.

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5. Life Cycle Inventory

5.1. Collecting/Selecting Data and Calculation Procedures

Primary data was used based on the average production of Corkeen products in 2024. For processes which the producer has no influence on or no specific information about, such as extraction of raw materials, production of customised products and electricity generation, literature and generic data from Ecoinvent database v3.11 [10] and EF database 2.0 [11] was used, considering geographical significance. The collection and selection of data, as well as the calculation procedures, were carried out in accordance with EN 15804:2012+A2 and EN 15941.

To model the inputs of raw materials and pre-products, their composition was considered according to technical and safety data sheets of the suppliers, provide by ACS. In this study, a percentage of additional material (by mass) was considered, in order to include losses in the production process (more information in 5.5.3).

To model transportation of raw materials and pre-products to the factory, the information about the type of transport and the distance to the supplier was considered (data provided by the ACS), measuring the distances through Google Maps. The burdens associated with the combustion of diesel were considered, excluding the burdens of infrastructure (manufacture of vehicles and maintenance).

To model the treatment of waste generated in the production process, their transport to the management facility and, whenever possible, their treatment process, were considered. Production losses are reused as raw materials in the same or another process (internal recycling).

5.2. Allocation

The industrial unit where Corkeen are manufactured also produces other products. Considering this, a mass allocation approach was applied to assign inputs and outputs to the manufacturing these products. It should be noted that no co-products are generated during the production of Corkeen.

5.2.1. Inputs of energy

Energy consumption, including electricity and thermal energy from the boiler, was determined based on a combination of energy meters, point measurements, and estimates derived from production quantities. Allocation was performed considering the total mass produced in the specific production line in 2024, as well as operating hours and equipment rated power.

5.2.2. Internal transport

Diesel consumption associated with internal transport operations was allocated among the different products according to the mass of products manufactured on the relevant production line in 2024.

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5.2.3. Emissions to air

Emissions of pollutants to air are associated to consumption of thermal energy (thermo-fluid and steam), grinding, mixing and drying processes. Emissions were calculated based on point measurements (latest available measurement reports), operating hours in 2024 (primary data provided by ACS), and the quantity of product manufactured on the specific production line in 2024.

5.2.4. Waste

All products sent for recycling are treated under the “polluter pays” principle, i.e. impacts of transport of waste to the waste management facility are taken into account, but the impacts and benefits of waste recycling are not accounted for.

5.3. Biogenic Carbon Content

5.3.1. Carbon Dioxide Uptake – Cork

In this study, the cork (raw material and by-product of other products systems) that enter the system were considered to have a similar amount of carbon stored. This amount was calculated according to standard EN 16449 [9]. The formula used for calculating the content of CO_2 is:

$$P_{CO_2} = \frac{44}{12} \times c_f \times \frac{\rho_\omega \times V_\omega}{1 + \frac{\omega}{100}}$$

where,

P_{CO_2} is the biogenic carbon oxidized as carbon dioxide emission from the product system into the atmosphere (kg);

c_f is the carbon fraction of woody biomass (oven dry mass);

ρ_ω is the density of woody biomass of the product at that moisture content (kg/m^3);

V_ω is the volume of the solid product at that moisture content (m^3);

ω is the moisture content of the product (%).

The amount of CO_2 stored was calculated considering a carbon fraction in cork (c_f) of 0.53, a moisture content (ω) of 6%, a product volume (V_ω) of 1 m³, and a density (ρ_ω) of 120 kg/m³ (Top Layer) and 70 kg/m³ (Base Layer). According to this equation, the amount of CO_2 stored in 1 kg is 1,73 kg CO_2. Considering that are losses (cork grinding) during the process, it was made an adjustment in the model so that the right quantity of CO_2 stored was considered (Table 3).

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Table 3: CO_2 balance of the products.

		1 m²					
	Intakes / emissions CO_2	**Corkeen 40mm**	**Corkeen 50mm**	**Corkeen 70mm**	**Corkeen 90mm**	**Corkeen 110mm**	**Corkeen 135mm**
Inputs	CO_2 in Cork | Raw material (kg)	7,37E+00	9,00E+00	1,25E+01	1,59E+01	1,92E+01	2,31E+01
	CO_2 in Cork Dust | Boiler (kg)	9,59E-01	1,12E+00	1,46E+00	1,80E+00	2,14E+00	2,53E+00
	CO_2 in Biomass waste | Boiler (kg)	2,30E-01	2,70E-01	3,53E-01	4,34E-01	5,15E-01	6,10E-01
	Total	**8,56E+00**	**1,04E+01**	**1,43E+01**	**1,81E+01**	**2,18E+01**	**2,63E+01**
Outputs	CO_2 in the final product | Corkeen (kg)	7,10E+00	8,33E+00	1,09E+01	1,35E+01	1,60E+01	1,89E+01
	CO_2 in waste of Corkeen | To internal recycling (kg)	2,64E-01	6,75E-01	1,54E+00	2,40E+00	3,24E+00	4,23E+00
	CO_2 emissions | Boiler (kg)	1,19E+00	1,39E+00	1,82E+00	2,24E+00	2,65E+00	3,14E+00
	Total	**8,56E+00**	**1,04E+01**	**1,43E+01**	**1,81E+01**	**2,18E+01**	**2,63E+01**

5.3.2. Biogenic Carbon Content - Total

The biogenic carbon content in packaging is mainly associated with the use of paper bag and wood pallet. The carbon content considered was based on the information contained in the selected databases processes. Table 4 presents the biogenic carbon content in the final product and packaging.

Table 4: Biogenic carbon content in the final product and packaging.

		1 m²					
		Corkeen 40mm	**Corkeen 50mm**	**Corkeen 70mm**	**Corkeen 90mm**	**Corkeen 110mm**	**Corkeen 135mm**
Final product	Biogenic carbon content in the final product (kg C)[1]	1,94E+00	2,27E+00	2,98E+00	3,67E+00	4,35E+00	5,16E+00
	Biogenic CO_2 content in the final product (kg CO_2)[1]	7,10E+00	8,33E+00	1,09E+01	1,35E+01	1,60E+01	1,89E+01
Packaging	Biogenic carbon content in the packaging (kg C)[2]	2,00E-01	2,47E-01	3,46E-01	4,44E-01	5,40E-01	6,54E-01
	Biogenic CO_2 content in the packaging (kg CO_2)[2]	7,33E-01	9,06E-01	1,27E+00	1,63E+00	1,98E+00	2,40E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2
[1] considering cork (0,47 kg C/kg)
[2] considering paper bag (0,395 kg C/kg) and wood pallet (0,393 kg C/kg)

5.4. Electricity modelling

Electricity used in module A3 was modelled using the Portuguese energy grid residual mix from Ecoinvent v3.11 “Electricity, low voltage {PT}| electricity, low voltage, residual mix | EN15804, U”. Table 5 shows the electricity mix considered and the climate impact.

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Table 5: Electricity mix and climate impact.

Energy	Share
Hydro	4,00%
Wind	7,00%
Solar	9,00%
Nuclear	6,00%
Natural gas	46,00%
Coal	27,00%
Other	2,00%
Climate impact (GWP-GHG) (kg CO_2 eq/kWh)	**0,602**

5.5. Description of the Modules under Analysis

5.5.1. Raw/Secondary material extraction and processing and transport [Modules A1-A2]

Module A1 includes the extraction, production and acquisition of the main raw/secondary materials and pre-products, as well as electricity and fuel production. The choice of processes from LCI databases (Ecoinvent v3.11) to model the production process of every material and pre-products was made according to information and description of the products in safety data sheets and more detailed data requested to the suppliers. These materials have different origins, and their transport to the place of manufacture (module A2) is carried out by road and ship. To model the impact associated with transport, the list of suppliers was used (collected by ACS), measuring distances through Google Maps (Table 6). The list of the raw/secondary materials, pre-products and energy used in the production process and the datasets used to model the impacts associated to their extraction/production and transport are indicated in Table 7.

Table 6: Distance between ACS and suppliers.

Raw/Sec. Materials, pre-products and products	Distance	Unit	Type of transport
Cork | Suppliers	large number of suppliers	km	Truck Ship
Binder | Production	338,00	km	truck
Binder | Corkeen	338,00	km	truck

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Table 7: Datasets used to model extraction, processing and transport of raw/secondary materials, pre-products, energy and others.

Raw/Sec. materials and pre-products	Datasets used to model material extraction and processing	Unit	Datasets used to model material transport to the manufacturer	Unit
Cork	Cork, raw {PT}| cork forestry | EN15804, U (Ecoinvent)	kg	- Transport, freight, lorry, 7.5-16 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 7.5-16 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent) - Transport, freight, sea, container ship, heavy fuel oil {GLO}| transport, freight, sea, container ship, heavy fuel oil | EN15804, U (Ecoinvent)	tkm
Binder	Polyurethane adhesive {GLO}| polyurethane adhesive production | EN15804, U (Ecoinvent)	kg	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm
Energy and Others	**Datasets used to energy production**			
Electricity | Grid	Electricity, medium voltage {PT}| electricity, medium voltage, residual mix | EN 15804, U (Ecoinvent)	kWh	--	--
Electricity | Photovoltaic	Electricity, low voltage {PT}| electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted | EN15804, U (Ecoinvent)	kWh	--	--
Heat (natural gas)	Heat, district or industrial, natural gas {RER}| market group for heat, district or industrial, natural gas | EN15804, U (Ecoinvent)	kWh	--	--

5.5.2. Production Process [Module A3]

The production of Corkeen comprises four stages: cork grinding, mixing (top layer only), drying (top layer only), and packaging. Corkeen products are composed of a base layer, a top layer, and a binder. ACS produces the base and top layers and purchases the binder used in installation (A5). The production of the base layer consists of grinding virgin and recycled cork (pre-consumer and post-consumer) to produce granules, which are then packaged without further processing. This process requires electricity and heat (steam and water vapour), which is used to control moisture. The production of the top layer also starts with the production of cork granules using the same grinding process. The granules are then coated with a polyurethane resin, followed by a drying process, and finally packaged. Figure 3 shows the production process and main inputs and outputs per stage. A brief description of the processes and activities included in each stage and the inventory data per stage are presented below. Table 8 presents the production of Base layer and Top layer in 2024.

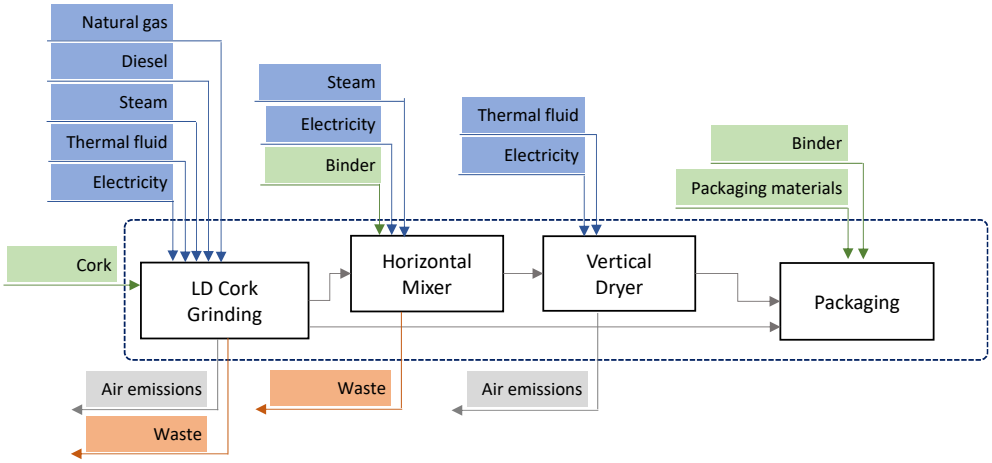

Figure 3: Production process of Corkeen products.

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Table 8: Production of Base layer and Top layer in 2024.

	Unit	Base Layer	Top Layer
Production 2024	kg	4,30E+04	4,10E+04

ACS produces the components used in Corkeen final products but does not control the installation processes for each Corkeen product typology. Consequently, the 2024 production data for each Corkeen product were estimated with the support of intermediaries involved in the respective value chain. Table 9 presents the estimated production of Corkeen products in 2024.

Table 9: Production of Corkeen products in 2024.

	Unit	Corkeen 40mm	Corkeen 50mm	Corkeen 70mm	Corkeen 90mm	Corkeen 110mm	Corkeen 135mm
Production 2024	kg	2,88E+04	5,76E+04	2,16E+04	2,16E+04	7,19E+03	7,19E+03

Cork Grinding

This stage takes place at ACS, where cork (virgin, remains produced as by-product of other product systems and post-consumer waste) goes through a grinding process. The resulting granules are then used to produce the base layer and the top layer. The base layer does not undergo any further processing, whereas the granules intended for the top layer are subjected to additional processing steps. Table 10 presents the inputs and outputs of cork grinding process.

Table 10: Inventory data of LD Cork granules production.

				1kg
			Unit	LD Cork Granules
Inputs	**Materials**	Cork	kg	1,336E+00
	Maintenance	Lubricating oil	kg	8,27E-07
		Steel	kg	5,77E-04
		Rubber	kg	1,56E-06
	Energy	Electricity | Grid	kWh	3,88E-01
		Electricity | Photovoltaic	kWh	3,95E-02
		Heat (Biomass, cork dust)	kWh	2,31E-01
		Steam (Biomass, cork dust)	kWh	4,71E-01
		Heat, natural gas	kWh	3,44E-02
	Transport	Truck	tkm	2,64E-01
		Ship	tkm	1,48E-01
		Internal | Diesel forklift	kWh	8,19E-03
	Capital Goods	Boilers and PVs	p	3,64E-07
Outputs	**Products**	**HD Cork granulates**	**kg**	**3,43E-01**
		MD Cork granulates	**kg**	**5,20E-01**
		LD Cork granulates	**kg**	**9,91E-02**
		Others	**kg**	**3,82E-02**

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

			1kg
		Unit	LD Cork Granules
Waste	External Recycling | maintenance waste (steel)	kg	5,77E-04
	External incineration | maintenance waste (rubber)	kg	1,56E-06
	Landfill | Lubricating oil packaging	kg	5,87E-07
	Internal Recycling | Process losses	kg	3,36E-01
Air emissions	PM10	kg	1,22E-03
	VOC's	kg	1,27E-04
	CO	kg	7,06E-06
	NO_x	kg	1,31E-06
Transport	Truck	tkm	2,50E-06

Components Mixing (Horizontal mixer)

This stage consists of mixing cork granules with a polyurethane binder. Table 11 presents the inputs and outputs of the mixing process.

Table 11: Inventory data of components mixing process.

			Unit	1 kg Top layer
Inputs	**Materials**	LD Cork granulates	kg	5,79E-01
		Binder	kg	4,63E-01
	Energy	Electricity | Grid	kWh	4,46E-02
		Steam (diesel)	kg	5,46E-02
	Capital Goods	Boiler	p	1,65E-08
	Maintenance	Lubricating oil	kg	8,04E-06
	Internal Transport	Diesel	kWh	4,98E-02
	Transport	Truck	tkm	1,57E-01
Outputs	**Waste**	Internal Recycling | Process losses	kg	4,17E-02

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3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Drying (Vertical dryer)

At this stage, the mixture of cork granules and binder undergoes a drying process. Table 12 presents the inputs and outputs of the drying process.

Table 12: Inventory data of drying process.

			Unit	1 kg
				Top layer
Inputs	Materials	Top Layer | Pre-product	kg	1,04E+00
	Energy	Electricity | Grid	kWh	7,20E-02
		Electricity | Photovoltaic	kWh	1,80E-02
		Heat | Thermo-fluid	kWh	4,70E-01
	Capital Goods	Boilers and PVs	p	1,66E-07
	Internal Transport	Diesel	kWh	5,84E-05
	Transport	Truck	tkm	1,04E-03
Outputs	Air emissions	Particles	kg	1,24E-05
		VOCs	kg	6,09E-06
		Water	kg	4,00E-02

Packaging

The packaging stage consists of palletizing and storage. The materials used in the packaging of Corkeen products include big-bags, polypropylene plastic straps and wooden pallets for the base layer, paper bags, plastic film and wooden pallets for the top layer, and IBCs for the binder. The list of the packaging materials used and the datasets used to model the impacts associated to their production and transport are indicated in Table 13.

Table 13: Datasets used to model processing and transport of packaging materials.

Products	Datasets used to model material extraction and processing	Unit	Datasets used to model material transport to the manufacturer	Unit
Packaging | Big bag	Process created: - Extrusion, plastic film {RER}| extrusion, plastic film | EN15804, U (Ecoinvent) - Polypropylene, granulate {RER}| polypropylene production, granulate | EN15804, U (Ecoinvent)	kg	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm
Packaging | Polypropylene plastic strap	Process created: - Extrusion, plastic pipes {GLO}| market for extrusion, plastic pipes | EN15804, U (Ecoinvent) - Polypropylene, granulate {RER}| polypropylene production, granulate | EN15804, U (Ecoinvent)	kg	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm
Packaging | Paper bag	Paper bag {EU-28+EFTA} | Kraft Pulping Process, pulp pressing and drying | production mix, at plant | uncoated Kraft Paper | LCI result (EF database v2.0)		Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm
Packaging | Plastic film	Packaging film, low density polyethylene {RER}| packaging film production, low density polyethylene | EN15804, U (ecoinvent)		Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm
Packaging | IBC	Process created: - Polyethylene, high density, granulate {GLO}| market for polyethylene, high density, granulate | EN15804, U (ecoinvent) - Blow moulding {GLO}| market for blow moulding | EN15804, U (ecoinvent)		Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm

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3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Products	Datasets used to model material extraction and processing	Unit	Datasets used to model material transport to the manufacturer	Unit
	- Steel, low-alloyed {GLO}| market for steel, low-alloyed | EN15804, U (ecoinvent) - Metal working, average for steel product manufacturing {GLO}| market for metal working, average for steel product manufacturing | EN15804, U - Pallet, plastic (80x60) {EU-28+EFTA} | raw material production, plastic injection moulding | production mix, at plant | weight per piece: 3.5 kg, nominal loading capacity of 1000kg | LCI result (EF database v2.0)			
Packaging | Wooden pallets	EUR-flat pallet {RER}| EUR-flat pallet production | EN15804, U (Ecoinvent)	p	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm

Table 14 presents the distances between ACS and packaging materials suppliers.

Table 14: Distance between ACS and suppliers.

Packaging products	Distance	Unit	Type of transport
Packaging | Big bag | Supplier 1	30,00	km	truck
Packaging | Big bag | Supplier 2	76,00	km	truck
Packaging | Polypropylene plastic strap	3,30	km	truck
Packaging | Paper bag	3,00	km	truck
Packaging | Plastic film	58,00	km	truck
Packaging | IBC	338,00	km	truck
Packaging | Wooden pallets |Supplier 1	42,50	km	truck
Packaging | Wooden pallets |Supplier 2	1,20	km	truck

Table 15 presents the inputs and outputs of packaging process.

Table 15: Inventory data of packaging process.

				1 kg		
			Unit	Base Layer	Top Layer	Binder
Inputs	**Product**	Base Layer	kg	1,00E+00	--	--
		Top Layer	kg	--	1,00E+00	--
		Binder	kg	--	--	1,00E+00
	Packaging materials	Big Bag	kg	3,94E-03	--	--
		Polypropylene plastic strap	kg	2,99E-05	--	--
		Paper bag	kg	--	2,44E-02	--
		Plastic film	kg	--	1,30E-03	--
		Wooden pallet	p	7,48E-03	2,60E-03	--
		IBC	p	--	--	1,00E-03
	Transport	Truck	tkm	5,74E-03	2,08E-03	7,44E-03

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3030-289 Coimbra
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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Complementary processes

- **Heat (thermo-fluid) Production**

Heat (thermos-fluid) is produced in two boilers. One works during the week and the other works at the weekend. To model heat production, data provided by ACS was used, such as electricity consumption, cork dust, biomass waste, atmospheric emissions and waste. Table 16 presents the principal inputs and outputs considered in heat (thermo-fluid) production. In addition, a natural gas boiler is used to generate heat for the grinding process. The following process from the Ecoinvent database was considered: “Heat, district or industrial, natural gas {RER}| market group for heat, district or industrial, natural gas | EN15804, U”.

Table 16: Inventory data of heat production.

			Unit	1 kWh Heat (thermo-fluid) production
Inputs	**Fuel**	Cork dust	kg	2,16E-01
		Biomass waste	kg	5,11E-02
	Energy	Electricity | Grid	kWh	3,69E-02
		Electricity | Photovoltaic	kWh	3,74E-03
Outputs	**Air emissions**	Particles	kg	2,79E-04
		CO	kg	8,61E-04
		NO_x	kg	7,60E-04
		VOCs	kg	3,46E-05
		SO_2	kg	4,05E-05
	Waste	Ash, slag and boiler dust	kg	5,99E-03

- **Steam Production**

Steam is produced in two boilers: a biomass boiler used in the grinding process and a diesel boiler used in the mixing process (horizontal mixer). The modelling of steam production was based on primary data provided by ACS, including electricity consumption, cork dust, biomass waste, diesel consumption, atmospheric emissions, and waste generation. Table 17 presents the principal inputs and outputs considered in steam production.

Table 17: Inventory data of steam production.

			Unit	1 kWh	
				Steam production | Biomass	Steam production | Diesel
Inputs	**Fuel**	Cork dust	kg	2,16E-01	--
		Biomass waste	kg	5,26E-02	--
		Diesel	kWh	--	8,33E-01
	Water	Water	m^3	1,35E-03	1,10E-03

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3030-289 Coimbra
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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

			Unit	1 kWh	
				Steam production | Biomass	Steam production | Diesel
	Energy	Electricity | Grid	kWh	3,29E-02	--
		Electricity | Photovoltaic	kWh	3,33E-03	--
Outputs	Air emissions	Particles	kg	5,61E-04	--
		CO	kg	1,74E-03	--
		NO_x	kg	1,53E-03	--
		VOCs	kg	6,98E-05	--
		SO_2	kg	8,17E-05	--
	Waste	Ash, slag and boiler dust	kg	1,21E-02	--

- **Internal Transport**

According to the manufacturer, internal transport is carried out by electric and diesel forklifts. To model internal transport, only the consumption of diesel and electricity was considered. To this end, the following process from the Ecoinvent database was considered: “Diesel, burned in building machine {GLO}| diesel, burned in building machine | EN15804, U”.

- **Treated Water**

Groundwater is used in steam production. This water undergoes a typical treatment process with sodium chloride and sodium hypochlorite. To model the production of treated water, a process was created that includes information from the ACS, such as groundwater consumption, treatment products and transport. Table 18 presents the inputs and outputs of water treatment process.

Table 18: Inventory data of water treatment.

			Unit	1 m^3 Treated water
Inputs	Materials	Groundwater	l	1,00E+00
		Sodium chloride	kg	3,23E-01
		Sodium hypochlorite	kg	1,81E-01
	Transport	Truck	tkm	7,76E-03

- **Maintenance**

Maintenance operations occur in the grinding and horizontal mixing process stages. These include routine servicing of machinery, such as lubrication and the replacement of certain components (e.g., steel and rubber parts) Table 19 shows the datasets used to model processing and transport of maintenance materials.

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Table 19: Datasets used to model processing and transport of maintenance materials.

Products	Datasets used to model material extraction and processing	Unit	Datasets used to model material transport to the manufacturer	Unit
Packaging | Big bag	Lubricating oil {RER}| lubricating oil production | EN15804, U (Ecoinvent)	kg	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm
Packaging | Polypropylene plastic strap	Steel, low-alloyed {RER}| steel production, converter, low-alloyed | EN15804, U (Ecoinvent)	kg	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm
Packaging | Wooden pallets	Synthetic rubber {RER}| synthetic rubber production | EN15804, U (Ecoinvent)	kg	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U (Ecoinvent)	tkm

5.5.3. Losses

Raw material losses during the production processes were considered in the LCA model, taking into account its extraction and processing, transport to the ACS facilities, waste transport and treatment. Table 20 presents the raw material losses considered in Corkeen production processes.

Table 20: Losses of pre-products during the production [A3].

Raw/Sec. materials and pre-products	Process stage	Corkeen 40mm	Corkeen 50mm	Corkeen 70mm	Corkeen 90mm	Corkeen 110mm	Corkeen 135mm
Base Layer	**Grinding**	33,61%	33,61%	33,61%	33,61%	33,61%	33,61%
Top Layer	**Grinding**	33,61%	33,61%	33,61%	33,61%	33,61%	33,61%
	Horizontal mixer	4,00%	4,00%	4,00%	4,00%	4,00%	4,00%

5.5.4. Mass balance

Table 21 presents raw materials mass balance in Corkeen products.

Table 21: Raw materials mass balance in Corkeen products.

		1 m²					
		Corkeen 40mm	**Corkeen 50mm**	**Corkeen 70mm**	**Corkeen 90mm**	**Corkeen 110mm**	**Corkeen 135mm**
Inputs	Cork | Base Layer (kg)	2,62E+00	3,58E+00	5,61E+00	7,62E+00	9,58E+00	1,19E+01
	Cork | Top Layer (kg)	1,72E+00	1,72E+00	1,72E+00	1,72E+00	1,72E+00	1,72E+00
	Binder | Production (kg)	1,03E+00	1,03E+00	1,03E+00	1,03E+00	1,03E+00	1,03E+00
	Binder | Corkeen (kg)	2,93E+00	3,26E+00	3,94E+00	4,61E+00	5,28E+00	6,06E+00
	Total	**8,29E+00**	**9,58E+00**	**1,23E+01**	**1,50E+01**	**1,76E+01**	**2,07E+01**
Outputs	Final Product | Corkeen (kg)	7,11E+00	8,16E+00	1,04E+01	1,25E+01	1,47E+01	1,72E+01
	Waste of Corkeen | To internal recycling (kg)	1,18E+00	1,42E+00	1,94E+00	2,44E+00	2,93E+00	3,52E+00
	Total	**8,29E+00**	**9,58E+00**	**1,23E+01**	**1,50E+01**	**1,76E+01**	**2,07E+01**

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

5.5.5. Module [A4] and [A5]

Transport to the construction site [Module A4]

Table 22 presents the scenario description, assumptions and data used in Module A4. For the transport of the final product, the distance from ACS to the brand master was calculated based on a weighted average considering the share of sales into the most representative markets (representing >80% of sales) and the respective transport distance. A distance of 300 km from the brand master to the installation site was also assumed.

Table 22: Scenario description, assumptions and data for [A4].

[A4] Transport		
Parameter	**Unit**	**Value/description**
Scenario description	-	- The transport distance from ACS to the brand master was calculated based on a weighted average considering the share of sales into the most representative markets (representing > 80% of sales) and the respective transport distance. - A distance of 300 km from the brand master to the installation site was also assumed.
Transport type	-	Truck
Distance to Mater brand	km	2414,74
Distance to construction site	km	300,00
Load factor	%	50%
Selected process from ecoinvent database	tkm	Transport, freight, lorry, diesel, unspecified {RER}| transport, freight, lorry, all sizes, EURO 6 to generic market for transport, freight, lorry, unspecified | EN15804, U

Installation in the building [Module A5]

Module A5 corresponds to the installation of the Corkeen system, which is a controlled multi-stage process beginning with the preparation of a stable, clean, and properly constructed subbase, followed by the application of a primer to ensure adequate adhesion between layers. The system is then installed through successive applications of cork granulate mixed with a binder, requiring the use of a mixer to achieve a homogeneous blend in controlled proportions. The base layer is spread, levelled, and compacted to provide impact absorption, while the top layer ensures durability and surface finish. During installation, appropriate equipment such as heated tools (heater) is used to support compaction and finishing, and the process is carried out under controlled environmental conditions with inspections at each stage to ensure performance and quality requirements are met. This stage considers electricity consumption, an additional 1% of material, the use of auxiliary materials (primer, including binder and solvent), as well as waste transport, recycling of packaging waste, and landfilling of Corkeen waste (including biogenic CO_2 release). Table 23 presents the scenario description, assumptions and data used in Module A5.

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Table 23: Scenario description, assumptions and data for [A5].

[A5] Installation		
Parameter	**Unit**	**Value/description**
Scenario description	-	Module [A5] corresponds to the installation of the Corkeen in the playground. The following are taken into account: - Electricity consumption; - Auxiliary materials: primer (including binder and solvent); - 1% additional material (losses); - Recycling of packaging waste (average distance of 50 km); - Landfilling of Corkeen waste (average distance of 50 km).
Selected processes from ecoinvent database	tkm	Transport, freight, lorry, diesel, unspecified {RER}| transport, freight, lorry, all sizes, EURO 6 to generic market for transport, freight, lorry, unspecified | EN15804, U
Water consumption	m^3	Not applicable.
Corkeen consumption	kg	1% additional material
Use of other resources	kg	Primer: - Binder; - Solvent.
Energy consumption	kWh	For mixer and heater
Selected processes from ecoinvent database	kWh	Weighted average considering the share of sales into the most representative markets (representing > 80% of sales): - Electricity, low voltage {SE}| market for electricity, low voltage | EN15804, U; - Electricity, low voltage {CH}| market for electricity, low voltage | EN15804, U; - Electricity, low voltage {FR}| market for electricity, low voltage | EN15804, U.
Waste generated at the construction site prior to treatment of waste generated by the installation of the product:	-	Packaging waste is recycled. Corkeen is landfilled.
Waste | Corkeen	kg	1% of losses
Waste | Packaging	kg	- Big Bag - Polypropylene plastic strap - Paper bag - Plastic film - Wooden pallet - IBC

5.5.6. Use stage [B1-B4]

Not applicable.

5.5.7. End-of-life Stage [C1-C4] and Module D

Table 24 presents information used in the end-of-life stage and Module D. The default scenario considers 90% recycling and 10% landfilling of waste, according to ACS. Two alternative scenarios were also considered corresponding to 100% recycling (alternative scenario 1) and 100% landfill (alternative scenario 2). Module C1 has been modelled considering diesel consumption for dismantling operations required to remove the product from the playground considering the default factors from PCR 2019:14 [7]. For transport at the end-of-life (Module C2), distances of 2415 km to the recycling plant (ACS facilities) and 80 km to landfill were assumed, according to PCR 2019:14 [8]. Module C3 was modelled using primary data from ACS, while Module C4 includes the environmental burdens associated with the landfilling of Corkeen products. The release of CO_2 sequestered in the product during its useful life was also considered.

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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Module D was calculated for recycling flows in accordance with EN 15804:2012+A2:2019 – Annex D, corrected according to PCR 2019:14 (see Table 27 and Equation 1). Benefits and loads were assessed at the point of functional equivalence, where the substitution of cork takes place, and a recycling efficiency of 95% was considered.

$$e_{module\ D1} = Y \cdot (M_{MR\ out} - M_{MR\ in})(E_{MR\ after\ EoW\ out} - E_{VMSub\ out} \cdot \frac{Q_{R\ out}}{Q_{Sub}}) \quad \textbf{(Equation 1)}$$

Where,

Y is the material yield between point of end-of-waste in module C and point of substitution in module D (0.95);

$M_{MR\ out}$ is the amount of material exiting the system that will be recovered (recycled and reused) in a subsequent system (default scenario: 0.90 kg/kg);

$M_{MR\ in}$ is the amount of input material to the product system that has been recovered (recycled or reused) from a previous system (0,016 kg/kg);

$E_{MR\ after\ EoW\ out}$ corresponds to the specific emissions and resources consumption per unit of analysis arising from material recycling;

$E_{VMSub\ out}$ corresponds to the specific emissions and resources consumption per unit of analysis arising from acquisition and pre-processing of virgin material;

$\frac{Q_{R\ out}}{Q_{Sub}}$ is the quality factor between recycled material and primary material. In this case, it was assumed that the recycled cork is equivalent quality to primary cork, i.e. that the quality factor is equal to one.

Table 24: Information used in the end-of-life stage.

End-of-life [C1-C4] and Module D

Parameters	Default scenario	Alternative scenario 1	Alternative scenario 2
End-of-life scenario	90% recycling and 10% landfill	100% recycling	100% landfill
De-construction, demolition [C1]			
Diesel consumption (kWh/kg)	1,10E-03		
Process selected from the ecoinvent database (kWh)	Diesel, burned in building machine {GLO}| diesel, burned in building machine | EN15804, U		
Transport to recovery/disposal [C2]			
Scenario of average distance from deconstruction site to recycling plant (km)	2415		
Scenario of average distance from deconstruction site to landfill plant (km)	80		
Type of transport	Truck		
Process selected from ecoinvent database (tkm)	Transport, freight, lorry, diesel, unspecified {RER}| transport, freight, lorry, all sizes, EURO 6 to generic market for transport, freight, lorry, unspecified | EN15804, U		
Waste processing for reuse, recovery and/or recycling [C3]			
Waste for recycling (kg/kg)	0,9	1,0	0
Electricity consumption (kWh/kg)	1,14E-01		--
Heat (natural gas) consumption (kWh/kg)	2,59E-05		--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

End-of-life [C1-C4] and Module D			
Parameters	**Default scenario**	**Alternative scenario 1**	**Alternative scenario 2**
Heat | Thermo-fluid (Biomass, cork dust) consumption (kWh/kg)	3,23E-03		--
Steam (Biomass, cork dust) (kWh/kg)	1,67E-01		--
Processes selected from the ecoinvent database	Process created: - Electricity, low voltage {PT}| electricity, low voltage, residual mix | EN15804, U - Heat, district or industrial, natural gas {RER}| market group for heat, district or industrial, natural gas | EN15804, U - 00.3-Heat | Thermo-fluid (boiler1,2)_2024 (process created) - 00.4-Steam (Boiler 3)_2024 (process created) - Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U		--
Final disposal [C4]			
Waste to landfill (kg/kg)	0,1	0,0	1,0
Process selected from the ecoinvent database (kg)	Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U	-	Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U
Benefits and loads beyond the system boundary [D]			
Corkeen recycling rate	90%	100%	0%
Corkeen recycling efficiency	95%		-
Processes selected from the ecoinvent database (kg)	- Cork, raw {PT}| cork forestry | EN15804, U - 00.2.3-Granulated Cork_LD_2024_without cork (processo created) - 012-Cork Granulated | Grinding 3_without cork (process created)		-

5.5.8. Life Cycle Inventory Resume

Table 25 presents the inputs and outputs considered in Corkeen product stage (A1-A3).

Table 25: Life cycle inventory of Corkeen product stages.

LCI Resume				1 m²					
			Unit	**Corkeen 40mm**	**Corkeen 50mm**	**Corkeen 70mm**	**Corkeen 90mm**	**Corkeen 110mm**	**Corkeen 135mm**
Product Stage [A1-A3] *(inputs)*	**Materials**	Cork | Base Layer	kg	2,62E+00	3,58E+00	5,61E+00	7,62E+00	9,58E+00	1,19E+01
		Cork | Top Layer	kg	1,72E+00	1,72E+00	1,72E+00	1,72E+00	1,72E+00	1,72E+00
		Binder | Production	kg	1,03E+00	1,03E+00	1,03E+00	1,03E+00	1,03E+00	1,03E+00
		Binder | Corkeen	kg	2,93E+00	3,26E+00	3,94E+00	4,61E+00	5,28E+00	6,06E+00
	Maintenance	Lubricating oil	kg	2,05E-05	2,11E-05	2,24E-05	2,36E-05	2,48E-05	2,63E-05
		Steel	kg	1,87E-03	2,29E-03	3,17E-03	4,03E-03	4,88E-03	5,89E-03
		Rubber	kg	5,05E-06	6,17E-06	8,53E-06	1,09E-05	1,32E-05	1,59E-05
	Packaging	Big Bag	kg	7,73E-03	1,06E-02	1,66E-02	2,25E-02	2,83E-02	3,51E-02
		Polypropylene plastic strap	kg	5,86E-05	8,02E-05	1,26E-04	1,71E-04	2,14E-04	2,67E-04
		Paper bag	kg	5,41E-02	5,41E-02	5,41E-02	5,41E-02	5,41E-02	5,41E-02
		Plastic film	kg	2,88E-03	2,88E-03	2,88E-03	2,88E-03	2,88E-03	2,88E-03
		Wooden pallet	p	2,04E-02	2,58E-02	3,72E-02	4,84E-02	5,94E-02	7,24E-02

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

LCI Resume			Unit	1 m² Corkeen 40mm	Corkeen 50mm	Corkeen 70mm	Corkeen 90mm	Corkeen 110mm	Corkeen 135mm
		IBC	p	2,93E-03	3,26E-03	3,94E-03	4,61E-03	5,28E-03	6,06E-03
	Energy	Electricity | Grid	kWh	1,52E+00	1,80E+00	2,39E+00	2,97E+00	3,54E+00	4,21E+00
		Electricity | Photovoltaic	kWh	1,68E-01	1,97E-01	2,57E-01	3,16E-01	3,74E-01	4,43E-01
		Heat | Thermo-fluid (Biomass, cork dust)	kWh	1,79E+00	1,96E+00	2,31E+00	2,66E+00	3,00E+00	3,40E+00
		Steam (Biomass, cork dust)	kWh	1,53E+00	1,87E+00	2,58E+00	3,29E+00	3,98E+00	4,80E+00
		Heat (natural gas)	kWh	1,12E-01	1,36E-01	1,89E-01	2,40E-01	2,91E-01	3,50E-01
		Steam (diesel)	kg	1,21E-01	1,21E-01	1,21E-01	1,21E-01	1,21E-01	1,21E-01
	Transport	Truck	tkm	2,20E+00	2,50E+00	3,13E+00	3,75E+00	4,37E+00	5,09E+00
		Ship	tkm	4,79E-01	5,85E-01	8,10E-01	1,03E+00	1,25E+00	1,50E+00
		Internal | Diesel forklift	kWh	1,39E-01	1,45E-01	1,58E-01	1,70E-01	1,82E-01	1,96E-01
	Capital Goods	Boilers and PVs	p	1,59E-06	1,85E-06	2,40E-06	2,95E-06	3,49E-06	4,12E-06
Product Stage [A1-A3] *(outputs)*	**Waste**	External Recycling | maintenance waste (steel)	kg	1,87E-03	2,29E-03	3,17E-03	4,03E-03	4,88E-03	5,89E-03
		External incineration | maintenance waste (rubber)	kg	5,05E-06	6,17E-06	8,53E-06	1,09E-05	1,32E-05	1,59E-05
		Landfill | Lubricating oil packaging	kg	1,91E-06	2,33E-06	3,22E-06	4,10E-06	4,97E-06	5,99E-06
		Internal Recycling | Process losses	kg	1,18E+00	1,42E+00	1,94E+00	2,44E+00	2,93E+00	3,52E+00
	Air emissions	PM10	kg	3,98E-03	4,86E-03	6,71E-03	8,54E-03	1,03E-02	1,24E-02
		VOC's	kg	4,26E-04	5,18E-04	7,12E-04	9,02E-04	1,09E-03	1,31E-03
		CO	kg	2,29E-05	2,80E-05	3,87E-05	4,93E-05	5,97E-05	7,20E-05
		NOx	kg	4,25E-06	5,20E-06	7,19E-06	9,16E-06	1,11E-05	1,34E-05
		Water	kg	8,88E-02	8,88E-02	8,88E-02	8,88E-02	8,88E-02	8,88E-02
	Transport	Truck	tkm	1,13E-05	1,31E-05	1,69E-05	2,07E-05	2,44E-05	2,87E-05

Table 26 presents the inputs and outputs considered in Corkeen transport [A4] and installation [A5].

Table 26: Life cycle inventory of Corkeen transport [A4] and installation [A5].

LCI Resume			Unit	1 m² Corkeen 40mm	Corkeen 50mm	Corkeen 70mm	Corkeen 90mm	Corkeen 110mm	Corkeen 135mm
Transport [A4]	**Transport**	Truck	tkm	1,86E+01	2,14E+01	2,74E+01	3,33E+01	3,91E+01	4,59E+01
Installation [A5] (inputs)	**Materials**	Base Layer | Cork granules	kg	1,98E+00	2,71E+00	4,24E+00	5,76E+00	7,24E+00	9,00E+00
		Top Layer | Cork granules	kg	2,24E+00	2,24E+00	2,24E+00	2,24E+00	2,24E+00	2,24E+00
		Base Layer | Binder	kg	8,89E-01	1,22E+00	1,91E+00	2,59E+00	3,26E+00	4,05E+00
		Top Layer | Binder	kg	2,07E+00	2,07E+00	2,07E+00	2,07E+00	2,07E+00	2,07E+00
	Auxiliary Materials	Primer | Solvent	kg	5,05E-01	5,05E-01	5,05E-01	5,05E-01	5,05E-01	5,05E-01
		Primer | Binder	kg	5,05E-01	5,05E-01	5,05E-01	5,05E-01	5,05E-01	5,05E-01

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

LCI Resume			Unit	1 m² Corkeen 40mm	Corkeen 50mm	Corkeen 70mm	Corkeen 90mm	Corkeen 110mm	Corkeen 135mm
	Energy	Electricity | Grid	kWh	5,82E-01	5,82E-01	6,94E-01	6,94E-01	6,94E-01	6,94E-01
	Transport	Truck	tkm	1,45E+00	1,48E+00	1,53E+00	1,58E+00	1,64E+00	1,70E+00
Installation [A5] (outputs)	**Waste**	Corkeen waste | Landfill	kg	8,11E-02	9,16E-02	1,14E-01	1,35E-01	1,57E-01	1,82E-01
		Big Bag | External Recycling	kg	7,81E-03	1,07E-02	1,67E-02	2,27E-02	2,86E-02	3,55E-02
		Polypropylene plastic strap | External Recycling	kg	5,92E-05	8,10E-05	1,27E-04	1,72E-04	2,17E-04	2,69E-04
		Paper bag | External Recycling	kg	5,46E-02	5,46E-02	5,46E-02	5,46E-02	5,46E-02	5,46E-02
		Plastic film | External Recycling	kg	2,91E-03	2,91E-03	2,91E-03	2,91E-03	2,91E-03	2,91E-03
		Wooden pallet | External Recycling	kg	4,54E-01	5,73E-01	8,26E-01	1,08E+00	1,32E+00	1,61E+00
		IBC | External Recycling	kg	7,62E-02	8,35E-02	9,87E-02	1,14E-01	1,28E-01	1,46E-01
	Transport	Truck	tkm	3,38E-02	4,08E-02	5,56E-02	7,02E-02	8,46E-02	1,01E-01

Table 27 presents the inputs and outputs considered in Corkeen end-of-life stage (C1-C4).

Table 27: Life cycle inventory of Corkeen end-of-life stage.

LCI Resume			Unit	1 m² Corkeen 40mm	Corkeen 50mm	Corkeen 70mm	Corkeen 90mm	Corkeen 110mm	Corkeen 135mm
De-construction, demolition [C1]	**Inputs**	Electricity | Grid	kwh	7,82E-03	8,98E-03	1,14E-02	1,38E-02	1,61E-02	1,89E-02
Transport [C2]	**Inputs**	For Recycling | Truck	tkm	1,55E+01	1,77E+01	2,25E+01	2,72E+01	3,19E+01	3,74E+01
		For Disposal | Truck	tkm	5,69E-02	6,53E-02	8,29E-02	1,00E-01	1,17E-01	1,38E-01
Waste processing (C3)	**Inputs**	Recycling | Corkeen	kg	6,40E+00	7,34E+00	9,32E+00	1,13E+01	1,32E+01	1,55E+01
		Electricity | Grid	kWh	7,26E-01	8,34E-01	1,06E+00	1,28E+00	1,50E+00	1,76E+00
		Heat (natural gas)	kwh	1,66E-04	1,90E-04	2,41E-04	2,92E-04	3,42E-04	4,00E-04
		Heat | Thermo-fluid (Biomass, cork dust)	kwh	2,07E-02	2,38E-02	3,02E-02	3,65E-02	4,27E-02	5,00E-02
		Steam (Biomass, cork dust)	kWh	1,07E+00	1,22E+00	1,55E+00	1,88E+00	2,20E+00	2,58E+00
	Outputs	Incineration | Process losses	kg	3,20E-01	3,67E-01	4,66E-01	5,64E-01	6,60E-01	7,74E-01
Disposal (C4)	**Inputs**	Landfill | Corkeen	kg	7,11E-01	8,16E-01	1,04E+00	1,25E+00	1,47E+00	1,72E+00

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

6. Life Cycle Impact Assessment

Life cycle impact assessment was carried out for six Corkeen products: Corkeen 40mm, Corkeen 50mm, Corkeen 70mm, Corkeen 90mm, Corkeen 110mm, Corkeen 135mm. In this chapter, the results for Corkeen 50mm are presented. The detailed results for the other products are presented in Annex C.

6.1. Indicators for the Life Cycle Inventory Analysis

6.1.1. Use of Resources

The indicators “Total use of renewable primary energy” and “Total use of non-renewable primary energy” can be calculated through a characterisation method from SimaPro used to calculate the Cumulative Energy Demand (CED), including the categories “renewable, biomass”, “renewable, wind, solar, geothermal”, “renewable, water”, “non-renewable, fossil”, “non-renewable, nuclear” and “non-renewable, biomass”.

The indicator “Use of renewable primary energy resources used as raw materials” should consider the amount of energy resources used as raw materials to be incorporated in the product or in packaging. The renewable materials used in the production of Corkeen products are cork, paper bags and wooden pallets.

The indicator “Use of non-renewable primary energy resources used as raw materials” should consider the amount of energy resources used as raw materials to be incorporated in the product or in packaging. The non-renewable materials used in the production of Corkeen products are binder, big bags, polypropylene plastic strap, IBCs and plastic film.

To determine the indicators “Use of renewable primary energy excluding the renewable primary energy resources used as raw materials” and “Use of non-renewable primary energy excluding the non-renewable primary energy resources used as raw materials” it was subtracted the “Total use of renewable primary energy” and “Use of renewable primary energy resources used as raw materials”, and the “Total use of non-renewable primary energy” and “Use of non-renewable primary energy resources used as raw materials”, respectively.

The parameter “secondary materials” it was determined from the quantity of secondary materials incorporated in the product: cork from pre-consumer and post-consumer. The parameter “renewable secondary fuel” it was determined from the amount of secondary fuel used in the boiler (Thermo-fluid): cork dust and biomass waste.

There is no use of non-renewable secondary fuels associated to Corkeen products. The parameter “Net use of fresh water” was determined from method “Selected LCI results, additional”, directly taken from Ecoinvent. Information about characterization methods is indicated in Annex B. Table 28 presents use of resources for Corkeen 50mm.

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Table 28: Use of resources for Corkeen 50mm.

Parameter		Unit	1 m² Corkeen 50mm								
			Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	-2,31E+02	5,73E+02	8,39E-02	9,52E+00	8,72E-05	6,97E-02	6,12E+00	4,03E-03	-8,20E+02
	Used as raw materials	MJ, net calorific value	9,67E+01	9,57E+01	0,00E+00	9,57E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	-1,34E+02	6,69E+02	8,39E-02	1,05E+01	8,72E-05	6,97E-02	6,12E+00	4,03E-03	-8,20E+02
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	4,14E+02	2,78E+02	3,37E+01	9,02E+01	4,00E-02	2,79E+01	7,47E+00	1,76E-01	-2,38E+01
	Used as raw materials	MJ, net calorific value	1,44E+02	1,42E+02	0,00E+00	1,42E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	5,57E+02	4,20E+02	3,37E+01	9,16E+01	4,00E-02	2,79E+01	7,47E+00	1,76E-01	-2,38E+01
Secondary material		kg	3,43E+00	3,39E+00	1,74E-05	3,71E-02	8,05E-08	1,44E-05	2,44E-05	1,60E-05	-8,44E-04
Renewable secondary fuels		MJ, net calorific value	1,37E+00	1,36E+00	1,44E-06	2,95E-03	1,39E-08	1,19E-06	9,81E-07	8,33E-07	-3,57E-06
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m³	2,00E-01	1,75E-01	6,52E-04	3,05E-02	1,21E-06	5,41E-04	2,76E-03	-3,68E-03	-5,68E-03

6.1.2. Waste Production

Waste production indicators were withdrawn directly from the characterization factors regarding waste categories from EDIP2003 adapted for SimaPro 8. For non-hazardous waste, the sum of slag/ash and bulk waste was considered. The substances considered and the respective characterization factors are indicated in Annex B. Table 29 presents waste production for Corkeen 50mm.

Table 29: Waste production for Corkeen 50mm.

Parameter	Unit	1 m² Corkeen 50mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	Kg	1,51E+00	1,37E+00	1,28E-03	1,82E-01	4,20E-06	1,06E-03	3,72E-02	7,91E-05	-8,36E-02
Non-hazardous waste disposed	Kg	5,68E+01	4,52E+01	1,09E-01	7,18E+00	1,43E-04	9,02E-02	1,30E+00	4,64E+00	-1,75E+00
Radioactive waste disposed	Kg	4,18E-04	3,11E-04	2,03E-06	1,18E-04	1,86E-09	1,69E-06	1,11E-05	5,91E-08	-2,53E-05

6.1.3. Output Flows

Outputs flows indicators was withdrawn from the life cycle inventory results. However, there is no components for reuse, neither production of substances for exported energy. Table 30 presents output flows for Corkeen 50mm.

Table 30: Output flows for Corkeen 50mm.

Parameter	Unit	1 m² Corkeen 50mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	7,31E-01	8,89E-03	7,58E-07	7,26E-01	1,07E-09	6,30E-07	1,58E-04	3,66E-06	-3,80E-03
Materials for energy recovery	kg	8,56E-06	7,65E-06	4,97E-09	9,86E-07	3,34E-11	4,13E-09	2,94E-08	7,92E-10	-1,10E-07
Exported energy, electricity	MJ	3,39E-01	3,84E-01	1,34E-03	6,68E-02	7,13E-07	1,12E-03	9,23E-02	8,06E-05	-2,07E-01
Exported energy, thermal	MJ	7,41E-02	5,46E-02	3,19E-03	1,31E-02	2,86E-07	2,65E-03	1,66E-04	1,24E-03	-8,05E-04

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

6.2. Indicators describing environmental impacts based on Life Cycle Impact Assessment

The environmental impact assessment was carried out using the EN 15804:2012+A2:2019/AC:2021 reference package based on EF 3.1 [15], according to the requirements of "PCR 2019:14 Construction Products" [8]. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. Information about characterization methods is presented in Annex B.

6.2.1. Core environmental impact indicators

Table 31 shows the core environmental impact indicators according to EN 15804:2012+A2:2019/AC:2021.

Table 31: Impact categories description.

Impact Category	Indicator	Unit
Climate change – total	**GWP|T**	kg CO_2 eq.
Climate change – fossil	**GWP|F**	kg CO_2 eq.
Climate change – biogenic	**GWP|B**	kg CO_2 eq.
Climate change – land use and land use change	**GWP|L**	kg CO_2 eq.
Ozone Depletion	**ODP**	kg CFC-11 eq.
Acidification	**AP**	mol H+ eq.
Eutrophication aquatic freshwater	**EP|Fw**	kg P eq.
Eutrophication aquatic marine	**EP|M**	kg N eq.
Eutrophication terrestrial	**EP|T**	mol N eq.
Photochemical ozone formation	**POCP**	kg NMVOC eq.
Depletion of abiotic resources – minerals and metals	**ADP|MM**	kg Sb eq.
Depletion of abiotic resources – fossil fuels	**ADP|F**	MJ
Water use	**WDP**	m^3 world eq. deprived

Table 32 presents the environmental life cycle impacts for Corkeen 50mm.

Table 32: Environmental life cycle impacts for Corkeen 50mm.

	1 m^2 Corkeen 50mm								
	Total	**[A1-A3]**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP|T (kg CO_2 eq.)	4,50E+01	1,56E+01	2,50E+00	5,16E+00	3,06E-03	2,08E+00	8,03E+00	8,90E-01	1,07E+01
GWP|F (kg CO_2 eq.)	3,09E+01	2,32E+01	2,50E+00	4,22E+00	3,06E-03	2,08E+00	5,30E-01	7,07E-03	-1,71E+00
GWP|B (kg CO_2 eq.)	1,40E+01	-7,69E+00	5,50E-04	9,34E-01	5,37E-07	4,56E-04	7,50E+00	8,83E-01	1,24E+01
GWP|L (kg CO_2 eq.)	7,80E-02	7,71E-02	4,00E-05	9,88E-03	1,26E-07	3,32E-05	2,48E-05	7,14E-07	-9,07E-03
ODP (kg CFC-11 eq.)	1,22E-06	9,59E-07	5,75E-08	1,77E-07	4,65E-11	4,77E-08	1,01E-08	2,32E-10	-3,45E-08
AP (mol H+ eq.)	1,02E-01	8,57E-02	3,12E-03	1,44E-02	2,82E-05	2,59E-03	2,96E-03	4,83E-05	-7,38E-03
EP|Fw (kg P eq.)	7,89E-04	7,13E-04	1,56E-06	1,04E-04	2,88E-09	1,30E-06	2,28E-05	3,85E-08	-5,32E-05

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

	1 m² Corkeen 50mm								
	Total	**[A1-A3]**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
EP|M (kg N eq.)	3,18E-02	2,85E-02	6,92E-04	3,90E-03	1,33E-05	5,75E-04	1,04E-03	3,58E-05	-2,91E-03
EP|T (mol N eq.)	2,48E-01	2,18E-01	7,55E-03	3,13E-02	1,46E-04	6,27E-03	1,14E-02	2,31E-04	-2,71E-02
POCP (kg NMVOC eq.)	1,15E-01	8,91E-02	6,12E-03	2,38E-02	4,36E-05	5,08E-03	3,09E-03	1,00E-04	-1,21E-02
ADP|MM (kg Sb eq.)	5,73E-06	5,04E-06	6,60E-08	6,53E-07	1,07E-10	5,48E-08	9,14E-09	3,37E-09	-1,03E-07
ADP|F (MJ)	5,57E+02	4,20E+02	3,37E+01	9,16E+01	4,00E-02	2,79E+01	7,47E+00	1,76E-01	-2,38E+01
WDP (m^3 world eq. deprived)	8,18E+00	7,19E+00	2,67E-02	1,22E+00	5,04E-05	2,22E-02	1,21E-01	-1,58E-01	-2,42E-01

The characterization results by inventory element and production process of Corkeen 50mm are detailed in Annex C of this document.

6.2.2. Additional environmental impact indicators

Table 33 shows the additional environmental impact indicators according to EN 15804:2012+A2:2019/ AC:2021.

Table 33: Additional environmental impact indicators.

Impact Category	Indicator	Unit
Particulate matter emissions	**PM**	Disease incidence
Ionizing radiation, human health	**IRP**	kBq U235 eq.
Eco-toxicity - freshwater	**ETP-fw**	CTUe
Human toxicity, cancer effect	**HTP-c**	CTUh
Human toxicity, non-cancer effects	**HTP-nc**	CTUh
Land use related impacts/Soil quality (SQP)	**SQP**	Dimensionless

Table 34 presents the additional environmental life cycle impacts for Corkeen 50mm.

Table 34: Additional environmental life cycle impacts for Corkeen 50mm.

	1 m2 Corkeen 50mm								
	Total	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM (Disease incidence)	1,16E-06	1,27E-06	1,60E-07	1,48E-07	8,14E-10	1,33E-07	4,51E-08	1,22E-09	-6,00E-07
IRP (kBq U235 eq.)	5,83E-01	4,47E-01	3,23E-03	1,49E-01	3,32E-06	2,68E-03	1,49E-02	1,09E-04	-3,41E-02
ETP-fw (CTUe)	1,10E+03	9,71E+02	1,24E+00	1,25E+02	1,15E-03	1,03E+00	5,49E-01	1,37E-02	-1,61E+00
HTP-c (CTUh)	4,64E-08	4,12E-08	1,57E-10	5,23E-09	1,64E-13	1,30E-10	4,34E-11	8,30E-13	-3,87E-10
HTP-nc (CTUh)	1,41E-07	9,57E-08	1,78E-08	1,61E-08	3,02E-12	1,48E-08	2,22E-09	1,27E-10	-5,46E-09
SQP (dimensionless)	-3,18E+02	1,62E+03	4,28E-02	1,97E+01	6,79E-05	3,55E-02	3,84E-01	4,44E-01	-1,96E+03

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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

6.2.3. GWP-GHG impact

This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by "PCR 2019:14 Construction Products" of The International EPD® System. Table 35 presents the GWP-GHG impact for Corkeen 50mm.

Table 35: GWP-GHG impact for Corkeen 50mm.

	1 m2 Corkeen 50mm								
	Total	**[A1-A3]**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP|GHG (kg CO_2 eq.)	3,09E+01	2,33E+01	2,50E+00	4,23E+00	3,06E-03	2,08E+00	5,30E-01	7,07E-03	-1,71E+00

6.2.4. Variation between Corkeen products

Table 36 shows the variation of environmental life cycle impacts between Corkeen Products (40mm, 50mm, 70mm, 90mm, 110mm, 135mm).

Table 36: Variation of environmental life cycle impacts between Corkeen Products (relative to the representative product – Corkeen 50mm).

	Total Life Cycle (1 m²)						Variation					
	Corkeen 40mm	**Corkeen 50mm**	**Corkeen 70mm**	**Corkeen 90mm**	**Corkeen 110mm**	**Corkeen 135mm**	**Corkeen 40mm**	**Corkeen 50mm**	**Corkeen 70mm**	**Corkeen 90mm**	**Corkeen 110mm**	**Corkeen 135mm**
GWP|T (kg CO_2 eq.)	3,17E+01	3,43E+01	3,97E+01	4,59E+01	5,14E+01	5,77E+01	-7,60%	0,00%	15,80%	33,94%	49,86%	68,31%
GWP|F (kg CO_2 eq.)	3,00E+01	3,26E+01	3,80E+01	4,33E+01	4,86E+01	5,48E+01	-7,94%	0,00%	16,60%	32,93%	49,19%	68,19%
GWP|B (kg CO_2 eq.)	1,61E+00	1,62E+00	1,62E+00	2,50E+00	2,65E+00	2,77E+00	-0,68%	0,00%	-0,30%	54,23%	63,39%	70,88%
GWP|L (kg CO_2 eq.)	8,03E-02	8,71E-02	1,01E-01	1,15E-01	1,29E-01	1,45E-01	-7,79%	0,00%	16,25%	32,16%	47,99%	66,50%
ODP (kg CFC-11 eq.)	1,16E-06	1,25E-06	1,44E-06	1,63E-06	1,82E-06	2,03E-06	-7,32%	0,00%	15,22%	30,19%	45,13%	62,56%
AP (mol H+ eq.)	1,01E-01	1,09E-01	1,26E-01	1,43E-01	1,61E-01	1,80E-01	-7,67%	0,00%	15,98%	31,72%	47,38%	65,68%
EP|Fw (kg P eq.)	7,80E-04	8,43E-04	9,73E-04	1,10E-03	1,23E-03	1,38E-03	-7,47%	0,00%	15,49%	30,73%	45,92%	63,66%
EP|M (kg N eq.)	3,20E-02	3,47E-02	4,04E-02	4,59E-02	5,14E-02	5,79E-02	-7,80%	0,00%	16,25%	32,25%	48,17%	66,78%
EP|T (mol N eq.)	2,53E-01	2,75E-01	3,22E-01	3,68E-01	4,13E-01	4,67E-01	-8,13%	0,00%	16,98%	33,71%	50,33%	69,77%
POCP (kg NMVOC eq.)	1,18E-01	1,27E-01	1,48E-01	1,67E-01	1,87E-01	2,10E-01	-7,61%	0,00%	15,92%	31,60%	47,17%	65,40%
ADP|MM (kg Sb eq.)	5,38E-06	5,83E-06	6,77E-06	7,69E-06	8,61E-06	9,68E-06	-7,74%	0,00%	16,09%	31,90%	47,66%	66,06%
ADP|F (MJ)	5,38E+02	5,81E+02	6,72E+02	7,61E+02	8,50E+02	9,53E+02	-7,47%	0,00%	15,70%	31,02%	46,29%	64,11%
WDP (m^3 world eq. deprived)	7,84E+00	8,42E+00	9,65E+00	1,08E+01	1,20E+01	1,34E+01	-6,96%	0,00%	14,57%	28,76%	42,90%	59,41%

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Table 37 shows the variation of GWP-GHG between Corkeen Products (40mm, 50mm, 70mm, 90mm, 110mm, 135mm).

Table 37: Variation of GWP-GHG between Corkeen Products (relative to the representative product – Corkeen 50mm).

	1 m² Corkeen | Product Stage [A1-A3]						Variation					
	Corkeen 40mm	Corkeen 50mm	Corkeen 70mm	Corkeen 90mm	Corkeen 110mm	Corkeen 135mm	Corkeen 40mm	Corkeen 50mm	Corkeen 70mm	Corkeen 90mm	Corkeen 110mm	Corkeen 135mm
GWP|GHG (kg CO_2 eq.)	2,14E+01	2,33E+01	2,73E+01	3,12E+01	3,51E+01	3,96E+01	-8,21%	0,00%	16,98%	33,72%	50,41%	69,89%

The variation observed in the results above 10% (Table 36 and 37) is primarily due to differences in the thickness of the Base Layer and the corresponding amount of Binder required for its application in playground systems.

The products included in this EPD represent variations of the same system, differing in base layer thickness. As a result, material consumption (base layer material and binder for base layer) varies between product configurations, directly influencing the environmental impact results.

Despite these variations, the products share the same composition, manufacturing process, and intended application, justifying their grouping within a single EPD. The differences are therefore considered parametric and related to functional performance requirements rather than fundamental changes in product characteristics.

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7. Life Cycle Interpretation

7.1. Cradle-to-gate assessment

Figure 4 shows the relative impacts of the Corkeen 50mm product stage, per component and inventory element.

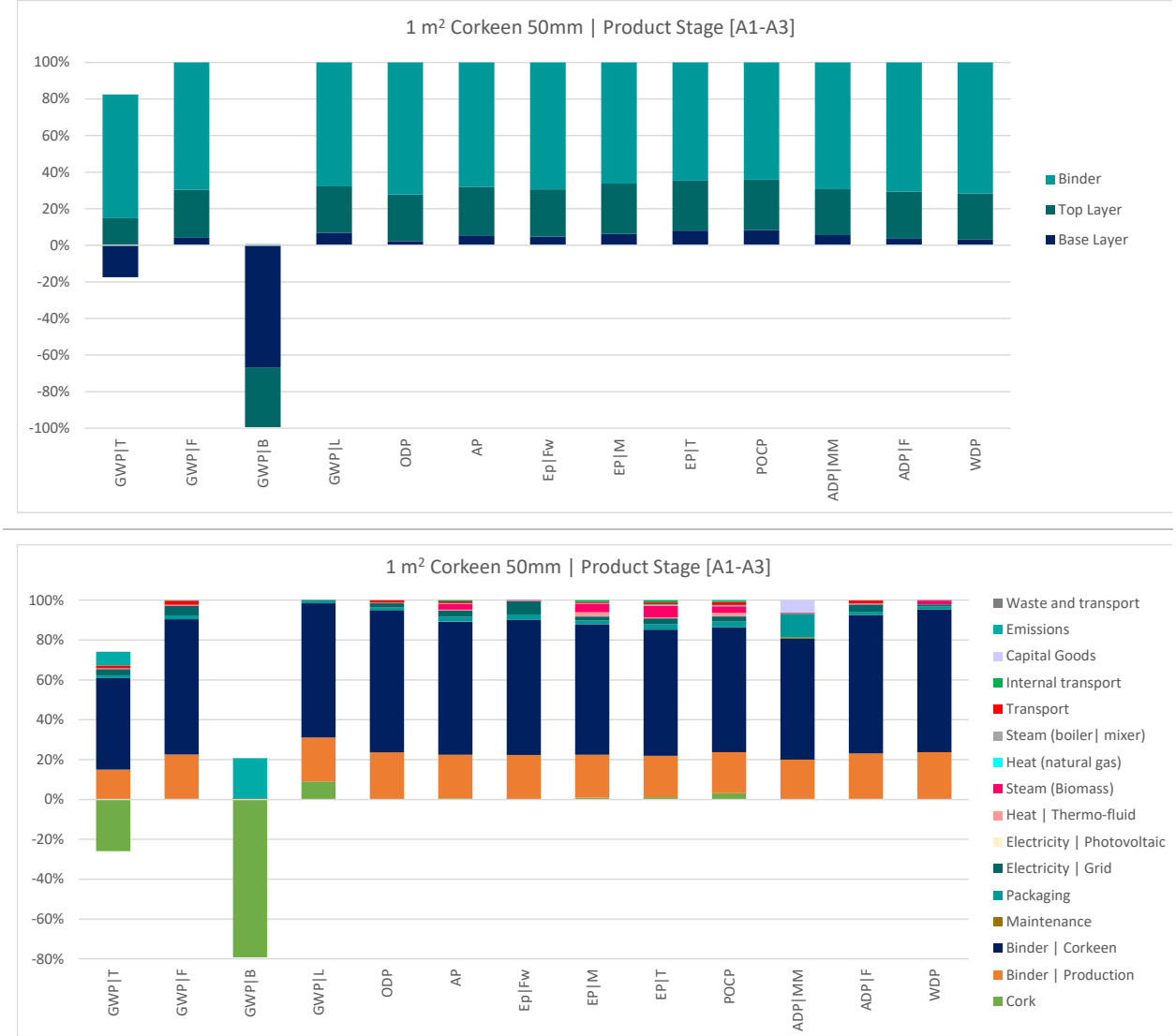

Figure 4: Results of the Corkeen 50mm product stage [A1-A3] – per component and inventory element.

As shown in Figure 4, the inventory elements that contribute most significantly to the environmental impacts of Corkeen 50 mm are Binder | Corkeen (a component of the final product) and Binder | Production (used in the production of the top layer), accounting for approximately 60.7–71.9% and 19.9–23.6%, respectively, across all impact categories, with the exception of GWP-biogenic (GWP|B). For the GWP|B category, cork

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itecons@itecons.uc.pt

is the main contributor (reported as a benefit), due to the biogenic carbon uptake associated with CO_2 sequestration by cork oak during photosynthesis.

At the component level, the Binder (as a component of the final product) is the main contributor to all impact categories, except for GWP|B. For GWP|B, the Base Layer shows the highest contribution (reported as a benefit), due to the higher amount of cork used.

7.2. Cradle-to-gate with modules A4, A5, C and D assessment

Figure 5 shows the relative impacts of the Corkeen 50mm life cycle, per stage.

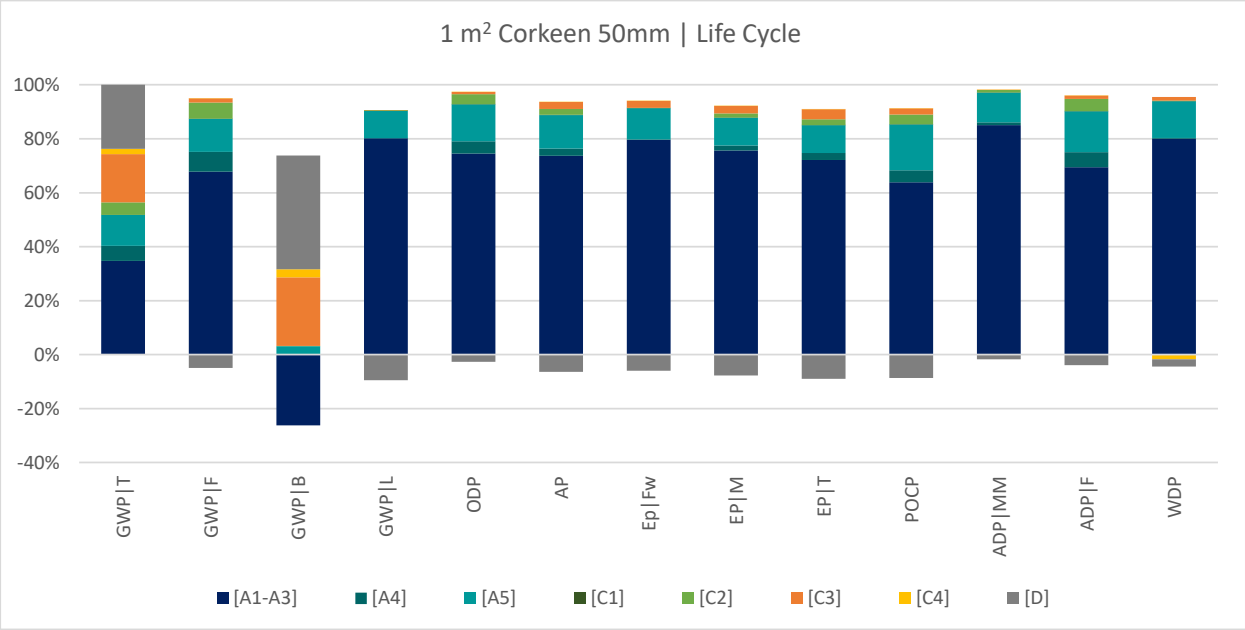

Figure 5: Results of the Corkeen 50mm life cycle – per stage.

The results show that the Product Stage [A1–A3] has the highest contribution for Corkeen 50 mm across all impact categories, ranging from 34.8% to 88.6%. Module A5 also provides a relevant contribution, varying between 10.0% and 18.7%. Module [C3] makes a significant contribution to GWP|B, reaching 80.48%, due to the release of biogenic CO_2 at the end-of-life stage.

7.3. Data Quality Assessment

The quality of the data used may significantly influence the results of an LCA study, requiring an assessment of their adequacy. The assessment should address the following requirements (according to EN 15804:2012+A2, EN 15941 and PCR 2019:14 Construction Products): Time-related coverage; Geographical coverage; Technology coverage; Precision; Completeness; Representativeness; Consistency; Reproducibility; Sources of the data; and Uncertainty of the information. The data used in this study complied with the quality requirements, namely:

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- The datasets from Ecoinvent and EF database used have all been updated in the past 10 years and are based in one year of average data;
- Specific data from the manufacturer refers to the production in 2023;
- The datasets used to model production process are based on average European data, whenever possible;
- The datasets used to model production processes reflect the physical reality and technology used. For every process/material, datasets representative of the technologies used were selected;
- Different datasets were compared, and specialised bibliography was consulted, in order to adopt the best data set to model each process;
- Criteria for addressing data gaps and using generic data were applied consistently along the study;
- The treatment of missing data and other data gaps is addressed in the report, whenever it occurs;
- Production process of UBM/FSM was assessed and modelled according to the reality;
- All sources of datasets were previously analysed and were only used if considered reliable;
- Whenever different datasets were available to model the same processes, their differences were determined in order to adopt those that best suited the purpose and that presented more suitable LCI data.

Annex D presents a description of the secondary data sets used, including technology/geographical coverage, age of data, collection method and data treatment. An assessment of the data quality of the main primary and secondary data used (accounting for at least 80% of the life cycle environmental impacts in each category and to more than 10% of the GWP-GHG results per process) is presented in Table 38. This assessment was carried out based on data quality levels and in accordance with the criteria defined in the UN Environment Global Guidance on LCA database development. The total share of primary data contributing to the GWP-GHG results of modules A1-A3 is 7.64% and includes electricity generation for the production process (4.70% from Grid and PV), heat and steam generation in ACS facilities (0.62%), and transport of raw materials (2.32%).

Table 38: Data quality assessment.

Dataset	Source type	Source	Reference year	Data category	Techno	Geo	Time	Share of primary data, of GWP-GHG results from A1-A3
Production of Cork	Databse	ecoinvent v3.11	2024	Secondary data	1	1	1	0,00%
Production of Binder | Production	Database	ecoinvent v3.11	2024	Secondary data	1	2	1	0,00%
Production of Binder | Corkeen	Database	ecoinvent v3.11	2024	Secondary data	1	2	1	0,00%
Other processes	Collected data, Database	EPD owner, Ecoinvent v3.11	2024	Primary and secondary data	--	--	--	7,64%
				Total share of primary data, of GWP-GHG results for A1-A3				7,64%

very good = 1, good = 2, fair = 3, poor = 4, very poor = 5

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8. Conclusions

A life cycle assessment of Corkeen products (40mm, 50mm, 70mm, 90mm, 110 and 135mm) have been performed in order to obtain an EPD of these products, evaluate it environmental impacts, identify the inventory elements and life cycle stages with the greatest contribution to these impact categories. With this study it was concluded that:

- The Cork used in the production of Corkeen products contributes with a negative impact (benefit) to GWP, due to the storage of carbon throughout the product life cycle until end-of-life;
- The inventory elements that most contribute to the environmental impact of the Corkeen products in study are Binder | Corkeen (a component of the final product) and Binder | Production (used in the production of the top layer);
- The product stage [A1-A3] has the highest impact for Corkeen products and for all categories.

9. References

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Coimbra, 1 April 2026,

Report author	Administration
Maria Inês Santos Senior Official	Validated document

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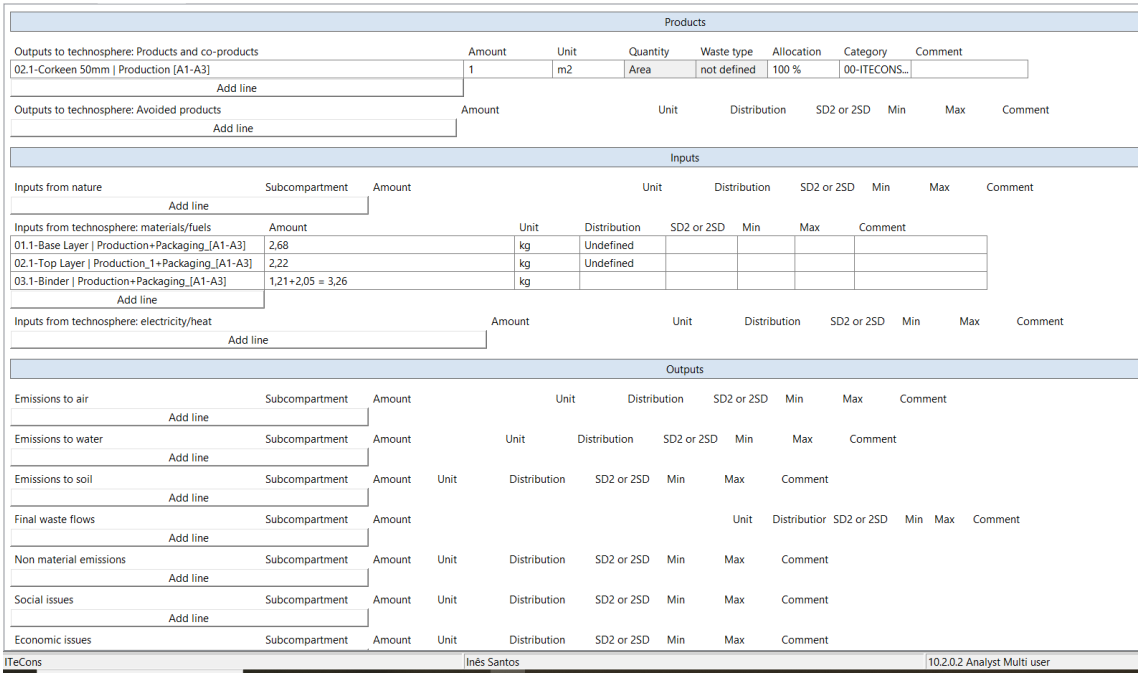
Annex A – Print screens of the simulation models in SimaPro

A.1. Corkeen 50 mm

- Product Stage [A1-A3]



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.1-Corkeen 50mm | Production [A1-A3]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Base Layer | Production+Packaging_[A1-A3]	2,68	kg	Undefined				
02.1-Top Layer | Production_1+Packaging_[A1-A3]	2,22	kg	Undefined				
03.1-Binder | Production+Packaging_[A1-A3]	1,21+2,05 = 3,26	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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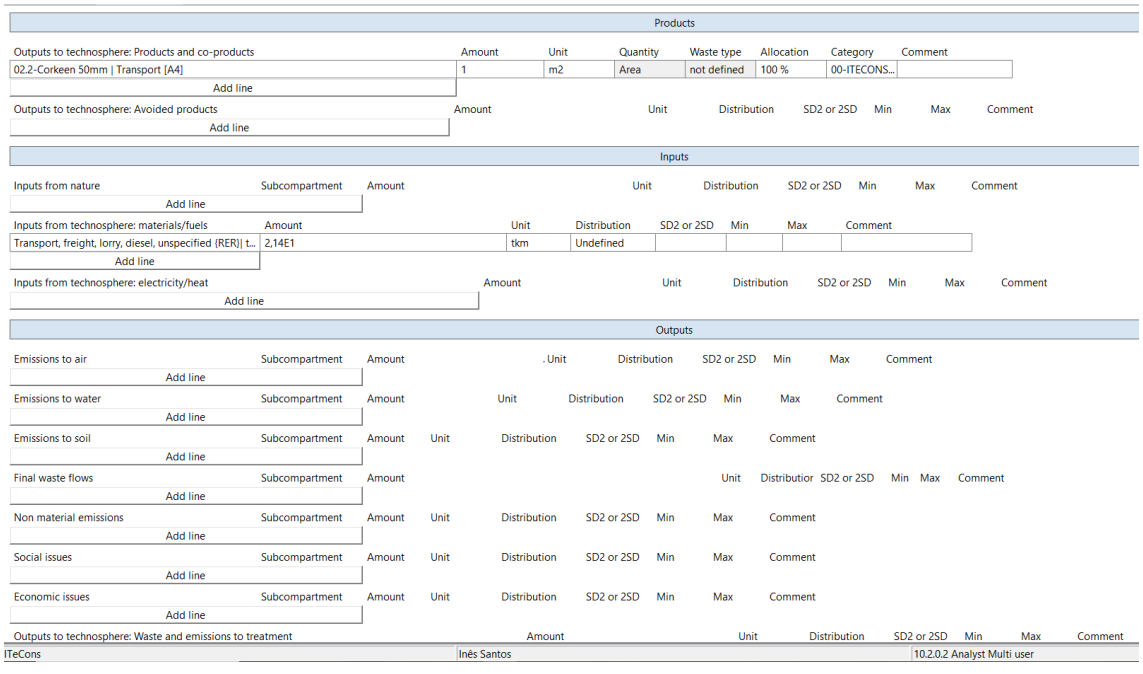
- Transport [A4]



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.2-Corkeen 50mm | Transport [A4]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER} | t...	2,14E1	tkm	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- Installation [A5]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.3-Corkeen 50mm | Installation [A5]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Inputs

Inputs from nature — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
02.1-Corkeen 50mm | Production [A1-A3]	0,01	m2	Undefined				
Transport, freight, lorry, diesel, unspecified (RER)| t...	1,48E0	tkm	Undefined				
Acetone, liquid (RER)| acetone production, from is...	5,05E-1	kg	Undefined				Solvent
03.1-Binder | Production+Packaging_[A1-A3]	5,05E-1	kg	Undefined				Primer
Transport, freight, lorry, diesel, unspecified (RER)| t...	4,08E-2	tkm	Undefined				waste
Electricity, low voltage (SE)| market for electricity, l...	5,82E-01*0,2224 = 0,129	kWh					22,24%
Electricity, low voltage (CH)| market for electricity, ...	5,82E-01*0,2367 = 0,138	kWh					23,67%
Electricity, low voltage (FR)| market for electricity, l...	5,82E-01*0,4624 = 0,269	kWh					46,24%

Add line

Inputs from technosphere: electricity/heat — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	9,06E-1+8,33E+00*0,01 = 0,989	kg					packaging+losses

Add line

Emissions to water — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Emissions to soil — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Materials for recycling	(unspecified)	1,07E-02+8,10E-05+5,46E-02+2,91E-03+5,73E-01+8,35E-02 = 0,725	kg					

Add line

Non material emissions — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Social issues — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Economic issues — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated (CH)| treatment of waste wood, untreated, sanitary landfill | EN15804, U	9,16E-2	kg	Undefined				??

Add line

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- Demolition [C1]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.4-Corkeen 50mm | Demolition [C1]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Inputs

Inputs from nature — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Diesel, burned in building machine (GLO)| market f...	(1,1/1000)*8,16 = 0,00898	kWh					

Add line

Inputs from technosphere: electricity/heat — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Outputs

Emissions to air — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Emissions to water — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Emissions to soil — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Final waste flows — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Non material emissions — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Social issues — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Economic issues — Subcompartment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

Add line

Outputs to technosphere: Waste and emissions to treatment — Amount — Unit — Distribution — SD2 or 2SD — Min — Max — Comment

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3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- Transport to Waste Processing [C2]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.5-Corkeen 50mm | Transport [C2]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,77E1	tkm	Undefined				90% recycling
Transport, freight, lorry, diesel, unspecified {RER}| t...	6,53E-2	tkm	Undefined				10% disposal

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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- Waste Processing[C3]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.6-Corkeen 50mm | Waste Treatment [C3]	0,9	m2	Area	not defined	100 %	00-ITECONS...	90% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	8,34E-1	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	1,90E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	2,38E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	1,22E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	8,33E+00*0,9 = 7,5	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U...	3,67E-1	kg	Undefined				

Add line

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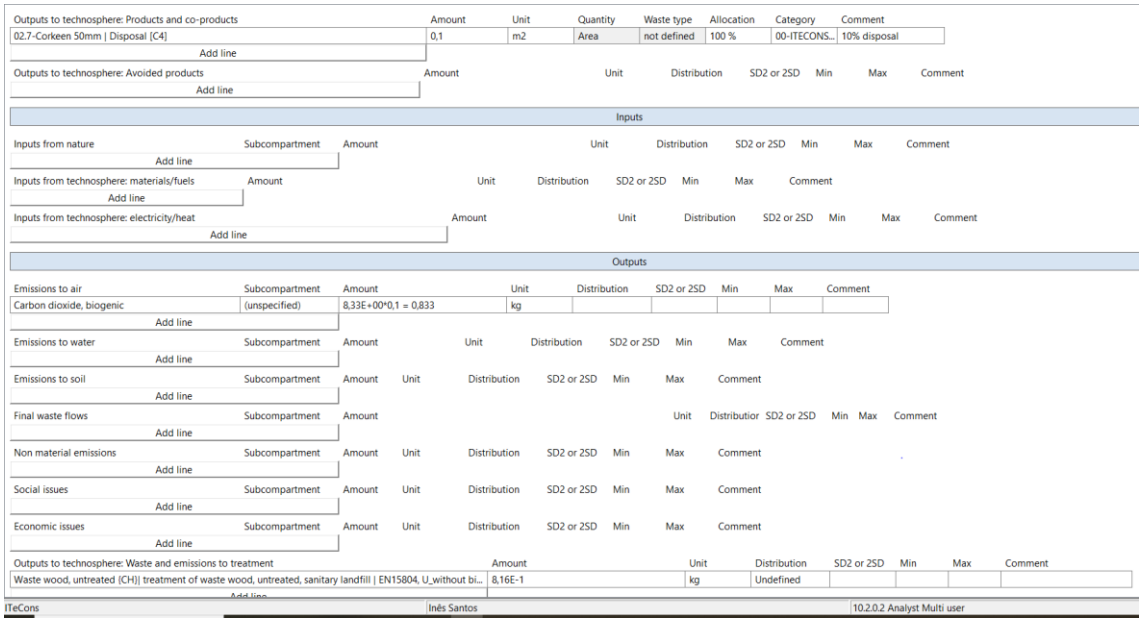
- **Disposal [C4]**



Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.7-Corkeen 50mm | Disposal [C4]	0,1	m2	Area	not defined	100 %	00-ITECONS...	10% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	8,33E+00*0,1 = 0,833	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated (CH)| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	8,16E-1	kg	Undefined				

Add line

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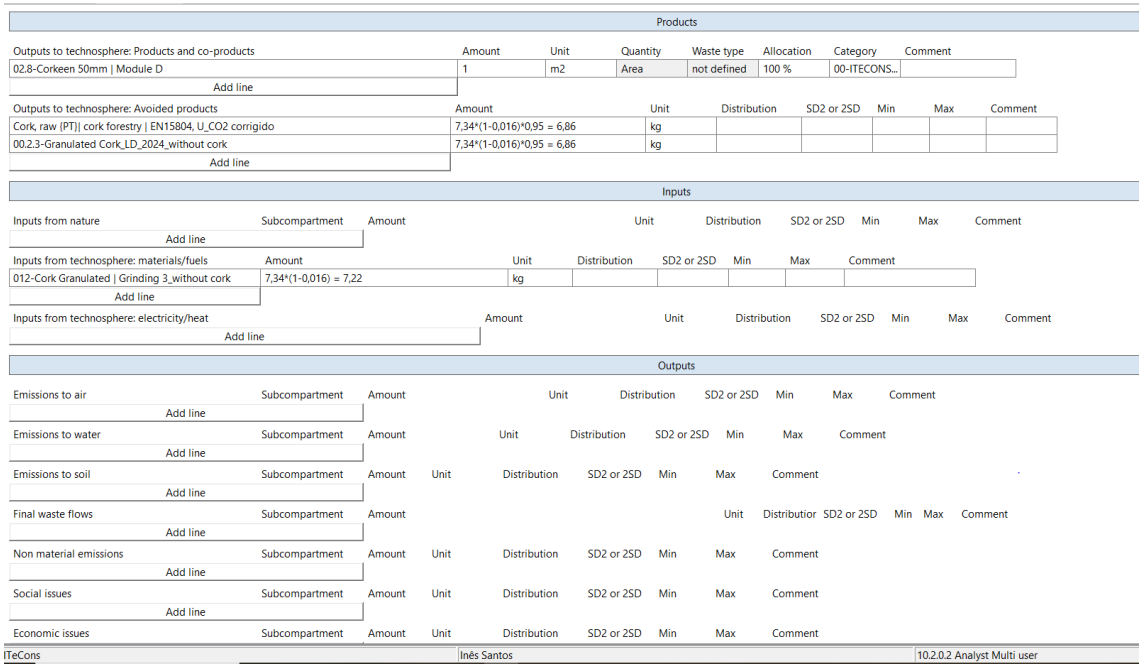
- **Module D**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.8-Corkeen 50mm | Module D	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	7,34*(1-0,016)*0,95 = 6,86	kg					
00.2.3-Granulated Cork_LD_2024_without cork	7,34*(1-0,016)*0,95 = 6,86	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	7,34*(1-0,016) = 7,22	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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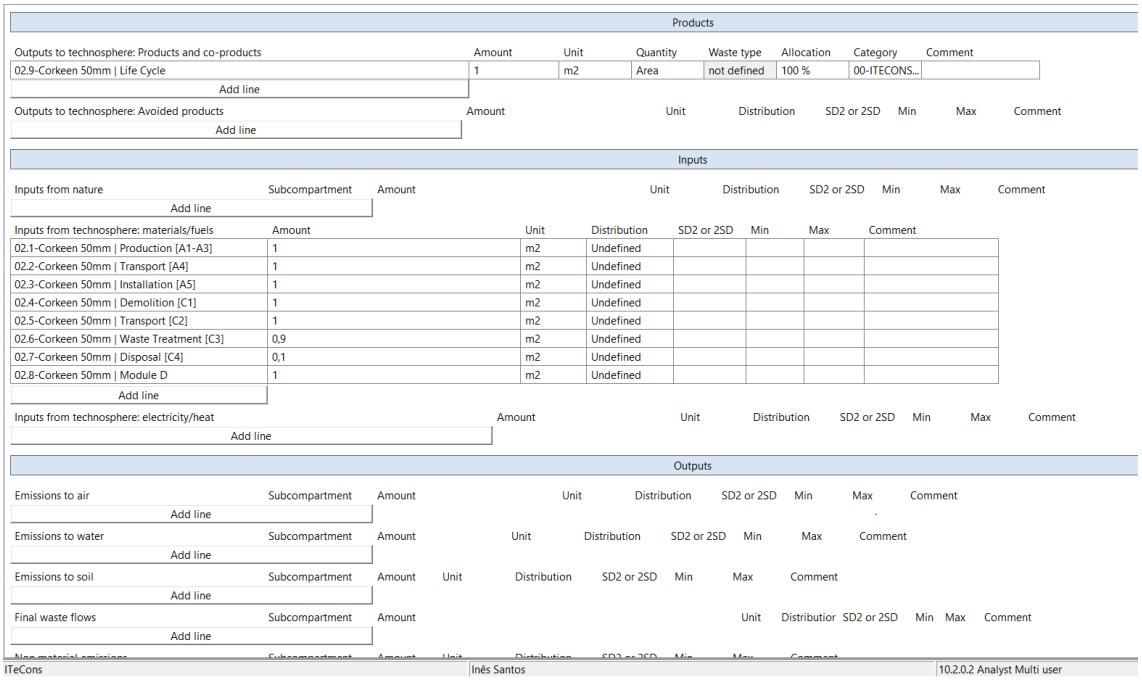
- **Life Cycle**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.9-Corkeen 50mm | Life Cycle	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
02.1-Corkeen 50mm | Production [A1-A3]	1	m2	Undefined				
02.2-Corkeen 50mm | Transport [A4]	1	m2	Undefined				
02.3-Corkeen 50mm | Installation [A5]	1	m2	Undefined				
02.4-Corkeen 50mm | Demolition [C1]	1	m2	Undefined				
02.5-Corkeen 50mm | Transport [C2]	1	m2	Undefined				
02.6-Corkeen 50mm | Waste Treatment [C3]	0,9	m2	Undefined				
02.7-Corkeen 50mm | Disposal [C4]	0,1	m2	Undefined				
02.8-Corkeen 50mm | Module D	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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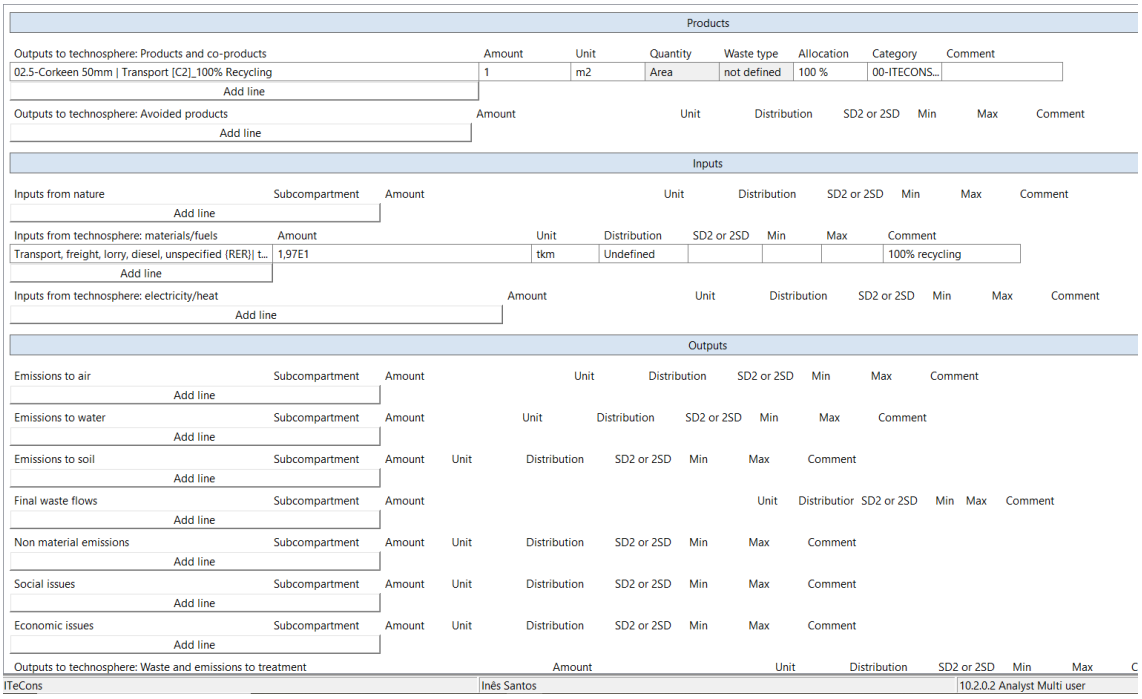
- **Transport to Waste Processing [C2] | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.5-Corkeen 50mm | Transport [C2]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified (RER)| t...	1,97E1	tkm	Undefined				100% recycling

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	C

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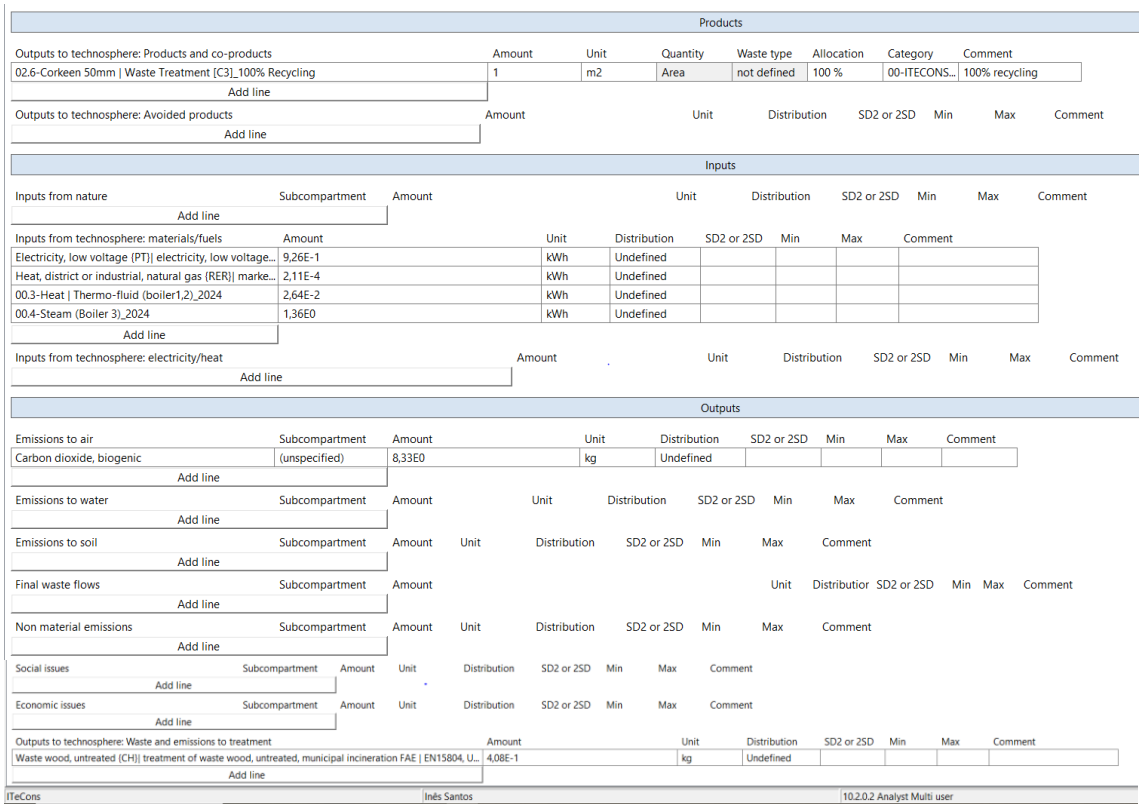
- **Waste Processing[C3] | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.6-Corkeen 50mm | Waste Treatment [C3]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	100% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	9,26E-1	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	2,11E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	2,64E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	1,36E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	8,33E0	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U...	4,08E-1	kg	Undefined				

Add line

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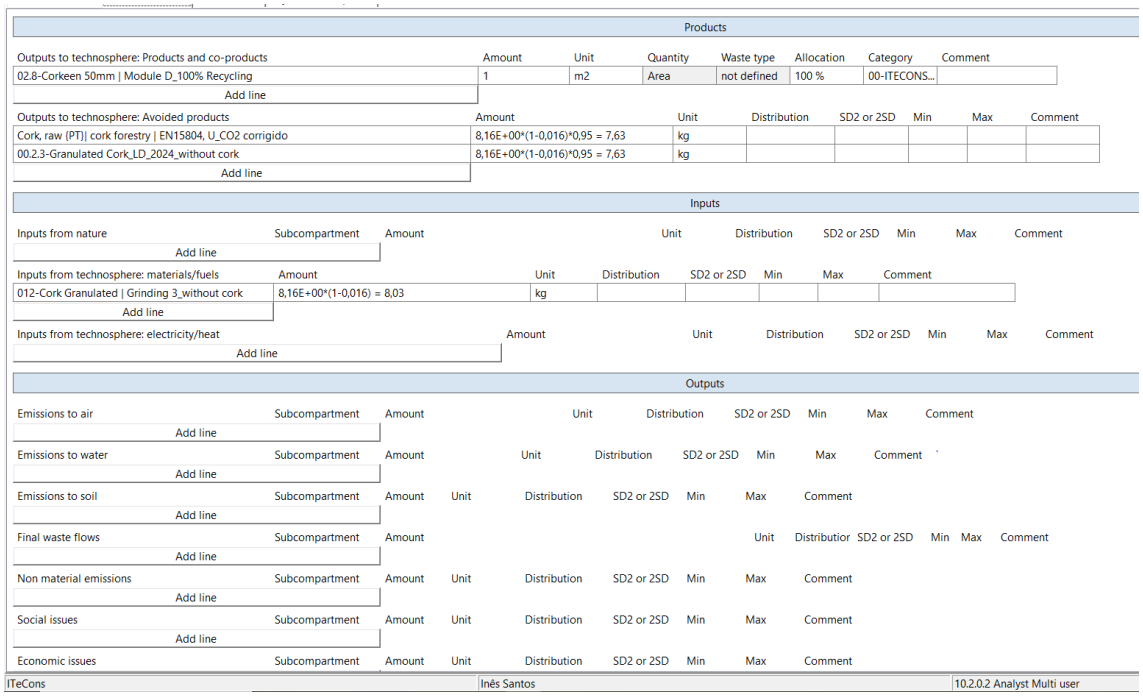
- **Module D | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.8-Corkeen 50mm | Module D_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	8,16E+00*(1-0,016)*0,95 = 7,63	kg					
00.2.3-Granulated Cork_LD_2024_without cork	8,16E+00*(1-0,016)*0,95 = 7,63	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	8,16E+00*(1-0,016) = 8,03	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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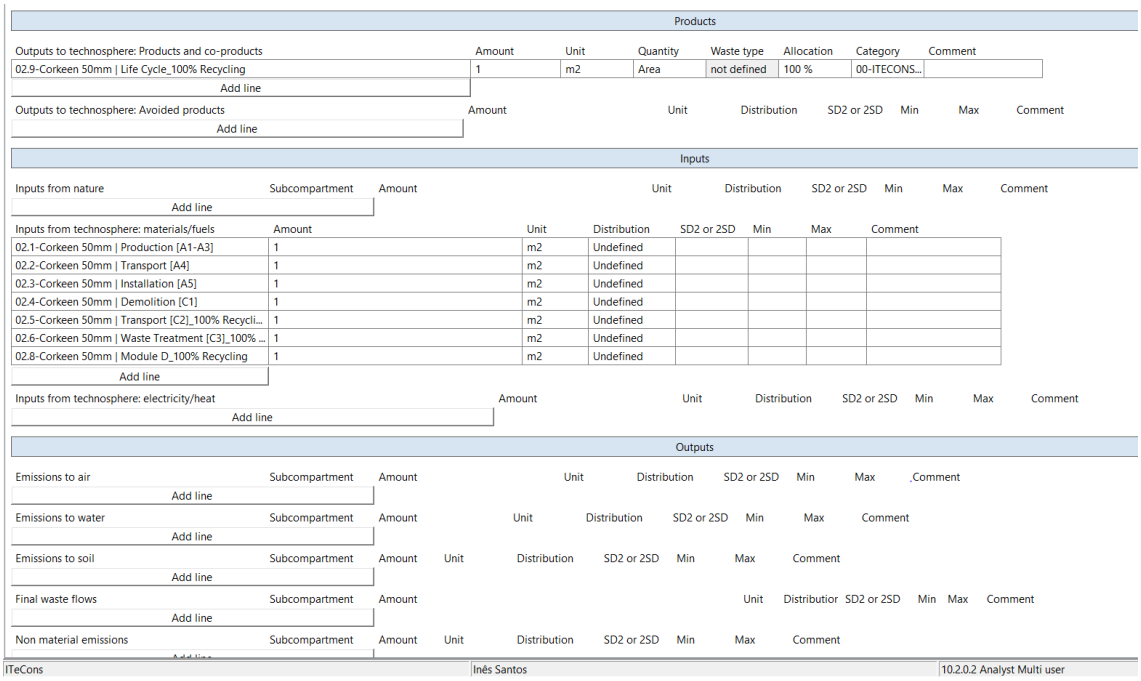
- **Life Cycle | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.9-Corkeen 50mm | Life Cycle_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
02.1-Corkeen 50mm | Production [A1-A3]	1	m2	Undefined				
02.2-Corkeen 50mm | Transport [A4]	1	m2	Undefined				
02.3-Corkeen 50mm | Installation [A5]	1	m2	Undefined				
02.4-Corkeen 50mm | Demolition [C1]	1	m2	Undefined				
02.5-Corkeen 50mm | Transport [C2]_100% Recycli...	1	m2	Undefined				
02.6-Corkeen 50mm | Waste Treatment [C3]_100% ...	1	m2	Undefined				
02.8-Corkeen 50mm | Module D_100% Recycling	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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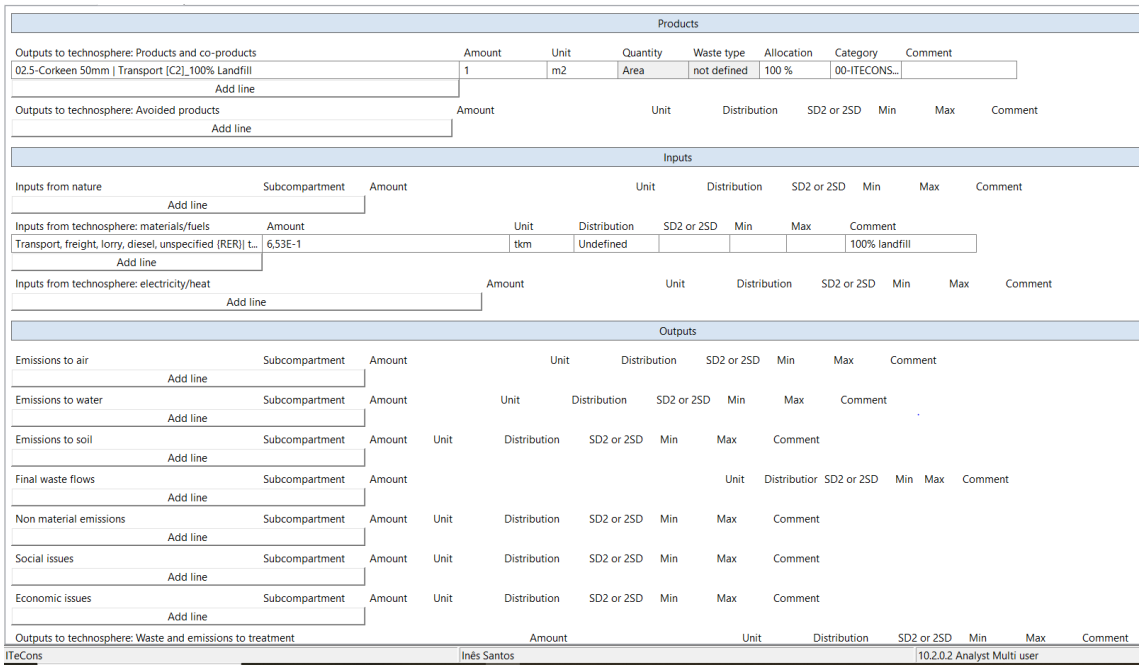
- **Transport to Waste Processing [C2] | 100% Landfill**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.5-Corkeen 50mm | Transport [C2]_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	6,53E-1	tkm	Undefined				100% landfill

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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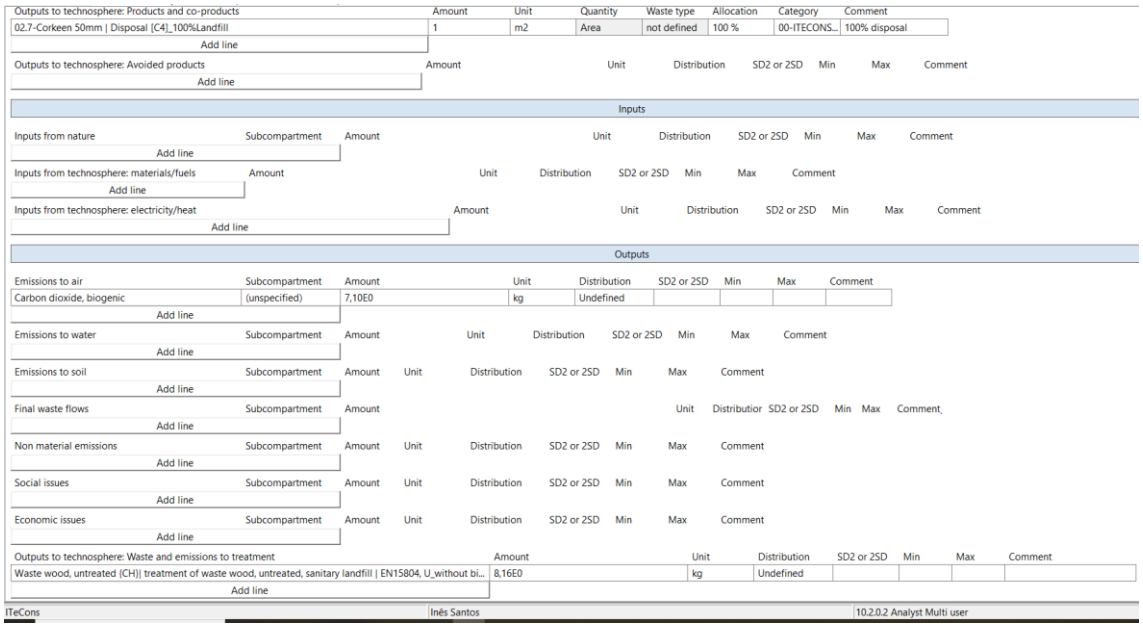
- **Disposal [C4] | 100% Landfill**



Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.7-Corkeen 50mm | Disposal [C4]_100%Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	100% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	7,10E0	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated (CH)| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	8,16E0	kg	Undefined				

Add line

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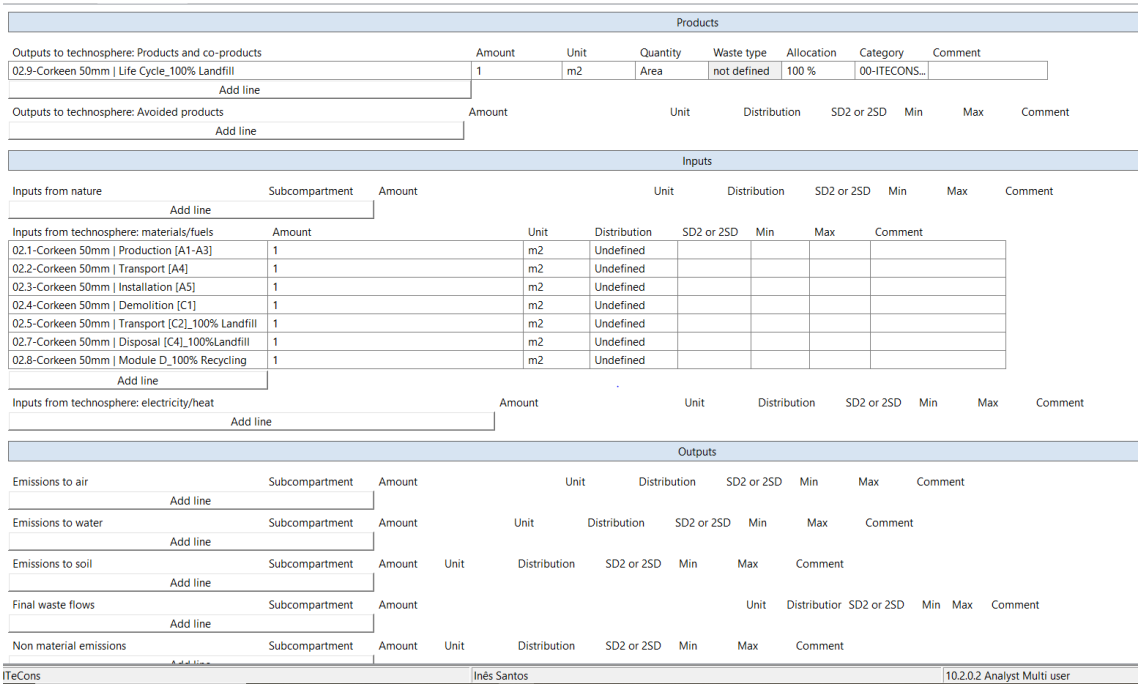
- **Life Cycle | 100% Landfill**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.9-Corkeen 50mm | Life Cycle_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
02.1-Corkeen 50mm | Production [A1-A3]	1	m2	Undefined				
02.2-Corkeen 50mm | Transport [A4]	1	m2	Undefined				
02.3-Corkeen 50mm | Installation [A5]	1	m2	Undefined				
02.4-Corkeen 50mm | Demolition [C1]	1	m2	Undefined				
02.5-Corkeen 50mm | Transport [C2]_100% Landfill	1	m2	Undefined				
02.7-Corkeen 50mm | Disposal [C4]_100%Landfill	1	m2	Undefined				
02.8-Corkeen 50mm | Module D_100% Recycling	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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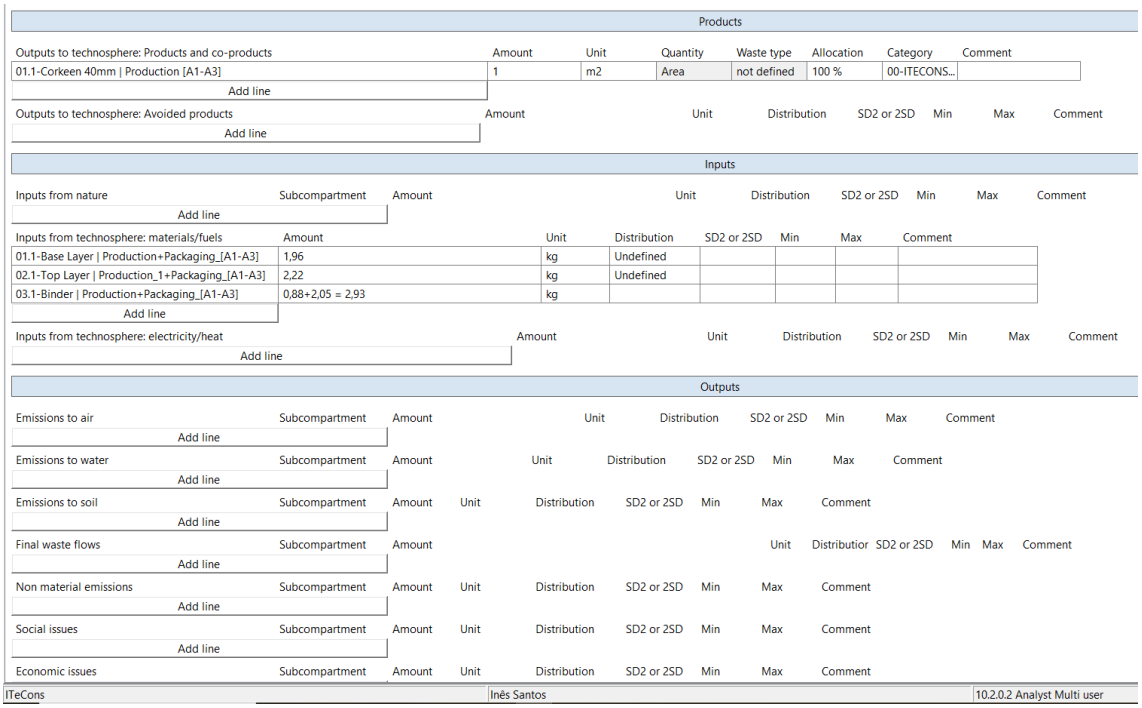
A.2. Corkeen 40 mm

- Product Stage [A1-A3]



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.1-Corkeen 40mm | Production [A1-A3]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Base Layer | Production+Packaging_[A1-A3]	1,96	kg	Undefined				
02.1-Top Layer | Production_1+Packaging_[A1-A3]	2,22	kg	Undefined				
03.1-Binder | Production+Packaging_[A1-A3]	0,88+2,05 = 2,93	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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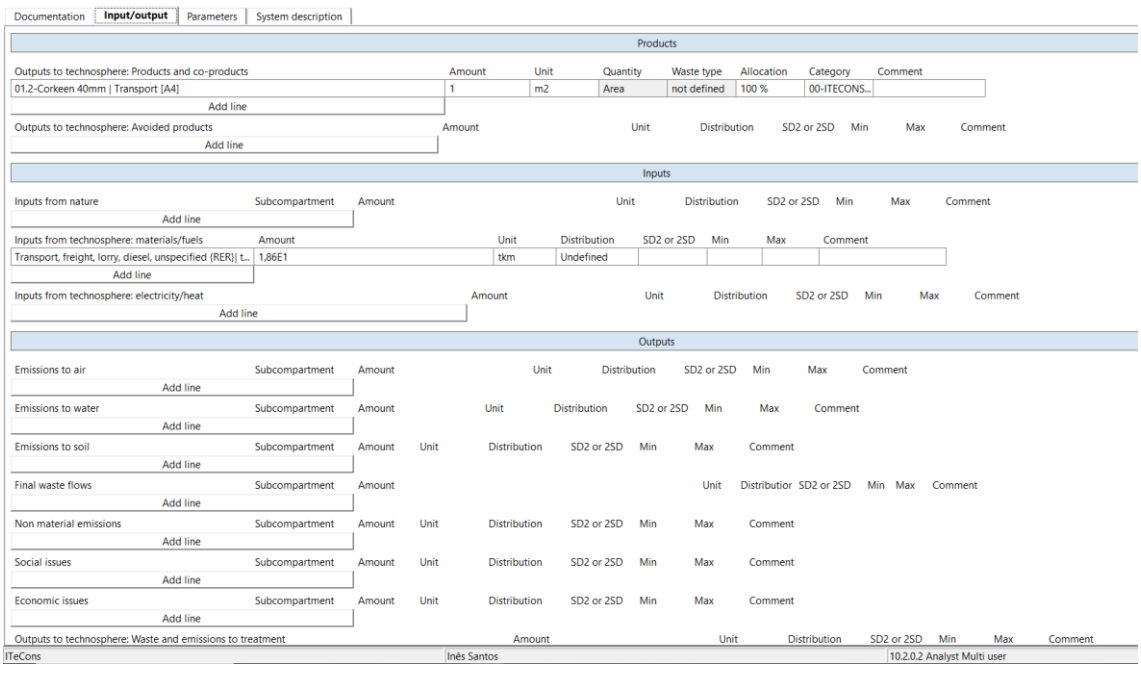
- Transport [A4]



Documentation | **Input/output** | Parameters | System description

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.2-Corkeen 40mm | Transport [A4]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,86E1	tkm	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Installation [A5]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.3-Corkeen 40mm | Installation [A5]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Corkeen 40mm | Production [A1-A3]	0,01	m2	Undefined				
Transport, freight, lorry, diesel, unspecified (RER)| t...	1,45E0	tkm	Undefined				
Acetone, liquid {RER}| acetone production, from is...	5,05E-1	kg	Undefined				Solvent
03.1-Binder | Production+Packaging_[A1-A3]	5,05E-1	kg	Undefined				Primer
Transport, freight, lorry, diesel, unspecified (RER)| t...	3,38E-2	tkm	Undefined				waste
Electricity, low voltage {SE}| market for electricity, l...	5,82E-01*0,2224 = 0,129	kWh					22,24%
Electricity, low voltage {CH}| market for electricity, ...	5,82E-01*0,2367 = 0,138	kWh					23,67%
Electricity, low voltage {FR}| market for electricity, l...	5,82E-01*0,4624 = 0,269	kWh					46,24%

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	7,33E-1+7,10E+00*0,01 = 0,804	kg					packaging+losses

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Materials for recycling	(unspecified)	7,81E-03+5,92E-05+5,46E-02+2,91E-03+4,54E-01+7,62E-02 = 0,596	kg					

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U	8,11E-2	kg	Undefined				??

Add line

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- Demolition [C1]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.4-Corkeen 40mm | Demolition [C1]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Diesel, burned in building machine {GLO}| market f...	(1,1/1000)*7,11 = 0,00782	kWh					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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3030-289 Coimbra
www.itecons.uc.pt

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(National landline)
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- **Transport to Waste Processing [C2]**

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.5-Corkeen 40mm | Transport [C2]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,55E1	tkm	Undefined				90% recycling
Transport, freight, lorry, diesel, unspecified {RER}| t...	5,69E-2	tkm	Undefined				10% disposal

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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- **Waste Processing[C3]**

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.6-Corkeen 40mm | Waste Treatment [C3]	0,9	m2	Area	not defined	100 %	00-ITECONS...	90% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	7,26E-1	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	1,66E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	2,07E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	1,07E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	7,10E+00*0,9 = 6,39	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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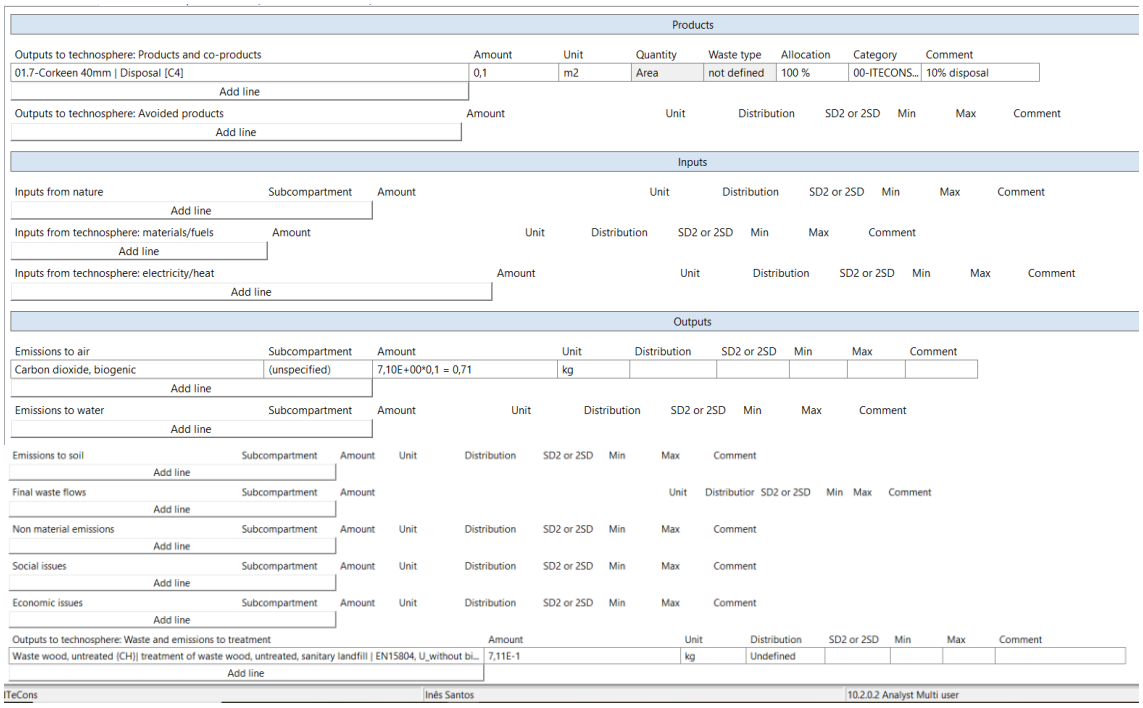
- **Disposal [C4]**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.7-Corkeen 40mm | Disposal [C4]	0,1	m2	Area	not defined	100 %	00-ITECONS...	10% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	7,10E+00*0,1 = 0,71	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	7,11E-1	kg	Undefined				

Add line

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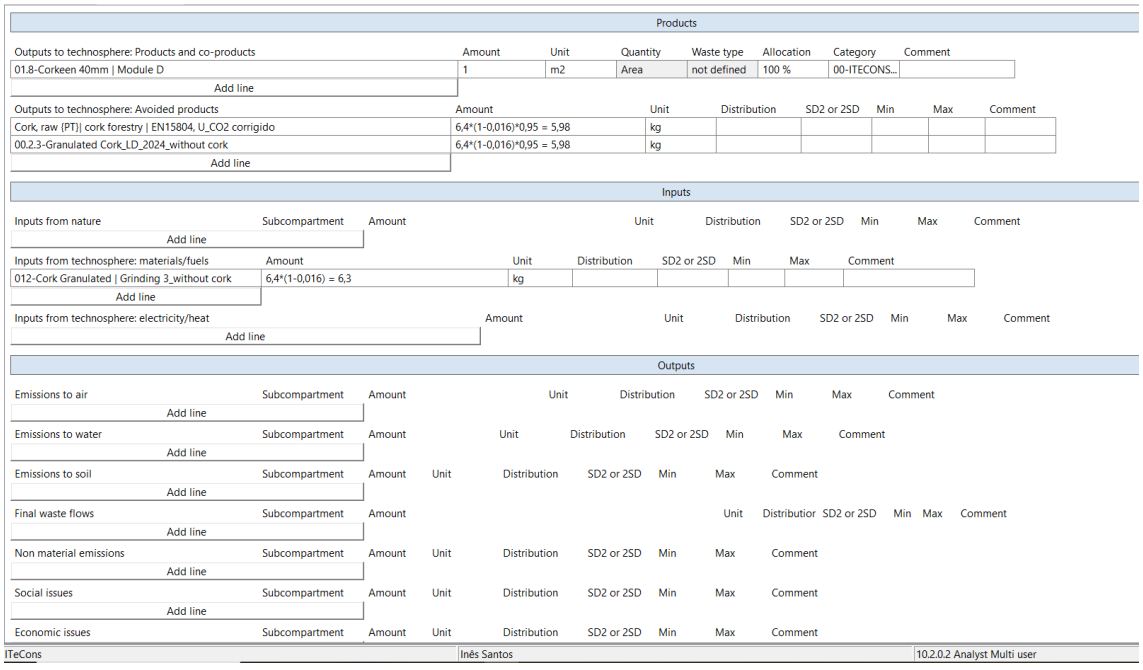
- **Module D**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.8-Corkeen 40mm | Module D	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	6,4*(1-0,016)*0,95 = 5,98	kg					
00.2.3-Granulated Cork_LD_2024_without cork	6,4*(1-0,016)*0,95 = 5,98	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	6,4*(1-0,016) = 6,3	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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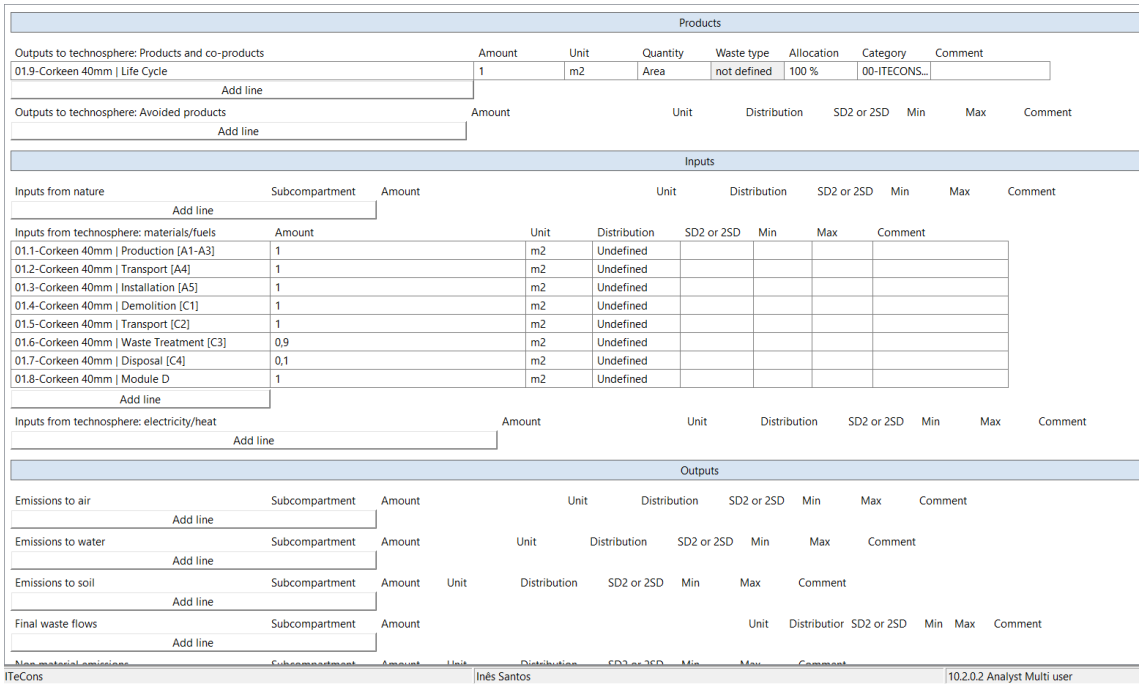
- **Life Cycle**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.9-Corkeen 40mm | Life Cycle	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Corkeen 40mm | Production [A1-A3]	1	m2	Undefined				
01.2-Corkeen 40mm | Transport [A4]	1	m2	Undefined				
01.3-Corkeen 40mm | Installation [A5]	1	m2	Undefined				
01.4-Corkeen 40mm | Demolition [C1]	1	m2	Undefined				
01.5-Corkeen 40mm | Transport [C2]	1	m2	Undefined				
01.6-Corkeen 40mm | Waste Treatment [C3]	0,9	m2	Undefined				
01.7-Corkeen 40mm | Disposal [C4]	0,1	m2	Undefined				
01.8-Corkeen 40mm | Module D	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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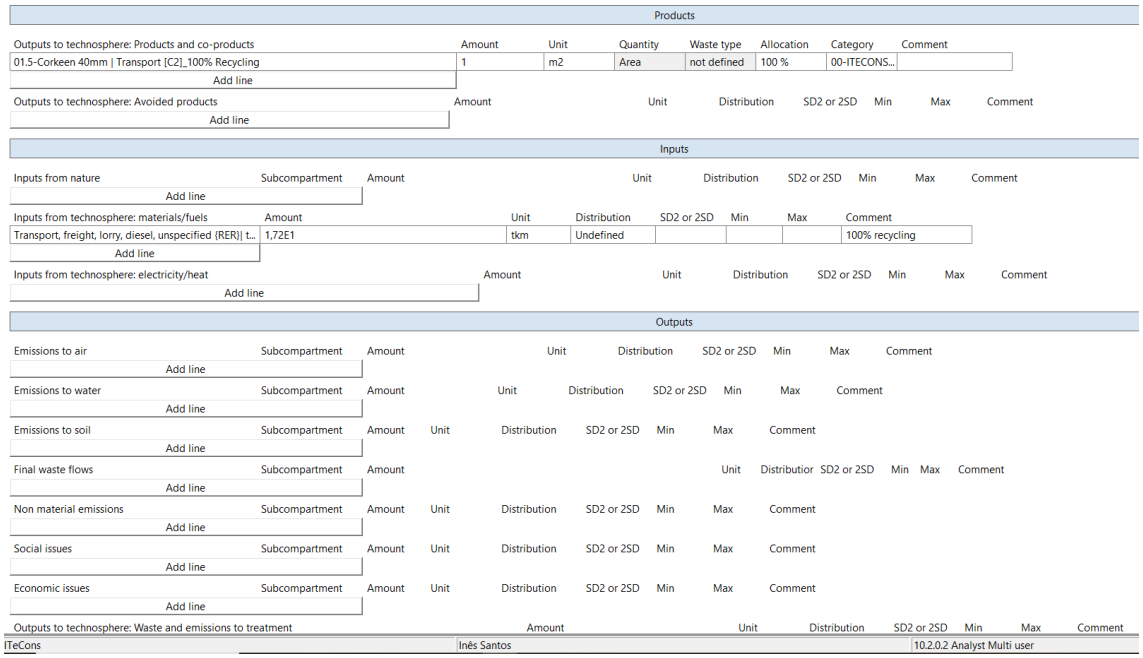
- **Transport to Waste Processing [C2] | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.5-Corkeen 40mm | Transport [C2]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,72E1	tkm	Undefined				100% recycling

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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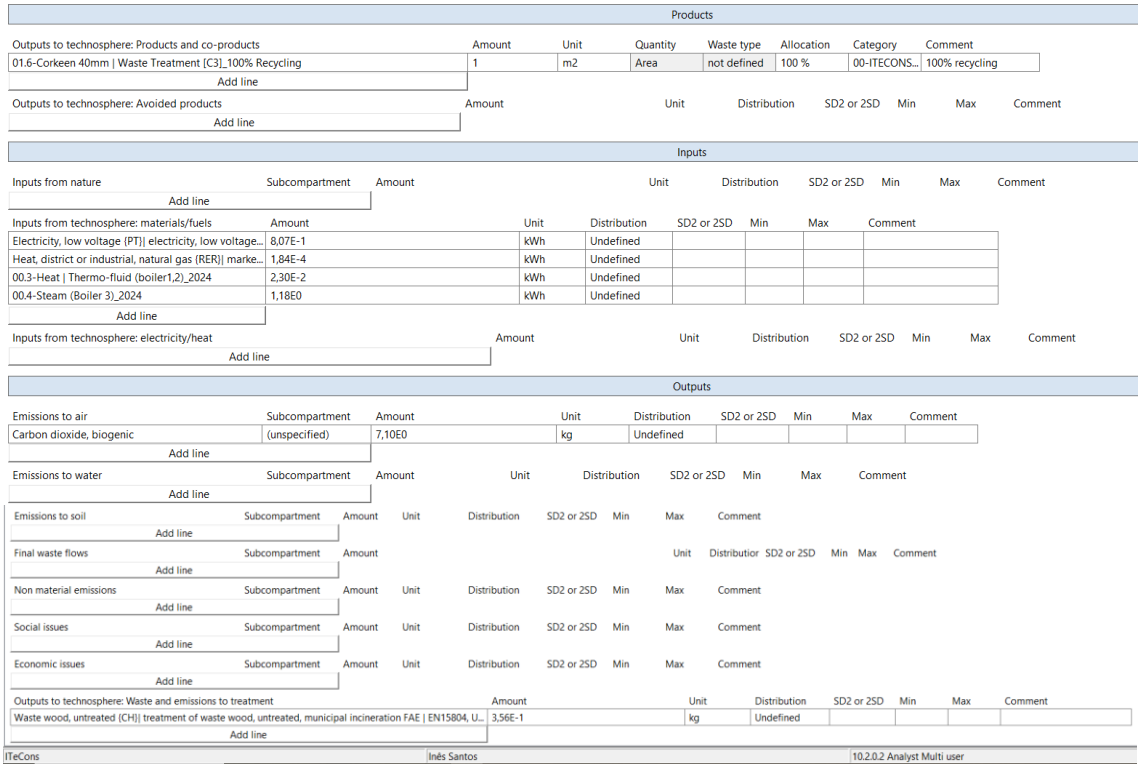
Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- Waste Processing[C3] | 100% Recycling



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.6-Corkeen 40mm | Waste Treatment [C3]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	100% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	8,07E-1	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	1,84E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	2,30E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	1,18E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	7,10E0	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U...	3,56E-1	kg	Undefined				

Add line

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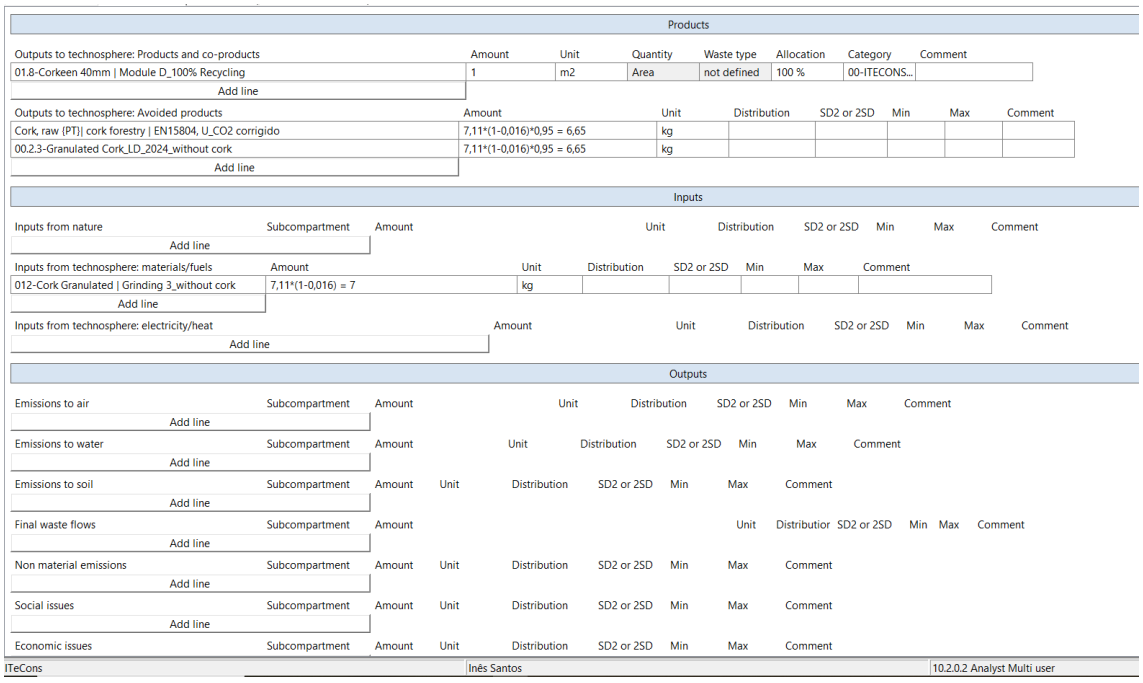
- Module D | 100% Recycling



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.8-Corkeen 40mm | Module D_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	7,11*(1-0,016)*0,95 = 6,65	kg					
00.2.3-Granulated Cork_LD_2024_without cork	7,11*(1-0,016)*0,95 = 6,65	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	7,11*(1-0,016) = 7	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
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- Life Cycle | 100% Recycling

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.9-Corkeen 40mm | Life Cycle_100% recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Corkeen 40mm | Production [A1-A3]	1	m2	Undefined				
01.2-Corkeen 40mm | Transport [A4]	1	m2	Undefined				
01.3-Corkeen 40mm | Installation [A5]	1	m2	Undefined				
01.4-Corkeen 40mm | Demolition [C1]	1	m2	Undefined				
01.5-Corkeen 40mm | Transport [C2]_100% Recycli...	1	m2	Undefined				
01.6-Corkeen 40mm | Waste Treatment [C3]_100% ...	1	m2	Undefined				
01.8-Corkeen 40mm | Module D_100% Recycling	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Transport to Waste Processing [C2] | 100% Landfill

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.5-Corkeen 40mm | Transport [C2]_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified (RER)| t...	5,69E-1	tkm	Undefined				100% landfill

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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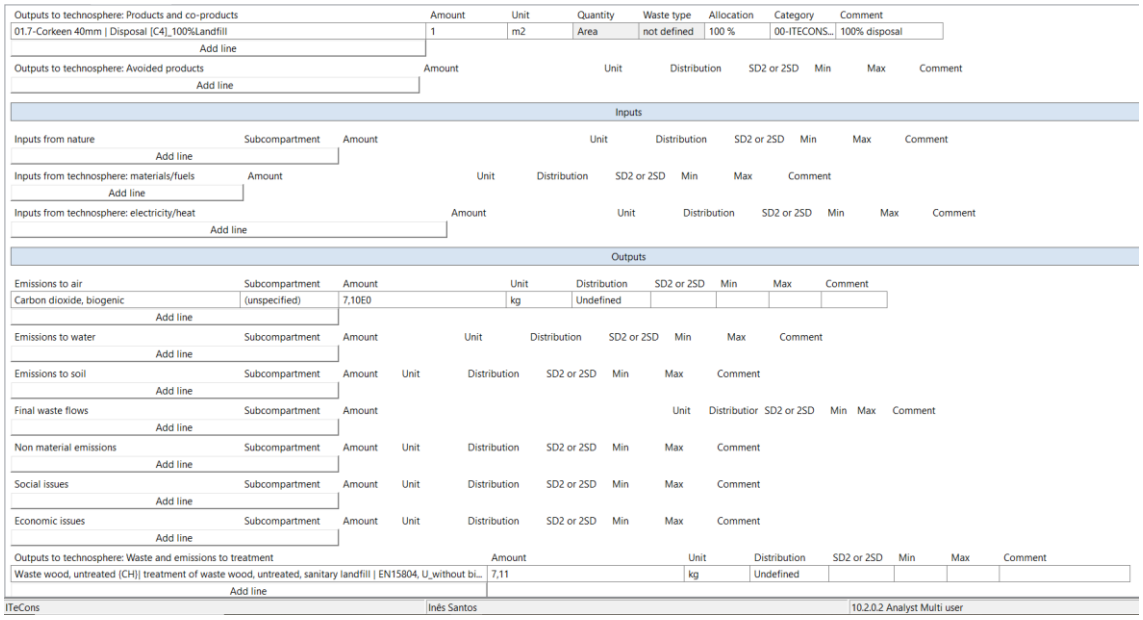
- **Disposal [C4] | 100% Landfill**



Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.7-Corkeen 40mm | Disposal [C4]_100%Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	100% disposal

Add line

Outputs to technosphere: Avoided products — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs

Inputs from nature — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs from technosphere: materials/fuels — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs from technosphere: electricity/heat — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	7,10E0	kg	Undefined				

Add line

Emissions to water — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to soil — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Final waste flows — Subcompartment | Amount | Unit | Distributior | SD2 or 2SD | Min | Max | Comment

Add line

Non material emissions — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Social issues — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Economic issues — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	7,11	kg	Undefined				

Add line

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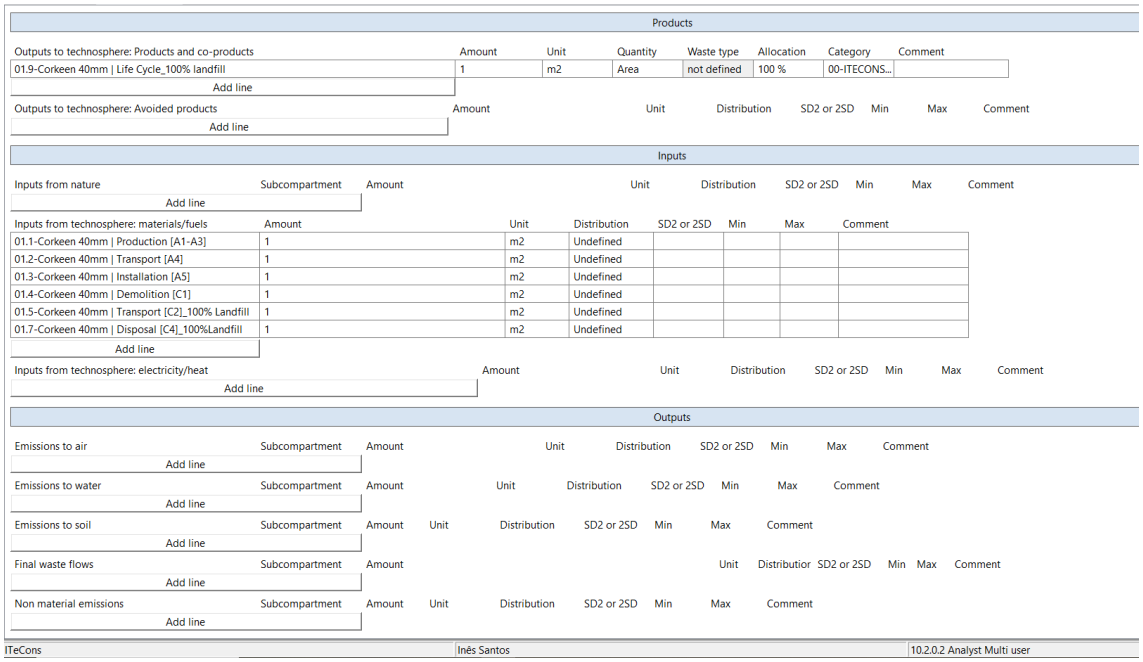
- **Life Cycle | 100% Landfill**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.9-Corkeen 40mm | Life Cycle_100% landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs

Inputs from nature — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Corkeen 40mm | Production [A1-A3]	1	m2	Undefined				
01.2-Corkeen 40mm | Transport [A4]	1	m2	Undefined				
01.3-Corkeen 40mm | Installation [A5]	1	m2	Undefined				
01.4-Corkeen 40mm | Demolition [C1]	1	m2	Undefined				
01.5-Corkeen 40mm | Transport [C2]_100% Landfill	1	m2	Undefined				
01.7-Corkeen 40mm | Disposal [C4]_100%Landfill	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs

Emissions to air — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to water — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to soil — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Final waste flows — Subcompartment | Amount | Unit | Distributior | SD2 or 2SD | Min | Max | Comment

Add line

Non material emissions — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

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3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

A.3. Corkeen 70 mm

- Product Stage [A1-A3]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.1-Corkeen 70mm | Production [A1-A3]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Base Layer | Production+Packaging_[A1-A3]	4,20	kg	Undefined				
02.1-Top Layer | Production_1+Packaging_[A1-A3]	2,22	kg	Undefined				
03.1-Binder | Production+Packaging_[A1-A3]	1,89+2,05 = 3,94	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Transport [A4]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.2-Corkeen 70mm | Transport [A4]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	2,74E1	tkm	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- Installation [A5]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.3-Corkeen 70mm | Installation [A5]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
03.1-Corkeen 70mm | Production [A1-A3]	0,01	m2	Undefined				
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,53E0	tkm	Undefined				
Acetone, liquid {RER}| acetone production, from is...	5,05E-1	kg	Undefined				Solvent
03.1-Binder | Production+Packaging_[A1-A3]	5,05E-1	kg	Undefined				Primer
Transport, freight, lorry, diesel, unspecified {RER}| t...	5,56E-2	tkm	Undefined				waste
Electricity, low voltage {SE}| market for electricity, l...	6,94E-01*0,2224 = 0,154	kWh					22,24%
Electricity, low voltage {CH}| market for electricity, ...	6,94E-01*0,2367 = 0,164	kWh					23,67%
Electricity, low voltage {FR}| market for electricity, l...	6,94E-01*0,4624 = 0,321	kWh					46,24%

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,27E0+1,09E+01*0,01 = 1,38	kg					packaging+losses

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Materials for recycling	(unspecified)	1,67E-02+1,27E-04+5,46E-02+2,91E-03+8,26E-01+9,87E-02 = 0,999	kg					

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U	1,14E-1	kg	Undefined				??

Add line

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- Demolition [C1]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.4-Corkeen 70mm | Demolition [C1]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Diesel, burned in building machine {GLO}| market f...	(1,1/1000)*10,36 = 0,0114	kWh					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Transport to Waste Processing [C2]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.5-Corkeen 70mm | Transport [C2]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	2,25E1	tkm	Undefined				90% recycling
Transport, freight, lorry, diesel, unspecified {RER}| t...	8,29E-2	tkm	Undefined				10% disposal

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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- Waste Processing[C3]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.6-Corkeen 70mm | Waste Treatment [C3]	0,9	m2	Area	not defined	100 %	00-ITECONS...	90% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage (PT)| electricity, low voltage...	1,06E0	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	2,41E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	3,02E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	1,55E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,09E1*0,9 = 9,81	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U...	4,66E-1	kg	Undefined				

Add line

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- **Disposal [C4]**

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.7-Corkeen 70mm | Disposal [C4]	0,1	m2	Area	not defined	100 %	00-ITECONS...	10% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,09E+01*0,1 = 1,09	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	1,04E0	kg	Undefined				

Add line

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- **Module D**

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.8-Corkeen 70mm | Module D	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	9,32*(1-0,016)*0,95 = 8,71	kg					
00.2.3-Granulated Cork_LD_2024_without cork	9,32*(1-0,016)*0,95 = 8,71	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	9,32*(1-0,016) = 9,17	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- Life Cycle

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.9-Corkeen 70mm | Life Cycle	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
03.1-Corkeen 70mm | Production [A1-A3]	1	m2	Undefined				
03.2-Corkeen 70mm | Transport [A4]	1	m2	Undefined				
03.3-Corkeen 70mm | Installation [A5]	1	m2	Undefined				
03.4-Corkeen 70mm | Demolition [C1]	1	m2	Undefined				
03.5-Corkeen 70mm | Transport [C2]	1	m2	Undefined				
03.6-Corkeen 70mm | Waste Treatment [C3]	0,9	m2	Undefined				
03.7-Corkeen 70mm | Disposal [C4]	0,1	m2	Undefined				
03.8-Corkeen 70mm | Module D	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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- Transport to Waste Processing [C2] | 100% Recycling

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.5-Corkeen 70mm | Transport [C2]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	2,50E1	tkm	Undefined				100% recycling

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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Rua Pedro Hispano, s/n
3030-289 Coimbra
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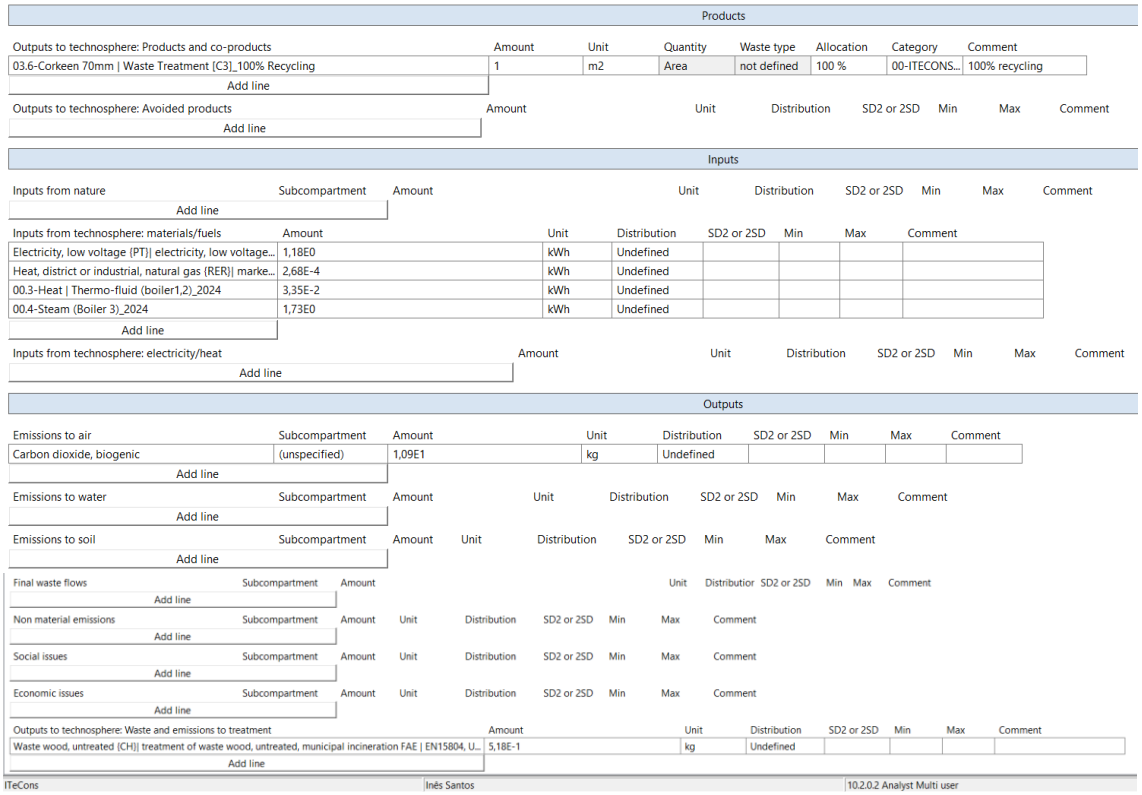
itecons@itecons.uc.pt

- **Waste Processing[C3] | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.6-Corkeen 70mm | Waste Treatment [C3]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	100% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	1,18E0	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	2,68E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	3,35E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	1,73E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,09E1	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U...	5,18E-1	kg	Undefined				

Add line

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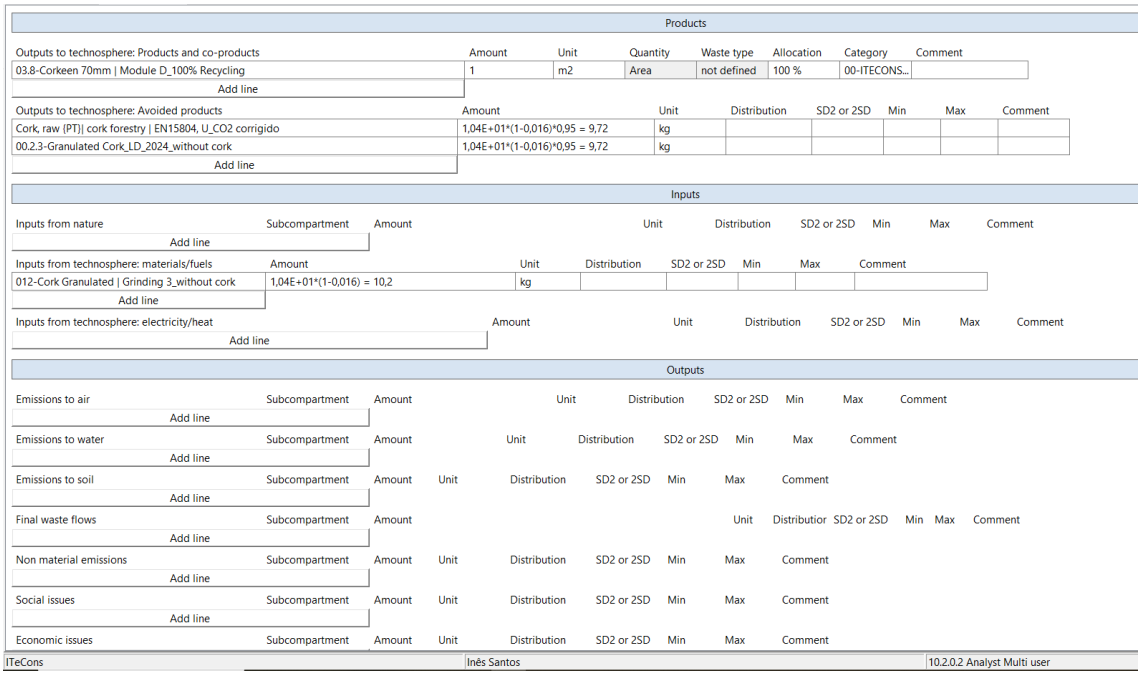
- **Module D | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.8-Corkeen 70mm | Module D_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	1,04E+01*(1-0,016)*0,95 = 9,72	kg					
00.2.3-Granulated Cork_LD_2024_without cork	1,04E+01*(1-0,016)*0,95 = 9,72	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	1,04E+01*(1-0,016) = 10,2	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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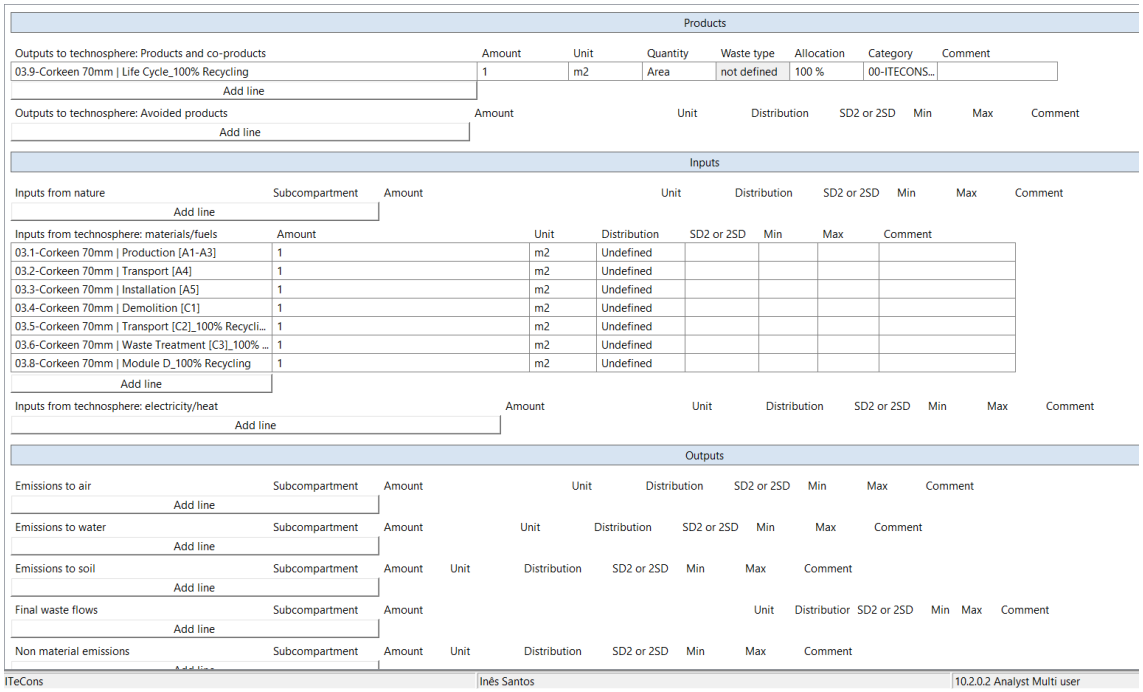
Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- **Life Cycle | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.9-Corkeen 70mm | Life Cycle_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
03.1-Corkeen 70mm | Production [A1-A3]	1	m2	Undefined				
03.2-Corkeen 70mm | Transport [A4]	1	m2	Undefined				
03.3-Corkeen 70mm | Installation [A5]	1	m2	Undefined				
03.4-Corkeen 70mm | Demolition [C1]	1	m2	Undefined				
03.5-Corkeen 70mm | Transport [C2]_100% Recycli...	1	m2	Undefined				
03.6-Corkeen 70mm | Waste Treatment [C3]_100% ...	1	m2	Undefined				
03.8-Corkeen 70mm | Module D_100% Recycling	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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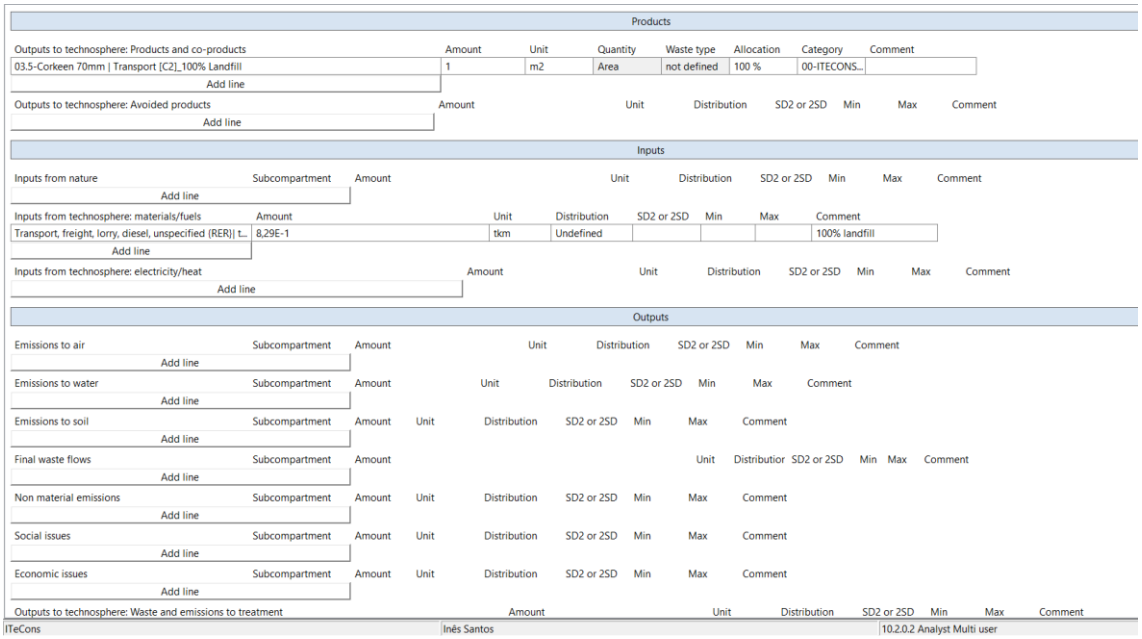
- **Transport to Waste Processing [C2] | 100% Landfill**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.5-Corkeen 70mm | Transport [C2]_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified (RER)| t...	8,29E-1	tkm	Undefined				100% landfill

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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Rua Pedro Hispano, s/n
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- Disposal [C4] | 100% Landfill

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.7-Corkeen 70mm | Disposal [C4]_100%Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	100% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,09E1	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated (CH)| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	1,04E1	kg	Undefined				

Add line

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- Life Cycle | 100% Landfill

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.9-Corkeen 70mm | Life Cycle_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
03.1-Corkeen 70mm | Production [A1-A3]	1	m2	Undefined				
03.2-Corkeen 70mm | Transport [A4]	1	m2	Undefined				
03.3-Corkeen 70mm | Installation [A5]	1	m2	Undefined				
03.4-Corkeen 70mm | Demolition [C1]	1	m2	Undefined				
03.5-Corkeen 70mm | Transport [C2]_100% Landfill	1	m2	Undefined				
03.7-Corkeen 70mm | Disposal [C4]_100%Landfill	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

A.4. Corkeen 90 mm

- Product Stage [A1-A3]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.1-Corkeen 90mm | Production [A1-A3]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Base Layer | Production+Packaging_[A1-A3]	5,70	kg	Undefined				
02.1-Top Layer | Production_1+Packaging_[A1-A3]	2,22	kg	Undefined				
03.1-Binder | Production+Packaging_[A1-A3]	2,56+2,05 = 4,61	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Transport [A4]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.2-Corkeen 90mm | Transport [A4]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER} | t...	3,33E1	tkm	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Installation [A5]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.3-Corkeen 90mm | Installation [A5]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
04.1-Corkeen 90mm | Production [A1-A3]	0,01	m2	Undefined				
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,58E0	tkm	Undefined				
Acetone, liquid {RER}| acetone production, from is...	5,05E-1	kg	Undefined				Solvent
03.1-Binder | Production+Packaging_[A1-A3]	5,05E-1	kg	Undefined				Primer
Transport, freight, lorry, diesel, unspecified {RER}| t...	7,02E-2	tkm	Undefined				waste
Electricity, low voltage {SE}| market for electricity, l...	6,94E-01*0,2224 = 0,154	kWh					22,24%
Electricity, low voltage {CH}| market for electricity, ...	6,94E-01*0,2367 = 0,164	kWh					23,67%
Electricity, low voltage {FR}| market for electricity, l...	6,94E-01*0,4624 = 0,321	kWh					46,24%

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,63E0+1,35E+01*0,01 = 1,76	kg					packaging+losses

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

- Demolition [C1]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.4-Corkeen 90mm | Demolition [C1]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Diesel, burned in building machine {GLO}| market f...	(1,1/1000)*12,53 = 0,0138	kWh					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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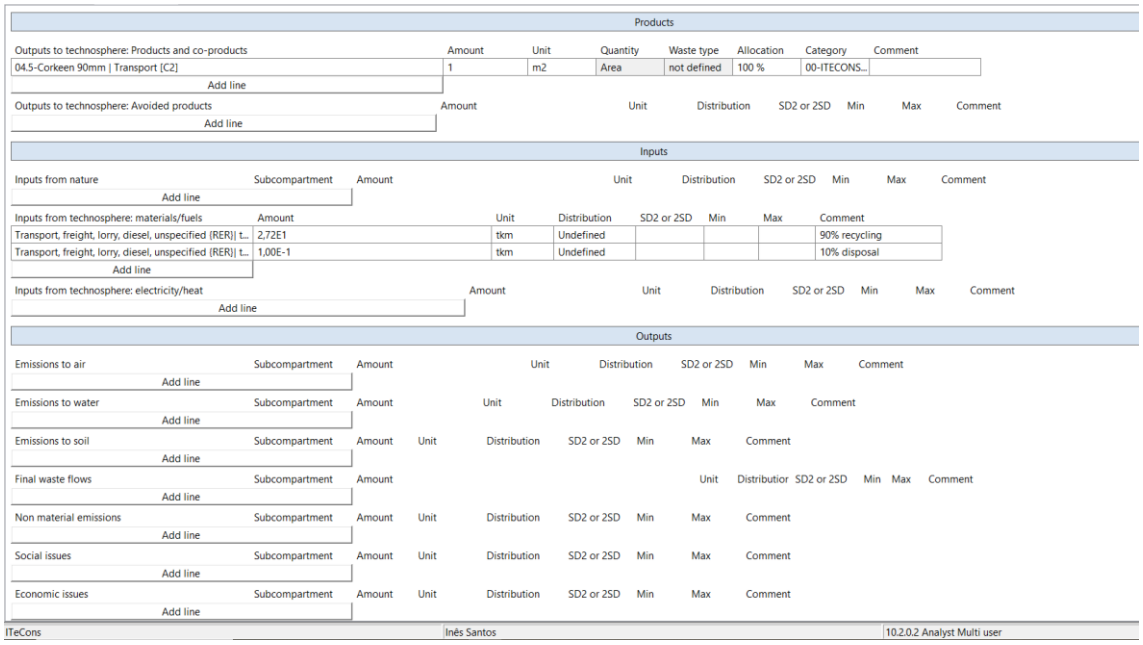
- Transport to Waste Processing [C2]



Products

Outputs to technosphere: Products and co-products

Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
2,72E1	tkm	Undefined				90% recycling
1,00E-1	tkm	Undefined				10% disposal

Add line

Inputs from technosphere: electricity/heat

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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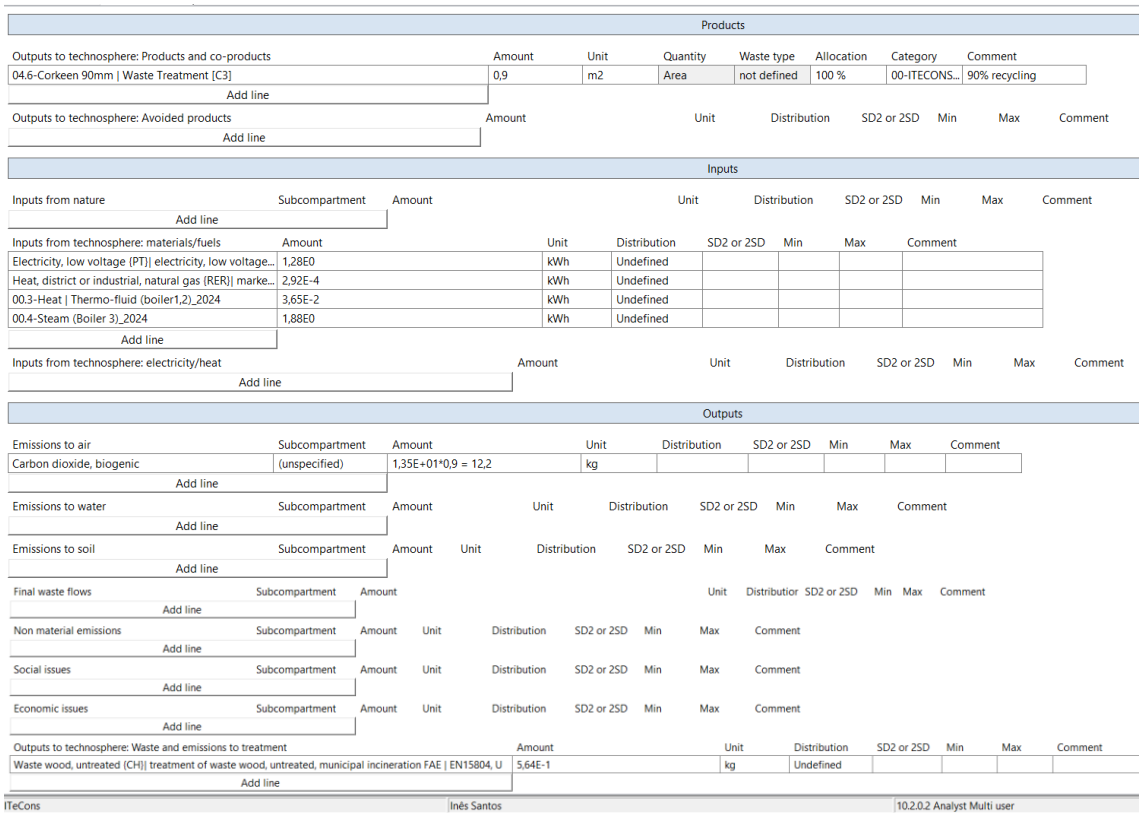
- Waste Processing [C3]



Products

Outputs to technosphere: Products and co-products

Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
0,9	m2	Area	not defined	100 %	00-ITECONS...	90% recycling

Add line

Outputs to technosphere: Avoided products

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
1,28E0	kWh	Undefined				
2,92E-4	kWh	Undefined				
3,65E-2	kWh	Undefined				
1,88E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
(unspecified)	1,35E+01*0,9 = 12,2	kg					

Add line

Emissions to water

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U	5,64E-1	kg	Undefined				

Add line

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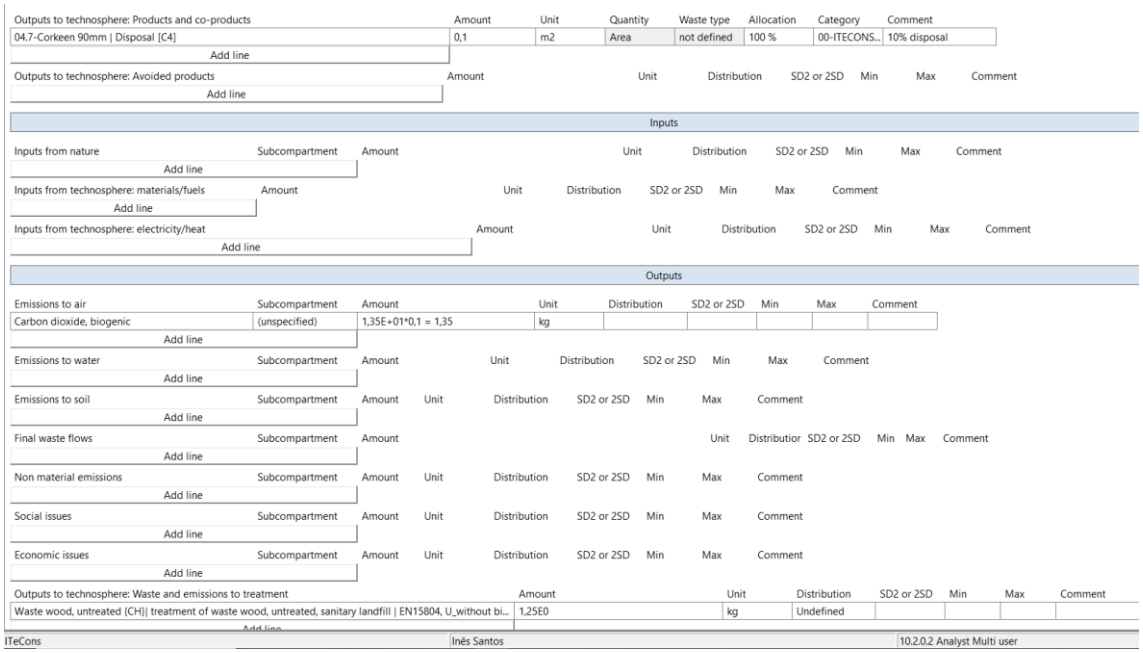
- **Disposal [C4]**



Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.7-Corkeen 90mm | Disposal [C4]	0,1	m2	Area	not defined	100 %	00-ITECONS...	10% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,35E+01*0,1 = 1,35	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	1,25E0	kg	Undefined				

Add line

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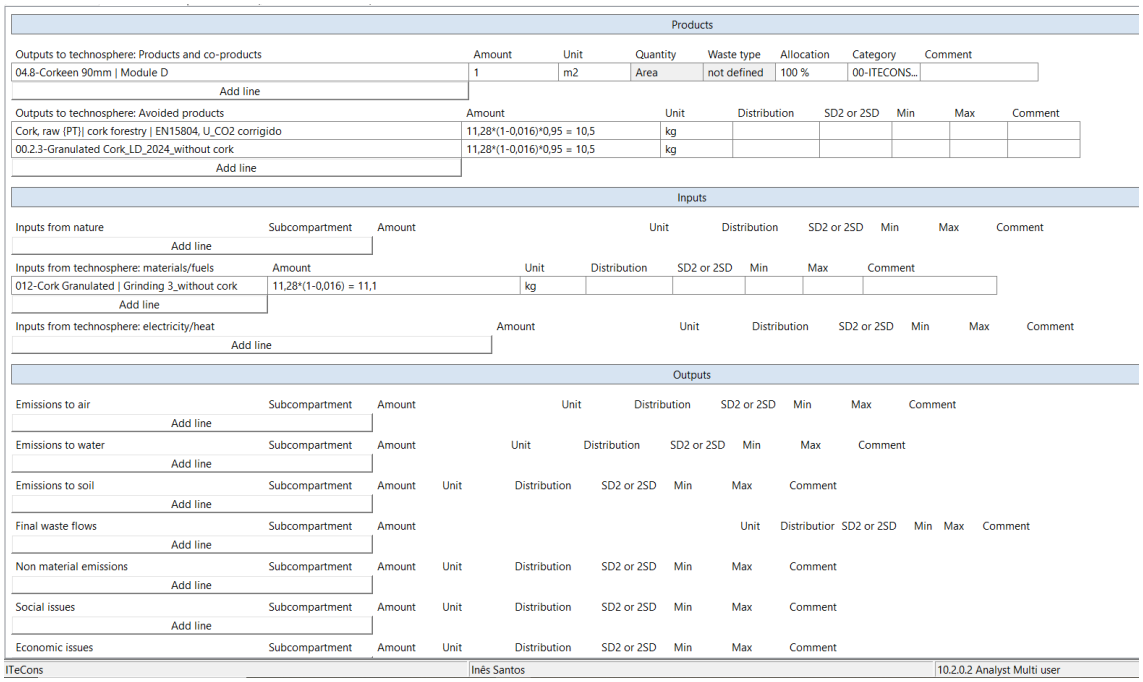
- **Module D**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.8-Corkeen 90mm | Module D	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	11,28*(1-0,016)*0,95 = 10,5	kg					
00.2.3-Granulated Cork_LD_2024_without cork	11,28*(1-0,016)*0,95 = 10,5	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	11,28*(1-0,016) = 11,1	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Life Cycle

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.9-Corkeen 90mm | Life Cycle	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
04.1-Corkeen 90mm | Production [A1-A3]	1	m2	Undefined				
04.2-Corkeen 90mm | Transport [A4]	1	m2	Undefined				
04.3-Corkeen 90mm | Installation [A5]	1	m2	Undefined				
04.4-Corkeen 90mm | Demolition [C1]	1	m2	Undefined				
04.5-Corkeen 90mm | Transport [C2]	1	m2	Undefined				
04.6-Corkeen 90mm | Waste Treatment [C3]	0,9	m2	Undefined				
04.7-Corkeen 90mm | Disposal [C4]	0,1	m2	Undefined				
04.8-Corkeen 90mm | Module D	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Transport to Waste Processing [C2] | 100% Recycling

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.5-Corkeen 90mm | Transport [C2]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER} | t...	3,03E1	tkm	Undefined				100% recycling

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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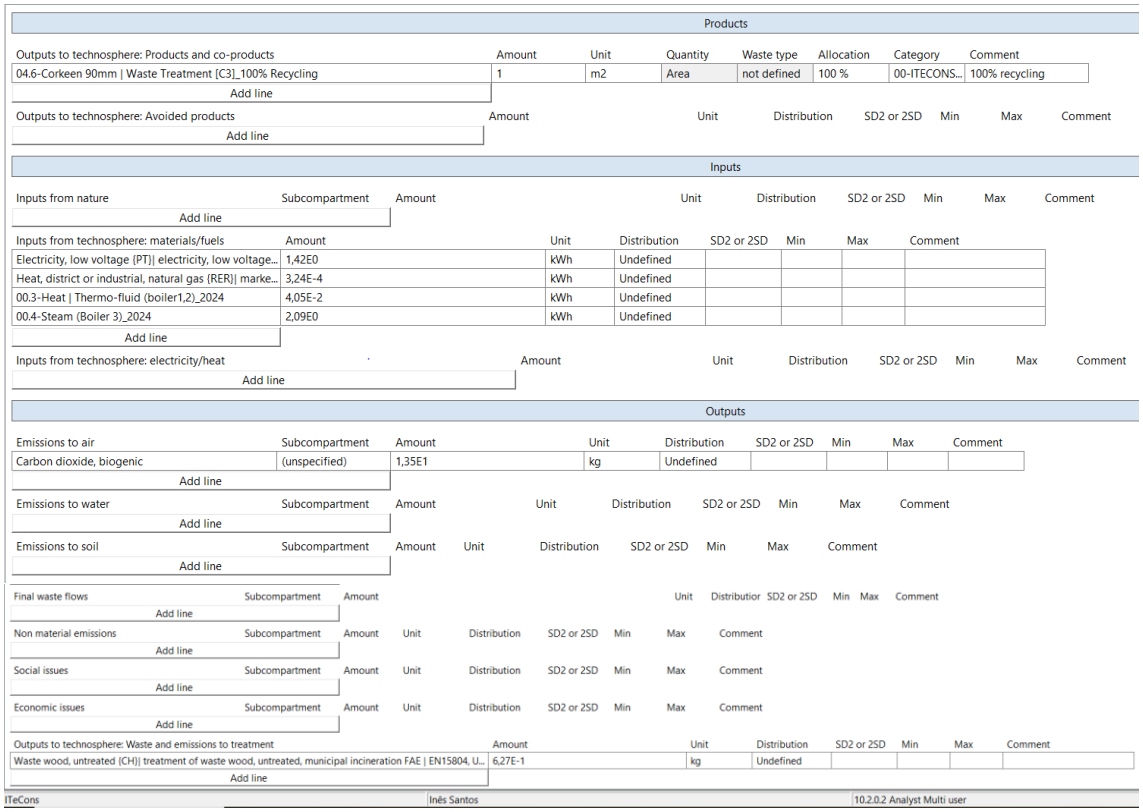
- Waste Processing [C3] | 100% Recycling



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.6-Corkeen 90mm | Waste Treatment [C3]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	100% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	1,42E0	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	3,24E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	4,05E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	2,09E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,35E1	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U...	6,27E-1	kg	Undefined				

Add line

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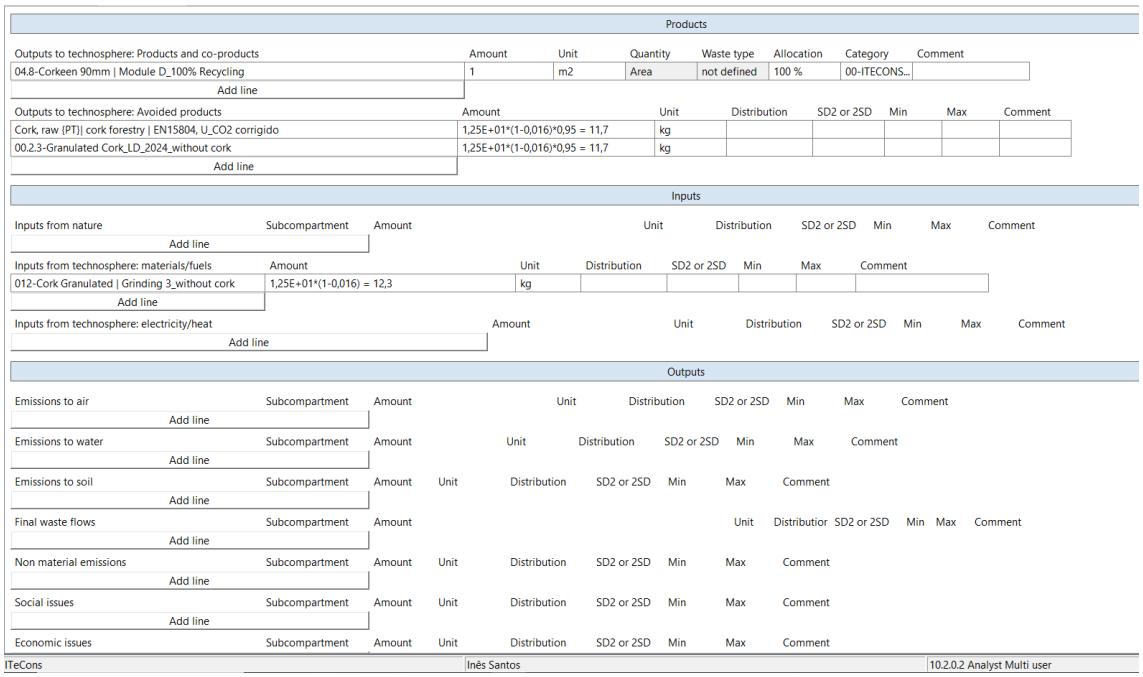
- Module D | 100% Recycling



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.8-Corkeen 90mm | Module D_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	1,25E+01*(1-0,016)*0,95 = 11,7	kg					
00.2.3-Granulated Cork_LD_2024_without cork	1,25E+01*(1-0,016)*0,95 = 11,7	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	1,25E+01*(1-0,016) = 12,3	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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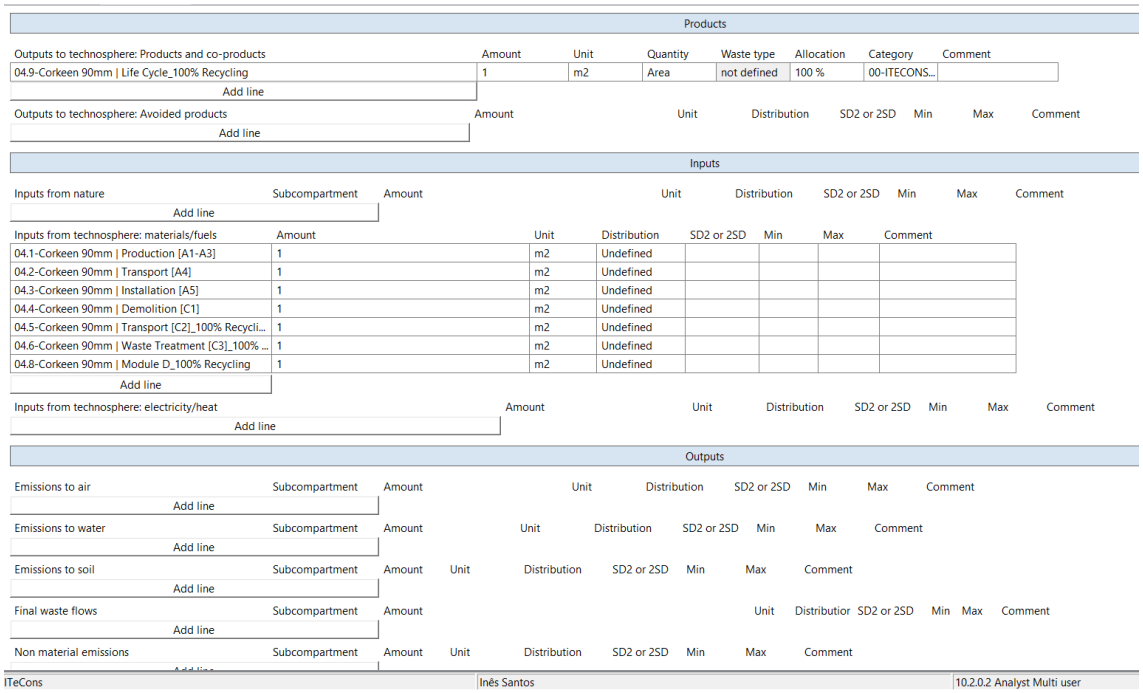
- **Life Cycle | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.9-Corkeen 90mm | Life Cycle_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
04.1-Corkeen 90mm | Production [A1-A3]	1	m2	Undefined				
04.2-Corkeen 90mm | Transport [A4]	1	m2	Undefined				
04.3-Corkeen 90mm | Installation [A5]	1	m2	Undefined				
04.4-Corkeen 90mm | Demolition [C1]	1	m2	Undefined				
04.5-Corkeen 90mm | Transport [C2]_100% Recycli...	1	m2	Undefined				
04.6-Corkeen 90mm | Waste Treatment [C3]_100% ...	1	m2	Undefined				
04.8-Corkeen 90mm | Module D_100% Recycling	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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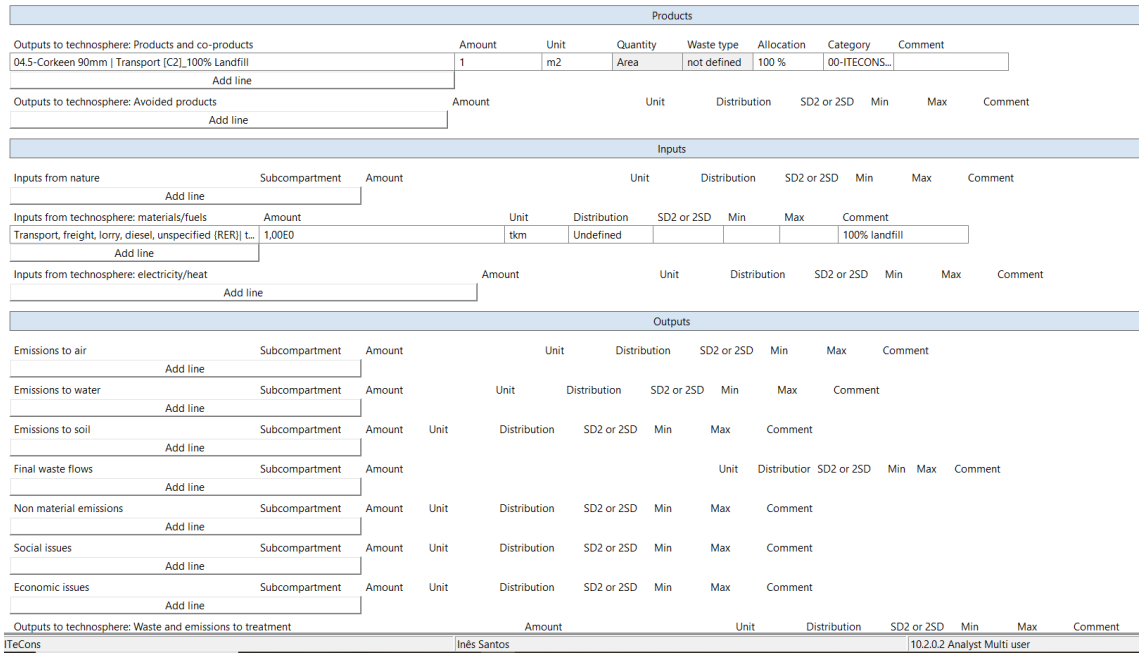
- **Transport to Waste Processing [C2] | 100% Landfill**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
04.5-Corkeen 90mm | Transport [C2]_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,00E0	tkm	Undefined				100% landfill

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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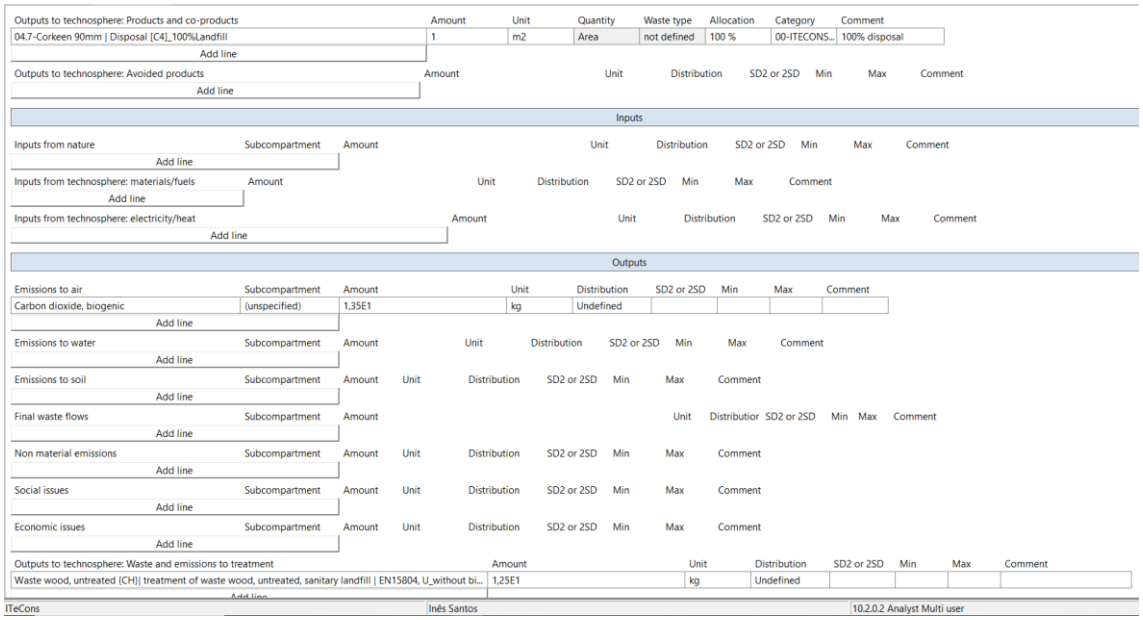
- **Disposal [C4] | 100% Landfill**



Outputs to technosphere: Products and co-products

Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
1	m2	Area	not defined	100 %	00-ITECONS...	100% disposal

Add line

Outputs to technosphere: Avoided products

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
(unspecified)	1,35E1	kg	Undefined				

Add line

Emissions to water

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
1,25E1	kg	Undefined				

Add line

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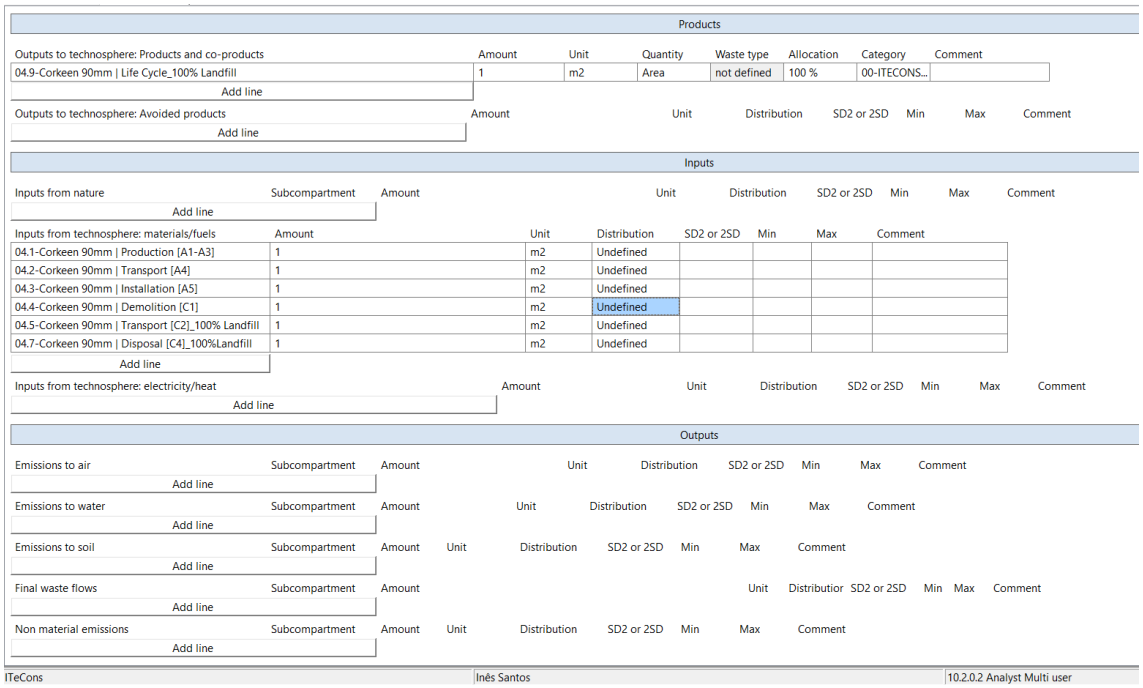
- **Life Cycle | 100% Landfill**



Products

Outputs to technosphere: Products and co-products

Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels

	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
04.1-Corkeen 90mm | Production [A1-A3]	1	m2	Undefined				
04.2-Corkeen 90mm | Transport [A4]	1	m2	Undefined				
04.3-Corkeen 90mm | Installation [A5]	1	m2	Undefined				
04.4-Corkeen 90mm | Demolition [C1]	1	m2	Undefined				
04.5-Corkeen 90mm | Transport [C2]_100% Landfill	1	m2	Undefined				
04.7-Corkeen 90mm | Disposal [C4]_100%Landfill	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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A.5. Corkeen 110 mm

- Product Stage [A1-A3]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.1-Corkeen 110mm | Production [A1-A3]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Base Layer | Production+Packaging_[A1-A3]	7,17	kg	Undefined				
02.1-Top Layer | Production_1+Packaging_[A1-A3]	2,22	kg	Undefined				
03.1-Binder | Production+Packaging_[A1-A3]	3,23+2,05 = 5,28	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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- Transport [A4]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.2-Corkeen 110mm | Transport [A4]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified (RER)| t...	3,91E1	tkm	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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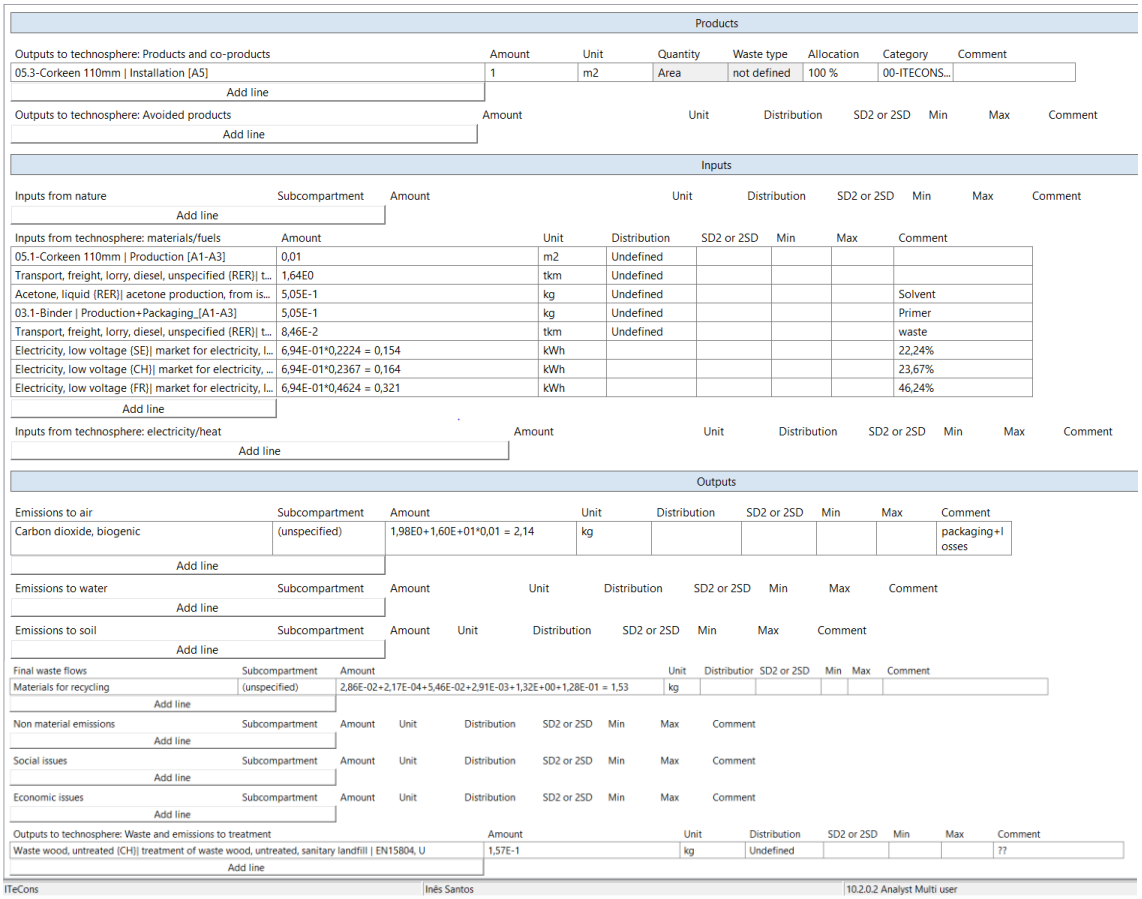
- Installation [A5]



Products

Outputs to technosphere: Products and co-products

	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.3-Corkeen 110mm | Installation [A5]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs

Inputs from nature — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs from technosphere: materials/fuels

	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
05.1-Corkeen 110mm | Production [A1-A3]	0,01	m2	Undefined				
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,64E0	tkm	Undefined				
Acetone, liquid {RER}| acetone production, from is...	5,05E-1	kg	Undefined				Solvent
03.1-Binder | Production+Packaging_[A1-A3]	5,05E-1	kg	Undefined				Primer
Transport, freight, lorry, diesel, unspecified {RER}| t...	8,46E-2	tkm	Undefined				waste
Electricity, low voltage {SE}| market for electricity, l...	6,94E-01*0,2224 = 0,154	kWh					22,24%
Electricity, low voltage {CH}| market for electricity, ...	6,94E-01*0,2367 = 0,164	kWh					23,67%
Electricity, low voltage {FR}| market for electricity, l...	6,94E-01*0,4624 = 0,321	kWh					46,24%

Add line

Inputs from technosphere: electricity/heat — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs

Emissions to air

	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,98E0+1,60E+01*0,01 = 2,14	kg					packaging+losses

Add line

Emissions to water — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to soil — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Final waste flows

	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment
Materials for recycling	(unspecified)	2,86E-02+2,17E-04+5,46E-02+2,91E-03+1,32E+00+1,28E-01 = 1,53	kg					

Add line

Non material emissions — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Social issues — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Economic issues — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs to technosphere: Waste and emissions to treatment

	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U	1,57E-1	kg	Undefined				??

Add line

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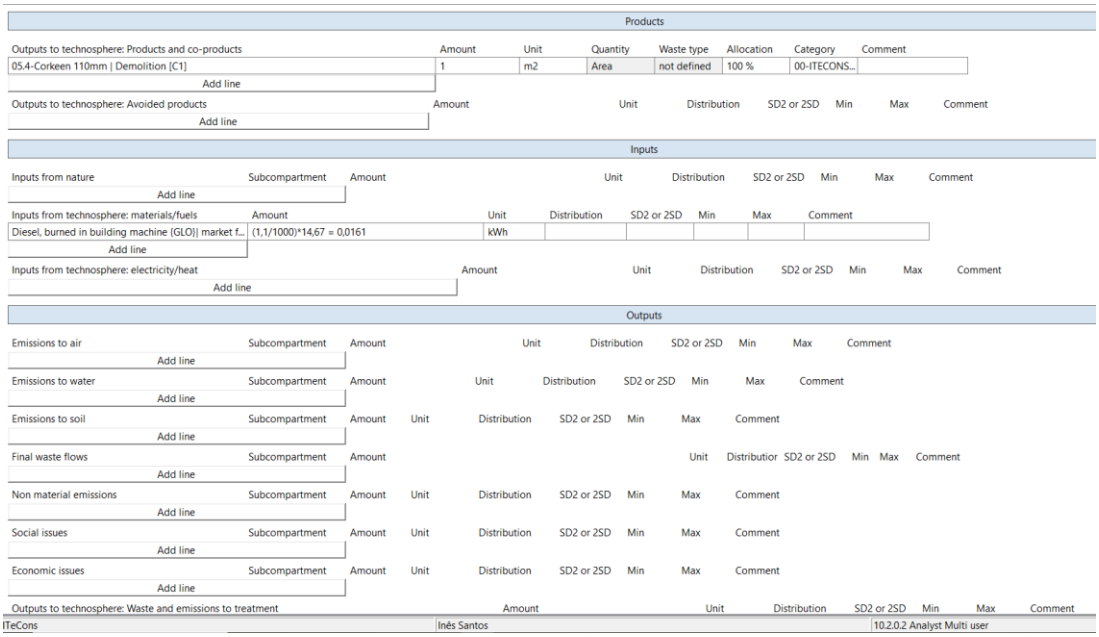
- Demolition [C1]



Products

Outputs to technosphere: Products and co-products

	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.4-Corkeen 110mm | Demolition [C1]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs

Inputs from nature — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs from technosphere: materials/fuels

	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Diesel, burned in building machine {GLO}| market f...	(1,1/1000)*14,67 = 0,0161	kWh					

Add line

Inputs from technosphere: electricity/heat — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs

Emissions to air — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to water — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to soil — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Final waste flows — Subcompartment | Amount | Unit | Distributior | SD2 or 2SD | Min | Max | Comment

Add line

Non material emissions — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Social issues — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Economic issues — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs to technosphere: Waste and emissions to treatment — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

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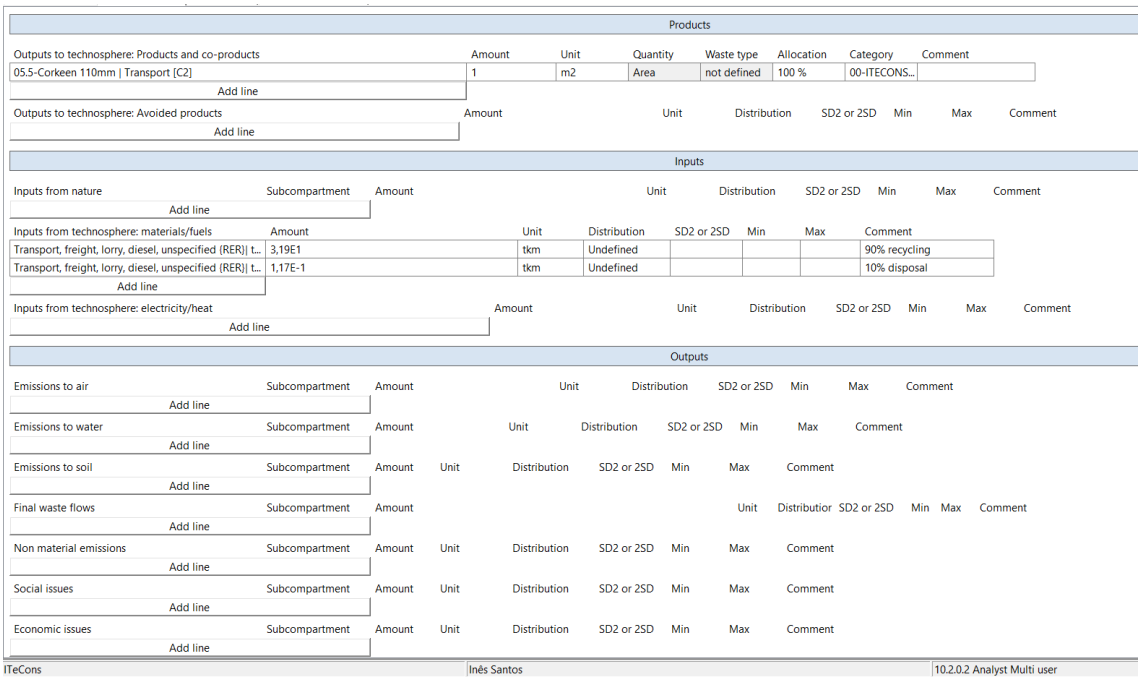
- Transport to Waste Processing [C2]



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.5-Corkeen 110mm | Transport [C2]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	3,19E1	tkm	Undefined				90% recycling
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,17E-1	tkm	Undefined				10% disposal

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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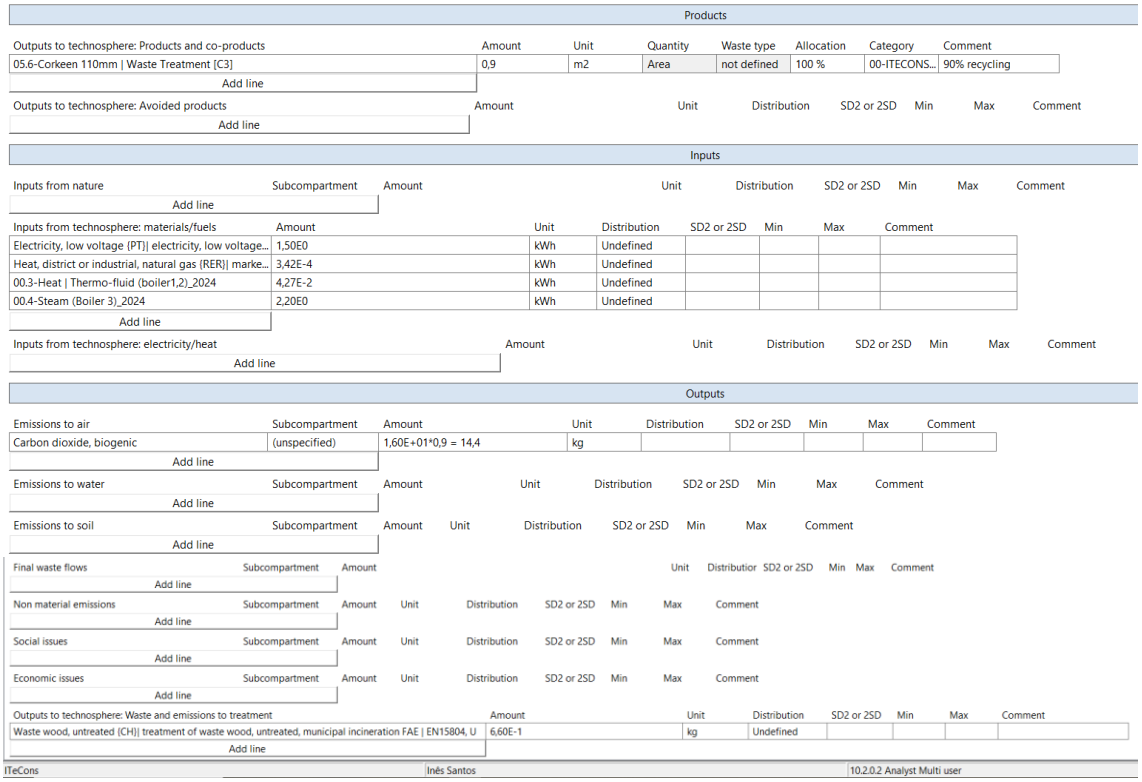
- Waste Processing [C3]



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.6-Corkeen 110mm | Waste Treatment [C3]	0,9	m2	Area	not defined	100 %	00-ITECONS...	90% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	1,50E0	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	3,42E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	4,27E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	2,20E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,60E+01*0,9 = 14,4	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U	6,60E-1	kg	Undefined				

Add line

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itecons@itecons.uc.pt

- **Disposal [C4]**

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.7-Corkeen 110mm | Disposal [C4]	0,1	m2	Area	not defined	100 %	00-ITECONS...	10% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,60E+01*0,1 = 1,6	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated (CH)| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	1,47E0	kg	Undefined				

Add line

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- **Module D**

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.8-Corkeen 110mm | Module D	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	13,20*(1-0,016)*0,95 = 12,3	kg					
00.2.3-Granulated Cork_LD_2024_without cork	13,20*(1-0,016)*0,95 = 12,3	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	13,20*(1-0,016) = 13	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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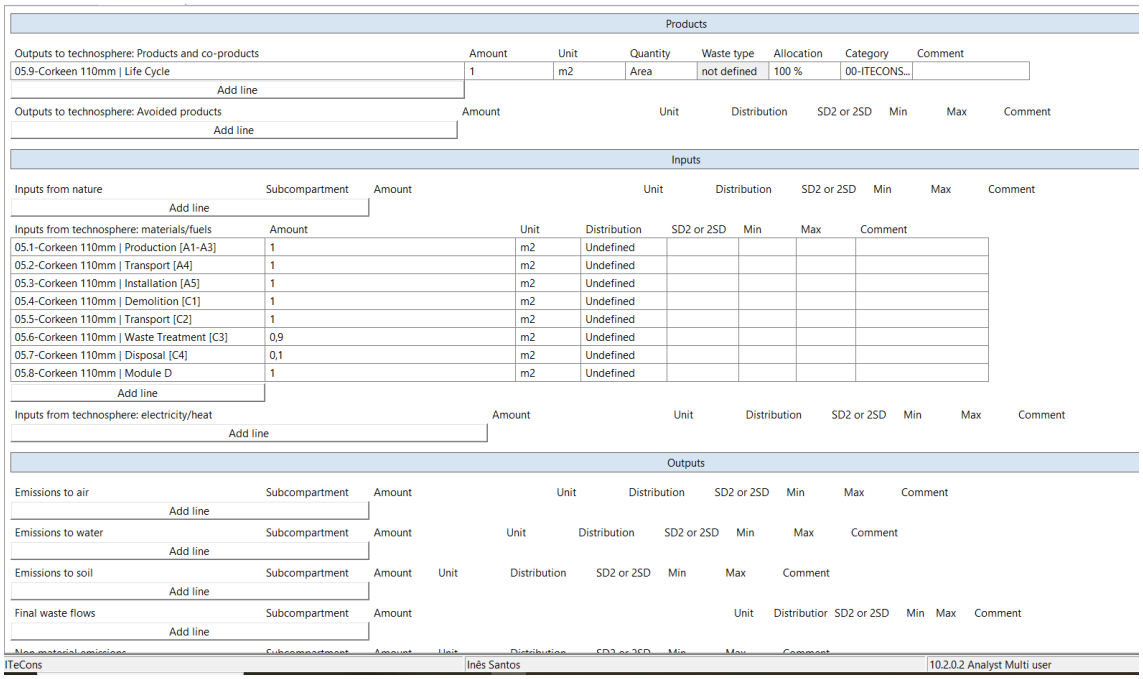
3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- Life Cycle



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.9-Corkeen 110mm | Life Cycle	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
05.1-Corkeen 110mm | Production [A1-A3]	1	m2	Undefined				
05.2-Corkeen 110mm | Transport [A4]	1	m2	Undefined				
05.3-Corkeen 110mm | Installation [A5]	1	m2	Undefined				
05.4-Corkeen 110mm | Demolition [C1]	1	m2	Undefined				
05.5-Corkeen 110mm | Transport [C2]	1	m2	Undefined				
05.6-Corkeen 110mm | Waste Treatment [C3]	0,9	m2	Undefined				
05.7-Corkeen 110mm | Disposal [C4]	0,1	m2	Undefined				
05.8-Corkeen 110mm | Module D	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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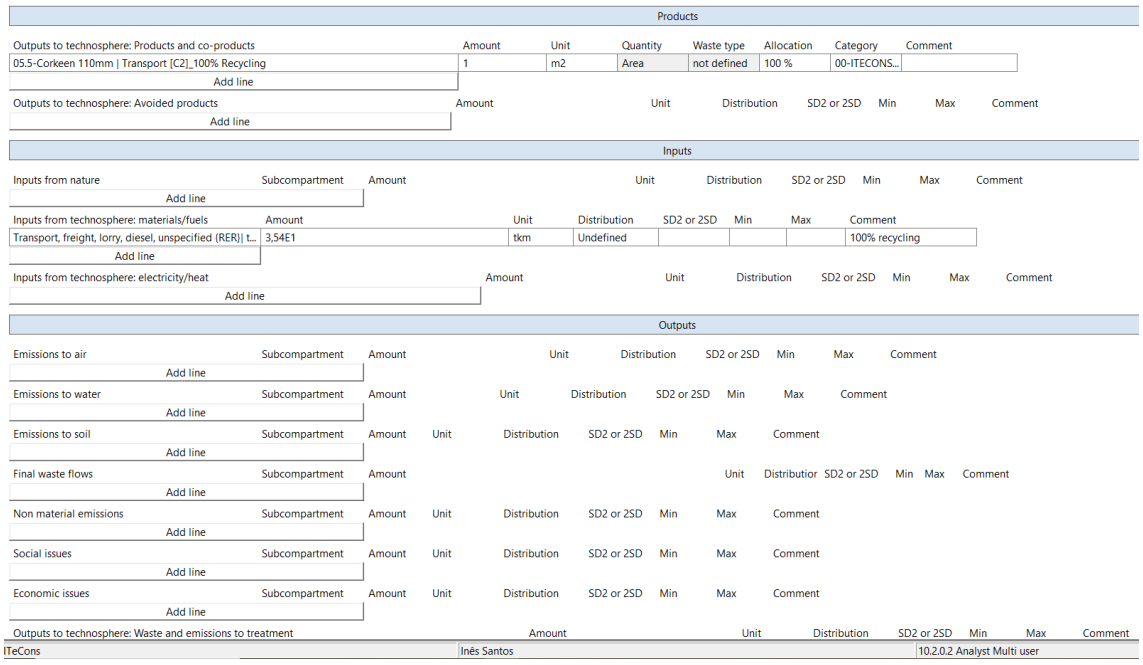
- Transport to Waste Processing [C2] | 100% Recycling



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.5-Corkeen 110mm | Transport [C2]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified (RER) t...	3,54E1	tkm	Undefined				100% recycling

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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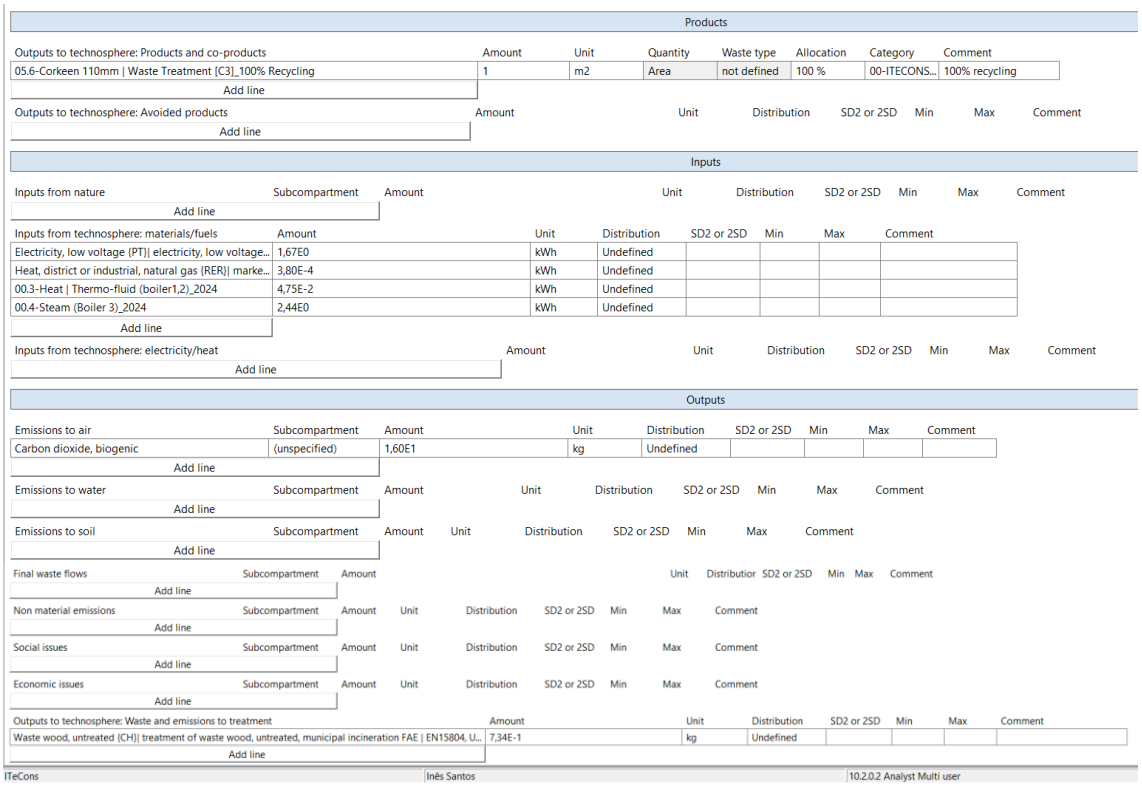
- **Waste Processing[C3] | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.6-Corkeen 110mm | Waste Treatment [C3]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	100% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	1,67E0	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	3,80E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	4,75E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	2,44E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,60E1	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U...	7,34E-1	kg	Undefined				

Add line

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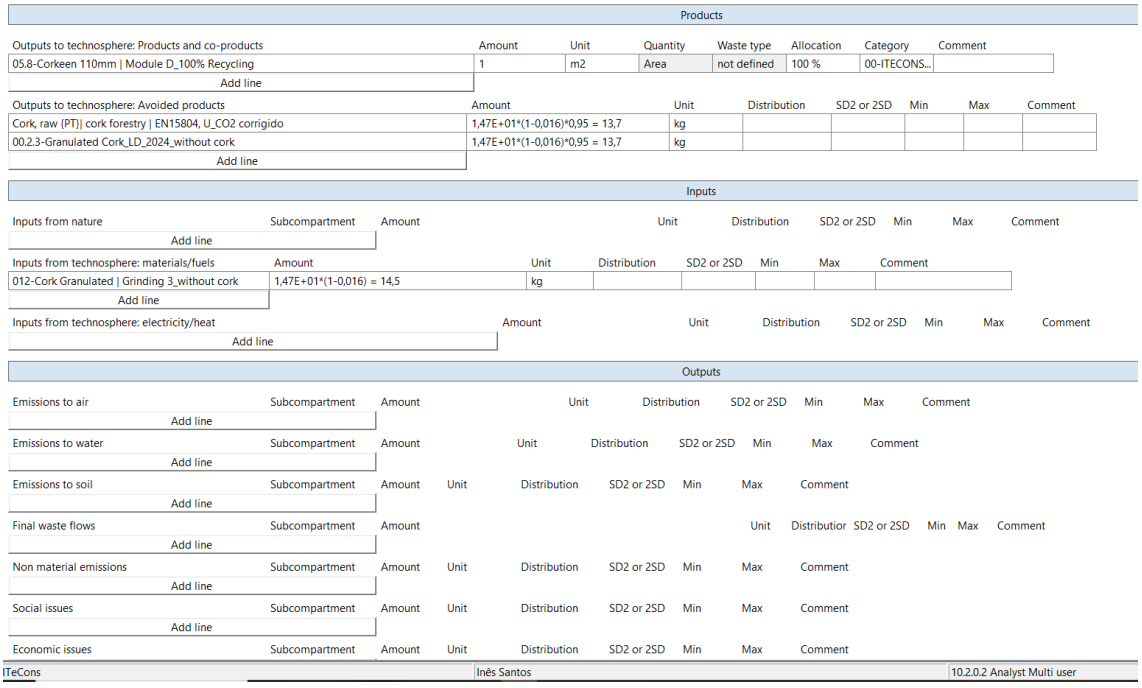
- **Module D | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.8-Corkeen 110mm | Module D_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	1,47E+01*(1-0,016)*0,95 = 13,7	kg					
00.2.3-Granulated Cork_LD_2024_without cork	1,47E+01*(1-0,016)*0,95 = 13,7	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	1,47E+01*(1-0,016) = 14,5	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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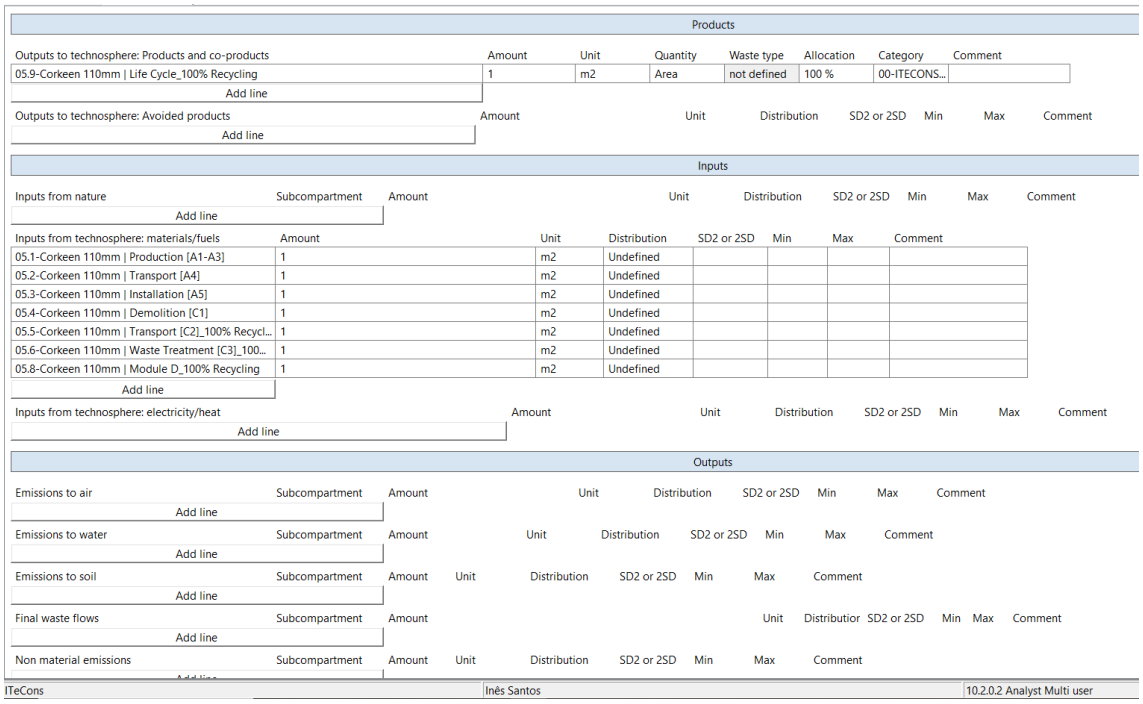
- **Life Cycle | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.9-Corkeen 110mm | Life Cycle_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
05.1-Corkeen 110mm | Production [A1-A3]	1	m2	Undefined				
05.2-Corkeen 110mm | Transport [A4]	1	m2	Undefined				
05.3-Corkeen 110mm | Installation [A5]	1	m2	Undefined				
05.4-Corkeen 110mm | Demolition [C1]	1	m2	Undefined				
05.5-Corkeen 110mm | Transport [C2]_100% Recycl...	1	m2	Undefined				
05.6-Corkeen 110mm | Waste Treatment [C3]_100...	1	m2	Undefined				
05.8-Corkeen 110mm | Module D_100% Recycling	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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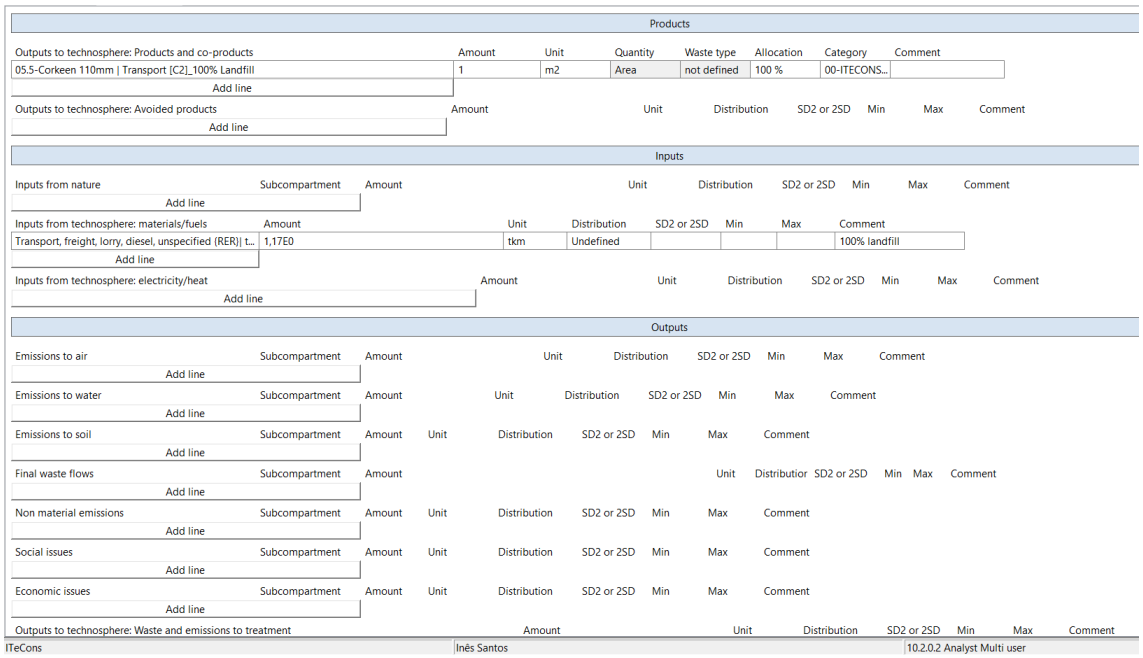
- **Transport to Waste Processing [C2] | 100% Landfill**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
05.5-Corkeen 110mm | Transport [C2]_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,17E0	tkm	Undefined				100% landfill

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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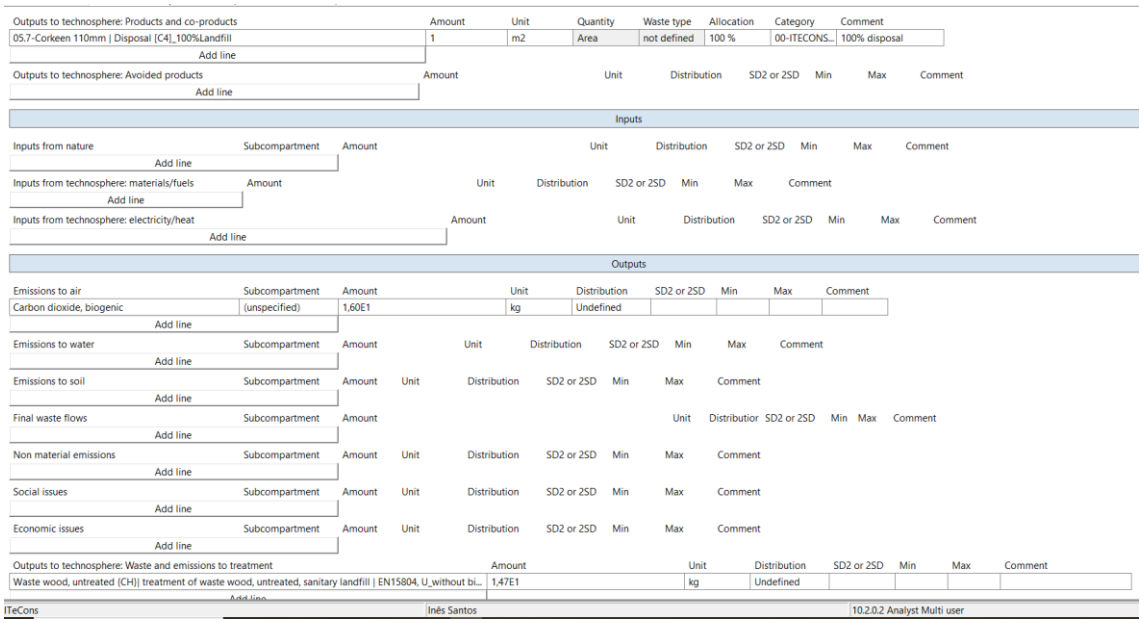
- **Disposal [C4] | 100% Landfill**



Outputs to technosphere: Products and co-products

Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
1	m2	Area	not defined	100 %	00-ITECONS...	100% disposal

Add line

Outputs to technosphere: Avoided products

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
(unspecified)	1,60E1	kg	Undefined				

Add line

Emissions to water

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
1,47E1	kg	Undefined				

Add line

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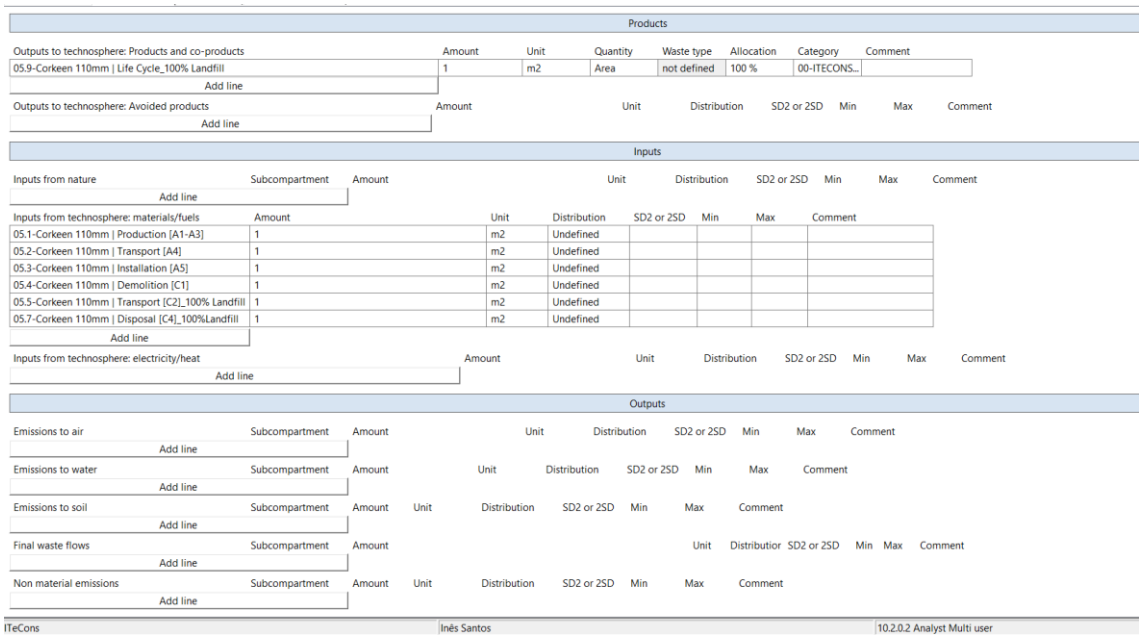
- **Life Cycle | 100% Landfill**



Products

Outputs to technosphere: Products and co-products

Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
05.1-Corkeen 110mm | Production [A1-A3] 1	m2	Undefined				
05.2-Corkeen 110mm | Transport [A4] 1	m2	Undefined				
05.3-Corkeen 110mm | Installation [A5] 1	m2	Undefined				
05.4-Corkeen 110mm | Demolition [C1] 1	m2	Undefined				
05.5-Corkeen 110mm | Transport [C2]_100% Landfill 1	m2	Undefined				
05.7-Corkeen 110mm | Disposal [C4]_100%Landfill 1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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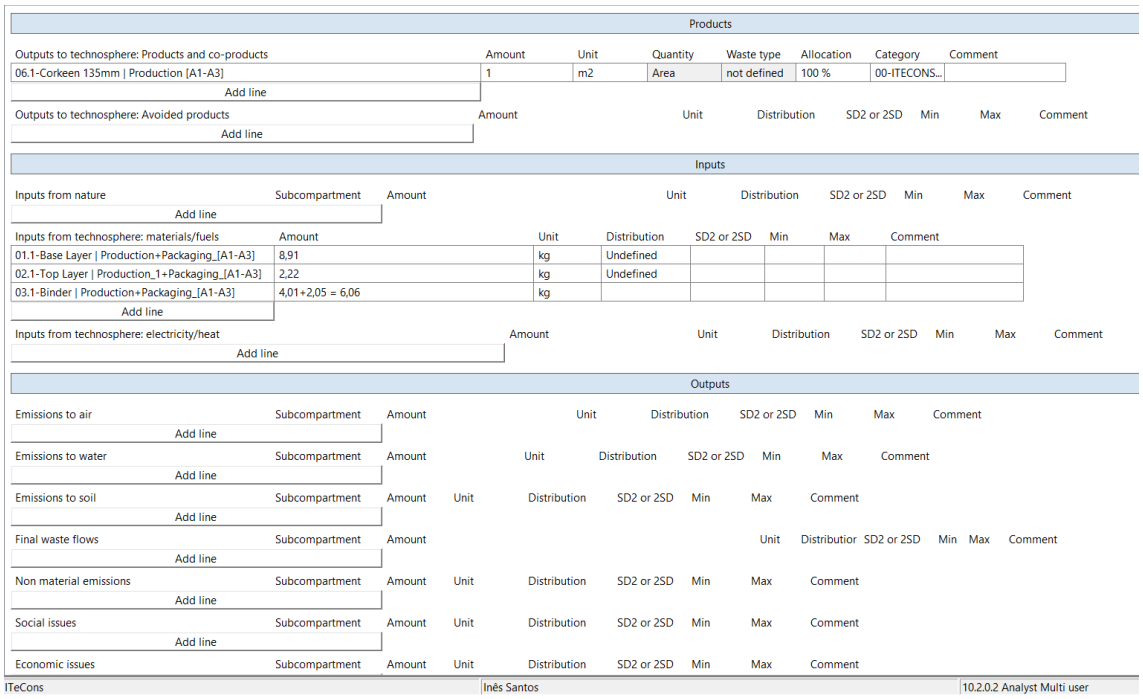
A.6. Corkeen 135 mm

- Product Stage [A1-A3]



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.1-Corkeen 135mm | Production [A1-A3]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
01.1-Base Layer | Production+Packaging_[A1-A3]	8,91	kg	Undefined				
02.1-Top Layer | Production_1+Packaging_[A1-A3]	2,22	kg	Undefined				
03.1-Binder | Production+Packaging_[A1-A3]	4,01+2,05 = 6,06	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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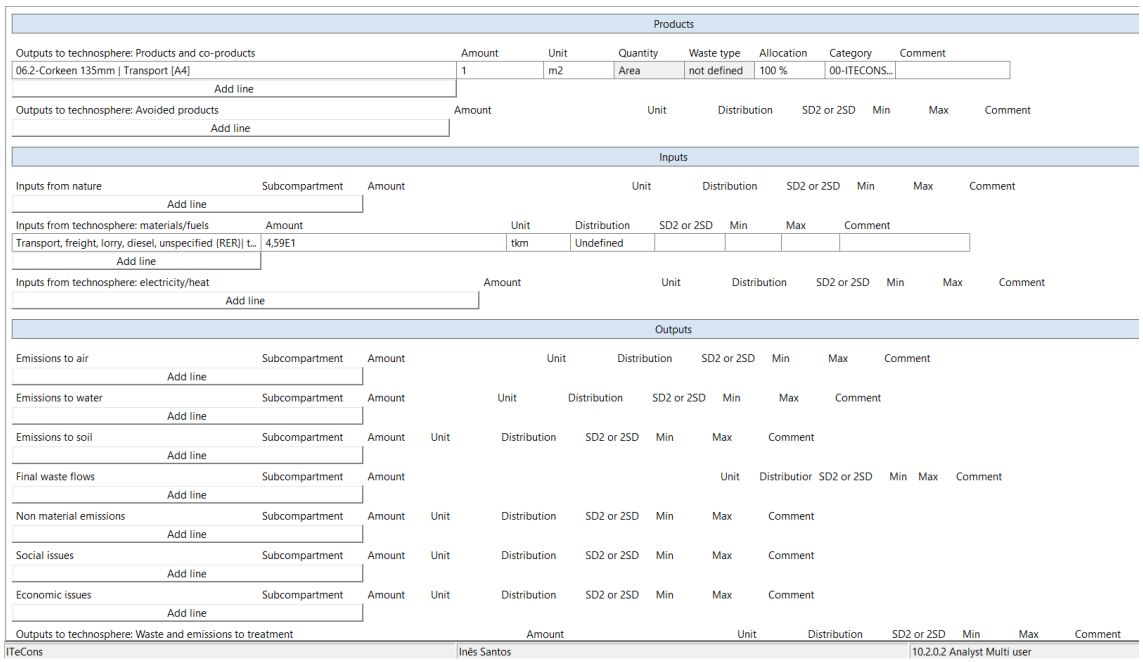
- Transport [A4]



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.2-Corkeen 135mm | Transport [A4]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	4,59E1	tkm	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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3030-289 Coimbra
www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- Installation [A5]

Products

Outputs to technosphere: Products and co-products

	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.3-Corkeen 135mm | Installation [A5]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
0,01	m2	Undefined				
1,70E0	tkm	Undefined				
5,05E-1	kg	Undefined				Solvent
5,05E-1	kg	Undefined				Primer
1,01E-1	tkm	Undefined				waste
6,94E-01*0,2224 = 0,154	kWh					22,24%
6,94E-01*0,2367 = 0,164	kWh					23,67%
6,94E-01*0,4624 = 0,321	kWh					46,24%

Add line

Inputs from technosphere: electricity/heat

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
(unspecified)	2,40E0+1,89E+01*0,01 = 2,59	kg					packaging+losses

Add line

Emissions to water

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
(unspecified)	3,55E-02+2,69E-04+5,46E-02+2,91E-03+1,61E+00+1,46E-01 = 1,85	kg					

Add line

Non material emissions

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
1,82E-1	kg	Undefined				??

Add line

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- Demolition [C1]

Products

Outputs to technosphere: Products and co-products

	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.4-Corkeen 135mm | Demolition [C1]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
(1,1/1000)*17,19 = 0,0189	kWh					

Add line

Inputs from technosphere: electricity/heat

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues

Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment

Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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(National landline)
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- Transport to Waste Processing [C2]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.5-Corkeen 135mm | Transport [C2]	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	3,74E1	tkm	Undefined				90% recycling
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,38E-1	tkm	Undefined				10% disposal

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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- Waste Processing [C3]

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.6-Corkeen 135mm | Waste Treatment [C3]	0,9	m2	Area	not defined	100 %	00-ITECONS...	90% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	1,76E0	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	4,00E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	5,00E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	2,58E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,89E+01*0,9 = 17	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U	7,74E-1	kg	Undefined				

Add line

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- **Disposal [C4]**

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.7-Corkeen 135mm | Disposal [C4]	0,1	m2	Area	not defined	100 %	00-ITECONS...	10% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,89E+01*0,1 = 1,89	kg					

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	1,72E0	kg	Undefined				

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- **Module D**

Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.8-Corkeen 135mm | Module D	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	15,47*(1-0,016)*0,95 = 14,5	kg					
00.2.3-Granulated Cork_LD_2024_without cork	15,47*(1-0,016)*0,95 = 14,5	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	15,47*(1-0,016) = 15,2	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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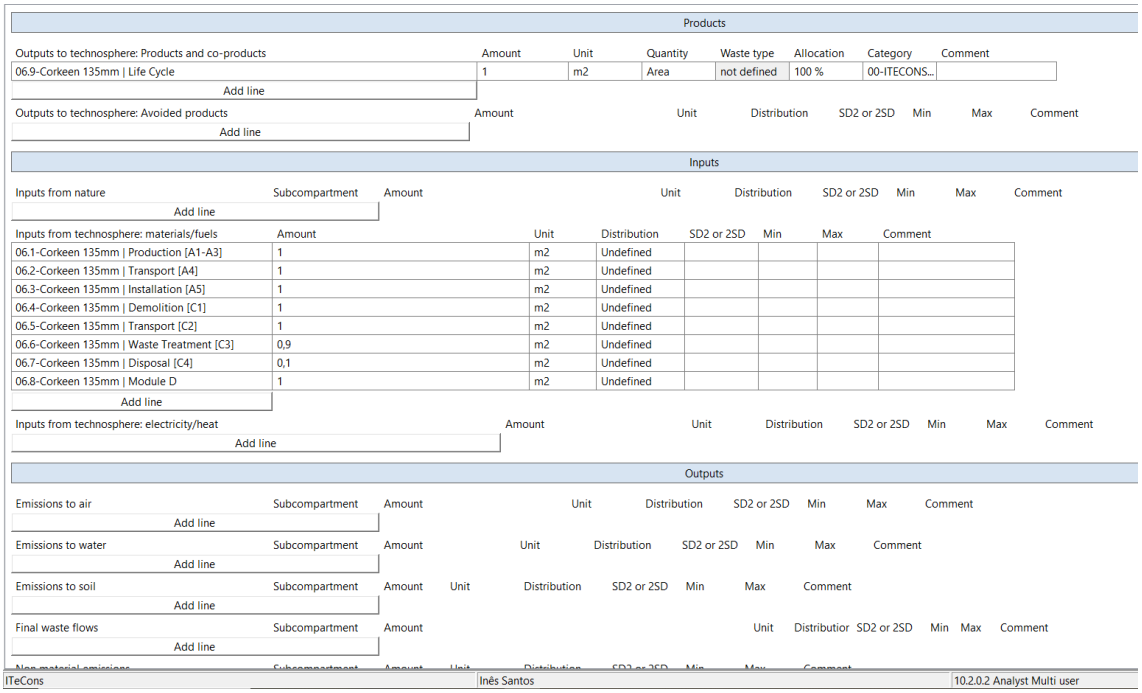
- **Life Cycle**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.9-Corkeen 135mm | Life Cycle	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs

Inputs from nature — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
06.1-Corkeen 135mm | Production [A1-A3]	1	m2	Undefined				
06.2-Corkeen 135mm | Transport [A4]	1	m2	Undefined				
06.3-Corkeen 135mm | Installation [A5]	1	m2	Undefined				
06.4-Corkeen 135mm | Demolition [C1]	1	m2	Undefined				
06.5-Corkeen 135mm | Transport [C2]	1	m2	Undefined				
06.6-Corkeen 135mm | Waste Treatment [C3]	0,9	m2	Undefined				
06.7-Corkeen 135mm | Disposal [C4]	0,1	m2	Undefined				
06.8-Corkeen 135mm | Module D	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs

Emissions to air — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to water — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to soil — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Final waste flows — Subcompartment | Amount | Unit | Distributior | SD2 or 2SD | Min | Max | Comment

Add line

Non material emissions — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

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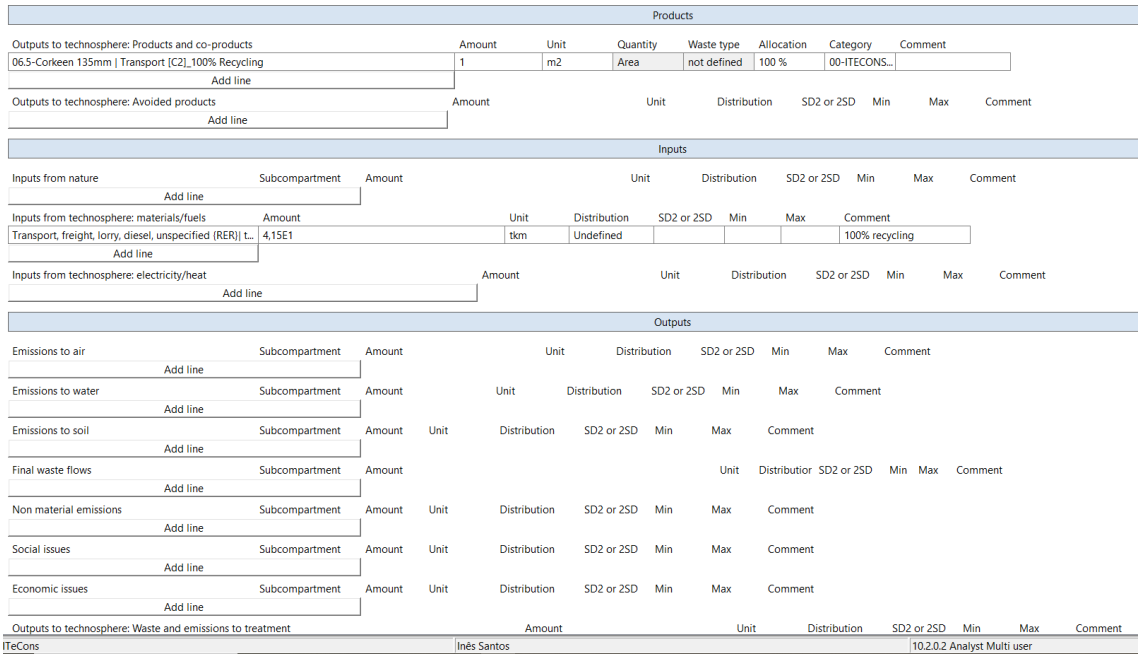
- **Transport to Waste Processing [C2] | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.5-Corkeen 135mm | Transport [C2]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs

Inputs from nature — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified (RER)| t...	4,15E1	tkm	Undefined				100% recycling

Add line

Inputs from technosphere: electricity/heat — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs

Emissions to air — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to water — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to soil — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Final waste flows — Subcompartment | Amount | Unit | Distributior | SD2 or 2SD | Min | Max | Comment

Add line

Non material emissions — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Social issues — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Economic issues — Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs to technosphere: Waste and emissions to treatment — Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

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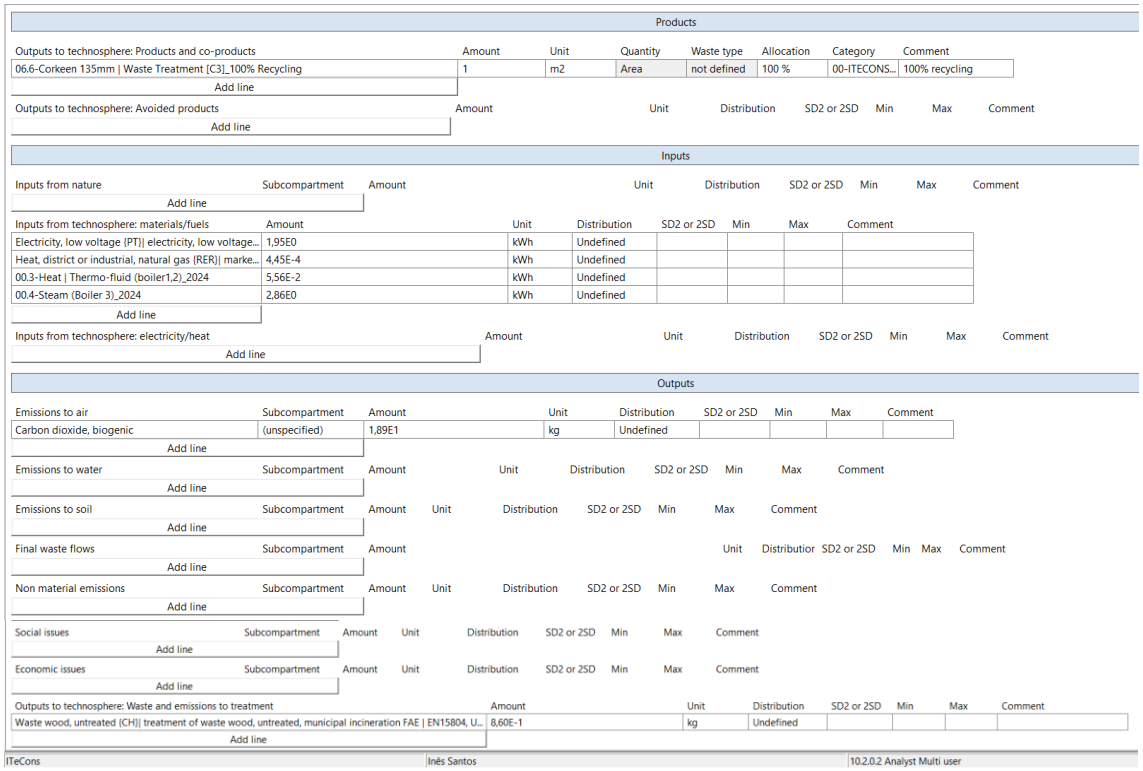
- **Waste Processing [C3] | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.6-Corkeen 135mm | Waste Treatment [C3]_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	100% recycling

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage...	1,95E0	kWh	Undefined				
Heat, district or industrial, natural gas {RER}| marke...	4,45E-4	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	5,56E-2	kWh	Undefined				
00.4-Steam (Boiler 3)_2024	2,86E0	kWh	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,89E1	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U...	8,60E-1	kg	Undefined				

Add line

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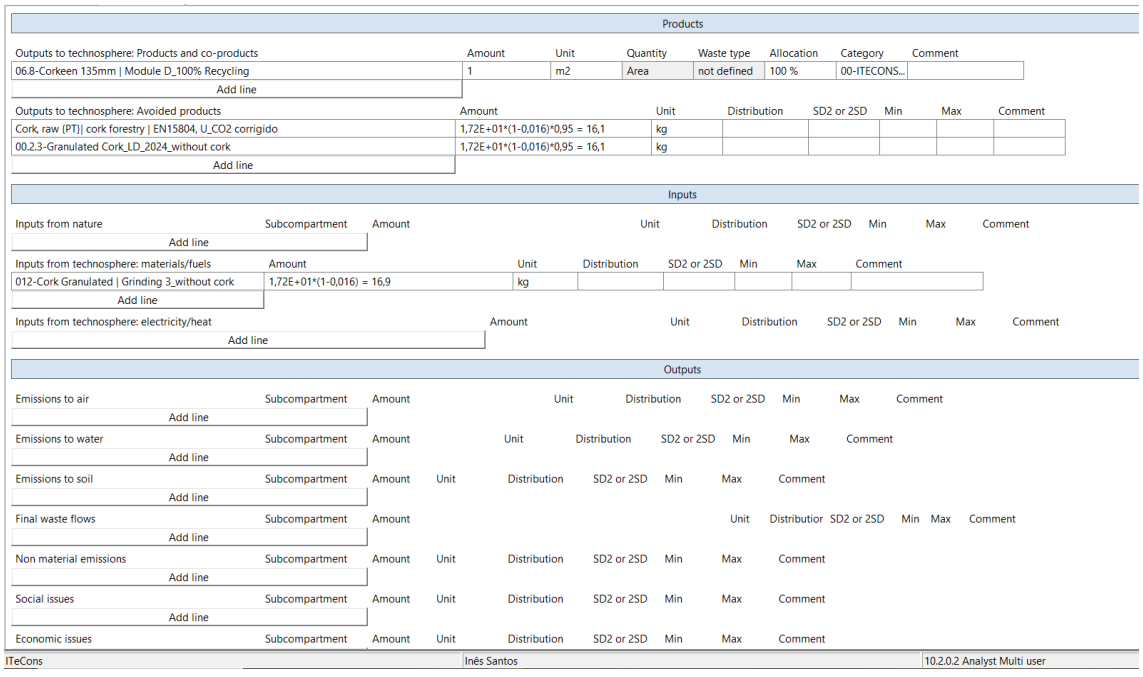
- **Module D | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.8-Corkeen 135mm | Module D_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw {PT}| cork forestry | EN15804, U_CO2 corrigido	1,72E+01*(1-0,016)*0,95 = 16,1	kg					
00.2.3-Granulated Cork_LD_2024_without cork	1,72E+01*(1-0,016)*0,95 = 16,1	kg					

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
012-Cork Granulated | Grinding 3_without cork	1,72E+01*(1-0,016) = 16,9	kg					

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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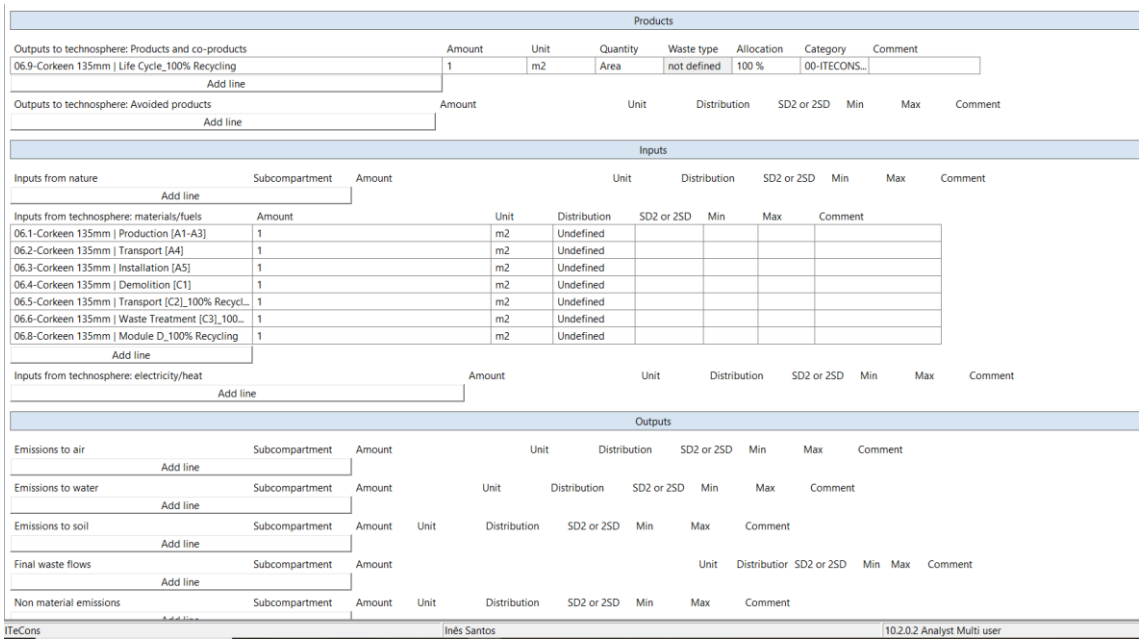
- **Life Cycle | 100% Recycling**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.9-Corkeen 135mm | Life Cycle_100% Recycling	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
06.1-Corkeen 135mm | Production [A1-A3]	1	m2	Undefined				
06.2-Corkeen 135mm | Transport [A4]	1	m2	Undefined				
06.3-Corkeen 135mm | Installation [A5]	1	m2	Undefined				
06.4-Corkeen 135mm | Demolition [C1]	1	m2	Undefined				
06.5-Corkeen 135mm | Transport [C2]_100% Recycl...	1	m2	Undefined				
06.6-Corkeen 135mm | Waste Treatment [C3]_100...	1	m2	Undefined				
06.8-Corkeen 135mm | Module D_100% Recycling	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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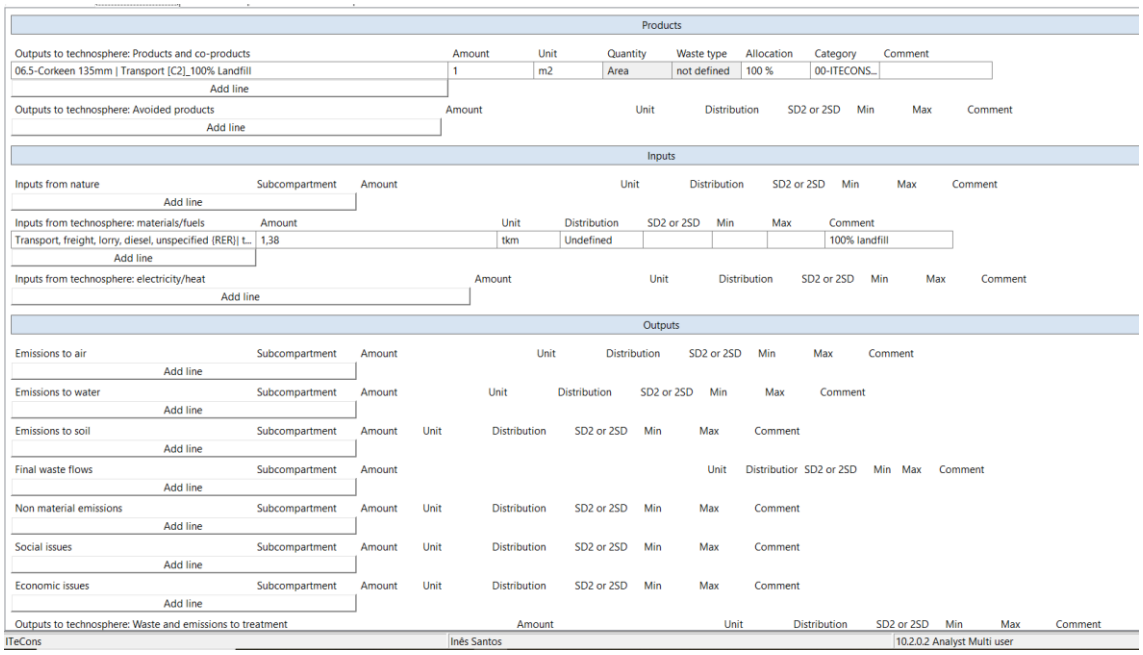
- **Transport to Waste Processing [C2] | 100% Landfill**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.5-Corkeen 135mm | Transport [C2]_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Transport, freight, lorry, diesel, unspecified {RER}| t...	1,38	tkm	Undefined				100% landfill

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

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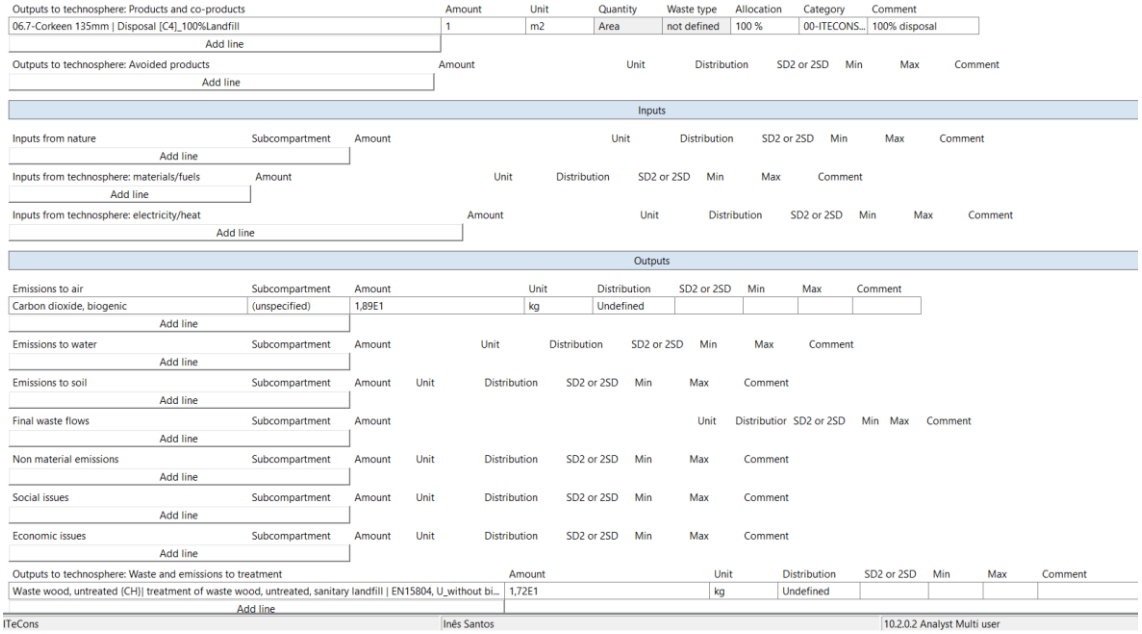
- **Disposal [C4] | 100% Landfill**



Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.7-Corkeen 135mm | Disposal [C4]_100%Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	100% disposal

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Carbon dioxide, biogenic	(unspecified)	1,89E1	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U_without bi...	1,72E1	kg	Undefined				

Add line

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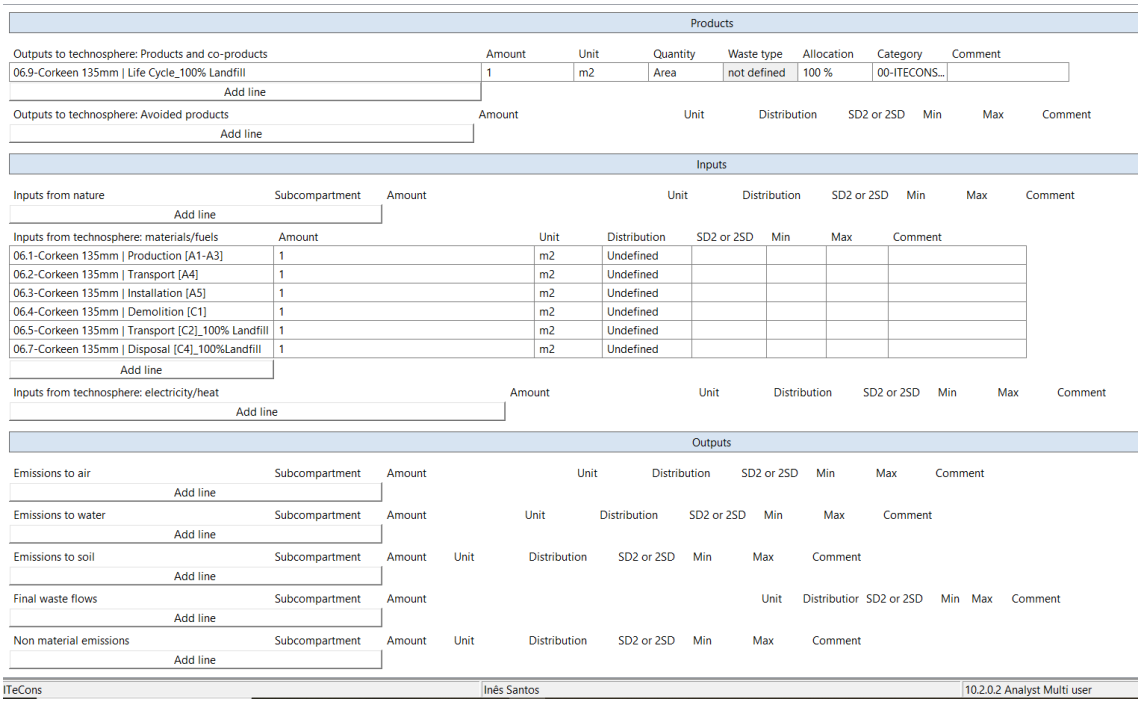
- **Life Cycle | 100% Landfill**



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
06.9-Corkeen 135mm | Life Cycle_100% Landfill	1	m2	Area	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
06.1-Corkeen 135mm | Production [A1-A3]	1	m2	Undefined				
06.2-Corkeen 135mm | Transport [A4]	1	m2	Undefined				
06.3-Corkeen 135mm | Installation [A5]	1	m2	Undefined				
06.4-Corkeen 135mm | Demolition [C1]	1	m2	Undefined				
06.5-Corkeen 135mm | Transport [C2]_100% Landfill	1	m2	Undefined				
06.7-Corkeen 135mm | Disposal [C4]_100%Landfill	1	m2	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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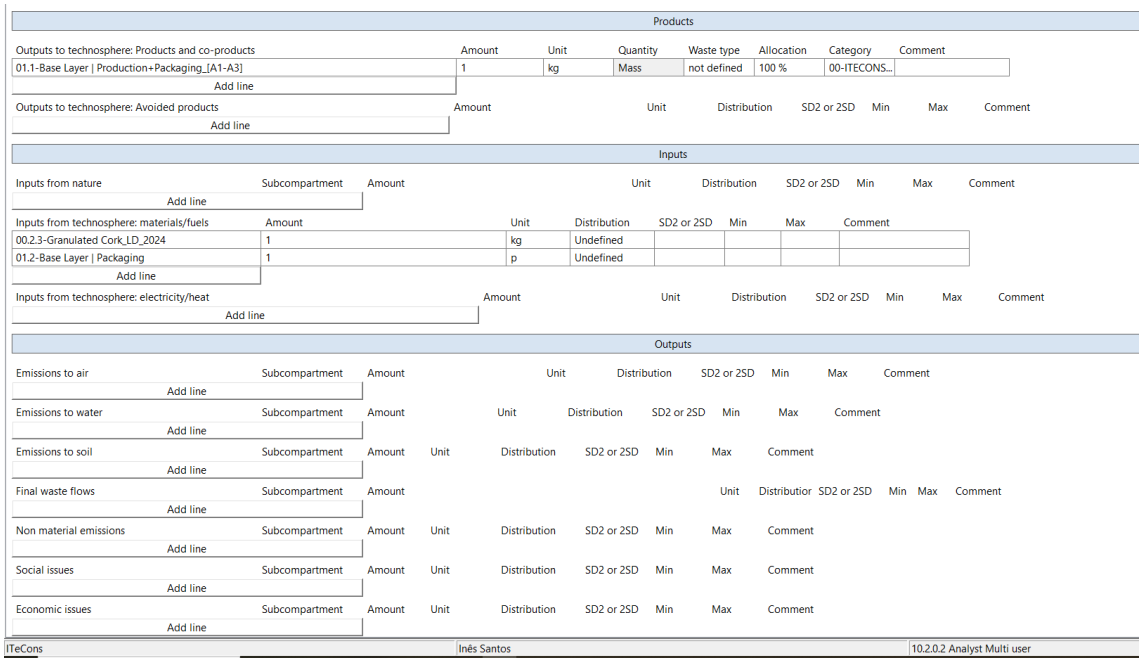
A.7. Base Layer



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
01.1-Base Layer | Production+Packaging_[A1-A3]	1	kg	Mass	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
00.2.3-Granulated Cork_LD_2024	1	kg	Undefined				
01.2-Base Layer | Packaging	1	p	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distributior	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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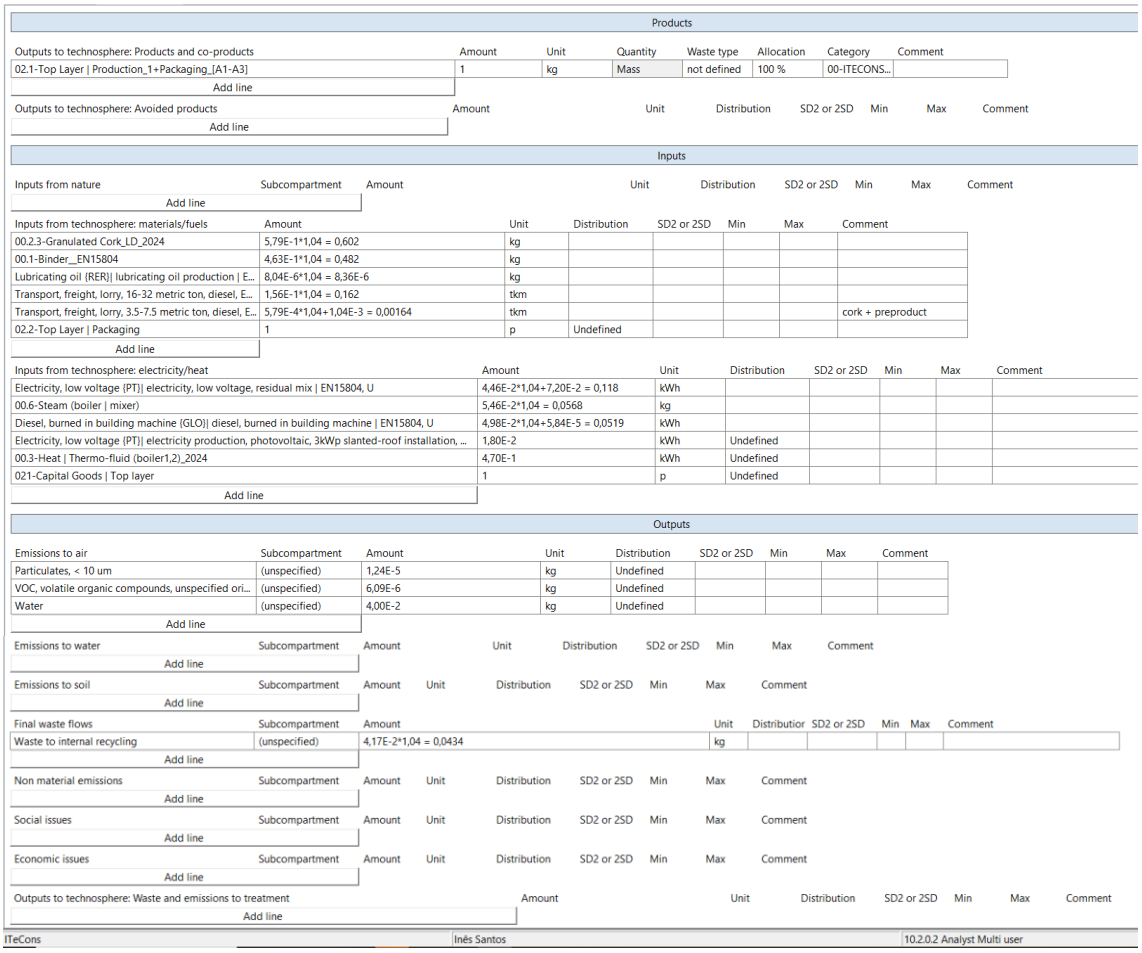
A.8. Top Layer



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
02.1-Top Layer | Production_1+Packaging_[A1-A3]	1	kg	Mass	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
00.2.3-Granulated Cork_LD_2024	5,79E-1*1,04 = 0,602	kg					
00.1-Binder_EN15804	4,63E-1*1,04 = 0,482	kg					
Lubricating oil {RER}| lubricating oil production | E...	8,04E-6*1,04 = 8,36E-6	kg					
Transport, freight, lorry, 16-32 metric ton, diesel, E...	1,56E-1*1,04 = 0,162	tkm					
Transport, freight, lorry, 3.5-7.5 metric ton, diesel, E...	5,79E-4*1,04+1,04E-3 = 0,00164	tkm					cork + preproduct
02.2-Top Layer | Packaging	1	p	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage {PT}| electricity, low voltage, residual mix | EN15804, U	4,46E-2*1,04+7,20E-2 = 0,118	kWh					
00.6-Steam (boiler | mixer)	5,46E-2*1,04 = 0,0568	kg					
Diesel, burned in building machine {GLO}| diesel, burned in building machine | EN15804, U	4,98E-2*1,04+5,84E-5 = 0,0519	kWh					
Electricity, low voltage {PT}| electricity production, photovoltaic, 3kWp slanted-roof installation, ...	1,80E-2	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	4,70E-1	kWh	Undefined				
021-Capital Goods | Top layer	1	p	Undefined				

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Particulates, < 10 um	(unspecified)	1,24E-5	kg	Undefined				
VOC, volatile organic compounds, unspecified ori...	(unspecified)	6,09E-6	kg	Undefined				
Water	(unspecified)	4,00E-2	kg	Undefined				

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste to internal recycling	(unspecified)	4,17E-2*1,04 = 0,0434	kg					

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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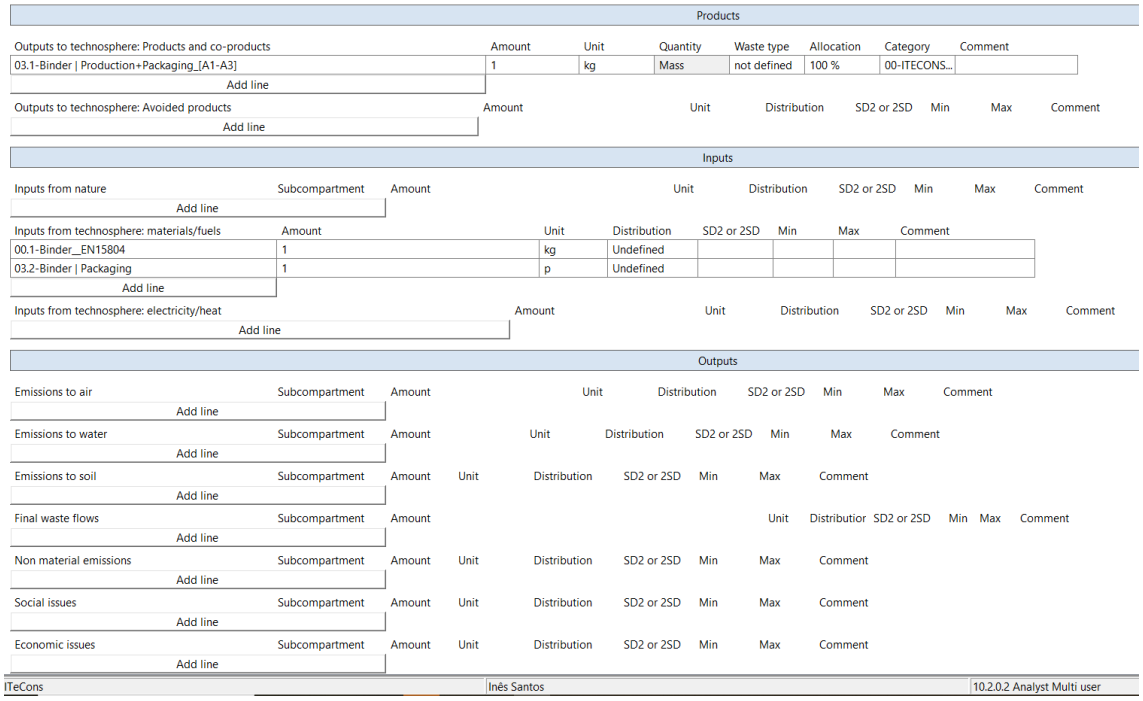
A.9. Binder



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
03.1-Binder | Production+Packaging_[A1-A3]	1	kg	Mass	not defined	100 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs

Inputs from nature	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
00.1-Binder__EN15804	1	kg	Undefined				
03.2-Binder | Packaging	1	p	Undefined				

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to water	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Emissions to soil	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Non material emissions	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Social issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

Economic issues	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment

Add line

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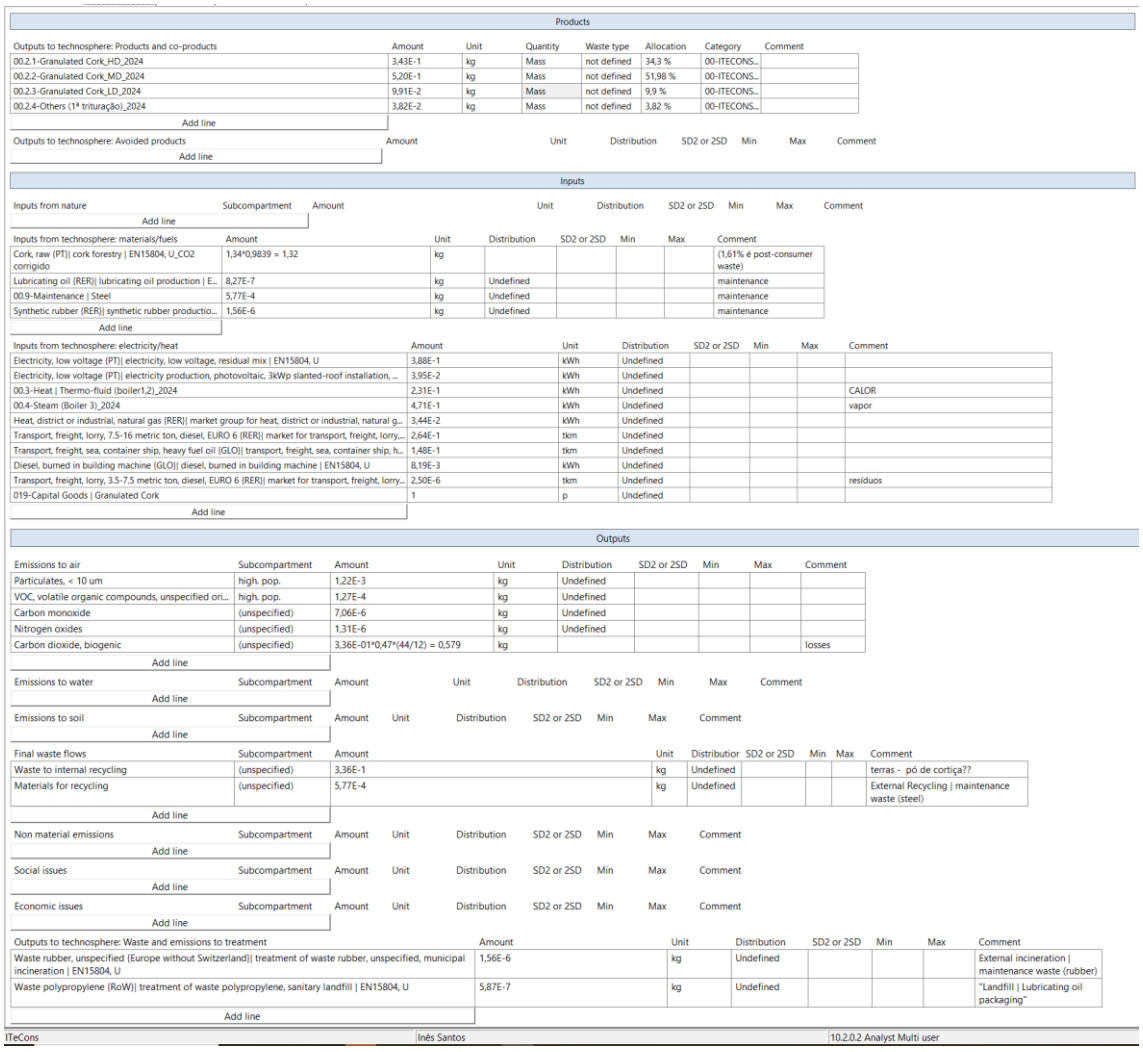
A.10. Granulated Cork_LD



Products

Outputs to technosphere: Products and co-products	Amount	Unit	Quantity	Waste type	Allocation	Category	Comment
00.2.1-Granulated Cork_HD_2024	3,43E-1	kg	Mass	not defined	34,3 %	00-ITECONS...	
00.2.2-Granulated Cork_MD_2024	5,20E-1	kg	Mass	not defined	51,98 %	00-ITECONS...	
00.2.3-Granulated Cork_LD_2024	9,91E-2	kg	Mass	not defined	9,9 %	00-ITECONS...	
00.2.4-Others (1ª trituração)_2024	3,82E-2	kg	Mass	not defined	3,82 %	00-ITECONS...	

Add line

Outputs to technosphere: Avoided products | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs

Inputs from nature | Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Inputs from technosphere: materials/fuels	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Cork, raw (PT)| cork forestry | EN15804, U_CO2 corrigido	1,34*0,9839 = 1,32	kg					(1,61% é post-consumer waste)
Lubricating oil (RER)| lubricating oil production | E...	8,27E-7	kg	Undefined				maintenance
00.9-Maintenance | Steel	5,77E-4	kg	Undefined				maintenance
Synthetic rubber (RER)| synthetic rubber productio...	1,56E-6	kg	Undefined				maintenance

Add line

Inputs from technosphere: electricity/heat	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Electricity, low voltage (PT)| electricity, low voltage, residual mix | EN15804, U	3,88E-1	kWh	Undefined				
Electricity, low voltage (PT)| electricity production, photovoltaic, 3kWp slanted-roof installation, ...	3,95E-2	kWh	Undefined				
00.3-Heat | Thermo-fluid (boiler1,2)_2024	2,31E-1	kWh	Undefined				CALOR
00.4-Steam (Boiler 3)_2024	4,71E-1	kWh	Undefined				vapor
Heat, district or industrial, natural gas (RER)| market group for heat, district or industrial, natural g...	3,44E-2	kWh	Undefined				
Transport, freight, lorry, 7.5-16 metric ton, diesel, EURO 6 (RER)| market for transport, freight, lorry,...	2,64E-1	tkm	Undefined				
Transport, freight, sea, container ship, heavy fuel oil (GLO)| transport, freight, sea, container ship, h...	1,48E-1	tkm	Undefined				
Diesel, burned in building machine (GLO)| diesel, burned in building machine | EN15804, U	8,19E-3	kWh	Undefined				
Transport, freight, lorry, 3.5-7.5 metric ton, diesel, EURO 6 (RER)| market for transport, freight, lorry...	2,50E-6	tkm	Undefined				resíduos
019-Capital Goods | Granulated Cork	1	p	Undefined				

Add line

Outputs

Emissions to air	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Particulates, < 10 um	high. pop.	1,22E-3	kg	Undefined				
VOC, volatile organic compounds, unspecified ori...	high. pop.	1,27E-4	kg	Undefined				
Carbon monoxide	(unspecified)	7,06E-6	kg	Undefined				
Nitrogen oxides	(unspecified)	1,31E-6	kg	Undefined				
Carbon dioxide, biogenic	(unspecified)	3,36E-01*0,47*(44/12) = 0,579	kg					losses

Add line

Emissions to water | Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Emissions to soil | Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Final waste flows	Subcompartment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste to internal recycling	(unspecified)	3,36E-1	kg	Undefined				terras - pó de cortiça??
Materials for recycling	(unspecified)	5,77E-4	kg	Undefined				External Recycling | maintenance waste (steel)

Add line

Non material emissions | Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Social issues | Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Economic issues | Subcompartment | Amount | Unit | Distribution | SD2 or 2SD | Min | Max | Comment

Add line

Outputs to technosphere: Waste and emissions to treatment	Amount	Unit	Distribution	SD2 or 2SD	Min	Max	Comment
Waste rubber, unspecified (Europe without Switzerland)| treatment of waste rubber, unspecified, municipal incineration | EN15804, U	1,56E-6	kg	Undefined				External incineration | maintenance waste (rubber)
Waste polypropylene (RoW)| treatment of waste polypropylene, sanitary landfill | EN15804, U	5,87E-7	kg	Undefined				"Landfill | Lubricating oil packaging"

Add line

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Annex B – Characterisation methods

- Core Environmental Impacts – EN 15804

Mandatory indicators of the EN 15804:2012+A2:2019/AC:2021 reference package, based on EF 3.1.

Impact Category	Indicator	Unit	Reference	Original Reference
Climate change – total	**GWP|T**	kg CO_2 eq.	EN 15804. Version: August 2021	IPCC (2013)
Climate change – fossil	**GWP|F**	kg CO_2 eq.	EN 15804. Version: August 2021	IPCC (2013)
Climate change – biogenic	**GWP|B**	kg CO_2 eq.	EN 15804. Version: August 2021	IPCC (2013)
Climate change – land use and land use change	**GWP|L**	kg CO_2 eq.	EN 15804. Version: August 2021	IPCC (2013)
Ozone Depletion	**ODP**	kg CFC-11 eq.	EN 15804. Version: August 2021	WMO 2014
Acidification	**AP**	mol H+ eq.	Accumulated exceedence, EN 15804. Version: August 2021	Seppälä et al. 2006, Posch et al. 2008
Eutrophication aquatic freshwater	**EP|Fw**	kg P eq.	EUTREND model, EN 15804. Version: August 2021	Struijs et al. 2009 as implemented in ReCiPe
Eutrophication aquatic marine	**EP|M**	kg N eq.	EUTREND model EN 15804. Version: August 2021	Struijs et al. 2009 as implemented in ReCiPe
Eutrophication terrestrial	**EP|T**	mol N eq.	Accumulated exceedance, EN 15804. Version: August 2021	Seppälä et al. 2006, Posch et al. 2008
Photochemical ozone formation	**POCP**	kg NMVOC eq.	LOTOS-EUROS as applied in ReCiPe, EN 15804. Version: August 2021	Van Zelm et al. 2008, ReCiPe 2008
Depletion of abiotic resources – minerals and metals	**ADP|MM**	kg Sb eq.	EN 15804. Version: August 2021	Guinée et al. 2002, van Oers et al. 2002, CML 2001 baseline (Version: January 2016)
Depletion of abiotic resources – fossil fuels	**ADP|F**	MJ	EN 15804. Version: August 2021	Guinée et al. 2002, van Oers et al. 2002, CML 2001 baseline (Version: January 2016)
Water use	**WDP**	m^3 world eq. deprived	Available water remaining (AWARE) method, EN 15804	Boulay et al (2017)

- Additional Environmental Impacts – EN 15804

Additional indicators of the EN 15804:2012+A2:2019/AC:2021 reference package, based on EF 3.1.

Impact Category	Indicator	Unit	Reference	Original Reference
Particulate matter emissions	**PM**	Disease incidence	EN 15804. Version: August 2021	SETAC-UNEP, Fantke et al. 2016
Ionizing radiation, human health	**IRP**	kBq U235 eq.	EN 15804. Version: August 2021	Human health effect model as developed by Dreicer et al.1995 update by Frischknecht et al., 2000
Eco-toxicity - freshwater	**ETP-fw**	CTUe	EN 15804. Version: August 2021	Usetox version2 until the modified USEtox model is available from EC-JRC
Human toxicity, cancer effect	**HTP-c**	CTUh	EN 15804. Version: August 2021	Usetox version2 until the modified USEtox model is available from EC-JRC
Human toxicity, non-cancer effects	**HTP-nc**	CTUh	EN 15804. Version: August 2021	Usetox version2 until the modified USEtox model is available from EC-JRC
Land use related impacts/Soil quality (SQP)	**SQP**	dimensionless	EN 15804. Version: August 2021	Soil quality index based on LANCA

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3030-289 Coimbra
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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

- **Use of Resources – Primary Energy**

The Cumulative Energy Demand (LHV) method was created by PRé Consultants based on data published by ecoinvent for raw materials available in the SimaPro database.

Impact Category	Unit	References
Non-renewable, fossil	MJ	- Frischknecht, R.; Jungbluth, N.; Althaus, H.J.; Doka, G.; Dones, R.; Hischier, R.; Hellweg, S.; Humbert, S.; Margni, M.; Nemecek, T.; Spielmann, M. 2007. Implementation of Life Cycle Impact Assessment Methods: Data v2.0. ecoinvent report No. 3, Swiss centre for Life Cycle Inventories, Dübendorf, Switzerland. - Weidema B P, Bauer C, Hischier R, Mutel C, Nemecek T, Reinhard J, Vadenbo C O, Wernet G. (2013). Overview and methodology. - Data quality guideline for the ecoinvent database version 3. ecoinvent Report 1 (v3). St. Gallen: The ecoinvent Centre.
Non-renewable, nuclear	MJ	
Non-renewable, biomass	MJ	
Renewable, biomass	MJ	
Renewable, wind, solar, geothermal	MJ	
Renewable, water	MJ	

- **Use of Resources – Net use of fresh water**

The list of selected LCI indicators is divided into two: elementary flows (presented in the method 'Selected LCI results') and additional elementary flows (presented in this method).

Impact Category	Subcategory	Unit	Location	References
Freshwater	Resources	m^3	GLO	Frischknecht, R.; Jungbluth, N.; Althaus, H.J.; Doka, G.; Dones, R.; Hischier, R.; Hellweg, S.; Humbert, S.; Margni, M.; Nemecek, T.; Spielmann, M. 2007. Implementation of Life Cycle Impact Assessment Methods: Data v2.0. ecoinvent report No. 3, Swiss centre for Life Cycle Inventories, Dübendorf, Switzerland.

- **Waste Production – EDIP2003**

Waste production indicators were calculated based on the characterization factors for waste categories from EDIP2003 adapted for SimaPro 8.

Impact Category	Subcategory	Unit	References
Hazardous waste	Waste	Kg	Hauschild, M. and J. Potting. Spatial differentiation in life cycle impact assessment – the EDIP2003 methodology. Guideline from the Danish Environmental Protection Agency, Copenhagen, 2003.
Slags/ashes	Waste	Kg	
Bulk waste	Waste	Kg	
Radioactive waste	Waste	Kg	

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Tel: (+351) 239 79 89 49
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itecons@itecons.uc.pt

Annex C – Detailed results per product

C.1. Corkeen 50 mm

▪ Product Stage [A1-A3] | - per Element

1 m² Corkeen 50mm | Product Stage [A1-A3]

	Total	A1 Cork	A1 Binder | Production	A1 Binder | Corkeen	A3 Maintenance	A3 Packaging	A3 Electricity | Grid	A3 Electricity | Photovoltaic	A3 Heat | Thermo-fluid	A3 Steam (Biomass)	A3 Heat (natural gas)	A3 Steam (boiler| mixer)	A2 Transport	A2 Internal transport	A3 Capital Goods	A3 Emissions	A3 Waste and transport
GWP|T (kg CO_2 eq.)	1,56E+01	-9,06E+00	5,25E+00	1,60E+01	4,89E-03	4,78E-01	1,10E+00	6,31E-07	4,41E-02	3,83E-02	2,67E-02	3,58E-02	4,90E-01	5,04E-02	1,24E-03	2,32E+00	2,45E-05
GWP|F (kg CO_2 eq.)	2,32E+01	7,22E-02	5,22E+00	1,59E+01	4,86E-03	4,64E-01	1,09E+00	3,23E-07	4,40E-02	3,82E-02	2,67E-02	3,58E-02	4,85E-01	5,04E-02	1,23E-03	0,00E+00	2,45E-05
GWP|B (kg CO_2 eq.)	-7,69E+00	-9,14E+00	1,49E-02	4,55E-02	2,66E-05	1,25E-02	1,04E-03	3,07E-07	4,15E-05	5,55E-05	1,38E-05	6,93E-06	1,04E-04	8,86E-06	2,96E-06	2,32E+00	3,54E-09
GWP|L (kg CO_2 eq.)	7,71E-02	6,94E-03	1,70E-02	5,20E-02	1,90E-06	1,09E-03	5,08E-05	6,25E-10	2,04E-06	1,98E-06	7,63E-07	1,53E-06	7,74E-06	2,08E-06	3,21E-06	0,00E+00	1,40E-10
ODP (kg CFC-11 eq.)	9,59E-07	1,26E-09	2,26E-07	6,89E-07	2,63E-11	1,16E-08	2,07E-08	4,64E-15	8,32E-10	8,42E-10	1,21E-09	5,45E-10	1,09E-08	7,67E-10	2,46E-11	0,00E+00	1,08E-13
AP (mol H+ eq.)	8,57E-02	5,23E-04	1,88E-02	5,74E-02	1,89E-05	2,02E-03	2,91E-03	1,94E-09	2,73E-04	2,44E-03	2,19E-05	3,30E-04	7,64E-04	4,65E-04	2,23E-05	3,89E-06	8,12E-09
EP|Fw (kg P eq.)	7,13E-04	1,04E-06	1,59E-04	4,84E-04	2,74E-07	1,79E-05	4,74E-05	1,25E-09	1,89E-06	1,65E-06	3,70E-08	3,55E-08	2,99E-07	4,75E-08	1,67E-07	0,00E+00	6,03E-12
EP|M (kg N eq.)	2,85E-02	2,74E-04	6,12E-03	1,87E-02	3,86E-06	5,50E-04	5,89E-04	1,28E-08	6,06E-04	1,15E-03	8,08E-06	1,56E-04	1,74E-04	2,20E-04	1,84E-06	2,04E-06	2,24E-09
EP|T (mol N eq.)	2,18E-01	2,55E-03	4,54E-02	1,38E-01	4,44E-05	5,81E-03	6,61E-03	4,82E-09	1,10E-03	1,25E-02	8,61E-05	1,71E-03	1,92E-03	2,41E-03	2,29E-05	2,24E-05	2,47E-08
POCP (kg NMVOC eq.)	8,91E-02	2,86E-03	1,84E-02	5,62E-02	1,57E-05	2,52E-03	2,34E-03	1,04E-09	1,60E-03	2,99E-03	4,63E-05	5,10E-04	1,28E-03	7,18E-04	7,69E-06	1,28E-04	1,38E-08
ADP|MM (kg Sb eq.)	5,04E-06	7,64E-09	1,00E-06	3,06E-06	3,80E-08	5,86E-07	1,27E-08	9,58E-13	5,16E-10	4,56E-09	1,43E-10	1,26E-09	1,25E-08	1,77E-09	3,20E-07	0,00E+00	2,10E-13
ADP|F (MJ)	4,20E+02	1,03E+00	9,57E+01	2,92E+02	5,16E-02	6,39E+00	1,55E+01	5,70E-06	6,21E-01	5,39E-01	4,38E-01	4,68E-01	6,41E+00	6,59E-01	1,58E-02	0,00E+00	6,27E-05
WDP (m^3 world eq. deprived)	7,19E+00	1,56E-02	1,67E+00	5,09E+00	1,19E-03	1,08E-01	7,60E-02	8,97E-08	3,04E-03	1,29E-01	6,94E-04	6,55E-03	5,09E-03	8,30E-04	6,20E-04	0,00E+00	4,63E-07

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3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

▪ Product Stage [A1-A3] | - per Component

	1 m² Corkeen 50mm | Product Stage [A1-A3]			
	Total	**Base Layer**	**Top Layer**	**Binder**
GWP|T (kg CO_2 eq.)	1,56E+01	-4,21E+00	3,55E+00	1,63E+01
GWP|F (kg CO_2 eq.)	2,32E+01	1,01E+00	6,05E+00	1,62E+01
GWP|B (kg CO_2 eq.)	-7,69E+00	-5,22E+00	-2,52E+00	4,76E-02
GWP|L (kg CO_2 eq.)	7,71E-02	5,28E-03	1,96E-02	5,23E-02
ODP (kg CFC-11 eq.)	9,59E-07	2,15E-08	2,44E-07	6,93E-07
AP (mol H+ eq.)	8,57E-02	4,71E-03	2,27E-02	5,83E-02
EP|Fw (kg P eq.)	7,13E-04	3,34E-05	1,85E-04	4,95E-04
EP|M (kg N eq.)	2,85E-02	1,77E-03	7,83E-03	1,89E-02
EP|T (mol N eq.)	2,18E-01	1,75E-02	6,00E-02	1,40E-01
POCP (kg NMVOC eq.)	8,91E-02	7,38E-03	2,46E-02	5,71E-02
ADP|MM (kg Sb eq.)	5,04E-06	2,82E-07	1,26E-06	3,50E-06
ADP|F (MJ)	4,20E+02	1,50E+01	1,08E+02	2,97E+02
WDP (m^3 world eq. deprived)	7,19E+00	2,20E-01	1,81E+00	5,16E+00

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(National landline)
itecons@itecons.uc.pt

Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 1 (100% recycling)

1 m² Corkeen 50mm | Alternative scenario 1 (100% recycling)

	Total	[A1-A3]	A4	A5	C1	C2	C3	D
GWP|T (kg CO_2 eq.)	4,64E+01	1,56E+01	2,50E+00	5,16E+00	3,06E-03	2,30E+00	8,92E+00	1,19E+01
GWP|F (kg CO_2 eq.)	3,10E+01	2,32E+01	2,50E+00	4,22E+00	3,06E-03	2,30E+00	5,89E-01	-1,90E+00
GWP|B (kg CO_2 eq.)	1,53E+01	-7,69E+00	5,50E-04	9,34E-01	5,37E-07	5,06E-04	8,33E+00	1,38E+01
GWP|L (kg CO_2 eq.)	7,70E-02	7,71E-02	4,00E-05	9,88E-03	1,26E-07	3,68E-05	2,75E-05	-1,01E-02
ODP (kg CFC-11 eq.)	1,22E-06	9,59E-07	5,75E-08	1,77E-07	4,65E-11	5,29E-08	1,12E-08	-3,83E-08
AP (mol H+ eq.)	1,01E-01	8,57E-02	3,12E-03	1,44E-02	2,82E-05	2,87E-03	3,30E-03	-8,20E-03
EP|Fw (kg P eq.)	7,86E-04	7,13E-04	1,56E-06	1,04E-04	2,88E-09	1,44E-06	2,54E-05	-5,91E-05
EP|M (kg N eq.)	3,16E-02	2,85E-02	6,92E-04	3,90E-03	1,33E-05	6,37E-04	1,16E-03	-3,23E-03
EP|T (mol N eq.)	2,47E-01	2,18E-01	7,55E-03	3,13E-02	1,46E-04	6,95E-03	1,27E-02	-3,01E-02
POCP (kg NMVOC eq.)	1,15E-01	8,91E-02	6,12E-03	2,38E-02	4,36E-05	5,63E-03	3,44E-03	-1,35E-02
ADP|MM (kg Sb eq.)	5,72E-06	5,04E-06	6,60E-08	6,53E-07	1,07E-10	6,08E-08	1,02E-08	-1,14E-07
ADP|F (MJ)	5,58E+02	4,20E+02	3,37E+01	9,16E+01	4,00E-02	3,10E+01	8,29E+00	-2,65E+01
WDP (m^3 world eq. deprived)	8,33E+00	7,19E+00	2,67E-02	1,22E+00	5,04E-05	2,46E-02	1,35E-01	-2,70E-01

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3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
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itecons@itecons.uc.pt

Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 2 (100% landfill)

1 m² Corkeen 50mm | Alternative scenario 2 (100% landfill)

	Total	[A1-A3]	A4	A5	C1	C2	C4
GWP|T (kg CO_2 eq.)	2,96E+01	1,42E+01	2,50E+00	5,07E+00	3,06E-03	7,63E-02	7,67E+00
GWP|F (kg CO_2 eq.)	3,01E+01	2,32E+01	2,50E+00	4,22E+00	3,06E-03	7,63E-02	7,07E-02
GWP|B (kg CO_2 eq.)	-6,28E-01	-9,07E+00	5,50E-04	8,37E-01	5,37E-07	1,68E-05	7,60E+00
GWP|L (kg CO_2 eq.)	8,71E-02	7,71E-02	4,00E-05	9,88E-03	1,26E-07	1,22E-06	7,14E-06
ODP (kg CFC-11 eq.)	1,20E-06	9,59E-07	5,75E-08	1,77E-07	4,65E-11	1,75E-09	2,32E-09
AP (mol H+ eq.)	1,04E-01	8,57E-02	3,12E-03	1,44E-02	2,82E-05	9,51E-05	4,83E-04
EP|Fw (kg P eq.)	8,19E-04	7,13E-04	1,56E-06	1,04E-04	2,88E-09	4,77E-08	3,85E-07
EP|M (kg N eq.)	3,34E-02	2,85E-02	6,92E-04	3,90E-03	1,33E-05	2,11E-05	3,58E-04
EP|T (mol N eq.)	2,59E-01	2,18E-01	7,55E-03	3,13E-02	1,46E-04	2,30E-04	2,31E-03
POCP (kg NMVOC eq.)	1,20E-01	8,91E-02	6,12E-03	2,38E-02	4,36E-05	1,87E-04	1,00E-03
ADP|MM (kg Sb eq.)	5,80E-06	5,04E-06	6,60E-08	6,53E-07	1,07E-10	2,01E-09	3,37E-08
ADP|F (MJ)	5,45E+02	4,17E+02	3,37E+01	9,16E+01	4,00E-02	1,03E+00	1,76E+00
WDP (m^3 world eq. deprived)	6,78E+00	7,11E+00	2,67E-02	1,22E+00	5,04E-05	8,15E-04	-1,58E+00

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(National landline)
itecons@itecons.uc.pt

C.2. Corkeen 40 mm

Use of resources

Parameter		Unit	1 m² Corkeen 40mm								
			Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	-2,28E+02	4,73E+02	7,30E-02	8,52E+00	7,60E-05	6,10E-02	5,36E+00	3,51E-03	-7,15E+02
	Used as raw materials	MJ, net calorific value	7,90E+01	7,82E+01	0,00E+00	7,82E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	-1,49E+02	5,51E+02	7,30E-02	9,30E+00	7,60E-05	6,10E-02	5,36E+00	3,51E-03	-7,15E+02
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	3,86E+02	2,57E+02	2,93E+01	9,00E+01	3,48E-02	2,45E+01	6,50E+00	1,54E-01	-2,08E+01
	Used as raw materials	MJ, net calorific value	1,31E+02	1,29E+02	0,00E+00	1,29E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	5,17E+02	3,86E+02	2,93E+01	9,13E+01	3,48E-02	2,45E+01	6,50E+00	1,54E-01	-2,08E+01
Secondary material		kg	2,80E+00	2,77E+00	1,51E-05	3,08E-02	7,01E-08	1,26E-05	2,13E-05	1,39E-05	-7,36E-04
Renewable secondary fuels		MJ, net calorific value	1,16E+00	1,16E+00	1,25E-06	2,34E-03	1,21E-08	1,05E-06	8,54E-07	7,26E-07	-3,11E-06
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m³	1,86E-01	1,61E-01	5,67E-04	3,04E-02	1,06E-06	4,74E-04	2,41E-03	-3,21E-03	-4,95E-03

Waste production

Parameter	Unit	1 m² Corkeen 40mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,40E+00	1,26E+00	1,11E-03	1,81E-01	3,66E-06	9,32E-04	3,24E-02	6,90E-05	-7,29E-02
Non-hazardous waste disposed	kg	5,24E+01	4,15E+01	9,45E-02	7,08E+00	1,25E-04	7,90E-02	1,13E+00	4,04E+00	-1,53E+00
Radioactive waste disposed	kg	3,93E-04	2,85E-04	1,77E-06	1,17E-04	1,62E-09	1,48E-06	9,64E-06	5,15E-08	-2,20E-05

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Output flows

Parameter	Unit	1 m² Corkeen 40mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Components for reuse	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	**kg**	6,01E-01	7,81E-03	6,59E-07	5,97E-01	9,31E-10	5,51E-07	1,38E-04	3,19E-06	-3,32E-03
Materials for energy recovery	**kg**	7,95E-06	7,03E-06	4,32E-09	9,80E-07	2,91E-11	3,61E-09	2,56E-08	6,90E-10	-9,57E-08
Exported energy, electricity	**MJ**	3,08E-01	3,39E-01	1,17E-03	6,64E-02	6,21E-07	9,77E-04	8,03E-02	7,02E-05	-1,80E-01
Exported energy, thermal	**MJ**	6,86E-02	5,00E-02	2,77E-03	1,30E-02	2,50E-07	2,32E-03	1,44E-04	1,08E-03	-7,02E-04

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Core environmental impact indicators

1 m² Corkeen 40mm

	Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
GWP|T (kg CO_2 eq.)	4,10E+01	1,51E+01	2,17E+00	4,97E+00	2,66E-03	1,82E+00	6,85E+00	7,60E-01	9,30E+00
GWP|F (kg CO_2 eq.)	2,85E+01	2,13E+01	2,17E+00	4,20E+00	2,66E-03	1,82E+00	4,62E-01	6,16E-03	-1,49E+00
GWP|B (kg CO_2 eq.)	1,24E+01	-6,30E+00	4,78E-04	7,62E-01	4,68E-07	4,00E-04	6,39E+00	7,54E-01	1,08E+01
GWP|L (kg CO_2 eq.)	7,24E-02	7,04E-02	3,48E-05	9,81E-03	1,10E-07	2,91E-05	2,16E-05	6,22E-07	-7,91E-03
ODP (kg CFC-11 eq.)	1,13E-06	8,83E-07	5,00E-08	1,76E-07	4,05E-11	4,18E-08	8,77E-09	2,02E-10	-3,01E-08
AP (mol H+ eq.)	9,41E-02	7,86E-02	2,71E-03	1,44E-02	2,46E-05	2,27E-03	2,59E-03	4,21E-05	-6,43E-03
EP|Fw (kg P eq.)	7,33E-04	6,54E-04	1,36E-06	1,03E-04	2,51E-09	1,14E-06	1,99E-05	3,35E-08	-4,64E-05
EP|M (kg N eq.)	2,95E-02	2,61E-02	6,02E-04	3,87E-03	1,16E-05	5,03E-04	9,13E-04	3,12E-05	-2,53E-03
EP|T (mol N eq.)	2,29E-01	1,99E-01	6,56E-03	3,11E-02	1,27E-04	5,49E-03	1,00E-02	2,01E-04	-2,36E-02
POCP (kg NMVOC eq.)	1,07E-01	8,13E-02	5,32E-03	2,37E-02	3,79E-05	4,45E-03	2,70E-03	8,73E-05	-1,06E-02
ADP|MM (kg Sb eq.)	5,29E-06	4,61E-06	5,74E-08	6,49E-07	9,34E-11	4,80E-08	7,98E-09	2,94E-09	-8,96E-08
ADP|F (MJ)	5,17E+02	3,86E+02	2,93E+01	9,12E+01	3,48E-02	2,45E+01	6,50E+00	1,54E-01	-2,08E+01
WDP (m^3 world eq. deprived)	7,62E+00	6,61E+00	2,32E-02	1,22E+00	4,39E-05	1,94E-02	1,06E-01	-1,38E-01	-2,11E-01

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(National landline)
itecons@itecons.uc.pt

Additional environmental impact indicators

	1 m² Corkeen 40mm								
	Total	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM (Disease incidence)	1,05E-06	1,13E-06	1,39E-07	1,46E-07	7,09E-10	1,16E-07	3,95E-08	1,06E-09	-5,23E-07
IRP (kBq U235 eq.)	5,47E-01	4,10E-01	2,81E-03	1,48E-01	2,89E-06	2,35E-03	1,30E-02	9,46E-05	-2,98E-02
ETP-fw (CTUe)	1,02E+03	8,97E+02	1,08E+00	1,24E+02	9,99E-04	9,04E-01	4,78E-01	1,19E-02	-1,40E+00
HTP-c (CTUh)	4,31E-08	3,79E-08	1,36E-10	5,20E-09	1,43E-13	1,14E-10	3,78E-11	7,23E-13	-3,38E-10
HTP-nc (CTUh)	1,29E-07	8,78E-08	1,54E-08	1,60E-08	2,63E-12	1,29E-08	1,93E-09	1,11E-10	-4,76E-09
SQP (dimensionless)	-3,58E+02	1,33E+03	3,72E-02	1,68E+01	5,92E-05	3,11E-02	3,34E-01	3,87E-01	-1,71E+03

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▪ Product Stage [A1-A3] | - per Element

1 m2 Corkeen 40mm | Product Stage [A1-A3]

	Total	A1 Cork	A1 Binder | Production	A1 Binder | Corkeen	A3 Maintenance	A3 Packaging	A3 Electricity | Grid	A3 Electricity | Photovoltaic	A3 Heat | Thermo-fluid	A3 Steam (Biomass)	A3 Heat (natural gas)	A3 Steam (boiler| mixer)	A2 Transport	A2 Internal transport	A3 Capital Goods	A3 Emissions	A3 Waste and transport
GWP|T (kg CO_2 eq.)	1,51E+01	-7,44E+00	5,25E+00	1,44E+01	4,01E-03	4,00E-01	9,28E-01	5,40E-07	4,03E-02	3,14E-02	2,19E-02	3,58E-02	4,29E-01	4,84E-02	1,06E-03	1,91E+00	2,01E-05
GWP|F (kg CO_2 eq.)	2,13E+01	5,92E-02	5,22E+00	1,43E+01	3,99E-03	4,05E-01	9,27E-01	2,77E-07	4,03E-02	3,14E-02	2,19E-02	3,58E-02	4,25E-01	4,84E-02	1,05E-03	0,00E+00	2,01E-05
GWP|B (kg CO_2 eq.)	-6,30E+00	-7,50E+00	1,49E-02	4,09E-02	2,18E-05	-5,15E-03	8,79E-04	2,63E-07	3,80E-05	4,55E-05	1,13E-05	6,93E-06	9,15E-05	8,50E-06	2,53E-06	1,91E+00	2,90E-09
GWP|L (kg CO_2 eq.)	7,04E-02	5,70E-03	1,70E-02	4,67E-02	1,56E-06	8,96E-04	4,30E-05	5,35E-10	1,86E-06	1,63E-06	6,26E-07	1,53E-06	6,77E-06	1,99E-06	2,74E-06	0,00E+00	1,15E-10
ODP (kg CFC-11 eq.)	8,83E-07	1,03E-09	2,26E-07	6,19E-07	2,18E-11	1,01E-08	1,75E-08	3,98E-15	7,62E-10	6,91E-10	9,93E-10	5,45E-10	9,57E-09	7,36E-10	2,11E-11	0,00E+00	8,88E-14
AP (mol H+ eq.)	7,86E-02	4,29E-04	1,88E-02	5,16E-02	1,55E-05	1,77E-03	2,46E-03	1,66E-09	2,50E-04	2,01E-03	1,80E-05	3,30E-04	6,60E-04	4,47E-04	1,91E-05	3,19E-06	6,66E-09
EP|Fw (kg P eq.)	6,54E-04	8,56E-07	1,59E-04	4,35E-04	2,25E-07	1,59E-05	4,01E-05	1,07E-09	1,73E-06	1,36E-06	3,03E-08	3,55E-08	2,62E-07	4,56E-08	1,43E-07	0,00E+00	4,95E-12
EP|M (kg N eq.)	2,61E-02	2,25E-04	6,12E-03	1,68E-02	3,17E-06	4,80E-04	4,99E-04	1,09E-08	5,55E-04	9,40E-04	6,63E-06	1,56E-04	1,50E-04	2,11E-04	1,58E-06	1,68E-06	1,84E-09
EP|T (mol N eq.)	1,99E-01	2,09E-03	4,54E-02	1,24E-01	3,65E-05	5,05E-03	5,59E-03	4,13E-09	1,01E-03	1,03E-02	7,06E-05	1,71E-03	1,65E-03	2,31E-03	1,96E-05	1,84E-05	2,03E-08
POCP (kg NMVOC eq.)	8,13E-02	2,35E-03	1,84E-02	5,05E-02	1,29E-05	2,16E-03	1,98E-03	8,93E-10	1,46E-03	2,45E-03	3,80E-05	5,10E-04	1,12E-03	6,89E-04	6,58E-06	1,06E-04	1,13E-08
ADP|MM (kg Sb eq.)	4,61E-06	6,27E-09	1,00E-06	2,75E-06	3,12E-08	5,24E-07	1,08E-08	8,21E-13	4,73E-10	3,74E-09	1,18E-10	1,26E-09	1,09E-08	1,70E-09	2,74E-07	0,00E+00	1,72E-13
ADP|F (MJ)	3,86E+02	8,43E-01	9,57E+01	2,62E+02	4,25E-02	5,86E+00	1,31E+01	4,89E-06	5,69E-01	4,42E-01	3,59E-01	4,68E-01	5,62E+00	6,33E-01	1,35E-02	0,00E+00	5,15E-05
WDP (m^3 world eq. deprived)	6,61E+00	1,28E-02	1,67E+00	4,58E+00	9,78E-04	9,82E-02	6,43E-02	7,69E-08	2,78E-03	1,06E-01	5,70E-04	6,55E-03	4,46E-03	7,97E-04	5,30E-04	0,00E+00	3,80E-07

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(National landline)
itecons@itecons.uc.pt

▪ Product Stage [A1-A3] | - per Component

	1 m² Corkeen 40mm | Product Stage [A1-A3]			
	Total	**Base Layer**	**Top Layer**	**Binder**
GWP|T (kg CO_2 eq.)	1,51E+01	-3,08E+00	3,55E+00	1,46E+01
GWP|F (kg CO_2 eq.)	2,13E+01	7,38E-01	6,05E+00	1,45E+01
GWP|B (kg CO_2 eq.)	-6,30E+00	-3,82E+00	-2,52E+00	4,28E-02
GWP|L (kg CO_2 eq.)	7,04E-02	3,86E-03	1,96E-02	4,70E-02
ODP (kg CFC-11 eq.)	8,83E-07	1,57E-08	2,44E-07	6,23E-07
AP (mol H+ eq.)	7,86E-02	3,45E-03	2,27E-02	5,24E-02
EP|Fw (kg P eq.)	6,54E-04	2,44E-05	1,85E-04	4,45E-04
EP|M (kg N eq.)	2,61E-02	1,29E-03	7,83E-03	1,70E-02
EP|T (mol N eq.)	1,99E-01	1,28E-02	6,00E-02	1,26E-01
POCP (kg NMVOC eq.)	8,13E-02	5,40E-03	2,46E-02	5,13E-02
ADP|MM (kg Sb eq.)	4,61E-06	2,07E-07	1,26E-06	3,14E-06
ADP|F (MJ)	3,86E+02	1,10E+01	1,08E+02	2,67E+02
WDP (m^3 world eq. deprived)	6,61E+00	1,61E-01	1,81E+00	4,63E+00

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Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 1 (100% recycling)

1 m² Corkeen 40mm | Alternative scenario 1 (100% recycling)

	Total	[A1-A3]	A4	A5	C1	C2	C3	D
GWP|T (kg CO_2 eq.)	4,22E+01	1,51E+01	2,17E+00	4,97E+00	2,66E-03	2,01E+00	7,61E+00	1,03E+01
GWP|F (kg CO_2 eq.)	2,86E+01	2,13E+01	2,17E+00	4,20E+00	2,66E-03	2,01E+00	5,13E-01	-1,65E+00
GWP|B (kg CO_2 eq.)	1,36E+01	-6,30E+00	4,78E-04	7,62E-01	4,68E-07	4,42E-04	7,10E+00	1,20E+01
GWP|L (kg CO_2 eq.)	7,15E-02	7,04E-02	3,48E-05	9,81E-03	1,10E-07	3,22E-05	2,40E-05	-8,78E-03
ODP (kg CFC-11 eq.)	1,13E-06	8,83E-07	5,00E-08	1,76E-07	4,05E-11	4,62E-08	9,75E-09	-3,34E-08
AP (mol H+ eq.)	9,39E-02	7,86E-02	2,71E-03	1,44E-02	2,46E-05	2,51E-03	2,87E-03	-7,14E-03
EP|Fw (kg P eq.)	7,30E-04	6,54E-04	1,36E-06	1,03E-04	2,51E-09	1,26E-06	2,21E-05	-5,15E-05
EP|M (kg N eq.)	2,93E-02	2,61E-02	6,02E-04	3,87E-03	1,16E-05	5,56E-04	1,01E-03	-2,82E-03
EP|T (mol N eq.)	2,28E-01	1,99E-01	6,56E-03	3,11E-02	1,27E-04	6,07E-03	1,11E-02	-2,62E-02
POCP (kg NMVOC eq.)	1,07E-01	8,13E-02	5,32E-03	2,37E-02	3,79E-05	4,92E-03	2,99E-03	-1,17E-02
ADP|MM (kg Sb eq.)	5,28E-06	4,61E-06	5,74E-08	6,49E-07	9,34E-11	5,31E-08	8,85E-09	-9,95E-08
ADP|F (MJ)	5,18E+02	3,86E+02	2,93E+01	9,12E+01	3,48E-02	2,70E+01	7,22E+00	-2,31E+01
WDP (m^3 world eq. deprived)	7,75E+00	6,61E+00	2,32E-02	1,22E+00	4,39E-05	2,15E-02	1,17E-01	-2,35E-01

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(National landline)
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Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 2 (100% landfill)

1 m² Corkeen 40mm | Alternative scenario 2 (100% landfill)

	Total	[A1-A3]	A4	A5	C1	C2	C4
GWP|T (kg CO_2 eq.)	2,99E+01	1,51E+01	2,17E+00	4,97E+00	2,66E-03	6,65E-02	7,60E+00
GWP|F (kg CO_2 eq.)	2,78E+01	2,13E+01	2,17E+00	4,20E+00	2,66E-03	6,65E-02	6,16E-02
GWP|B (kg CO_2 eq.)	2,01E+00	-6,30E+00	4,78E-04	7,62E-01	4,68E-07	1,46E-05	7,54E+00
GWP|L (kg CO_2 eq.)	8,03E-02	7,04E-02	3,48E-05	9,81E-03	1,10E-07	1,06E-06	6,22E-06
ODP (kg CFC-11 eq.)	1,11E-06	8,83E-07	5,00E-08	1,76E-07	4,05E-11	1,53E-09	2,02E-09
AP (mol H+ eq.)	9,62E-02	7,86E-02	2,71E-03	1,44E-02	2,46E-05	8,29E-05	4,21E-04
EP|Fw (kg P eq.)	7,59E-04	6,54E-04	1,36E-06	1,03E-04	2,51E-09	4,16E-08	3,35E-07
EP|M (kg N eq.)	3,09E-02	2,61E-02	6,02E-04	3,87E-03	1,16E-05	1,84E-05	3,12E-04
EP|T (mol N eq.)	2,39E-01	1,99E-01	6,56E-03	3,11E-02	1,27E-04	2,01E-04	2,01E-03
POCP (kg NMVOC eq.)	1,11E-01	8,13E-02	5,32E-03	2,37E-02	3,79E-05	1,63E-04	8,73E-04
ADP|MM (kg Sb eq.)	5,35E-06	4,61E-06	5,74E-08	6,49E-07	9,34E-11	1,76E-09	2,94E-08
ADP|F (MJ)	5,09E+02	3,86E+02	2,93E+01	9,12E+01	3,48E-02	8,95E-01	1,54E+00
WDP (m^3 world eq. deprived)	6,47E+00	6,61E+00	2,32E-02	1,22E+00	4,39E-05	7,10E-04	-1,38E+00

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C.3. Corkeen 70 mm

Use of resources

Parameter		Unit	1 m² Corkeen 70mm								
			Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	-2,37E+02	7,84E+02	1,07E-01	1,18E+01	1,11E-04	8,86E-02	7,78E+00	5,14E-03	-1,04E+03
	Used as raw materials	MJ, net calorific value	1,34E+02	1,33E+02	0,00E+00	1,33E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	-1,03E+02	9,17E+02	1,07E-01	1,32E+01	1,11E-04	8,86E-02	7,78E+00	5,14E-03	-1,04E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	4,71E+02	3,22E+02	4,31E+01	9,15E+01	5,08E-02	3,55E+01	9,49E+00	2,25E-01	-3,03E+01
	Used as raw materials	MJ, net calorific value	1,71E+02	1,69E+02	0,00E+00	1,69E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	6,42E+02	4,91E+02	4,31E+01	9,32E+01	5,08E-02	3,55E+01	9,49E+00	2,25E-01	-3,03E+01
Secondary material		kg	4,74E+00	4,69E+00	2,22E-05	5,03E-02	1,02E-07	1,83E-05	3,10E-05	2,03E-05	-1,07E-03
Renewable secondary fuels		MJ, net calorific value	1,79E+00	1,79E+00	1,84E-06	4,23E-03	1,77E-08	1,52E-06	1,25E-06	1,06E-06	-4,53E-06
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m3	2,28E-01	2,04E-01	8,35E-04	3,12E-02	1,54E-06	6,88E-04	3,50E-03	-4,69E-03	-7,21E-03

Waste production

Parameter	Unit	1 m² Corkeen 70mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,74E+00	1,61E+00	1,64E-03	1,85E-01	5,33E-06	1,35E-03	4,73E-02	1,01E-04	-1,06E-01
Non-hazardous waste disposed	kg	6,59E+01	5,29E+01	1,39E-01	7,39E+00	1,82E-04	1,15E-01	1,65E+00	5,91E+00	-2,22E+00
Radioactive waste disposed	kg	4,81E-04	3,66E-04	2,60E-06	1,29E-04	2,37E-09	2,14E-06	1,41E-05	7,53E-08	-3,21E-05

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Output flows

Parameter	Unit	1 m² Corkeen 70mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Components for reuse	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	**kg**	1,01E+00	1,11E-02	9,71E-07	1,00E+00	1,36E-09	8,00E-07	2,01E-04	4,66E-06	-4,83E-03
Materials for energy recovery	**kg**	9,83E-06	8,91E-06	6,36E-09	1,00E-06	4,24E-11	5,24E-09	3,74E-08	1,01E-09	-1,39E-07
Exported energy, electricity	**MJ**	4,10E-01	4,80E-01	1,72E-03	7,26E-02	9,06E-07	1,42E-03	1,17E-01	1,03E-04	-2,63E-01
Exported energy, thermal	**MJ**	8,55E-02	6,41E-02	4,08E-03	1,32E-02	3,64E-07	3,36E-03	2,10E-04	1,58E-03	-1,02E-03

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Core environmental impact indicators

1 m² Corkeen 70mm

	Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
GWP|T (kg CO_2 eq.)	5,33E+01	1,66E+01	3,20E+00	5,58E+00	3,88E-03	2,64E+00	1,05E+01	1,16E+00	1,36E+01
GWP|F (kg CO_2 eq.)	3,58E+01	2,72E+01	3,20E+00	4,27E+00	3,88E-03	2,64E+00	6,74E-01	9,01E-03	-2,17E+00
GWP|B (kg CO_2 eq.)	1,73E+01	-1,06E+01	7,04E-04	1,30E+00	6,82E-07	5,80E-04	9,81E+00	1,15E+00	1,57E+01
GWP|L (kg CO_2 eq.)	8,97E-02	9,10E-02	5,13E-05	1,01E-02	1,60E-07	4,22E-05	3,15E-05	9,10E-07	-1,15E-02
ODP (kg CFC-11 eq.)	1,40E-06	1,12E-06	7,36E-08	1,79E-07	5,91E-11	6,07E-08	1,28E-08	2,96E-10	-4,38E-08
AP (mol H+ eq.)	1,17E-01	1,01E-01	3,99E-03	1,46E-02	3,58E-05	3,29E-03	3,77E-03	6,16E-05	-9,37E-03
EP|Fw (kg P eq.)	9,05E-04	8,35E-04	2,00E-06	1,05E-04	3,66E-09	1,65E-06	2,90E-05	4,90E-08	-6,76E-05
EP|M (kg N eq.)	3,67E-02	3,34E-02	8,86E-04	3,95E-03	1,69E-05	7,31E-04	1,33E-03	4,56E-05	-3,69E-03
EP|T (mol N eq.)	2,87E-01	2,57E-01	9,67E-03	3,18E-02	1,85E-04	7,97E-03	1,45E-02	2,94E-04	-3,43E-02
POCP (kg NMVOC eq.)	1,32E-01	1,05E-01	7,84E-03	2,39E-02	5,53E-05	6,46E-03	3,92E-03	1,28E-04	-1,54E-02
ADP|MM (kg Sb eq.)	6,64E-06	5,93E-06	8,45E-08	6,65E-07	1,36E-10	6,97E-08	1,16E-08	4,30E-09	-1,30E-07
ADP|F (MJ)	6,42E+02	4,91E+02	4,31E+01	9,32E+01	5,08E-02	3,55E+01	9,49E+00	2,25E-01	-3,03E+01
WDP (m^3 world eq. deprived)	9,34E+00	8,39E+00	3,42E-02	1,25E+00	6,39E-05	2,82E-02	1,54E-01	-2,02E-01	-3,08E-01

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www.itecons.uc.pt

Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Additional environmental impact indicators

	1 m² Corkeen 70mm								
	Total	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM (Disease incidence)	1,37E-06	1,55E-06	2,05E-07	1,52E-07	1,03E-09	1,69E-07	5,73E-08	1,55E-09	-7,62E-07
IRP (kBq U235 eq.)	6,69E-01	5,24E-01	4,14E-03	1,62E-01	4,22E-06	3,41E-03	1,89E-02	1,38E-04	-4,33E-02
ETP-fw (CTUe)	1,25E+03	1,12E+03	1,59E+00	1,26E+02	1,46E-03	1,31E+00	6,98E-01	1,75E-02	-2,04E+00
HTP-c (CTUh)	5,33E-08	4,80E-08	2,00E-10	5,30E-09	2,08E-13	1,65E-10	5,51E-11	1,06E-12	-4,92E-10
HTP-nc (CTUh)	1,66E-07	1,12E-07	2,28E-08	1,63E-08	3,83E-12	1,88E-08	2,82E-09	1,62E-10	-6,93E-09
SQP (dimensionless)	-2,32E+02	2,23E+03	5,48E-02	2,59E+01	8,62E-05	4,51E-02	4,88E-01	5,66E-01	-2,49E+03

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▪ Product Stage [A1-A3] | - per Element

1 m² Corkeen 70mm | Product Stage [A1-A3]

	Total	A1 Cork	A1 Binder | Production	A1 Binder | Corkeen	A3 Maintenance	A3 Packaging	A3 Electricity | Grid	A3 Electricity | Photovoltaic	A3 Heat | Thermo-fluid	A3 Steam (Biomass)	A3 Heat (natural gas)	A3 Steam (boiler| mixer)	A2 Transport	A2 Internal transport	A3 Capital Goods	A3 Emissions	A3 Waste and transport
GWP|T (kg CO_2 eq.)	1,66E+01	-1,25E+01	5,25E+00	1,94E+01	6,73E-03	6,39E-01	1,45E+00	8,21E-07	5,19E-02	5,27E-02	3,68E-02	3,58E-02	6,17E-01	5,46E-02	1,62E-03	3,20E+00	3,38E-05
GWP|F (kg CO_2 eq.)	2,72E+01	9,95E-02	5,22E+00	1,92E+01	6,69E-03	5,88E-01	1,45E+00	4,20E-07	5,18E-02	5,27E-02	3,68E-02	3,58E-02	6,11E-01	5,46E-02	1,61E-03	0,00E+00	3,38E-05
GWP|B (kg CO_2 eq.)	-1,06E+01	-1,26E+01	1,49E-02	5,50E-02	3,66E-05	4,98E-02	1,37E-03	4,00E-07	4,89E-05	7,65E-05	1,91E-05	6,93E-06	1,32E-04	9,60E-06	3,86E-06	3,20E+00	4,88E-09
GWP|L (kg CO_2 eq.)	9,10E-02	9,57E-03	1,70E-02	6,28E-02	2,62E-06	1,49E-03	6,73E-05	8,13E-10	2,40E-06	2,73E-06	1,05E-06	1,53E-06	9,76E-06	2,25E-06	4,19E-06	0,00E+00	1,92E-10
ODP (kg CFC-11 eq.)	1,12E-06	1,73E-09	2,26E-07	8,33E-07	3,57E-11	1,46E-08	2,74E-08	6,05E-15	9,80E-10	1,16E-09	1,67E-09	5,45E-10	1,37E-08	8,31E-10	3,21E-11	0,00E+00	1,49E-13
AP (mol H+ eq.)	1,01E-01	7,21E-04	1,88E-02	6,93E-02	2,60E-05	2,55E-03	3,85E-03	2,52E-09	3,22E-04	3,37E-03	3,02E-05	3,30E-04	9,83E-04	5,05E-04	2,91E-05	5,36E-06	1,12E-08
EP|Fw (kg P eq.)	8,35E-04	1,44E-06	1,59E-04	5,85E-04	3,77E-07	2,22E-05	6,28E-05	1,62E-09	2,23E-06	2,28E-06	5,09E-08	3,55E-08	3,77E-07	5,15E-08	2,18E-07	0,00E+00	8,31E-12
EP|M (kg N eq.)	3,34E-02	3,78E-04	6,12E-03	2,26E-02	5,32E-06	6,96E-04	7,80E-04	1,66E-08	7,14E-04	1,58E-03	1,11E-05	1,56E-04	2,24E-04	2,38E-04	2,40E-06	2,82E-06	3,09E-09
EP|T (mol N eq.)	2,57E-01	3,52E-03	4,54E-02	1,67E-01	6,11E-05	7,42E-03	8,75E-03	6,28E-09	1,30E-03	1,73E-02	1,19E-04	1,71E-03	2,47E-03	2,61E-03	2,99E-05	3,09E-05	3,41E-08
POCP (kg NMVOC eq.)	1,05E-01	3,95E-03	1,84E-02	6,79E-02	2,14E-05	3,27E-03	3,10E-03	1,36E-09	1,88E-03	4,12E-03	6,39E-05	5,10E-04	1,63E-03	7,78E-04	1,00E-05	1,75E-04	1,90E-08
ADP|MM (kg Sb eq.)	5,93E-06	1,05E-08	1,00E-06	3,70E-06	5,24E-08	7,15E-07	1,69E-08	1,25E-12	6,08E-10	6,28E-09	1,98E-10	1,26E-09	1,57E-08	1,92E-09	4,17E-07	0,00E+00	2,89E-13
ADP|F (MJ)	4,91E+02	1,42E+00	9,57E+01	3,53E+02	7,08E-02	7,49E+00	2,05E+01	7,43E-06	7,32E-01	7,43E-01	6,04E-01	4,68E-01	8,08E+00	7,15E-01	2,06E-02	0,00E+00	8,64E-05
WDP (m^3 world eq. deprived)	8,39E+00	2,15E-02	1,67E+00	6,16E+00	1,64E-03	1,29E-01	1,01E-01	1,17E-07	3,58E-03	1,78E-01	9,57E-04	6,55E-03	6,41E-03	9,00E-04	8,10E-04	0,00E+00	6,39E-07

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(National landline)
itecons@itecons.uc.pt

▪ Product Stage [A1-A3] | - per Component

	1 m² Corkeen 70mm | Product Stage [A1-A3]			
	Total	**Base Layer**	**Top Layer**	**Binder**
GWP|T (kg CO_2 eq.)	1,66E+01	-6,59E+00	3,55E+00	1,97E+01
GWP|F (kg CO_2 eq.)	2,72E+01	1,58E+00	6,05E+00	1,95E+01
GWP|B (kg CO_2 eq.)	-1,06E+01	-8,18E+00	-2,52E+00	5,76E-02
GWP|L (kg CO_2 eq.)	9,10E-02	8,27E-03	1,96E-02	6,32E-02
ODP (kg CFC-11 eq.)	1,12E-06	3,37E-08	2,44E-07	8,37E-07
AP (mol H+ eq.)	1,01E-01	7,38E-03	2,27E-02	7,05E-02
EP|Fw (kg P eq.)	8,35E-04	5,24E-05	1,85E-04	5,98E-04
EP|M (kg N eq.)	3,34E-02	2,77E-03	7,83E-03	2,28E-02
EP|T (mol N eq.)	2,57E-01	2,74E-02	6,00E-02	1,70E-01
POCP (kg NMVOC eq.)	1,05E-01	1,16E-02	2,46E-02	6,90E-02
ADP|MM (kg Sb eq.)	5,93E-06	4,43E-07	1,26E-06	4,23E-06
ADP|F (MJ)	4,91E+02	2,35E+01	1,08E+02	3,59E+02
WDP (m^3 world eq. deprived)	8,39E+00	3,45E-01	1,81E+00	6,23E+00

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Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 1 (100% recycling)

1 m² Corkeen 70mm | Alternative scenario 1 (100% recycling)

	Total	[A1-A3]	A4	A5	C1	C2	C3	D
GWP|T (kg CO_2 eq.)	5,51E+01	1,66E+01	3,20E+00	5,58E+00	3,88E-03	2,92E+00	1,17E+01	1,51E+01
GWP|F (kg CO_2 eq.)	3,59E+01	2,72E+01	3,20E+00	4,27E+00	3,88E-03	2,92E+00	7,50E-01	-2,42E+00
GWP|B (kg CO_2 eq.)	1,91E+01	-1,06E+01	7,04E-04	1,30E+00	6,82E-07	6,42E-04	1,09E+01	1,75E+01
GWP|L (kg CO_2 eq.)	8,84E-02	9,10E-02	5,13E-05	1,01E-02	1,60E-07	4,68E-05	3,51E-05	-1,28E-02
ODP (kg CFC-11 eq.)	1,40E-06	1,12E-06	7,36E-08	1,79E-07	5,91E-11	6,72E-08	1,43E-08	-4,88E-08
AP (mol H+ eq.)	1,17E-01	1,01E-01	3,99E-03	1,46E-02	3,58E-05	3,64E-03	4,20E-03	-1,05E-02
EP|Fw (kg P eq.)	9,01E-04	8,35E-04	2,00E-06	1,05E-04	3,66E-09	1,83E-06	3,23E-05	-7,54E-05
EP|M (kg N eq.)	3,64E-02	3,34E-02	8,86E-04	3,95E-03	1,69E-05	8,09E-04	1,48E-03	-4,12E-03
EP|T (mol N eq.)	2,85E-01	2,57E-01	9,67E-03	3,18E-02	1,85E-04	8,82E-03	1,62E-02	-3,83E-02
POCP (kg NMVOC eq.)	1,31E-01	1,05E-01	7,84E-03	2,39E-02	5,53E-05	7,15E-03	4,37E-03	-1,72E-02
ADP|MM (kg Sb eq.)	6,63E-06	5,93E-06	8,45E-08	6,65E-07	1,36E-10	7,71E-08	1,29E-08	-1,46E-07
ADP|F (MJ)	6,43E+02	4,91E+02	4,31E+01	9,32E+01	5,08E-02	3,93E+01	1,06E+01	-3,38E+01
WDP (m^3 world eq. deprived)	9,53E+00	8,39E+00	3,42E-02	1,25E+00	6,39E-05	3,12E-02	1,71E-01	-3,44E-01

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Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 2 (100% landfill)

1 m² Corkeen 70mm | Alternative scenario 2 (100% landfill)

	Total	[A1-A3]	A4	A5	C1	C2	C4
GWP|T (kg CO_2 eq.)	3,52E+01	1,48E+01	3,20E+00	5,45E+00	3,88E-03	9,69E-02	1,16E+01
GWP|F (kg CO_2 eq.)	3,48E+01	2,72E+01	3,20E+00	4,27E+00	3,88E-03	9,69E-02	9,01E-02
GWP|B (kg CO_2 eq.)	2,29E-01	-1,25E+01	7,04E-04	1,17E+00	6,82E-07	2,13E-05	1,15E+01
GWP|L (kg CO_2 eq.)	1,01E-01	9,10E-02	5,13E-05	1,01E-02	1,60E-07	1,55E-06	9,10E-06
ODP (kg CFC-11 eq.)	1,37E-06	1,12E-06	7,36E-08	1,79E-07	5,91E-11	2,23E-09	2,96E-09
AP (mol H+ eq.)	1,20E-01	1,01E-01	3,99E-03	1,46E-02	3,58E-05	1,21E-04	6,16E-04
EP|Fw (kg P eq.)	9,43E-04	8,35E-04	2,00E-06	1,05E-04	3,66E-09	6,06E-08	4,90E-07
EP|M (kg N eq.)	3,87E-02	3,34E-02	8,86E-04	3,95E-03	1,69E-05	2,68E-05	4,56E-04
EP|T (mol N eq.)	3,02E-01	2,57E-01	9,67E-03	3,18E-02	1,85E-04	2,92E-04	2,94E-03
POCP (kg NMVOC eq.)	1,39E-01	1,05E-01	7,84E-03	2,39E-02	5,53E-05	2,37E-04	1,28E-03
ADP|MM (kg Sb eq.)	6,73E-06	5,93E-06	8,45E-08	6,65E-07	1,36E-10	2,56E-09	4,30E-08
ADP|F (MJ)	6,26E+02	4,86E+02	4,31E+01	9,32E+01	5,08E-02	1,30E+00	2,25E+00
WDP (m^3 world eq. deprived)	7,54E+00	8,28E+00	3,42E-02	1,25E+00	6,39E-05	1,03E-03	-2,02E+00

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C.4. Corkeen 90 mm

Use of resources

Parameter		Unit	1 m² Corkeen 90mm								
			Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	-2,44E+02	9,92E+02	1,31E-01	1,39E+01	1,34E-04	1,07E-01	9,43E+00	6,18E-03	-1,26E+03
	Used as raw materials	MJ, net calorific value	1,71E+02	1,69E+02	0,00E+00	1,69E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	-7,32E+01	1,16E+03	1,31E-01	1,56E+01	1,34E-04	1,07E-01	9,43E+00	6,18E-03	-1,26E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	5,27E+02	3,65E+02	5,24E+01	9,21E+01	6,14E-02	4,29E+01	1,15E+01	2,70E-01	-3,66E+01
	Used as raw materials	MJ, net calorific value	1,98E+02	1,96E+02	0,00E+00	1,96E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	7,25E+02	5,60E+02	5,24E+01	9,40E+01	6,14E-02	4,29E+01	1,15E+01	2,70E-01	-3,66E+01
Secondary material		kg	6,03E+00	5,97E+00	2,70E-05	6,33E-02	1,24E-07	2,22E-05	3,75E-05	2,44E-05	-1,30E-03
Renewable secondary fuels		MJ, net calorific value	2,22E+00	2,21E+00	2,24E-06	5,49E-03	2,14E-08	1,84E-06	1,51E-06	1,28E-06	-5,48E-06
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m3	2,55E-01	2,32E-01	1,01E-03	3,14E-02	1,86E-06	8,31E-04	4,24E-03	-5,64E-03	-8,72E-03

Waste production

Parameter	Unit	1 m² Corkeen 90mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,96E+00	1,84E+00	1,99E-03	1,87E-01	6,45E-06	1,63E-03	5,71E-02	1,21E-04	-1,28E-01
Non-hazardous waste disposed	kg	7,47E+01	6,04E+01	1,69E-01	7,58E+00	2,20E-04	1,39E-01	1,99E+00	7,11E+00	-2,69E+00
Radioactive waste disposed	kg	5,33E-04	4,19E-04	3,16E-06	1,29E-04	2,86E-09	2,59E-06	1,70E-05	9,06E-08	-3,89E-05

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Output flows

Parameter	Unit	1 m² Corkeen 90mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Components for reuse	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	**kg**	1,28E+00	1,33E-02	1,18E-06	1,28E+00	1,64E-09	9,68E-07	2,43E-04	5,60E-06	-5,85E-03
Materials for energy recovery	**kg**	1,11E-05	1,02E-05	7,73E-09	1,01E-06	5,13E-11	6,34E-09	4,51E-08	1,21E-09	-1,69E-07
Exported energy, electricity	**MJ**	4,74E-01	5,73E-01	2,09E-03	7,35E-02	1,10E-06	1,71E-03	1,42E-01	1,23E-04	-3,18E-01
Exported energy, thermal	**MJ**	9,67E-02	7,34E-02	4,96E-03	1,34E-02	4,40E-07	4,07E-03	2,54E-04	1,90E-03	-1,24E-03

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Core environmental impact indicators

1 m² Corkeen 90mm

	Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
GWP|T (kg CO_2 eq.)	6,23E+01	1,76E+01	3,89E+00	5,98E+00	4,70E-03	3,19E+00	1,38E+01	1,44E+00	1,64E+01
GWP|F (kg CO_2 eq.)	4,07E+01	3,11E+01	3,89E+00	4,32E+00	4,69E-03	3,19E+00	8,14E-01	1,08E-02	-2,62E+00
GWP|B (kg CO_2 eq.)	2,15E+01	-1,36E+01	8,56E-04	1,65E+00	8,25E-07	7,01E-04	1,30E+01	1,43E+00	1,90E+01
GWP|L (kg CO_2 eq.)	1,01E-01	1,05E-01	6,23E-05	1,02E-02	1,93E-07	5,11E-05	3,80E-05	1,09E-06	-1,39E-02
ODP (kg CFC-11 eq.)	1,58E-06	1,27E-06	8,95E-08	1,81E-07	7,14E-11	7,34E-08	1,55E-08	3,55E-10	-5,30E-08
AP (mol H+ eq.)	1,32E-01	1,15E-01	4,85E-03	1,48E-02	4,34E-05	3,98E-03	4,56E-03	7,40E-05	-1,13E-02
EP|Fw (kg P eq.)	1,02E-03	9,56E-04	2,43E-06	1,06E-04	4,42E-09	1,99E-06	3,51E-05	5,89E-08	-8,18E-05
EP|M (kg N eq.)	4,14E-02	3,83E-02	1,08E-03	4,01E-03	2,05E-05	8,83E-04	1,61E-03	5,49E-05	-4,47E-03
EP|T (mol N eq.)	3,26E-01	2,96E-01	1,17E-02	3,22E-02	2,24E-04	9,63E-03	1,76E-02	3,53E-04	-4,16E-02
POCP (kg NMVOC eq.)	1,49E-01	1,21E-01	9,52E-03	2,41E-02	6,69E-05	7,81E-03	4,75E-03	1,54E-04	-1,86E-02
ADP|MM (kg Sb eq.)	7,53E-06	6,81E-06	1,03E-07	6,74E-07	1,65E-10	8,42E-08	1,41E-08	5,16E-09	-1,58E-07
ADP|F (MJ)	7,25E+02	5,60E+02	5,24E+01	9,40E+01	6,14E-02	4,29E+01	1,15E+01	2,70E-01	-3,66E+01
WDP (m^3 world eq. deprived)	1,05E+01	9,57E+00	4,16E-02	1,26E+00	7,73E-05	3,41E-02	1,86E-01	-2,43E-01	-3,73E-01

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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Additional environmental impact indicators

	1 m² Corkeen 90mm								
	Total	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM (Disease incidence)	1,58E-06	1,83E-06	2,49E-07	1,55E-07	1,25E-09	2,04E-07	6,95E-08	1,87E-09	-9,22E-07
IRP (kBq U235 eq.)	7,42E-01	6,00E-01	5,03E-03	1,62E-01	5,10E-06	4,12E-03	2,29E-02	1,66E-04	-5,24E-02
ETP-fw (CTUe)	1,40E+03	1,28E+03	1,93E+00	1,28E+02	1,76E-03	1,59E+00	8,43E-01	2,10E-02	-2,47E+00
HTP-c (CTUh)	6,00E-08	5,47E-08	2,44E-10	5,37E-09	2,51E-13	2,00E-10	6,66E-11	1,27E-12	-5,95E-10
HTP-nc (CTUh)	1,90E-07	1,28E-07	2,77E-08	1,66E-08	4,64E-12	2,27E-08	3,40E-09	1,94E-10	-8,39E-09
SQP (dimensionless)	-1,50E+02	2,83E+03	6,66E-02	3,19E+01	1,04E-04	5,46E-02	5,89E-01	6,80E-01	-3,01E+03

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▪ Product Stage [A1-A3] | - per Element

1 m² Corkeen 90mm | Product Stage [A1-A3]

	Total	A1 Cork	A1 Binder | Production	A1 Binder | Corkeen	A3 Maintenance	A3 Packaging	A3 Electricity | Grid	A3 Electricity | Photovoltaic	A3 Heat | Thermo-fluid	A3 Steam (Biomass)	A3 Heat (natural gas)	A3 Steam (boiler| mixer)	A2 Transport	A2 Internal transport	A3 Capital Goods	A3 Emissions	A3 Waste and transport
GWP|T (kg CO_2 eq.)	1,76E+01	-1,59E+01	5,25E+00	2,26E+01	8,55E-03	7,99E-01	1,80E+00	1,01E-06	5,96E-02	6,70E-02	4,68E-02	3,58E-02	7,42E-01	5,88E-02	1,99E-03	4,07E+00	4,29E-05
GWP|F (kg CO_2 eq.)	3,11E+01	1,26E-01	5,22E+00	2,25E+01	8,50E-03	7,10E-01	1,80E+00	5,17E-07	5,96E-02	6,69E-02	4,67E-02	3,58E-02	7,35E-01	5,88E-02	1,98E-03	0,00E+00	4,29E-05
GWP|B (kg CO_2 eq.)	-1,36E+01	-1,60E+01	1,49E-02	6,44E-02	4,64E-05	8,66E-02	1,71E-03	4,92E-07	5,62E-05	9,72E-05	2,42E-05	6,93E-06	1,58E-04	1,03E-05	4,75E-06	4,07E+00	6,20E-09
GWP|L (kg CO_2 eq.)	1,05E-01	1,22E-02	1,70E-02	7,35E-02	3,33E-06	1,88E-03	8,35E-05	1,00E-09	2,76E-06	3,47E-06	1,34E-06	1,53E-06	1,18E-05	2,42E-06	5,17E-06	0,00E+00	2,44E-10
ODP (kg CFC-11 eq.)	1,27E-06	2,20E-09	2,26E-07	9,74E-07	4,49E-11	1,76E-08	3,40E-08	7,43E-15	1,13E-09	1,48E-09	2,12E-09	5,45E-10	1,65E-08	8,95E-10	3,94E-11	0,00E+00	1,90E-13
AP (mol H+ eq.)	1,15E-01	9,17E-04	1,88E-02	8,11E-02	3,31E-05	3,06E-03	4,78E-03	3,10E-09	3,70E-04	4,28E-03	3,83E-05	3,30E-04	1,20E-03	5,43E-04	3,58E-05	6,81E-06	1,42E-08
EP|Fw (kg P eq.)	9,56E-04	1,83E-06	1,59E-04	6,84E-04	4,79E-07	2,65E-05	7,79E-05	2,00E-09	2,56E-06	2,90E-06	6,47E-08	3,55E-08	4,54E-07	5,54E-08	2,68E-07	0,00E+00	1,06E-11
EP|M (kg N eq.)	3,83E-02	4,80E-04	6,12E-03	2,64E-02	6,75E-06	8,40E-04	9,68E-04	2,04E-08	8,20E-04	2,01E-03	1,42E-05	1,56E-04	2,74E-04	2,56E-04	2,96E-06	3,58E-06	3,93E-09
EP|T (mol N eq.)	2,96E-01	4,47E-03	4,54E-02	1,96E-01	7,77E-05	9,00E-03	1,09E-02	7,72E-09	1,49E-03	2,20E-02	1,51E-04	1,71E-03	3,01E-03	2,81E-03	3,68E-05	3,92E-05	4,33E-08
POCP (kg NMVOC eq.)	1,21E-01	5,01E-03	1,84E-02	7,94E-02	2,71E-05	4,01E-03	3,85E-03	1,67E-09	2,16E-03	5,23E-03	8,12E-05	5,10E-04	1,97E-03	8,38E-04	1,24E-05	2,22E-04	2,42E-08
ADP|MM (kg Sb eq.)	6,81E-06	1,34E-08	1,00E-06	4,33E-06	6,65E-08	8,42E-07	2,09E-08	1,53E-12	6,99E-10	7,98E-09	2,51E-10	1,26E-09	1,89E-08	2,06E-09	5,13E-07	0,00E+00	3,67E-13
ADP|F (MJ)	5,60E+02	1,80E+00	9,57E+01	4,13E+02	8,97E-02	8,58E+00	2,54E+01	9,13E-06	8,41E-01	9,45E-01	7,67E-01	4,68E-01	9,72E+00	7,69E-01	2,53E-02	0,00E+00	1,10E-04
WDP (m^3 world eq. deprived)	9,57E+00	2,74E-02	1,67E+00	7,20E+00	2,08E-03	1,50E-01	1,25E-01	1,44E-07	4,11E-03	2,26E-01	1,22E-03	6,55E-03	7,71E-03	9,69E-04	9,97E-04	0,00E+00	8,12E-07

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(National landline)
itecons@itecons.uc.pt

▪ Product Stage [A1-A3] | - per Component

	1 m² Corkeen 90mm | Product Stage [A1-A3]			
	Total	**Base Layer**	**Top Layer**	**Binder**
GWP|T (kg CO_2 eq.)	1,76E+01	-8,95E+00	3,55E+00	2,30E+01
GWP|F (kg CO_2 eq.)	3,11E+01	2,15E+00	6,05E+00	2,29E+01
GWP|B (kg CO_2 eq.)	-1,36E+01	-1,11E+01	-2,52E+00	6,74E-02
GWP|L (kg CO_2 eq.)	1,05E-01	1,12E-02	1,96E-02	7,39E-02
ODP (kg CFC-11 eq.)	1,27E-06	4,57E-08	2,44E-07	9,80E-07
AP (mol H+ eq.)	1,15E-01	1,00E-02	2,27E-02	8,24E-02
EP|Fw (kg P eq.)	9,56E-04	7,11E-05	1,85E-04	7,00E-04
EP|M (kg N eq.)	3,83E-02	3,76E-03	7,83E-03	2,67E-02
EP|T (mol N eq.)	2,96E-01	3,72E-02	6,00E-02	1,99E-01
POCP (kg NMVOC eq.)	1,21E-01	1,57E-02	2,46E-02	8,08E-02
ADP|MM (kg Sb eq.)	6,81E-06	6,01E-07	1,26E-06	4,95E-06
ADP|F (MJ)	5,60E+02	3,19E+01	1,08E+02	4,20E+02
WDP (m^3 world eq. deprived)	9,57E+00	4,69E-01	1,81E+00	7,29E+00

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Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 1 (100% recycling)

1 m² Corkeen 90mm | Alternative scenario 1 (100% recycling)

	Total	[A1-A3]	A4	A5	C1	C2	C3	D
GWP|T (kg CO_2 eq.)	6,36E+01	1,76E+01	3,89E+00	5,98E+00	4,70E-03	3,54E+00	1,44E+01	1,82E+01
GWP|F (kg CO_2 eq.)	4,08E+01	3,11E+01	3,89E+00	4,32E+00	4,69E-03	3,54E+00	9,03E-01	-2,90E+00
GWP|B (kg CO_2 eq.)	2,27E+01	-1,36E+01	8,56E-04	1,65E+00	8,25E-07	7,79E-04	1,35E+01	2,11E+01
GWP|L (kg CO_2 eq.)	9,97E-02	1,05E-01	6,23E-05	1,02E-02	1,93E-07	5,67E-05	4,22E-05	-1,54E-02
ODP (kg CFC-11 eq.)	1,58E-06	1,27E-06	8,95E-08	1,81E-07	7,14E-11	8,14E-08	1,72E-08	-5,87E-08
AP (mol H+ eq.)	1,32E-01	1,15E-01	4,85E-03	1,48E-02	4,34E-05	4,41E-03	5,06E-03	-1,26E-02
EP|Fw (kg P eq.)	1,01E-03	9,56E-04	2,43E-06	1,06E-04	4,42E-09	2,21E-06	3,89E-05	-9,06E-05
EP|M (kg N eq.)	4,12E-02	3,83E-02	1,08E-03	4,01E-03	2,05E-05	9,80E-04	1,78E-03	-4,95E-03
EP|T (mol N eq.)	3,24E-01	2,96E-01	1,17E-02	3,22E-02	2,24E-04	1,07E-02	1,95E-02	-4,61E-02
POCP (kg NMVOC eq.)	1,48E-01	1,21E-01	9,52E-03	2,41E-02	6,69E-05	8,67E-03	5,28E-03	-2,06E-02
ADP|MM (kg Sb eq.)	7,52E-06	6,81E-06	1,03E-07	6,74E-07	1,65E-10	9,35E-08	1,56E-08	-1,75E-07
ADP|F (MJ)	7,26E+02	5,60E+02	5,24E+01	9,40E+01	6,14E-02	4,77E+01	1,27E+01	-4,06E+01
WDP (m^3 world eq. deprived)	1,07E+01	9,57E+00	4,16E-02	1,26E+00	7,73E-05	3,78E-02	2,07E-01	-4,13E-01

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itecons@itecons.uc.pt

Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 2 (100% landfill)

1 m² Corkeen 90mm | Alternative scenario 2 (100% landfill)

	Total	[A1-A3]	A4	A5	C1	C2	C4
GWP|T (kg CO_2 eq.)	3,95E+01	1,53E+01	3,89E+00	5,82E+00	4,70E-03	1,17E-01	1,44E+01
GWP|F (kg CO_2 eq.)	3,95E+01	3,11E+01	3,89E+00	4,32E+00	4,69E-03	1,17E-01	1,08E-01
GWP|B (kg CO_2 eq.)	-8,08E-02	-1,59E+01	8,56E-04	1,50E+00	8,25E-07	2,57E-05	1,43E+01
GWP|L (kg CO_2 eq.)	1,15E-01	1,05E-01	6,23E-05	1,02E-02	1,93E-07	1,87E-06	1,09E-05
ODP (kg CFC-11 eq.)	1,55E-06	1,27E-06	8,95E-08	1,81E-07	7,14E-11	2,69E-09	3,55E-09
AP (mol H+ eq.)	1,36E-01	1,15E-01	4,85E-03	1,48E-02	4,34E-05	1,46E-04	7,40E-04
EP|Fw (kg P eq.)	1,06E-03	9,56E-04	2,43E-06	1,06E-04	4,42E-09	7,31E-08	5,89E-07
EP|M (kg N eq.)	4,39E-02	3,83E-02	1,08E-03	4,01E-03	2,05E-05	3,24E-05	5,49E-04
EP|T (mol N eq.)	3,44E-01	2,96E-01	1,17E-02	3,22E-02	2,24E-04	3,53E-04	3,53E-03
POCP (kg NMVOC eq.)	1,57E-01	1,21E-01	9,52E-03	2,41E-02	6,69E-05	2,86E-04	1,54E-03
ADP|MM (kg Sb eq.)	7,64E-06	6,81E-06	1,03E-07	6,74E-07	1,65E-10	3,08E-09	5,16E-08
ADP|F (MJ)	7,05E+02	5,54E+02	5,24E+01	9,40E+01	6,14E-02	1,57E+00	2,70E+00
WDP (m^3 world eq. deprived)	8,30E+00	9,42E+00	4,16E-02	1,25E+00	7,73E-05	1,25E-03	-2,43E+00

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C.5. Corkeen 110 mm

Use of resources

Parameter		Unit	1 m2 Corkeen 110mm								
			Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	-2,51E+02	1,20E+03	1,53E-01	1,60E+01	1,57E-04	1,26E-01	1,10E+01	7,27E-03	-1,47E+03
	Used as raw materials	MJ, net calorific value	2,07E+02	2,05E+02	0,00E+00	2,05E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	-4,38E+01	1,40E+03	1,53E-01	1,80E+01	1,57E-04	1,26E-01	1,10E+01	7,27E-03	-1,47E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	5,83E+02	4,08E+02	6,15E+01	9,26E+01	7,19E-02	5,04E+01	1,34E+01	3,18E-01	-4,29E+01
	Used as raw materials	MJ, net calorific value	2,24E+02	2,22E+02	0,00E+00	2,22E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	8,07E+02	6,30E+02	6,15E+01	9,49E+01	7,19E-02	5,04E+01	1,34E+01	3,18E-01	-4,29E+01
Secondary material		kg	7,30E+00	7,23E+00	3,17E-05	7,60E-02	1,45E-07	2,60E-05	4,39E-05	2,87E-05	-1,52E-03
Renewable secondary fuels		MJ, net calorific value	2,63E+00	2,62E+00	2,63E-06	6,73E-03	2,51E-08	2,15E-06	1,76E-06	1,50E-06	-6,41E-06
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m^3	2,83E-01	2,61E-01	1,19E-03	3,16E-02	2,18E-06	9,75E-04	4,96E-03	-6,64E-03	-1,02E-02

Waste production

Parameter	Unit	1 m^2 Corkeen 110mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,18E+00	2,07E+00	2,34E-03	1,90E-01	7,55E-06	1,92E-03	6,69E-02	1,43E-04	-1,50E-01
Non-hazardous waste disposed	kg	8,36E+01	6,79E+01	1,99E-01	7,78E+00	2,58E-04	1,63E-01	2,33E+00	8,36E+00	-3,15E+00
Radioactive waste disposed	kg	5,84E-04	4,73E-04	3,71E-06	1,30E-04	3,35E-09	3,04E-06	1,99E-05	1,07E-07	-4,55E-05

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Output flows

Parameter	Unit	1 m² Corkeen 110mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Components for reuse	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	**kg**	1,54E+00	1,55E-02	1,39E-06	1,54E+00	1,92E-09	1,13E-06	2,84E-04	6,59E-06	-6,84E-03
Materials for energy recovery	**kg**	1,23E-05	1,14E-05	9,08E-09	1,03E-06	6,00E-11	7,43E-09	5,29E-08	1,43E-09	-1,97E-07
Exported energy, electricity	**MJ**	5,39E-01	6,66E-01	2,45E-03	7,45E-02	1,28E-06	2,01E-03	1,66E-01	1,45E-04	-3,72E-01
Exported energy, thermal	**MJ**	1,08E-01	8,28E-02	5,82E-03	1,35E-02	5,15E-07	4,77E-03	2,98E-04	2,24E-03	-1,45E-03

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Core environmental impact indicators

	1 m² Corkeen 110mm								
	Total	**[A1-A3]**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP|T ($kg\ CO_2$ eq.)	7,06E+01	1,87E+01	4,57E+00	6,38E+00	5,50E-03	3,74E+00	1,63E+01	1,70E+00	1,92E+01
GWP|F ($kg\ CO_2$ eq.)	4,55E+01	3,50E+01	4,57E+00	4,36E+00	5,50E-03	3,74E+00	9,54E-01	1,27E-02	-3,07E+00
GWP|B ($kg\ CO_2$ eq.)	2,49E+01	-1,64E+01	1,00E-03	2,00E+00	9,66E-07	8,23E-04	1,54E+01	1,69E+00	2,23E+01
GWP|L ($kg\ CO_2$ eq.)	1,13E-01	1,18E-01	7,31E-05	1,04E-02	2,26E-07	5,99E-05	4,46E-05	1,29E-06	-1,63E-02
ODP (kg CFC-11 eq.)	1,75E-06	1,42E-06	1,05E-07	1,82E-07	8,36E-11	8,60E-08	1,81E-08	4,18E-10	-6,20E-08
AP (mol H+ eq.)	1,47E-01	1,30E-01	5,70E-03	1,49E-02	5,08E-05	4,66E-03	5,34E-03	8,70E-05	-1,33E-02
EP|Fw (kg P eq.)	1,13E-03	1,08E-03	2,86E-06	1,08E-04	5,18E-09	2,34E-06	4,11E-05	6,93E-08	-9,57E-05
EP|M (kg N eq.)	4,62E-02	4,31E-02	1,26E-03	4,06E-03	2,39E-05	1,04E-03	1,88E-03	6,45E-05	-5,23E-03
EP|T (mol N eq.)	3,65E-01	3,34E-01	1,38E-02	3,26E-02	2,62E-04	1,13E-02	2,06E-02	4,15E-04	-4,87E-02
POCP (kg NMVOC eq.)	1,65E-01	1,37E-01	1,12E-02	2,43E-02	7,83E-05	9,16E-03	5,56E-03	1,81E-04	-2,18E-02
ADP|MM (kg Sb eq.)	8,42E-06	7,68E-06	1,21E-07	6,83E-07	1,93E-10	9,88E-08	1,65E-08	6,07E-09	-1,85E-07
ADP|F (MJ)	8,07E+02	6,29E+02	6,15E+01	9,48E+01	7,19E-02	5,04E+01	1,34E+01	3,18E-01	-4,29E+01
WDP (m^3 world eq. deprived)	1,16E+01	1,08E+01	4,88E-02	1,26E+00	9,05E-05	4,00E-02	2,18E-01	-2,85E-01	-4,36E-01

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3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Additional environmental impact indicators

	1 m² Corkeen 110mm								
	Total	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM (Disease incidence)	1,79E-06	2,10E-06	2,92E-07	1,58E-07	1,46E-09	2,39E-07	8,13E-08	2,20E-09	-1,08E-06
IRP (kBq U235 eq.)	8,15E-01	6,76E-01	5,91E-03	1,63E-01	5,97E-06	4,84E-03	2,68E-02	1,96E-04	-6,14E-02
ETP-fw (CTUe)	1,56E+03	1,43E+03	2,27E+00	1,29E+02	2,06E-03	1,86E+00	9,88E-01	2,47E-02	-2,89E+00
HTP-c (CTUh)	6,68E-08	6,14E-08	2,86E-10	5,44E-09	2,94E-13	2,34E-10	7,80E-11	1,49E-12	-6,96E-10
HTP-nc (CTUh)	2,14E-07	1,44E-07	3,25E-08	1,68E-08	5,43E-12	2,66E-08	3,99E-09	2,29E-10	-9,82E-09
SQP (dimensionless)	-6,82E+01	3,42E+03	7,82E-02	3,78E+01	1,22E-04	6,40E-02	6,90E-01	8,00E-01	-3,52E+03

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▪ Product Stage [A1-A3] | - per Element

1 m² Corkeen 110mm | Product Stage [A1-A3]

	Total	A1 Cork	A1 Binder | Production	A1 Binder | Corkeen	A3 Maintenance	A3 Packaging	A3 Electricity | Grid	A3 Electricity | Photovoltaic	A3 Heat | Thermo-fluid	A3 Steam (Biomass)	A3 Heat (natural gas)	A3 Steam (boiler| mixer)	A2 Transport	A2 Internal transport	A3 Capital Goods	A3 Emissions	A3 Waste and transport
GWP|T (kg CO_2 eq.)	1,87E+01	-1,92E+01	5,25E+00	2,59E+01	1,03E-02	9,56E-01	2,14E+00	1,19E-06	6,72E-02	8,10E-02	5,65E-02	3,58E-02	8,66E-01	6,29E-02	2,36E-03	4,92E+00	5,19E-05
GWP|F (kg CO_2 eq.)	3,50E+01	1,53E-01	5,22E+00	2,58E+01	1,03E-02	8,31E-01	2,14E+00	6,11E-07	6,72E-02	8,09E-02	5,65E-02	3,58E-02	8,58E-01	6,29E-02	2,34E-03	0,00E+00	5,19E-05
GWP|B (kg CO_2 eq.)	-1,64E+01	-1,94E+01	1,49E-02	7,37E-02	5,61E-05	1,23E-01	2,03E-03	5,82E-07	6,34E-05	1,18E-04	2,93E-05	6,93E-06	1,85E-04	1,11E-05	5,63E-06	4,92E+00	7,49E-09
GWP|L (kg CO_2 eq.)	1,18E-01	1,47E-02	1,70E-02	8,42E-02	4,02E-06	2,27E-03	9,95E-05	1,18E-09	3,11E-06	4,20E-06	1,62E-06	1,53E-06	1,37E-05	2,59E-06	6,12E-06	0,00E+00	2,95E-10
ODP (kg CFC-11 eq.)	1,42E-06	2,66E-09	2,26E-07	1,12E-06	5,40E-11	2,05E-08	4,04E-08	8,79E-15	1,27E-09	1,78E-09	2,56E-09	5,45E-10	1,93E-08	9,57E-10	4,66E-11	0,00E+00	2,29E-13
AP (mol H+ eq.)	1,30E-01	1,11E-03	1,88E-02	9,29E-02	4,00E-05	3,57E-03	5,68E-03	3,67E-09	4,17E-04	5,17E-03	4,63E-05	3,30E-04	1,41E-03	5,81E-04	4,23E-05	8,24E-06	1,72E-08
EP|Fw (kg P eq.)	1,08E-03	2,21E-06	1,59E-04	7,84E-04	5,80E-07	3,07E-05	9,27E-05	2,36E-09	2,89E-06	3,50E-06	7,83E-08	3,55E-08	5,29E-07	5,92E-08	3,17E-07	0,00E+00	1,28E-11
EP|M (kg N eq.)	4,31E-02	5,80E-04	6,12E-03	3,02E-02	8,16E-06	9,81E-04	1,15E-03	2,41E-08	9,25E-04	2,43E-03	1,71E-05	1,56E-04	3,23E-04	2,74E-04	3,50E-06	4,33E-06	4,75E-09
EP|T (mol N eq.)	3,34E-01	5,40E-03	4,54E-02	2,24E-01	9,39E-05	1,06E-02	1,29E-02	9,13E-09	1,68E-03	2,66E-02	1,82E-04	1,71E-03	3,55E-03	3,00E-03	4,36E-05	4,74E-05	5,23E-08
POCP (kg NMVOC eq.)	1,37E-01	6,06E-03	1,84E-02	9,10E-02	3,26E-05	4,74E-03	4,58E-03	1,97E-09	2,44E-03	6,32E-03	9,81E-05	5,10E-04	2,31E-03	8,96E-04	1,46E-05	2,68E-04	2,92E-08
ADP|MM (kg Sb eq.)	7,68E-06	1,62E-08	1,00E-06	4,95E-06	8,04E-08	9,68E-07	2,49E-08	1,81E-12	7,88E-10	9,65E-09	3,04E-10	1,26E-09	2,20E-08	2,21E-09	6,07E-07	0,00E+00	4,44E-13
ADP|F (MJ)	6,29E+02	2,18E+00	9,57E+01	4,73E+02	1,08E-01	9,66E+00	3,02E+01	1,08E-05	9,48E-01	1,14E+00	9,28E-01	4,68E-01	1,13E+01	8,23E-01	3,00E-02	0,00E+00	1,33E-04
WDP (m^3 world eq. deprived)	1,08E+01	3,31E-02	1,67E+00	8,25E+00	2,52E-03	1,70E-01	1,49E-01	1,70E-07	4,64E-03	2,74E-01	1,47E-03	6,55E-03	8,99E-03	1,04E-03	1,18E-03	0,00E+00	9,81E-07

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(National landline)
itecons@itecons.uc.pt

▪ Product Stage [A1-A3] | - per Component

	1 m² Corkeen 110mm | Product Stage [A1-A3]			
	Total	**Base Layer**	**Top Layer**	**Binder**
GWP|T (kg CO_2 eq.)	1,87E+01	-1,13E+01	3,55E+00	2,64E+01
GWP|F (kg CO_2 eq.)	3,50E+01	2,70E+00	6,05E+00	2,62E+01
GWP|B (kg CO_2 eq.)	-1,64E+01	-1,40E+01	-2,52E+00	7,72E-02
GWP|L (kg CO_2 eq.)	1,18E-01	1,41E-02	1,96E-02	8,46E-02
ODP (kg CFC-11 eq.)	1,42E-06	5,75E-08	2,44E-07	1,12E-06
AP (mol H+ eq.)	1,30E-01	1,26E-02	2,27E-02	9,44E-02
EP|Fw (kg P eq.)	1,08E-03	8,94E-05	1,85E-04	8,01E-04
EP|M (kg N eq.)	4,31E-02	4,73E-03	7,83E-03	3,05E-02
EP|T (mol N eq.)	3,34E-01	4,68E-02	6,00E-02	2,27E-01
POCP (kg NMVOC eq.)	1,37E-01	1,97E-02	2,46E-02	9,25E-02
ADP|MM (kg Sb eq.)	7,68E-06	7,56E-07	1,26E-06	5,66E-06
ADP|F (MJ)	6,29E+02	4,02E+01	1,08E+02	4,81E+02
WDP (m^3 world eq. deprived)	1,08E+01	5,90E-01	1,81E+00	8,35E+00

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Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 1 (100% recycling)

1 m² Corkeen 110mm | Alternative scenario 1 (100% recycling)

	Total	[A1-A3]	A4	A5	C1	C2	C3	D
GWP|T (kg CO_2 eq.)	7,22E+01	1,87E+01	4,57E+00	6,38E+00	5,50E-03	4,14E+00	1,71E+01	2,14E+01
GWP|F (kg CO_2 eq.)	4,57E+01	3,50E+01	4,57E+00	4,36E+00	5,50E-03	4,14E+00	1,06E+00	-3,41E+00
GWP|B (kg CO_2 eq.)	2,64E+01	-1,64E+01	1,00E-03	2,00E+00	9,66E-07	9,10E-04	1,60E+01	2,48E+01
GWP|L (kg CO_2 eq.)	1,11E-01	1,18E-01	7,31E-05	1,04E-02	2,26E-07	6,62E-05	4,96E-05	-1,82E-02
ODP (kg CFC-11 eq.)	1,76E-06	1,42E-06	1,05E-07	1,82E-07	8,36E-11	9,51E-08	2,02E-08	-6,90E-08
AP (mol H+ eq.)	1,47E-01	1,30E-01	5,70E-03	1,49E-02	5,08E-05	5,16E-03	5,93E-03	-1,48E-02
EP|Fw (kg P eq.)	1,13E-03	1,08E-03	2,86E-06	1,08E-04	5,18E-09	2,59E-06	4,58E-05	-1,07E-04
EP|M (kg N eq.)	4,59E-02	4,31E-02	1,26E-03	4,06E-03	2,39E-05	1,15E-03	2,09E-03	-5,82E-03
EP|T (mol N eq.)	3,62E-01	3,34E-01	1,38E-02	3,26E-02	2,62E-04	1,25E-02	2,29E-02	-5,42E-02
POCP (kg NMVOC eq.)	1,64E-01	1,37E-01	1,12E-02	2,43E-02	7,83E-05	1,01E-02	6,18E-03	-2,43E-02
ADP|MM (kg Sb eq.)	8,41E-06	7,68E-06	1,21E-07	6,83E-07	1,93E-10	1,09E-07	1,83E-08	-2,06E-07
ADP|F (MJ)	8,09E+02	6,29E+02	6,15E+01	9,48E+01	7,19E-02	5,57E+01	1,49E+01	-4,77E+01
WDP (m^3 world eq. deprived)	1,19E+01	1,08E+01	4,88E-02	1,26E+00	9,05E-05	4,42E-02	2,42E-01	-4,86E-01

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(National landline)
itecons@itecons.uc.pt

Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 2 (100% landfill)

1 m² Corkeen 110mm | Alternative scenario 2 (100% landfill)

	Total	[A1-A3]	A4	A5	C1	C2	C4
GWP|T (kg CO_2 eq.)	4,39E+01	1,59E+01	4,57E+00	6,19E+00	5,50E-03	1,37E-01	1,70E+01
GWP|F (kg CO_2 eq.)	4,42E+01	3,50E+01	4,57E+00	4,36E+00	5,50E-03	1,37E-01	1,27E-01
GWP|B (kg CO_2 eq.)	-4,27E-01	-1,92E+01	1,00E-03	1,82E+00	9,66E-07	3,01E-05	1,69E+01
GWP|L (kg CO_2 eq.)	1,29E-01	1,18E-01	7,31E-05	1,04E-02	2,26E-07	2,19E-06	1,29E-05
ODP (kg CFC-11 eq.)	1,72E-06	1,42E-06	1,05E-07	1,82E-07	8,36E-11	3,14E-09	4,18E-09
AP (mol H+ eq.)	1,51E-01	1,30E-01	5,70E-03	1,49E-02	5,08E-05	1,70E-04	8,70E-04
EP|Fw (kg P eq.)	1,19E-03	1,08E-03	2,86E-06	1,08E-04	5,18E-09	8,55E-08	6,93E-07
EP|M (kg N eq.)	4,91E-02	4,31E-02	1,26E-03	4,06E-03	2,39E-05	3,79E-05	6,45E-04
EP|T (mol N eq.)	3,85E-01	3,34E-01	1,38E-02	3,26E-02	2,62E-04	4,13E-04	4,15E-03
POCP (kg NMVOC eq.)	1,75E-01	1,37E-01	1,12E-02	2,43E-02	7,83E-05	3,35E-04	1,81E-03
ADP|MM (kg Sb eq.)	8,55E-06	7,68E-06	1,21E-07	6,83E-07	1,93E-10	3,61E-09	6,07E-08
ADP|F (MJ)	7,83E+02	6,22E+02	6,15E+01	9,48E+01	7,19E-02	1,84E+00	3,18E+00
WDP (m^3 world eq. deprived)	9,03E+00	1,06E+01	4,88E-02	1,26E+00	9,05E-05	1,46E-03	-2,85E+00

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C.6. Corkeen 135 mm

Use of resources

Parameter		Unit	1 m² Corkeen 135mm								
			Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	-2,58E+02	1,44E+03	1,80E-01	1,84E+01	1,84E-04	1,47E-01	1,29E+01	8,50E-03	-1,73E+03
	Used as raw materials	MJ, net calorific value	2,50E+02	2,47E+02	0,00E+00	2,47E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	-8,70E+00	1,69E+03	1,80E-01	2,09E+01	1,84E-04	1,47E-01	1,29E+01	8,50E-03	-1,73E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	6,48E+02	4,58E+02	7,22E+01	9,33E+01	8,42E-02	5,90E+01	1,58E+01	3,72E-01	-5,02E+01
	Used as raw materials	MJ, net calorific value	2,55E+02	2,53E+02	0,00E+00	2,53E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	Total	MJ, net calorific value	9,03E+02	7,11E+02	7,22E+01	9,58E+01	8,42E-02	5,90E+01	1,58E+01	3,72E-01	-5,02E+01
Secondary material		kg	8,81E+00	8,72E+00	3,72E-05	9,11E-02	1,69E-07	3,05E-05	5,15E-05	3,36E-05	-1,78E-03
Renewable secondary fuels		MJ, net calorific value	3,12E+00	3,11E+00	3,09E-06	8,19E-03	2,94E-08	2,52E-06	2,07E-06	1,76E-06	-7,52E-06
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m³	3,15E-01	2,94E-01	1,40E-03	3,18E-02	2,55E-06	1,14E-03	5,82E-03	-7,76E-03	-1,20E-02

Waste production

Parameter	Unit	1 m² Corkeen 135mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,44E+00	2,34E+00	2,75E-03	1,92E-01	8,84E-06	2,25E-03	7,85E-02	1,67E-04	-1,76E-01
Non-hazardous waste disposed	kg	9,40E+01	7,67E+01	2,33E-01	8,01E+00	3,02E-04	1,91E-01	2,74E+00	9,78E+00	-3,69E+00
Radioactive waste disposed	kg	6,44E-04	5,35E-04	4,36E-06	1,30E-04	3,93E-09	3,56E-06	2,34E-05	1,25E-07	-5,33E-05

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Output flows

Parameter	Unit	1 m² Corkeen 135mm								
		Total	[A1-A3]	A4	A5	C1	C2	C3	C4	D
Components for reuse	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	**kg**	1,86E+00	1,81E-02	1,63E-06	1,85E+00	2,25E-09	1,33E-06	3,33E-04	7,71E-06	-8,02E-03
Materials for energy recovery	**kg**	1,38E-05	1,29E-05	1,07E-08	1,04E-06	7,04E-11	8,72E-09	6,21E-08	1,67E-09	-2,31E-07
Exported energy, electricity	**MJ**	6,14E-01	7,75E-01	2,88E-03	7,55E-02	1,50E-06	2,36E-03	1,95E-01	1,70E-04	-4,36E-01
Exported energy, thermal	**MJ**	1,21E-01	9,36E-02	6,84E-03	1,36E-02	6,03E-07	5,59E-03	3,49E-04	2,62E-03	-1,70E-03

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(National landline)
itecons@itecons.uc.pt

Core environmental impact indicators

	1 m² Corkeen 135mm								
	Total	**[A1-A3]**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP|T (kg CO_2 eq.)	8,02E+01	1,98E+01	5,37E+00	6,85E+00	6,44E-03	4,39E+00	1,93E+01	2,01E+00	2,25E+01
GWP|F (kg CO_2 eq.)	5,12E+01	3,95E+01	5,36E+00	4,42E+00	6,44E-03	4,39E+00	1,12E+00	1,49E-02	-3,59E+00
GWP|B (kg CO_2 eq.)	2,89E+01	-1,98E+01	1,18E-03	2,42E+00	1,13E-06	9,65E-04	1,81E+01	2,00E+00	2,61E+01
GWP|L (kg CO_2 eq.)	1,26E-01	1,34E-01	8,59E-05	1,05E-02	2,65E-07	7,02E-05	5,23E-05	1,50E-06	-1,91E-02
ODP (kg CFC-11 eq.)	1,96E-06	1,60E-06	1,23E-07	1,84E-07	9,80E-11	1,01E-07	2,13E-08	4,89E-10	-7,27E-08
AP (mol H+ eq.)	1,65E-01	1,47E-01	6,69E-03	1,51E-02	5,95E-05	5,47E-03	6,26E-03	1,02E-04	-1,55E-02
EP|Fw (kg P eq.)	1,27E-03	1,22E-03	3,35E-06	1,09E-04	6,07E-09	2,74E-06	4,82E-05	8,11E-08	-1,12E-04
EP|M (kg N eq.)	5,18E-02	4,88E-02	1,48E-03	4,12E-03	2,81E-05	1,21E-03	2,20E-03	7,55E-05	-6,13E-03
EP|T (mol N eq.)	4,10E-01	3,79E-01	1,62E-02	3,31E-02	3,07E-04	1,32E-02	2,41E-02	4,86E-04	-5,70E-02
POCP (kg NMVOC eq.)	1,85E-01	1,55E-01	1,31E-02	2,45E-02	9,17E-05	1,07E-02	6,52E-03	2,11E-04	-2,56E-02
ADP|MM (kg Sb eq.)	9,46E-06	8,70E-06	1,42E-07	6,93E-07	2,26E-10	1,16E-07	1,93E-08	7,11E-09	-2,16E-07
ADP|F (MJ)	9,03E+02	7,10E+02	7,22E+01	9,58E+01	8,42E-02	5,90E+01	1,58E+01	3,72E-01	-5,02E+01
WDP (m^3 world eq. deprived)	1,29E+01	1,21E+01	5,73E-02	1,27E+00	1,06E-04	4,69E-02	2,55E-01	-3,34E-01	-5,11E-01

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Additional environmental impact indicators

	1 m² Corkeen 135mm								
	Total	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM (Disease incidence)	2,04E-06	2,42E-06	3,43E-07	1,62E-07	1,71E-09	2,80E-07	9,53E-08	2,57E-09	-1,26E-06
IRP (kBq U235 eq.)	9,00E-01	7,64E-01	6,93E-03	1,64E-01	7,00E-06	5,67E-03	3,14E-02	2,29E-04	-7,19E-02
ETP-fw (CTUe)	1,74E+03	1,60E+03	2,67E+00	1,31E+02	2,42E-03	2,18E+00	1,16E+00	2,89E-02	-3,39E+00
HTP-c (CTUh)	7,46E-08	6,92E-08	3,36E-10	5,51E-09	3,45E-13	2,75E-10	9,16E-11	1,75E-12	-8,16E-10
HTP-nc (CTUh)	2,42E-07	1,63E-07	3,81E-08	1,70E-08	6,36E-12	3,12E-08	4,68E-09	2,67E-10	-1,15E-08
SQP (dimensionless)	2,89E+01	4,11E+03	9,18E-02	4,47E+01	1,43E-04	7,50E-02	8,10E-01	9,35E-01	-4,13E+03

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▪ Product Stage [A1-A3] | - per Element

1 m² Corkeen 135mm | Product Stage [A1-A3]

	Total	A1 Cork	A1 Binder | Production	A1 Binder | Corkeen	A3 Maintenance	A3 Packaging	A3 Electricity | Grid	A3 Electricity | Photovoltaic	A3 Heat | Thermo-fluid	A3 Steam (Biomass)	A3 Heat (natural gas)	A3 Steam (boiler| mixer)	A2 Transport	A2 Internal transport	A3 Capital Goods	A3 Emissions	A3 Waste and transport
GWP|T (kg CO_2 eq.)	1,98E+01	-2,31E+01	5,25E+00	2,98E+01	1,24E-02	1,14E+00	2,55E+00	1,41E-06	7,62E-02	9,76E-02	6,81E-02	3,58E-02	1,01E+00	6,78E-02	2,79E-03	5,93E+00	6,25E-05
GWP|F (kg CO_2 eq.)	3,95E+01	1,84E-01	5,22E+00	2,96E+01	1,24E-02	9,73E-01	2,55E+00	7,23E-07	7,61E-02	9,75E-02	6,80E-02	3,58E-02	1,00E+00	6,78E-02	2,77E-03	0,00E+00	6,25E-05
GWP|B (kg CO_2 eq.)	-1,98E+01	-2,33E+01	1,49E-02	8,46E-02	6,76E-05	1,65E-01	2,42E-03	6,88E-07	7,19E-05	1,42E-04	3,53E-05	6,93E-06	2,16E-04	1,19E-05	6,66E-06	5,93E+00	9,03E-09
GWP|L (kg CO_2 eq.)	1,34E-01	1,77E-02	1,70E-02	9,66E-02	4,84E-06	2,73E-03	1,18E-04	1,40E-09	3,52E-06	5,06E-06	1,95E-06	1,53E-06	1,60E-05	2,79E-06	7,24E-06	0,00E+00	3,56E-10
ODP (kg CFC-11 eq.)	1,60E-06	3,20E-09	2,26E-07	1,28E-06	6,48E-11	2,39E-08	4,81E-08	1,04E-14	1,44E-09	2,15E-09	3,09E-09	5,45E-10	2,25E-08	1,03E-09	5,52E-11	0,00E+00	2,76E-13
AP (mol H+ eq.)	1,47E-01	1,33E-03	1,88E-02	1,07E-01	4,81E-05	4,17E-03	6,76E-03	4,34E-09	4,73E-04	6,23E-03	5,58E-05	3,30E-04	1,66E-03	6,26E-04	5,01E-05	9,92E-06	2,07E-08
EP|Fw (kg P eq.)	1,22E-03	2,66E-06	1,59E-04	8,99E-04	6,98E-07	3,56E-05	1,10E-04	2,79E-09	3,28E-06	4,22E-06	9,43E-08	3,55E-08	6,19E-07	6,38E-08	3,75E-07	0,00E+00	1,54E-11
EP|M (kg N eq.)	4,88E-02	6,99E-04	6,12E-03	3,47E-02	9,83E-06	1,15E-03	1,37E-03	2,85E-08	1,05E-03	2,92E-03	2,06E-05	1,56E-04	3,80E-04	2,95E-04	4,15E-06	5,22E-06	5,72E-09
EP|T (mol N eq.)	3,79E-01	6,51E-03	4,54E-02	2,57E-01	1,13E-04	1,24E-02	1,54E-02	1,08E-08	1,91E-03	3,20E-02	2,20E-04	1,71E-03	4,18E-03	3,24E-03	5,16E-05	5,71E-05	6,30E-08
POCP (kg NMVOC eq.)	1,55E-01	7,30E-03	1,84E-02	1,04E-01	3,92E-05	5,60E-03	5,45E-03	2,33E-09	2,76E-03	7,62E-03	1,18E-04	5,10E-04	2,70E-03	9,65E-04	1,73E-05	3,22E-04	3,52E-08
ADP|MM (kg Sb eq.)	8,70E-06	1,95E-08	1,00E-06	5,69E-06	9,69E-08	1,12E-06	2,97E-08	2,15E-12	8,93E-10	1,16E-08	3,66E-10	1,26E-09	2,57E-08	2,38E-09	7,19E-07	0,00E+00	5,35E-13
ADP|F (MJ)	7,10E+02	2,62E+00	9,57E+01	5,43E+02	1,30E-01	1,09E+01	3,60E+01	1,28E-05	1,07E+00	1,38E+00	1,12E+00	4,68E-01	1,32E+01	8,86E-01	3,55E-02	0,00E+00	1,60E-04
WDP (m^3 world eq. deprived)	1,21E+01	3,98E-02	1,67E+00	9,47E+00	3,03E-03	1,94E-01	1,77E-01	2,01E-07	5,25E-03	3,30E-01	1,77E-03	6,55E-03	1,05E-02	1,12E-03	1,40E-03	0,00E+00	1,18E-06

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itecons@itecons.uc.pt

▪ Product Stage [A1-A3] | - per Component

	1 m² Corkeen 135mm | Product Stage [A1-A3]			
	Total	**Base Layer**	**Top Layer**	**Binder**
GWP|T (kg CO_2 eq.)	1,98E+01	-1,40E+01	3,55E+00	3,03E+01
GWP|F (kg CO_2 eq.)	3,95E+01	3,35E+00	6,05E+00	3,01E+01
GWP|B (kg CO_2 eq.)	-1,98E+01	-1,74E+01	-2,52E+00	8,86E-02
GWP|L (kg CO_2 eq.)	1,34E-01	1,75E-02	1,96E-02	9,71E-02
ODP (kg CFC-11 eq.)	1,60E-06	7,15E-08	2,44E-07	1,29E-06
AP (mol H+ eq.)	1,47E-01	1,57E-02	2,27E-02	1,08E-01
EP|Fw (kg P eq.)	1,22E-03	1,11E-04	1,85E-04	9,20E-04
EP|M (kg N eq.)	4,88E-02	5,88E-03	7,83E-03	3,51E-02
EP|T (mol N eq.)	3,79E-01	5,81E-02	6,00E-02	2,61E-01
POCP (kg NMVOC eq.)	1,55E-01	2,45E-02	2,46E-02	1,06E-01
ADP|MM (kg Sb eq.)	8,70E-06	9,39E-07	1,26E-06	6,50E-06
ADP|F (MJ)	7,10E+02	4,99E+01	1,08E+02	5,52E+02
WDP (m^3 world eq. deprived)	1,21E+01	7,33E-01	1,81E+00	9,58E+00

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Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 1 (100% recycling)

1 m² Corkeen 135mm | Alternative scenario 1 (100% recycling)

	Total	[A1-A3]	A4	A5	C1	C2	C3	D
GWP|T (kg CO_2 eq.)	8,20E+01	1,98E+01	5,37E+00	6,85E+00	6,44E-03	4,85E+00	2,01E+01	2,50E+01
GWP|F (kg CO_2 eq.)	5,14E+01	3,95E+01	5,36E+00	4,42E+00	6,44E-03	4,85E+00	1,24E+00	-4,00E+00
GWP|B (kg CO_2 eq.)	3,06E+01	-1,98E+01	1,18E-03	2,42E+00	1,13E-06	1,07E-03	1,89E+01	2,90E+01
GWP|L (kg CO_2 eq.)	1,24E-01	1,34E-01	8,59E-05	1,05E-02	2,65E-07	7,76E-05	5,80E-05	-2,13E-02
ODP (kg CFC-11 eq.)	1,97E-06	1,60E-06	1,23E-07	1,84E-07	9,80E-11	1,12E-07	2,36E-08	-8,08E-08
AP (mol H+ eq.)	1,64E-01	1,47E-01	6,69E-03	1,51E-02	5,95E-05	6,04E-03	6,94E-03	-1,73E-02
EP|Fw (kg P eq.)	1,26E-03	1,22E-03	3,35E-06	1,09E-04	6,07E-09	3,03E-06	5,34E-05	-1,25E-04
EP|M (kg N eq.)	5,14E-02	4,88E-02	1,48E-03	4,12E-03	2,81E-05	1,34E-03	2,44E-03	-6,81E-03
EP|T (mol N eq.)	4,07E-01	3,79E-01	1,62E-02	3,31E-02	3,07E-04	1,46E-02	2,68E-02	-6,34E-02
POCP (kg NMVOC eq.)	1,84E-01	1,55E-01	1,31E-02	2,45E-02	9,17E-05	1,19E-02	7,23E-03	-2,84E-02
ADP|MM (kg Sb eq.)	9,45E-06	8,70E-06	1,42E-07	6,93E-07	2,26E-10	1,28E-07	2,14E-08	-2,41E-07
ADP|F (MJ)	9,05E+02	7,10E+02	7,22E+01	9,58E+01	8,42E-02	6,53E+01	1,75E+01	-5,58E+01
WDP (m^3 world eq. deprived)	1,32E+01	1,21E+01	5,73E-02	1,27E+00	1,06E-04	5,18E-02	2,83E-01	-5,68E-01

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(National landline)
itecons@itecons.uc.pt

Modules A1-A3, A4, A5, C1-C4 and D – Alternative end-of-life scenario 2 (100% landfill)

1 m² Corkeen 135mm | Alternative scenario 2 (100% landfill)

	Total	[A1-A3]	A4	A5	C1	C2	C4
GWP|T (kg CO_2 eq.)	4,88E+01	1,66E+01	5,37E+00	6,63E+00	6,44E-03	1,61E-01	2,01E+01
GWP|F (kg CO_2 eq.)	4,96E+01	3,95E+01	5,36E+00	4,42E+00	6,44E-03	1,61E-01	1,49E-01
GWP|B (kg CO_2 eq.)	-8,96E-01	-2,31E+01	1,18E-03	2,20E+00	1,13E-06	3,55E-05	2,00E+01
GWP|L (kg CO_2 eq.)	1,45E-01	1,34E-01	8,59E-05	1,05E-02	2,65E-07	2,58E-06	1,50E-05
ODP (kg CFC-11 eq.)	1,92E-06	1,60E-06	1,23E-07	1,84E-07	9,80E-11	3,71E-09	4,89E-09
AP (mol H+ eq.)	1,70E-01	1,47E-01	6,69E-03	1,51E-02	5,95E-05	2,01E-04	1,02E-03
EP|Fw (kg P eq.)	1,33E-03	1,22E-03	3,35E-06	1,09E-04	6,07E-09	1,01E-07	8,11E-07
EP|M (kg N eq.)	5,52E-02	4,88E-02	1,48E-03	4,12E-03	2,81E-05	4,46E-05	7,55E-04
EP|T (mol N eq.)	4,34E-01	3,79E-01	1,62E-02	3,31E-02	3,07E-04	4,87E-04	4,86E-03
POCP (kg NMVOC eq.)	1,96E-01	1,55E-01	1,31E-02	2,45E-02	9,17E-05	3,95E-04	2,11E-03
ADP|MM (kg Sb eq.)	9,61E-06	8,70E-06	1,42E-07	6,93E-07	2,26E-10	4,26E-09	7,11E-08
ADP|F (MJ)	8,75E+02	7,01E+02	7,22E+01	9,57E+01	8,42E-02	2,17E+00	3,72E+00
WDP (m^3 world eq. deprived)	9,90E+00	1,19E+01	5,73E-02	1,27E+00	1,06E-04	1,72E-03	-3,34E+00

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(National landline)
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Annex D – Information on datasets used

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
Cork, raw {PT}| cork forestry | EN15804, U	Ecoinvent v3.11	he datasets covers cork production in an silvipastoral extensive management system as common in Portugal. The dataset refers to the yield of 1 hectare over the rotation period of 140 as the maximum rotation period in commercial cork production in Portugal. Production volume: 8.5145E7 kg Included activities end: Includes manual harvesting of the cork (every 9 years) and motor-manual processes for thinning and final cutting of the trees. Also included are the transport of the workers to the forests for harvesting cork and the transport of the products to the nearest forest road. Geography: The inventory is modelled for Portugal Technology level: Current Technology: The harvesting of wood considers the motor-manual processes for 'Buche, II. Ertragsklasse, starke Durchforstung' Start date: 01/01/1996 End date: 31/12/2024 Is data valid for entire period: True Time period: cork yield data from yield table (Batista et al. 2012; see exchanges for details on source) Macro-economic scenario name: Business-as-Usual Version: 9.3.0.0 Created: 7/24/24 7:21:45	Last edited: 7/24/24	sampling procedure: literature	extrapolations: see geography and technology
Polyurethane adhesive {GLO}| polyurethane adhesive production | EN15804, U	Ecoinvent v3.11	This dataset represents the production of polyurethan adhesive (PUR adhesive, PUR glue). A standard yield of 0.98 is assumed for this process. Polyurethane adhesive (PUR adhesive or PUR glue) is a formaldehyde-free adhesive which is used in engineered wood products such as crosslaminated Timber (CLT). Formaldehydes in indoor applications are often associated with concerns of their emissions to ambient air and effects on human health. In PUR adhesive isocyanate is used instead of formaldehyde. The hardening of PUR is induced by the moisture in the wood. The hardened glue is resistant to moisture and hydrolysis. Reference(s): Messmer, Annika & Chaudhary, Abhishek. (2015). Life cycle assessment of adhesives used in wood constructions. Masterthesis, ETH Zürich. Production volume: 2.5E8 kg Included activities start: Activity starts with the reception of the inputs at the chemical factory. Included activities end: Activity ends with the product at the chemical factory gate, ready to be sold on the market. Geography: The inventory is modelled for Global Technology level: Current Technology: Average technology. Start date: 01/01/2015 End date: 31/12/2024 Is data valid for entire period: True Time period: Data collected in the year 2015. Macro-economic scenario name: Business-as-Usual Version: 5.3.0.0 Created: 3/31/20 2:50:05	Last edited: 10/31/23	sampling procedure: Literature data	extrapolations: GLO dataset based on Swiss data sample. Standard yield of 0.98 is assumed. Input amounts reported in source scaled to add to 1kg of reference product plus losses.

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itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
Electricity, medium voltage {PT}| electricity, medium voltage, residual mix | EN 15804, U	Ecoinvent v3.11	This dataset describes the residual mix on the low voltage level in Portugal. The residual mix is a virtual mix. It represents the energy mix of untracked consumption , i.e., electricity consumption that is not explicitly tracked through mechanisms such as Guarantees of Origin (GO). The shares have been calculated based on statistics from AIB (2024) following the methodology of grexel (2020). The calculation area considered for the calculation of the residual mixes covers all members of EU28, Iceland, Norway, Serbia and Switzerland. The residual mix of a country is calculated based on the domestic residual mix. The domestic residual mix represents the sum of all domestic electricity production considering imports and export outside the calculation area and issued and expired attributes. In countries for which the volume of untracked consumption is smaller than the volume of the domestic residual mix, the composition of the residual mix is equal to the composition of the domestic residual mix. In countries for which the volume of untracked consumption is larger than the volume of the domestic residual mix, the European Attribute Mix (EAM) is used to account for the deficits. Thus, in countries with a deficit in their domestic residual mix, the residual mix is equal to the domestic residual mix plus the respective amount taken from the EAM. For a detailed description of the methodology refer to grexel (2020). The composition of the residual mix of this activity is valid for the year 2023. Sources: - AIB (2024), Association of Issuing Bodies, European Residual Mixes, Results of the calculation of Residual Mixes for the calendar year 2023, Version 1.0, 2024-05-30, https://www.aib-net.org/facts/European-residual-mix/2023 - grexel (2020), Issuance Based Residual Mix Calculation Methodology, Published 31.03.2020, Version 1.2, https://www.aib-net.org/sites/default/files/assets/facts/residual-mix/2022/RM%20EAM%20IB%20Calculation%20Methodology%20V1_2.pdf Production volume: 21.4465417945699 kWh Included activities start: This activity starts from 1kWh of electricity from untracked consumption. Included activities end: This activity ends with the transport of 1 kWh of low voltage electricity from untracked consumption in the transmission network over aerial lines and cables. This dataset includes: - electricity inputs of the untracked consumption in this country - the transmission network - direct emissions to air (ozone and N2O). - electricity losses during transmission This dataset doesn't include - electricity losses during transformation, as these are included in the dataset for transformation - - SF6 emissions during the transmission, as these are allocated to the residual mix dataset for medium voltage. - SF6 emissions during production and deconstruction of the switchgear, as these are accounted for in the transmission network dataset. Geography: The inventory is modelled for Portugal Technology level: Current Technology: Average technology used to transmit and distribute electricity. Includes underground and overhead lines. Electricity production according to related technology datasets. Electricity from untracked consumption. Average technology used to transmit and distribute electricity. Includes underground and overhead lines. Electricity production according to related technology datasets. Definition of the voltage levels: - High voltage level above 24 kV (large scale industry) - Medium voltage level between 1 kV and 24 kV (medium to small scale industry, service sector and public buildings) - Low voltage level below 1 kV (Households) Start date: 01/01/2023 End date: 31/12/2024 Is data valid for entire period: True Time period: The annual production volumes of this market are taken from AIB (2024). 2023 European Residual Mix - Results of the calculation of Residual Mixes for the calendar year 2023 (Version 1.0, 2024-05-30) and are valid for the year	Last edited: 10/30/24	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

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		2023. The data on the European residual mixes is based on the transactions of guarantees of origin representing the time period of 1.4.2023 - 31.3.2024. Macro-economic scenario name: Business-as-Usual Version: 3.3.0.0 Created: 10/23/24 11:41:50			
Electricity, low voltage {PT}| electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted | EN15804, U	Ecoinvent v3.11	This dataset represents the production of grid-connected low voltage electricity with a 3 kWp building integrated photovoltaic (PV) module in Portugal in 2012. The 3 kWp module has been chosen as basic module for building integrated PV electricity production. Larger modules can easily be built with these 3 kWp modules without producing a significant error in environmental impact calculations. The module is a multi-Si panel installed on a slanted roof. An inverter is used to convert the low voltage DC power into AC power. [This dataset is meant to replace the following datasets:] Synonym: PV-module Solar module multi-crystalline polycrystalline silicon Production volume: 5.496236632359633E8 kWh Included activities start: From the PV module installed and ready to be used. Included activities end: This activity ends with low voltage electricity produced with the 3 kWp module, assuming an average yield. This dataset includes tap water use for cleaning the module and it's treatment. Geography: The inventory is modelled for Portugal Technology level: Current Technology: Electricity production with a grid-connected 3 kWp multi-Si photovoltaic panel mounted on a buildings slanted roof. See field "extrapolation" for comment on the output voltage. Start date: 01/01/2005 End date: 31/12/2024 Is data valid for entire period: True Time period: The production volume of this activity in linked system models is back-calculated from the production volume of the electricity market this activity supplies. For the according year of reference consult the supplied electricity market. In the undefined database it is set to 0. Macro-economic scenario name: Business-as-Usual Version: 5.3.0.0 Created: 4/13/15 1:30:28	Last edited: 5/29/15	sampling procedure: Literature, statistics	extrapolations: LCI data represent specific production and manufacturing facilities (see published source).
Heat, district or industrial, natural gas {RER}| market group for heat, district or industrial, natural gas | EN15804, U	Ecoinvent v3.11	This dataset is a market group. Market groups represent a 'market of markets'. Their purpose is to group a set of markets into larger, geographically relevant datasets. Market groups are created for convenience and ease of use. They only group other markets and/or market groups contained within their geography. Losses and relevant exchanges (transport, transport infrastructure, etc.) are not included in this dataset. They are present in the contained markets. This is the market group for 'heat, district or industrial, natural gas', in Europe. Production volume: 2.0484744382156243E12 MJ Included activities start: This activity starts at the gate of markets that deliver 'heat, district or industrial, natural gas', in geographies contained within the geography of this dataset.	Last edited: 31/12/24	sampling procedure: Represents all markets contained in the geography of the dataset.	extrapolations: The composition is based on the relative production volumes represented by the inputs (markets and market groups). Any extrapolation in these inputs

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		Included activities end: This activity ends with the supply of 'heat, district or industrial, natural gas', to the consumers of this product within the geography of Europe. Geography: The inventory is modelled for Europe Technology level: Current Start date: 01/01/2015 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 3.3.1.0 Created: 7/13/15 4:02:44			therefore affects this dataset.
Transport, freight, lorry, 7.5-16 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 7.5-16 metric ton, diesel, EURO 6 | EN15804, U	Ecoinvent v3.11	his is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This is the market for 'transport, freight, lorry 7.5-16 metric ton, EURO6', in the geography of Europe. This market contains no transport or losses, as they are irrelevant for the delivered product. This is delivering the service of transportation of 1 metric ton across the distance of 1 km. This service only considers the transportation of goods. The vehicle operates with diesel, its emission standard is classified as EURO6 and it falls under the lorry size class of 7.5-16 metric tons. The average freight load factor of a 7.5-16 metric ton lorry is 3.29 tonnes, with a gross vehicle weight (GVW) of 9.29 tonnes. It has a lifetime capacity of 540,000 km. Data for transport is calculated for an average load factor, including empty return trips. Production volume: 1.8E9 tkm Included activities start: This activity starts with the service generation. Included activities end: This activity ends with the service supplied to its consumers. Transport or losses are considered irrelevant for this product. Geography: The inventory is modelled for Europe Technology level: Unknown Start date: 01/01/2009 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 2.3.0.0 Created: 5/4/18 2:08:38	Last edited: 5/31/18	--	--
Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | EN15804, U	Ecoinvent v3.11	This dataset represents the service of 1tkm freight transport in a lorry of the size class 16-32 metric tons gross vehicle weight (GVW) and Euro VI emissions class. The transport datasets refer to the entire transport life cycle i.e. to the construction, operation, maintenance and end of life of vehicle and road infrastructures. Fuel consumption and emissions are for average European journeys and load factors and not representative of a specific transport scenario. The average load factors are taken from the Tremove model v2.7b (2009) and EcoTransIT (2011) report. These are as follows: Lorry size class Average load factor GVW	Last edited: 8/25/22	sampling procedure: Literature data.	extrapolations: none

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		3.5-7.5t 0.98t 4.98t 7.5-16t 3.29t 9.29t 16-32t 5.79t 15.79t >32t 15.96t 29.96t The lorry size and load factor determines the GVW and therefore also the fuel consumption and amount of both exhaust and non-exhaust emissions. Non-exhaust emissions are those resulting from tyre, brake and road wear. Fuel consumption and exhaust emissions are taken from v3.1 of the HBEFA model, using the data for Germany and without applying model weighting. There are a higher number of size categories used in HBEFA than in ecoinvent and so the data are grouped in order to fit the lorry size classes used in ecoinvent. The selective catalytic reduction (SCR) technology is around 3 times more common than that of exhaust gas recovery (EGR) as an emissions reduction measure and so the emission factors given in the dataset are weighted to reflect this. The data for the HBEFA categories SCR* and VI* were disregarded. The exhaust emissions caused by the burning of fuel are either fuel dependent (fuel type and quantity) or Euro class dependent. The latter reflect the emission regulations to which the vehicle complies. Regulated emissions are CO, NOx, particulate matter (PM) and total hydrocarbons (HC). Data from the Emissions Inventory Guidebook (EMEP/EEA, 2013) were used for specific exhaust emissions not covered by the HBEFA model. Non-exhaust emissions are accounted for as weight dependent by-products and exist as seperate datasets. For road infrastructure the expenditures and environmental interventions due to construction of roads have been allocated based on the gross tonne kilometer performance. Expenditures due to operation of the road infrastructure, as well as land use have been allocated based on the yearly vehicle kilometer performance. The same assumption on vehicle lifetime performance has been transferred from the ecoinvent v2 datasets of 540 000 km/vehicle. The production, maintenance and disposal of the vehicle are as reported in the ecoinvent (2007) report on transport services. Main data sources: De Ceuster, G., et al. (2009) TREMOVE: Final Report. Model code v2.7b, 2009. European Commission, Brussels. Keller, M. et al. (2010) Handbook emission factors for road transport v3.1, HBEFA. INFRAS, Berne, CH. Knörr, W. et al. (2011) Ecological Transport Information Tool for Worldwide Transports (EcoTransIT): Methodology and data update. Berlin, Hannover, Heidelberg, DE. Ntziachristos, L., et al. (2013) EMEP/EEA air pollutant emissions inventory guidebook 2009: Exhaust emissions from road transport. European Environment Agency, Copenhagen, DK. Spielmann, M., et al. (2007) Transport Services. ecoinvent report No. 14., Swiss Centre for Life Cycle Inventories, Dübendorf, CH. Production volume: 9.0E9 tkm Included activities start: From combustion of fuel in the engine. The dataset takes as input the infrastructure of the lorry and road network, the materials and efforts needed for maintenance of these and the fuel consumed in the vehicle for the journey. Included activities end: The activity ends with the transport service of 1tkm and the emissions of exhaust and non-exhaust emissions into air, water and soil. Geography: The inventory is modelled for Europe Technology level: New Technology: Diesel and diesel engine. Lorry transport is further differentiated with respect to vehicle weight and emission technology standard (EURO-standard).			

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		Technology classifications are based on those used widely within the works of the European Environment Agency, particularly in the Emissions Inventory Guidebook. Start date: 01/01/2009 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 8.3.0.0 Created: 3/7/19 3:48:02			
Transport, freight, sea, container ship, heavy fuel oil {GLO}| transport, freight, sea, container ship, heavy fuel oil | EN15804, U	Ecoinvent v3.11	The dataset represents the transport of one tonne of freight by a container ship over one kilometer. The DWT (load capacity) of the container ship is 43,000 tonnes, and it is estimated to transport an average of 7,200 million tonne.kms per year for 25 years (the average DWT and annual kilometres are weighted averages over the size class from data in IMO (2015)). The dataset represents the entire transport life cycle including the production and maintenance of the container ship, the transportation of freight in bulk, and the construction of the port. The scope of this dataset is the operation of the container ship, which has inputs of the ship, maintenance and port facilities (i.e. ship production, ship mainenance and port construction inputs and emissions are contained in linked datasets). Fuel consumption and the main emissions (CO2, NOx, SOx, PM, NMVOC, CO, CH4, N2O) are calculated as weighted averages over size classes from IMO (2015). Emisisons at sea, emissions in controlled areas (ECA) and emissions in ports from the main engine, auxiliary engine and boiler are considered. Weighted averages of speed reduction (35%) and capacity utilsation factors (70%) from IMO (2015) are applied (the capacity utilisation factors take into account both the cargo load factor and an empty trip factor). The share of trip length and port time inside emssion controlled areas (ECAs) (where other fuel quality is used) are estimated to 5% and 50% respectively. Emissions other than those listed above are calculated based on emission factors per kg fuel consumed from ecoinvent v2 (Spielmann et al., 2007). Emissions of xylene, toluene and benzene are no longer split out from non-methane volatile organic compounds (NMVOCs) in the datset as the method used by Spielmann et al. (2007) is considered too approximate (based on hydrocarbon emissions from road vehicles). Port facilities have not been updated are representative of a single large port (Rotterdam). One common port facility is assumed for all commodities and ship types. Vessel production and maintenance are global in scope and described in the individual datsets. References: IMO (2015) Third IMO Greenhouse Gas Study 2014. International Maritime Organization, London Spielmann et al (2007) Transport services. ecoinvent Report No. 14. Villigen Production volume: 3.7024E13 tkm Included activities start: The scope of this dataset is the operation of the container ship, with the production and maintenance of the container ship and port facilities contained in linked datasets. The transportation service starts with demand for construction of a container ship and the consumption of fuel (and associated emissions). Included activities end: The dataset ends with the service of transporting 1 tonne over a distance of 1 km. The dataset includes the operation of an average container ship and links to the production and maintenance of one ship and the construction of one port. Use of main engine, auxiliary engine and boiler is covered both at sea, in emission controlled areas and in port. The dataset includes the consumption of fuel, airborne gaseous emissions, particulate emissions, heavy metal emissions, persistent organic compounds (POPs) emissions, antifouling emissions to water and the disposal of bilge oil. Energy values: Undefined Geography: The inventory is modelled for Global Technology level: Current	Last edited: 6/12/18	sampling procedure: Calculation of fuel consumption and emissions performed for each in-service ship during each hour of each year from 2007 to 2012 (data from IMO, 2015). Reference: IMO (2015) Third IMO Greenhouse Gas Study 2014. International Maritime Organization, London	extrapolations: None

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3030-289 Coimbra
www.itecons.uc.pt
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		Technology: Fuel consumption and emissions are representative of the current technology (used in 2012 and considering the age distribution of global fleet). Load capacity (43,000 tonnes), fuel consumption and emissions are global weighted averages on tkms over the size classes from IMO (2015). Start date: 01/01/2007 End date: 31/12/2024 Is data valid for entire period: True Time period: Fuel consumption and emissions are calculated hourly covering the years 2007 to 2012 Macro-economic scenario name: Business-as-Usual Version: 3.3.0.0 Created: 5/2/18 4:45:15			
Extrusion, plastic film {RER}| extrusion, plastic film | EN15804, U	Ecoinvent v3.11	1 kg of this process equals 0.976 kg of extruded plastic film. Production volume: 1.32236940655721 kg Included activities end: This process contains the auxillaries and energy demand for the mentioned convertion process of plastics. The converted amount of plastics is NOT included into the dataset. Energy values: Undefined Geography: The inventory is modelled for Europe Technology level: Current Technology: present technologies Start date: 01/01/1993 End date: 31/12/2024 Is data valid for entire period: True Time period: time to which data refer Macro-economic scenario name: Business-as-Usual Version: 65.3.1.0 Created: 7/28/10 6:27:21	Last edited: 31/12/24	sampling procedure: company data	extrapolations: no extrapolation
Polypropylene, granulate {RER}| polypropylene production, granulate | EN15804, U	Ecoinvent v3.11	The dataset represents the production mix of commercial PP production technologies: slurry suspension polymerisation,Bulk suspension polymerisation, gas phase polymerisation using Ziegler-Natta and Metallocene catalysts PP is usually manufactured with the gas phase or the suspension (slurry) process. Modern suspension processes, however, use liquid monomers instead of a solvent and are termed “bulk” process. In the gas phase processes a fluidised bed of polymer particles and catalyst is maintained by a steady gaseous monomer feed from the bottom of the reactor. Polymer powder is continuously extracted at the bottom of the fluidised bed reactor. Unreacted monomer gas from the top is compressed and recycled to the reactor inlet. Catalyst, and co-catalyst if necessary, is also continuously fed to the reactor. Typically Ziegler-Natta catalysts are used for gas phase polymerisation where the catalyst is supported on inert silica particles so that the reaction takes place at the catalyst surface. The suspension polymerisation can be described as precipitation process. The formation of the polymer takes place in a hydrocarbon diluent and under conditions, where the monomer is soluble in the solution. The precipitated polymer, however, is insoluble and forms a fine suspension. The polymer is then separated by centrifugation. The suspension process can be combined with a stirred tank reactor or a loop reactor. Different diluents can be chosen, like C5 to C9 hydrocarbons, hexane, or isobutane. The bulk suspension process describes the slurry suspension process used for the production of PP where the monomer propylene is used as solvent instead of other hydrocarbons. Modern suspension processes for the production of PP use liquid monomers instead of gaseous. After the reaction phase, most of the residual (unreacted) monomers (which are mostly present as gases) are separated from the polymer and are either recycled back into the process or flared of. Depending on the purity of the separated monomers, the gas can either be fed directly back into the production line or the monomers are returned to a purification	Last edited: 1/10/19	sampling procedure: Questionnaires sent out to all production units in Europe operated by PlasticEurope member companies.	extrapolations: no extrapolation

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
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		unit. To limit the accumulation of impurities in the process, usually a small side-stream (purge) of the unreacted gas is sent back to the cracker or to a dedicated purification unit. After polymerisation, the polymer is usually fed di-rectly into a hot melt extruder, where additives can be added to the melted polymer if required. The polymer is then pelletised in an underwater pelletiser. The pelletised product is dried, blended where required and degassed. Synonym: PP CAS number: 9003-07-0 Production volume: 1.1E10 kg Included activities start: Acitivity starts with monomers and comonomers entering the polymerisation plant. Energy supply is included in terms of heat production inside the battery limits of the plant. Steam and electricity supply is outside the activity. Included activities end: Activity ends with polymer granulate leaving the factory. Geography: The inventory is modelled for Europe Technology level: Current Technology: Coverage of production capacity in Europe: 76% Start date: 01/01/2011 End date: 31/12/2024 Is data valid for entire period: True Time period: Data was collected for the year 2011, processed in 2013 and published in 2014 Macro-economic scenario name: Business-as-Usual Version: 7.3.0.0 Created: 9/19/18 9:57:30			
- Extrusion, plastic pipes {GLO}| market for extrusion, plastic pipes | EN15804, U	Ecoinvent v3.11	This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This is the market for 'extrusion, plastic pipes', in the Global geography. Transport from producers to consumers of this product in the geography covered by the market is included. This is delivering the service of 'extrusion, plastic pipes'. Extrusion is the term used to describe the continuous manufacture of a semifinished plastic product (film, sheet, pipe, profile). An extrusion line consists of the following: 1. Extruder 2. Mold or die 3. Calibration and cooling 4. Takeoff 5. Finishing In the service of extrusion, 0.976 kg of extruded plastic film corresponds to 1 kg of this process. The converted amount of plastics is not included into the dataset. This service should be used along with 1 kg of thermoplastic material (e.g. polyethylene (PE), polypropylene, acetal, acrylic, nylon, polystyrene, polyvinyl chloride (PVC), acrylonitrile butadiene styrene (ABS) and polycarbonate). Production volume: 4.0 kg Included activities start: This activity starts with the service generation. Included activities end: This activity ends with the service supplied to its consumers. Transport or losses are considered irrelevant for this product. Geography: The inventory is modelled for Global Technology level: Unknown Start date: 01/01/2011 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 4.3.1.0 Created: 8/2/11 9:58:58	Last edited: 8/2/11	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

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Paper bag {EU-28+EFTA} | Kraft Pulping Process, pulp pressing and drying | production mix, at plant | uncoated Kraft Paper | LCI result	EF database v2.0	Process UUID: f66d9ea4-9500-4a04-9e8b-7c8de9504c5d Version: 18.07.026 General Comment: The data set covers all relevant process steps / technologies over the supply chain of the represented cradle to gate inventory with a good overall data quality. The inventory is mainly based on industry data and is completed, where necessary, by secondary data. This data set is based on primary data from internationally adopted production processes, connected with regional precursor chains. # Process Metadata # - Process Information --- Dataset Information BaseName: Paper bag TreatmentStandardsRoutes: Kraft Pulping Process, pulp pressing and drying MixAndLocationTypes:production mix, at plant FunctionalUnitFlowProperties:uncoated Kraft Paper --- Time Representativeness referenceYear: 2012 dataSetValidUntil: 2020 timeRepresentativenessDescription: annual average --- Technology Description technologyDescriptionAndIncludedProcesses: The biogenic carbon content is 0.395 kg per kg of product. The water content is 0.1 kg per kg of product. Foreground system: Wood consists of cellulose, hemicellulose and lignin. In contrast to cellulose, lignin is not desired for the paper/ pulp production and has to get separated. The wood is harvested, debarked and ground into chips. The chips are mixed with pulping chemicals and heated. At elevated temperature, the lignin, a large amount of hemicellulose and some cellulose are dissolved. The remaining cellulose fibers are separated from the liquid. The result is chemical pulp. The most important pulping process is the kraft process. For the dissolution of lignin and the production of chemical pulp, this process uses chemicals like sodium sulfide, sodium hydroxide and sodium sulfate. The mixture of chemicals before pulping is called white liquor. Kraft pulping is usually carried out at 165- 175°C, it can be a batch process or a continuous process. When pulp is ready, the pulping chemicals have to get separated from the pulp by washing. Also undesired solid particles like bark residues are removed from the pulp by screening. Finally the pulp is dried and pressed into the desired shape. The paper is cut and some layers are put together to form a bag. The pulping chemicals are recycled as much as possible. Some useful organics like alkali lignins or sugars are also formed by the pulping. The liquor containing the dissolved lignin is called black liquor. It has a high calorific value and can be used to generate power for the paper factory. Transports within the process chain and process waste treatment are accounted. Background system: Electricity: Electricity is modelled according to the individual country-specific situations. The country-specific modelling is achieved on multiple levels. Firstly, individual energy carrier specific power plants and plants for renewable energy sources are modelled according to the current national electricity grid mix. Modelling the electricity consumption mix includes transmission / distribution losses and the own use by energy producers (own consumption of power plants and \other\ own consumption e.g. due to pumped storage hydro power etc.), as well as imported electricity. Secondly, the national emission and efficiency standards of the power plants are modelled as well as the share of electricity plants and combined heat and power plants (CHP). Thirdly, the country-specific energy carrier supply (share of imports and / or domestic supply) including the country-specific energy carrier properties (e.g. element and energy content) are accounted for. Fourthly, the exploration, mining/production, processing and transport processes of the energy carrier supply chains are modelled	--	--	--

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itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		according to the specific situation of each electricity producing country. The different production and processing techniques (emissions and efficiencies) in the different energy producing countries are considered, e.g. different crude oil production technologies or different flaring rates at the oil platforms. Thermal energy, process steam: The thermal energy and process steam supply is modelled according to the individual country-specific situation with regard to emission standards and considered energy carriers. The thermal energy and process steam are produced at heat plants. Efficiencies for thermal energy production are by definition 100% in relation to the corresponding energy carrier input. For process steam the efficiency ranges from 85%, 90% to 95%. The energy carriers used for the generation of thermal energy and process steam are modelled according to the specific import situation (see electricity above). Transports: All relevant and known transport processes are included. Ocean-going and inland ship transport as well as rail, truck and pipeline transport of bulk commodities are considered. Energy carriers: The energy carriers are modelled according to the specific supply situation (see electricity above). Refinery products: Diesel fuel, gasoline, technical gases, fuel oils, lubricants and residues such as bitumen are modelled with a parameterised country-specific refinery model. The refinery model represents the current national standard in refining techniques (e.g. emission level, internal energy consumption, etc.) as well as the individual country-specific product output spectrum, which can be quite different from country to country. The supply of crude oil is modelled, again, according to the country-specific situation with the respective properties of the resources., ReferenceToIncludedProcesses: Diesel mix at filling station(Process_dataset, e5c14d1c-9e2e-49eb-82b4-566e5265b18e, 11.00.000) Barge(Process_dataset, 4cfacea0-cce4-4b4d-bd2b-223c8d4c90ae, 11.00.000) Electricity mix for Paper sack, Paper bag and Kraft paper, uncoated(Process_dataset, a64ab8f7-a20c-4083-8693-42f507ffb2d0, 11.00.000) Lignite mix(Process_dataset, e31b6d83-6cee-40d4-8d59-d458162fcdb8, 10.00.200) Heavy fuel oil at refinery(Process_dataset, 0d3757fb-e445-4315-be99-94410c05a7b1, 10.00.200) Light fuel oil at refinery(Process_dataset, 386821c2-309d-4019-8972-04a072082ef5, 10.00.200) EU-27: Sawmill, wood chips softwood ts(Process_dataset, 962b2511-40bb-4b3e-8db6-615422f9e346, 10.00.000) Hard coal mix(Process_dataset, 932ce7a6-5bc6-41be-ad62-8daad6c5355c, 10.00.200) Natural gas mix(Process_dataset, 8ede8686-62d3-46d6-9ce6-59476542bdb0, 10.00.200) GLO: Capital goods (parameterised, estimation, FOREGROUND SYSTEM) ts <u-so>(Process_dataset, 04366530-d48c-4bdf-a1bc-fd1f904a30f1, 00.00.000),technologicalApplicability: The product is used for packaging applications., ReferenceToTechnologyFlowDiagrammOrPictures: PEF packaging_Paper bag 1st level.JPG(Source_dataset, 739a6b12-65bc-461f-9d3c-ca7aad1dc558, 30.00.000) PEF packaging_Paper bag 2nd level.JPG(Source_dataset, 9b6ad26e-bea6-4077-8349-e602e83b5ad9, 30.00.000) --- Mathematical Relations Description --- Modelling and Validation LCIMethodAndAllocation: typeOfDataSet: LCI_result LCIMethodPrinciple: Attributional deviationsFromLCIMethodPrinciple: None, LCIMethodApproaches: Allocation_market_value, Allocation_net_calorific_value, Allocation_exergetic_content, Allocation_mass, Not_applicable deviationsFromLCIMethodApproaches: Foreground system: For the foreground system, mass allocation was applied. Background system: For the combined heat and power production, allocation by exergetic content is applied. For the electricity generation and by-products, e.g. gypsum, allocation by market value is applied due to no common physical			

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		properties. Within the refinery allocation by net calorific value and mass is used. For the combined crude oil, natural gas and natural gas liquids production allocation by net calorific value is applied. For details please see the document \GaBi Databases Modelling Principles\,modellingConstants: Direct land use change: GHG emissions from direct LUC allocated to good/service for 20 years after the LUC occurs. \t\t\t\t\t\t\t\t\t Carbon storage and delayed emissions: credits associated with temporary (carbon) storage or delayed emissions are not considered in the calculation of the EF for the default impact categories. \t\t\t\t\t\t\t\t\t Emissions off-setting: not included\t\t\t\t\t\t\t\t\t Fossil and biogenic carbon emissions and removals: removals and emissions are modelled as follows: All GHG emissions from fossil fuels (including peat and limestone) are modelled consistently with the ILCD list of elementary flows. In the case that the emissions refer to the molecules CO2 and CH4, they are modelled as 'carbon dioxide (fossil)' and 'methane (fossil)'. Biogenic uptake and emissions are modelled separately. For land use change, all carbon emissions and uptakes are inventoried separately for each of the elementary flows. Soil carbon accumulation (uptake) via improved agricultural management is excluded from the model.,deviationsFromModellingConstants: none, ReferenceToLCAMethodDetails: PEF pilot guidance v5.2, 2016(Source_dataset, 5e59cd0a-aa99-49b4-a64d-6ec3c8d7e5e1, 00.00.000) PEF guide (2013/179/EU)(Source_dataset, 2bc1740f-3ad3-4f7a-9a47-2d89a28e6996, 00.00.000) GaBi Modelling Principles(Source_dataset, f2b512cd-43b2-4260-9882-eebc06731274, 30.00.000) GaBi Water Modelling Principles(Source_dataset, 2f4e6329-f31d-44dc-8933-f4e6608590f5, 30.00.000) GaBi Energy Modelling Principles(Source_dataset, 3c6b1a84-fc51-463c-a66f-eaacfde2cb2f, 30.00.000) GaBi Refinery Modelling Principles(Source_dataset, 1a453aa5-4e46-468f-b441-17fb02054ac3, 30.00.000) GaBi Agriculture Model Documentation(Source_dataset, 69cb87e8-2532-455d-b7d3-18eced579e8f, 30.00.000) GaBi Land Use Change Model Documentation(Source_dataset, 57a2608f-18fc-454f-998a-1657376a4322, 30.00.000) PEF tender specification packaging(Source_dataset, 15d59a8e-422c-4f00-bdf3-cbcba6630715, 00.00.000), DataSourcesTreatmentAndRepresentativeness: dataCutOffAndCompletenessPrinciples: A cut-off rule of 95%, based on mass and energy and the environmental significance, is applied and confirmed by the reviewer, in particular with reference to the environmental significance of the cut-off applied. A cut-off rule lower than 95% is not used. An active cut-off has not been done, but all known elementary flows of environmental effect have been kept in the inventory.\t\t\t\t\t\t\t\t\t\t Capital goods (including infrastructures) and their End of life are included in the foreground system.\t\t\t\t\t\t\t\t\t\t\t System boundaries: system boundaries include all known processes linked to the product supply chain.,deviationsFromCutOffAndCompletenessPrinciples: None,dataSelectionAndCombinationPrinciples: LCI modeling is fully consistent. Energy and transport datasets from the PEF energy and transports tender are consistently used.,deviationsFromSelectionAndCombinationPrinciples: none,dataTreatmentAndExtrapolationsPrinciples: Site specific data weighted by production volumes.,deviationsFromTreatmentAndExtrapolationPrinciples: none, ReferenceToDataSources: ULLMANN'S Encyclopedia of Industrial Chemistry(Source_dataset, d2732231-5fbd-11db-b0de-0800200c9a66, 30.00.000) GaBi databases(Source_dataset, 61875b4e-7249-444b-8691-e4a04e6d3c47, 31.00.000),percentageSupplyOrProductionCovered:95.0,uncertaintyAdjustments: none,useAdviceForDataSet: Life Cycle Inventory (LCI) dataset to be used in Product Environmental Footprint Category Rules (PEFCRs) and Organisation Environmental Footprint Sectoral Rules (OEFSRs) developed in the context of the Environmental Footprint pilot phase launched by the Commission in 2013. The datasets are specifically designed for these methodological requirements (see above) and the related LCIA methods (listed below) recommended in PEF.			

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Rua Pedro Hispano, s/n
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www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		For use outside this scope, see beforehand the license conditions at http://www.gabi-software.com/fileadmin/gabi/EULA_European_Commission_-_use_of_thinkstep_LCI_data.pdf, Completeness: completenessProductModel: No_statement ReferenceToSupportedImpactAssessmentMethods: EF-Resource use, energy carriers(LCIAMethod_dataset, b2ad6110-c78d-11e6-9d9d-cec0c932ce01, 34.00.000) EF-Resource use, mineral and metals(LCIAMethod_dataset, b2ad6494-c78d-11e6-9d9d-cec0c932ce01, 34.00.000) EF-Acidification terrestrial and freshwater(LCIAMethod_dataset, b5c611c6-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Climate Change(LCIAMethod_dataset, b2ad6d9a-c78d-11e6-9d9d-cec0c932ce01, 34.00.000) EF-Ecotoxicity freshwater(LCIAMethod_dataset, b5c623fa-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Eutrophication freshwater(LCIAMethod_dataset, b53ec18f-7377-4ad3-86eb-cc3f4f276b2b, 34.00.000) EF-Eutrophication marine(LCIAMethod_dataset, b5c619fa-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Eutrophication terrestrial(LCIAMethod_dataset, b5c614d2-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Cancer human health effects(LCIAMethod_dataset, b5c621f2-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Non-cancer human health effects(LCIAMethod_dataset, b5c634f8-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Ionising radiation - human health(LCIAMethod_dataset, b5c632be-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Land Use(LCIAMethod_dataset, b2ad6890-c78d-11e6-9d9d-cec0c932ce01, 34.00.000) EF-Ozone depletion(LCIAMethod_dataset, b5c629d6-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Respiratory inorganics(LCIAMethod_dataset, b5c602c6-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Photochemical ozone formation - human health(LCIAMethod_dataset, b5c610fe-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-water scarcity(LCIAMethod_dataset, b2ad66ce-c78d-11e6-9d9d-cec0c932ce01, 34.00.000),CompletenessElementaryFlows: Type: Climate_change,Value: Allrelevant_flows_quantified Type: Ozone_depletion,Value: Allrelevant_flows_quantified Type: Summer_smog,Value: Allrelevant_flows_quantified Type: Eutrophication,Value: Allrelevant_flows_quantified Type: Acidification,Value: Allrelevant_flows_quantified Type: Human_toxicity,Value: Allrelevant_flows_quantified Type: Freshwater_ecotoxicity,Value: Allrelevant_flows_quantified Type: Seawater_ecotoxicity,Value: Allrelevant_flows_quantified Type: Terrestric_ecotoxicity,Value: Allrelevant_flows_quantified Type: Radioactivity,Value: Allrelevant_flows_quantified Type: Land_use,Value: Allrelevant_flows_quantified Type: Non_renewable_material_resource_depletion,Value: Allrelevant_flows_quantified Type: Renewable_material_resource_consumption,Value: Allrelevant_flows_quantified Type: Non_renewable_primary_energy_depletion,Value: Allrelevant_flows_quantified Type: Renewable_primary_energy_consumption,Value: Allrelevant_flows_quantified Type: Particulate_matter_respiratory_inorganics,Value: Allrelevant_flows_quantified Type: Species_depletion,Value: No_statement Type: Noise,Value: No_statement, validation: Reviews: ReviewType: Dependent_internal_review Scopes:			

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3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		ScopeName: Raw_data Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Cross_check_with_other_source MethodName: Expert_judgement, ScopeName: Unit_processes_single_operation Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: Unit_processes_blackbox Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: LCIresults_or_partly_terminated_system Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: LCIA_results Methods: MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement, ScopeName: Documentation Methods: MethodName: Expert_judgement MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: Life_cycle_inventory_methods Methods: MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: LCIA_results_calculation,			

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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		ScopeName: Goal_and_scope_definition, DataQualityIndicators: Name: Technological_representativeness, Value: Fair Name: Time_representativeness, Value: Fair Name: Geographical_representativeness, Value: Good Name: Completeness, Value: Not_evaluated_unknown Name: Precision, Value: Good Name: Methodological_appropriateness_and_consistency, Value: Not_applicable Name: Overall_quality, Value: Good, ReviewDetails: The method to set up the LCI data are related to the requirements in ISO 14040 and 14044 for LCA studies. The documentation includes all relevant information concerning data quality and scope of the application of the respective LCI result / data set. The dataset represents the state-of-the-art of the referenced functional unit. In the PEF context the field \Methodlogical appropriateness and consistency\ applies solely to the criterium for implementation of the defined EoL formula, as any other methodologial requirements are defined as mandatory., ReferenceToNameOfReviewerAndInstitutions: thinkstep(Contact_dataset, b167f9ca-9178-45f5-b34e-a176cb8e2952, 11.00.000),otherReviewDetails: Good overall quality (2,4) interpreted into \good quality\ in the PEF quality validation scheme. The quality indicator for completeness was not requested to be quantified as a single DQI for all tenders. If a value “Not evaluated / unknown” completeness is given, this indicates that a single DQI was not explicitly requested but the completeness is still to be understood as very good. The Data Quality Indicator Results are conservative expert judgements, confirmed or - if necessary - corrected by the reviewers, based on their methodological as well as process understanding and considering semi-quantitatively the contribution of the DQIs of the used EF energy and transport datasets and of EF-related DQIs provided and reviewed within the GaBi databases. The overall DQIs of the datasets take into account primarily the quality and representativeness of the foreground technology information and that of the key upstream processes. If datasets are e.g. energy and transport intensive - or gain credits from energy recovery - the DQIs of the used EF energy and transport datasets influence the overall DQI significantly and have stronger been taken into account, via expert judgement. Analogous applies for other key background datasets. For the DQIs of the mentioned GaBi secondary datasets, similar DQIs had already been assigned to those datasets and were considered by the reviewers via expert judgement when assigning of the overall DQIs. In case of doubt, lower (i.e. lower quality) DQIs were assigned., ReviewType: Independent_external_review Scopes: ScopeName: Raw_data, ScopeName: Unit_processes_single_operation, ScopeName: Unit_processes_blackbox, ScopeName: LCIresults_or_partly_terminated_system, ScopeName: LCIA_results, ScopeName: Documentation, ScopeName: Life_cycle_inventory_methods, ScopeName: LCIA_results_calculation, ScopeName: Goal_and_scope_definition, DataQualityIndicators: Name: Technological_representativeness, Value: Fair Name: Time_representativeness, Value: Fair Name: Geographical_representativeness, Value: Good Name: Precision, Value: Good Name: Methodological_appropriateness_and_consistency, Value: Not_applicable Name: Overall_quality, Value: Good,			

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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		ReviewDetails: „The dataset is compliant to \PEF/OEF implementation, mandatory data 2016-2020\ and \ILCD Data Network - Entry-level\. The representativeness of the data set regarding geography, technology and time is given, as recent data for the specific country/region as well as the employed technologies was available for the relevant parts of the whole life cycle (particularly energy raw materials exploitation and conversion (e.g. refinery)). The completeness of the inventory is also very good, as the product chain from cradle to gate is well established and the emissions and resources that relevantly contribute to all product-specific relevant impact categories are well covered in the relevant processes also from cradle to gate. The precision of the data is good, given some uncertainties of measured and reported data for some emissions in the energy carrier exploitation and to a smaller degree for energy conversion processes. The results are plausible, both for the impact category level results as well as for the most relevant elementary flows. The data set documentation is reflecting what has been modelled and is appropriate in terms of content and level of detail. The system boundaries include all relevant processes and activity types from cradle to gate, the not covered activities and flows (cut-off due to data limitations for less relevant contributors) jointly contribute less than a few % to the overall environmental impacts. An active cut-off, i.e. by excluding available data, has not been found. The LCI modelling choices follow the PEF and OEF guides, such as allocation, consistency of included processes, and LCI methodology in general; further requirements of the PEF guide and the PEF and OEF guidance documents (version 5.2 of February 2016) are equally observed. The pre-calculated LCIA results that are provided for the 15 EF impact categories have been calculating in correspondence of the Input and Output elementary flows (including their geographical validity, e.g. country-specific water consumption) with the applied LCIA method(s). In the PEF context the field \Methodological appropriateness and consistency\ applies solely to the criterion for implementation of the defined EoL formula, as any other methodological requirements are defined as mandatory.\Methodlogical appropriateness and consistency\ applies solely to the criterium for implementation of the defined EoL formula, as any other methodologial requirements are defined as mandatory.”, ReferenceToNameOfReviewerAndInstitutions: Manfred Russ(Contact_dataset, 920016fd-e842-41c2-926d-268a8f72209f, 00.00.000) Peter Shonfield (PhD)(Contact_dataset, 0dc85e5c-85a3-4887-a8a6-c626f4d4661a, 00.00.000) Paolo Masoni (Contact_dataset, 761a2956-2823-4520-ae2c-0020c37049fb, 30.00.000),otherReviewDetails: Good overall quality (2,4) interpreted into \good quality\ in the PEF quality validation scheme. The quality indicator for completeness was not requested to be quantified as a single DQI for all tenders. If a value “Not evaluated / unknown” completeness is given, this indicates that a single DQI was not explicitly requested but the completeness is still to be understood as very good. The Data Quality Indicator Results are conservative expert judgements, confirmed or - if necessary - corrected by the reviewers, based on their methodological as well as process understanding and considering semi-quantitatively the contribution of the DQIs of the used EF energy and transport datasets and of EF-related DQIs provided and reviewed within the GaBi databases. The overall DQIs of the datasets take into account primarily the quality and representativeness of the foreground technology information and that of the key upstream processes. If datasets are e.g. energy and transport intensive - or gain credits from energy recovery - the DQIs of the used EF energy and transport datasets influence the overall DQI significantly and have stronger been taken into account, via expert judgement. Analogous applies for other key background datasets. For the DQIs of the mentioned GaBi secondary datasets, similar DQIs had already been assigned to those datasets and were considered by the reviewers via expert judgement when assigning of the overall DQIs. In case of doubt, lower (i.e. lower quality) DQIs were assigned., ReferenceToCompleteReviewReport: EU-28+EFTA Paper bag agg(Source_dataset, 2e89d92b-ca97-404c-845e-8db7378f9694, 00.00.000), ComplianceDeclarations: Compliances: ReferenceToComplianceSystem: ISO 14044:2006. Environmental Management – Life Cycle Assessment – Requirements and guidelines. (Source_dataset, 1adb438d-4a8b-4919-885e-0a66da3c0f2a, 30.00.000)			

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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Not_defined methodologicalCompliance: Fully_compliant reviewCompliance: Not_defined documentationCompliance: Fully_compliant qualityCompliance: Not_defined, ReferenceToComplianceSystem: ILCD Data Network - Entry-level(Source_dataset, d92a1a12-2545-49e2-a585-55c259997756, 30.00.000) approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Fully_compliant methodologicalCompliance: Fully_compliant reviewCompliance: Fully_compliant documentationCompliance: Fully_compliant qualityCompliance: Not_defined, ReferenceToComplianceSystem: ISO 14040 Environmental Management – Life Cycle Assessment – Principles and Framework, 2006(Source_dataset, 1ea48531-e397-4ca7-ac08-056e4fa11826, 30.00.000) approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Not_defined methodologicalCompliance: Fully_compliant reviewCompliance: Fully_compliant documentationCompliance: Not_defined qualityCompliance: Not_defined, ReferenceToComplianceSystem: PEF/OEF implementation, mandatory data 2016-2020(Source_dataset, 66279383-8dc3-46c1-80d1-99866cc01e6a, 00.00.000) approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Fully_compliant methodologicalCompliance: Fully_compliant reviewCompliance: Fully_compliant documentationCompliance: Fully_compliant qualityCompliance: Fully_compliant --- Administrative Information CommissionerAndGoal: ReferenceToCommissioners: European Commission, DG ENV(Contact_dataset, e0c82c5f-6b85-4d66-a84c-147d54abb889, 00.00.000),project: Provision of product environmental footprint-compliant life cycle inventory datasets. Contract number ENV.B.1/SER/2016/0048vl,intendedApplications: Life Cycle Inventory (LCI) datasets to be used in Product Environmental Footprint Category Rules (PEFCRs) and Organisation Environmental Footprint Sectoral Rules (OEFSRs) developed in the context of the Environmental Footprint pilot phase launched by the Commission in 2013.,			
Packaging film, low density polyethylene {RER}| packaging film production, low density polyethylene | EN15804, U	Ecoinvent v3.11	Example process for the utilization of the different converting modules in the database. [This dataset was already contained in the ecoinvent database version 2. It was not individually updated during the transfer to ecoinvent version 3. Life Cycle Impact Assessment results may still have changed, as they are affected by changes in the supply chain, i.e. in other datasets. This dataset was generated following the ecoinvent quality guidelines for version 2. It may have been subject to central changes described in the ecoinvent version 3 change report (http://www.ecoinvent.org/database/ecoinvent-version-3/reports-of-changes/), and the results of the central updates were reviewed extensively. The changes added e.g. consistent water flows and other information throughout the database. The	31/12/24	sampling procedure: company data	extrapolations: no extrapolation

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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		documentation of this dataset can be found in the ecoinvent reports of version 2, which are still available via the ecoinvent website. The change report linked above covers all central changes that were made during the conversion process.] Production volume: 1.32236940655721 kg Included activities end: This process contains the plastic amount and the transport of the plastic from the production site to the converting site as well as the dataset "extrusion, plastic film" Energy values: Undefined Geography: The inventory is modelled for Europe Technology level: Current Technology: present technologies Start date: 01/01/1993 End date: 31/12/2024 Is data valid for entire period: True Time period: time to which data refer Macro-economic scenario name: Business-as-Usual Version: 132.3.1.0 Created: 7/28/10 6:27:24			
- Polyethylene, high density, granulate {GLO}| market for polyethylene, high density, granulate | EN15804, U	Ecoinvent v3.11	his is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This is the market for 'polyethylene, high density, granulate', in the Global geography. In this market, expert judgement was used to develop product specific transport distance estimations. 'polyethylene, high density, granulate', is a plastic product of fossil origin, it is not biodegradable and it is a thermoplastic material. This product consists of 100% virgin material with no content of recycled material. The product is used in the following applications and sectors: packaging material including crates, trays, bottles, food packaging, jerry cans, drums, industrial bulk containers etc, food containers, toys, petrol tanks, industrial wrapping and film, fibres and textiles like in ropes, fishing and sport nets, nets for agricultural use, industrial and decorative fabrics, pipes, wiring and cables. CAS number: 9002-88-4 Production volume: 3.40964912280742E10 kg Included activities start: This activity starts at the gate of the activities that produce 'polyethylene, high density, granulate', within the geography of Global. Included activities end: This activity ends with the supply of 'polyethylene, high density, granulate', to the consumers of this product. Transport is included. Product losses during transportation are assumed negligible and are therefore not included. Geography: The inventory is modelled for Global Technology level: Unknown Start date: 01/01/2011 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 7.3.0.0 Created: 8/2/11 9:58:55	31/12/24	--	--
- Blow moulding {GLO}| market for blow moulding | EN15804, U	Ecoinvent v3.11	his is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant.	Last edited: 8/2/11	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		This is the market for 'blow moulding', in the Global geography. Transport from producers to consumers of this product in the geography covered by the market is included. This is delivering the service of 'blow moulding'. Blow moulding is the most commonly employed technique for manufacturing hollow articles from thermoplastic materials. Blow-moulded articles include simple products such as bottles and more complex components such as ventilation ducts, surfboards, suitcases, roof racks, or fuel tanks for automobiles. In the service of blow moulding, 1 kg of this process corresponds to 0.997 kg of blow moulded plastic. The converted amount of plastics is not included into the dataset. Thus, this service should be used along with 1 kg of thermoplastic material. Production volume: 3.99688404435072 kg Included activities start: This activity starts with the service generation. Included activities end: This activity ends with the service supplied to its consumers. Transport or losses are considered irrelevant for this product. Geography: The inventory is modelled for Global Technology level: Unknown Start date: 01/01/2011 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 4.3.1.0 Created: 8/2/11 9:58:58			
Steel, low-alloyed {GLO}| market for steel, low-alloyed | EN15804, U	Ecoinvent v3.11	This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This is the market for 'steel, low-alloyed', in the Global geography. Transport distances are based on the ecoinvent "Default Transport Assumptions" model, accessible on the ecoinvent website. Production volume: 1.52671379086684E11 kg Included activities start: At the gate of the steelmaking plant with the collection of the steel, low-alloyedl for distribution. Included activities end: At the gate of the manufacturing plant with the cast steel ready for use. Geography: The inventory is modelled for Global Technology level: Unknown Start date: 01/01/2011 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 8.3.0.0 Created: 8/2/11 9:58:21	Last edited: 6/4/20	--	--
Metal working, average for steel product manufacturing {GLO}| market for metal working, average for steel product manufacturing | EN15804, U	Ecoinvent v3.11	This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This is the market for 'metal working, average for steel product manufacturing', in the Global geography. Transport from producers to consumers of this product in the geography covered by the market is included. This is delivering the service of 'metal working, average for steel product manufacturing'. The dataset represents average manufacturing processes to make a semi-manufactured steel product into a final product. The service includes machinery,	Last edited: 8/2/11	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
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		infrastructure, metal operations and additional steel input to consider for the provessing losses, but it excludes the main steel input and the process of degreasing. Production volume: 4.0 kg Included activities start: This activity starts with the service generation. Included activities end: This activity ends with the service supplied to its consumers. Transport or losses are considered irrelevant for this product. Geography: The inventory is modelled for Global Technology level: Unknown Start date: 01/01/2011 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 4.3.1.0 Created: 8/2/11 10:01:28			
Pallet, plastic (80x60) {EU-28+EFTA} | raw material production, plastic injection moulding | production mix, at plant | weight per piece: 3.5 kg, nominal loading capacity of 1000kg | LCI result	EF database v2.0	Process UUID: efa44568-cc60-4304-8863-c2968333b487 Version: 18.07.026 General Comment: The data set covers all relevant process steps / technologies over the supply chain of the represented partly aggregated cradle to gate inventory with a good overall data quality. The inventory is mainly based on industry data and is completed, where necessary, by secondary data. This data set is based on primary data from internationally adopted production processes, connected with regional precursor chains. # Process Metadata # - Process Information --- Dataset Information BaseName: Pallet, plastic (80x60) TreatmentStandardsRoutes: raw material production, plastic injection moulding MixAndLocationTypes:production mix, at plant FunctionalUnitFlowProperties:weight per piece: 3.5 kg, nominal loading capacity of 1000kg --- Time Representativeness referenceYear: 2012 dataSetValidUntil: 2020 timeRepresentativenessDescription: annual average --- Technology Description technologyDescriptionAndIncludedProcesses: Foreground system: PEHD production The basis for the production of polyethylene is crude oil. There are a few process types for polymerising ethylene to polyethylene. Polyethylene is polymerised from ethylene, which is extracted by cracking naphtha or gas oil in a steam-cracker. High-density polyethylene PE-HD is produced in a low-pressure process which are classified, according to the phase in which the reaction occurs into solution process, suspension process and gas phase process. Because of its high market share, the gas phase process in a fluidised bed reactor is chosen as reference process for the production of polyethylene. The gaseous ethylene enters the reactor through a distributor plate which provides an even distribution of gas and must also prevent powder falling through when the gas flow is stopped. The fluidised bed functions more or less as a continuous stirred-tank reactor in which mass transfer provides back mixing of material and heat throughout the reactor. There is an up-flow at the centre and down-flow at the walls. The conversion per pass is approx. 2 % for PE-HD. A cyclone and / or filter prevent fine particles reaching the recycle cooler and compressor. The polymer is removed via a sequenced	--	--	--

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		valve to a powder cyclone, from which residual monomers are recovered and recompressed. The main recycle compressor circulates gas at a high flow rate, but with a small pressure rise. Transports and process waste treatment are included in this dataset. Injection moulding In the injection mould process, plastics are processed as granules, as powder and as profile strings. In general, thermoplasts, duroplasts, and elastomers can be processed. It is not known how many millions of tons of plastics are converted annually into prefabricated parts in the injection mould process. The injection moulding process takes place in the following sequence: A revolving screw takes granules out of a mass funnel and moves them through its volutions to its tip. The tool is closed, the injection unit moves against the feed bush, the screw presses like a piston the plastified compound into the tool. The cooled injection moulded part falls out of the opened tool, the screw sends new compound its tip, the injection unit lifts away from the jet. The cycle is completed. The dataset is made for plastic parts where one sprue system is used for one product. The dataset also includes energy consumption of the process, direct emissions, ancillary products and internal recycling activities. Background system: Electricity: Electricity is modelled according to the individual country-specific situations. The country-specific modelling is achieved on multiple levels. Firstly, individual energy carrier specific power plants and plants for renewable energy sources are modelled according to the current national electricity grid mix. Modelling the electricity consumption mix includes transmission / distribution losses and the own use by energy producers (own consumption of power plants and \other\ own consumption e.g. due to pumped storage hydro power etc.), as well as imported electricity. Secondly, the national emission and efficiency standards of the power plants are modelled as well as the share of electricity plants and combined heat and power plants (CHP). Thirdly, the country-specific energy carrier supply (share of imports and / or domestic supply) including the country-specific energy carrier properties (e.g. element and energy content) are accounted for. Fourthly, the exploration, mining/production, processing and transport processes of the energy carrier supply chains are modelled according to the specific situation of each electricity producing country. The different production and processing techniques (emissions and efficiencies) in the different energy producing countries are considered, e.g. different crude oil production technologies or different flaring rates at the oil platforms. Thermal energy, process steam: The thermal energy and process steam supply is modelled according to the individual country-specific situation with regard to emission standards and considered energy carriers. The thermal energy and process steam are produced at heat plants. Efficiencies for thermal energy production are by definition 100% in relation to the corresponding energy carrier input. For process steam the efficiency ranges from 85%, 90% to 95%. The energy carriers used for the generation of thermal energy and process steam are modelled according to the specific import situation (see electricity above). Transports: All relevant and known transport processes are included. Ocean-going and inland ship transport as well as rail, truck and pipeline transport of bulk commodities are considered. Energy carriers: The energy carriers are modelled according to the specific supply situation (see electricity above). Refinery products: Diesel fuel, gasoline, technical gases, fuel oils, lubricants and residues such as bitumen are modelled with a parameterised country-specific refinery model. The refinery model represents the current national standard in refining techniques (e.g. emission level, internal energy consumption, etc.) as well as the individual country-specific product output spectrum, which can be quite different from country to country. The supply of crude oil is modelled, again, according to the country-specific situation with the respective properties of the resources., ReferenceToIncludedProcesses: Electricity mix for plastic processing(Process_dataset, 1ff459ce-3846-4b2d-bf06-334ad08f1801, 11.00.000) Diesel mix at refinery(Process_dataset, da248653-790b-44bf-9e43-d4ae66cafbe1, 11.00.000) Barge(Process_dataset, 4cfacea0-cce4-4b4d-bd2b-223c8d4c90ae, 11.00.000) Thermal energy from natural gas(Process_dataset, 81675341-f1af-44b0-81d3-d108caef5c28, 11.00.000)			

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Rua Pedro Hispano, s/n
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		HDPE granulates(Process_dataset, 4a7993d6-f0f4-440c-bf04-465df6a97521, 11.00.000),technologicalApplicability: The product is used for packaging applications., ReferenceToTechnologyFlowDiagrammOrPictures: PEF packaging_Pallet plastic 1st level.JPG(Source_dataset, 9b76a4bd-e223-403a-b085-64529b8dab39, 30.00.000) PEF packaging_Pallet plastic 2nd level.JPG(Source_dataset, 092a515b-d7d2-4987-8680-0d8059b0ceba, 30.00.000) --- Mathematical Relations Description --- Modelling and Validation LCIMethodAndAllocation: typeOfDataSet: LCI_result LCIMethodPrinciple: Attributional deviationsFromLCIMethodPrinciple: None, LCIMethodApproaches: Allocation_market_value, Allocation_net_calorific_value, Allocation_exergetic_content, Allocation_mass, Not_applicable deviationsFromLCIMethodApproaches: Foreground system: For the foreground system, no allocation was applied. Background system: For the combined heat and power production, allocation by exergetic content is applied. For the electricity generation and by-products, e.g. gypsum, allocation by market value is applied due to no common physical properties. Within the refinery allocation by net calorific value and mass is used. For the combined crude oil, natural gas and natural gas liquids production allocation by net calorific value is applied. For details please see the document \GaBi Databases Modelling Principles\,modellingConstants: Direct land use change: GHG emissions from direct LUC allocated to good/service for 20 years after the LUC occurs. \t\t\t\t\t\t\t\t\t\t Carbon storage and delayed emissions: credits associated with temporary (carbon) storage or delayed emissions are not considered in the calculation of the EF for the default impact categories. \t\t\t\t\t\t\t\t\t\t Emissions off-setting: not included\t\t\t\t\t\t\t\t\t\t Fossil and biogenic carbon emissions and removals: removals and emissions are modelled as follows: All GHG emissions from fossil fuels (including peat and limestone) are modelled consistently with the ILCD list of elementary flows. In the case that the emissions refer to the molecules CO2 and CH4, they are modelled as ‘carbon dioxide (fossil)’ and ‘methane (fossil)’. Biogenic uptake and emissions are modelled separately. For land use change, all carbon emissions and uptakes are inventoried separately for each of the elementary flows. Soil carbon accumulation (uptake) via improved agricultural management is excluded from the model.,deviationsFromModellingConstants: none, ReferenceToLCAMethodDetails: PEF pilot guidance v5.2, 2016(Source_dataset, 5e59cd0a-aa99-49b4-a64d-6ec3c8d7e5e1, 00.00.000) PEF guide (2013/179/EU)(Source_dataset, 2bc1740f-3ad3-4f7a-9a47-2d89a28e6996, 00.00.000) GaBi Modelling Principles(Source_dataset, f2b512cd-43b2-4260-9882-eebc06731274, 30.00.000) GaBi Water Modelling Principles(Source_dataset, 2f4e6329-f31d-44dc-8933-f4e6608590f5, 30.00.000) GaBi Energy Modelling Principles(Source_dataset, 3c6b1a84-fc51-463c-a66f-eaacfde2cb2f, 30.00.000) GaBi Refinery Modelling Principles(Source_dataset, 1a453aa5-4e46-468f-b441-17fb02054ac3, 30.00.000) GaBi Agriculture Model Documentation(Source_dataset, 69cb87e8-2532-455d-b7d3-18eced579e8f, 30.00.000) GaBi Land Use Change Model Documentation(Source_dataset, 57a2608f-18fc-454f-998a-1657376a4322, 30.00.000) PEF tender specification packaging(Source_dataset, 15d59a8e-422c-4f00-bdf3-cbcba6630715, 00.00.000), DataSourcesTreatmentAndRepresentativeness: dataCutOffAndCompletenessPrinciples: A cut-off rule of 95%, based on mass and energy and the environmental significance, is applied and confirmed by the reviewer, in particular with reference to the environmental significance of the cut-off applied. A cut-off rule lower than 95% is not used. An active cut-off has not been done, but all known elementary flows of environmental effect have been kept in the inventory.\t\t\t\t\t\t\t\t\t\t Capital goods (including infrastructures) and their End of life are included in the foreground system.\t\t\t\t\t\t\t\t\t\t			

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

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		System boundaries: system boundaries include all known processes linked to the product supply chain.,deviationsFromCutOffAndCompletenessPrinciples: None,dataSelectionAndCombinationPrinciples: LCI modeling is fully consistent. Energy and transport datasets from the PEF energy and transports tender are consistently used.,deviationsFromSelectionAndCombinationPrinciples: none,dataTreatmentAndExtrapolationsPrinciples: For details please see the document \GaBi Databases Modelling Principles\,deviationsFromTreatmentAndExtrapolationPrinciples: none, ReferenceToDataSources: Average Industry Data , 1999-2010(Source_dataset, d273be76-5fbd-11db-b0de-0800200c9a66, 30.00.000) Patent-/ Technical Literature, 1999-2006(Source_dataset, d273be75-5fbd-11db-b0de-0800200c9a66, 30.00.000) GaBi databases(Source_dataset, 61875b4e-7249-444b-8691-e4a04e6d3c47, 31.00.000) Industrial Inorganic Chemistry, 2000(Source_dataset, d273494e-5fbd-11db-b0de-0800200c9a66, 30.00.000) Industrial Organic Chemistry, 2003(Source_dataset, d273494f-5fbd-11db-b0de-0800200c9a66, 30.00.000) CD Römpp Chemie Lexikon, 1995(Source_dataset, d2732230-5fbd-11db-b0de-0800200c9a66, 30.00.000) ULLMANN'S Encyclopedia of Industrial Chemistry(Source_dataset, d2732231-5fbd-11db-b0de-0800200c9a66, 30.00.000) Die Kunststoffe und ihre Eigenschaften, 2005(Source_dataset, d2732232-5fbd-11db-b0de-0800200c9a66, 30.00.000) Saechtling Kunststofftaschenbuch, 2004(Source_dataset, d2732233-5fbd-11db-b0de-0800200c9a66, 30.00.000) Chemische Prozesskunde, 1996(Source_dataset, d2732234-5fbd-11db-b0de-0800200c9a66, 30.00.000) Handbook of Petrochemicals and Processes, 1999(Source_dataset, d2732236-5fbd-11db-b0de-0800200c9a66, 30.00.000) Best Available Techniques in the Production of Polymers, 2006(Source_dataset, d2732237-5fbd-11db-b0de-0800200c9a66, 30.00.000) Ressourcenschonende Herstellung von Polymerwerkstoffen am Beispiel Polyolefine, 2000(Source_dataset, d2732238-5fbd-11db-b0de-0800200c9a66, 30.00.000) Kunststoffkunde, 2000(Source_dataset, d2732239-5fbd-11db-b0de-0800200c9a66, 30.00.000) Selected Process from Chemical Process Economics, 1998(Source_dataset, d2737041-5fbd-11db-b0de-0800200c9a66, 30.00.000) Außenhandel nach Waren und Ländern 2004, 2005(Source_dataset, d273223a-5fbd-11db-b0de-0800200c9a66, 30.00.000) Außenhandel nach Waren und Ländern 2003, 2004(Source_dataset, d273223b-5fbd-11db-b0de-0800200c9a66, 30.00.000) Europäische Statistische Datenbank EUROSTAT, 2005(Source_dataset, d273223c-5fbd-11db-b0de-0800200c9a66, 30.00.000) Wirtschaftsdaten und Grafiken zu Kunststoffen, 2004(Source_dataset, d273223d-5fbd-11db-b0de-0800200c9a66, 30.00.000) Produktions- u. Verbrauchsdaten für Kunststoffe in Deutschland unter Einbeziehung der Verwertung2003(Source_dataset, d273223e-5fbd-11db-b0de-0800200c9a66, 30.00.000) Plastics in Europe - An analysis of plastics consumption and recovery in Europe 2002 & 2003, 2004(Source_dataset, d2734930-5fbd-11db-b0de-0800200c9a66, 30.00.000) Plastics in Europe - An analysis of plastics consumption and recovery in Europe 2001 & 2002, 2003(Source_dataset, d2734931-5fbd-11db-b0de-0800200c9a66, 30.00.000),percentageSupplyOrProductionCovered:95.0,uncertaintyAdjustments: none,useAdviceForDataSet: Life Cycle Inventory (LCI) dataset to be used in Product Environmental Footprint Category Rules (PEFCRs) and Organisation Environmental Footprint Sectoral Rules (OEFSRs) developed in the context of the Environmental Footprint pilot phase launched by the Commission in 2013.			

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Rua Pedro Hispano, s/n
3030-289 Coimbra
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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

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		The datasets are specifically designed for these methodological requirements (see above) and the related LCIA methods (listed below) recommended in PEF. For use outside this scope, see beforehand the license conditions at http://www.gabi-software.com/fileadmin/gabi/EULA_European_Commission_-_use_of_thinkstep_LCI_data.pdf, Completeness: completenessProductModel: No_statement ReferenceToSupportedImpactAssessmentMethods: EF-Resource use, energy carriers(LCIAMethod_dataset, b2ad6110-c78d-11e6-9d9d-cec0c932ce01, 34.00.000) EF-Resource use, mineral and metals(LCIAMethod_dataset, b2ad6494-c78d-11e6-9d9d-cec0c932ce01, 34.00.000) EF-Acidification terrestrial and freshwater(LCIAMethod_dataset, b5c611c6-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Climate Change(LCIAMethod_dataset, b2ad6d9a-c78d-11e6-9d9d-cec0c932ce01, 34.00.000) EF-Ecotoxicity freshwater(LCIAMethod_dataset, b5c623fa-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Eutrophication freshwater(LCIAMethod_dataset, b53ec18f-7377-4ad3-86eb-cc3f4f276b2b, 34.00.000) EF-Eutrophication marine(LCIAMethod_dataset, b5c619fa-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Eutrophication terrestrial(LCIAMethod_dataset, b5c614d2-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Cancer human health effects(LCIAMethod_dataset, b5c621f2-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Non-cancer human health effects(LCIAMethod_dataset, b5c634f8-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Ionising radiation - human health(LCIAMethod_dataset, b5c632be-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Land Use(LCIAMethod_dataset, b2ad6890-c78d-11e6-9d9d-cec0c932ce01, 34.00.000) EF-Ozone depletion(LCIAMethod_dataset, b5c629d6-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Respiratory inorganics(LCIAMethod_dataset, b5c602c6-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-Photochemical ozone formation - human health(LCIAMethod_dataset, b5c610fe-def3-11e6-bf01-fe55135034f3, 34.00.000) EF-water scarcity(LCIAMethod_dataset, b2ad66ce-c78d-11e6-9d9d-cec0c932ce01, 34.00.000),CompletenessElementaryFlows: Type: Climate_change,Value: Allrelevant_flows_quantified Type: Ozone_depletion,Value: Allrelevant_flows_quantified Type: Summer_smog,Value: Allrelevant_flows_quantified Type: Eutrophication,Value: Allrelevant_flows_quantified Type: Acidification,Value: Allrelevant_flows_quantified Type: Human_toxicity,Value: Allrelevant_flows_quantified Type: Freshwater_ecotoxicity,Value: Allrelevant_flows_quantified Type: Seawater_ecotoxicity,Value: Allrelevant_flows_quantified Type: Terrestric_ecotoxicity,Value: Allrelevant_flows_quantified Type: Radioactivity,Value: Allrelevant_flows_quantified Type: Land_use,Value: Allrelevant_flows_quantified Type: Non_renewable_material_resource_depletion,Value: Allrelevant_flows_quantified Type: Renewable_material_resource_consumption,Value: Allrelevant_flows_quantified Type: Non_renewable_primary_energy_depletion,Value: Allrelevant_flows_quantified Type: Renewable_primary_energy_consumption,Value: Allrelevant_flows_quantified Type: Particulate_matter_respiratory_inorganics,Value: Allrelevant_flows_quantified Type: Species_depletion,Value: No_statement Type: Noise,Value: No_statement, validation: Reviews: ReviewType: Dependent_internal_review			

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		Scopes: ScopeName: Raw_data Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Cross_check_with_other_source MethodName: Expert_judgement, ScopeName: Unit_processes_single_operation Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: Unit_processes_blackbox Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: LCIresults_or_partly_terminated_system Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: LCIA_results Methods: MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement, ScopeName: Documentation Methods: MethodName: Expert_judgement MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: Life_cycle_inventory_methods Methods: MethodName: Compliance_with_iSO_14040_to_14044,			

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itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		ScopeName: LCIA_results_calculation, ScopeName: Goal_and_scope_definition, DataQualityIndicators: Name: Technological_representativeness, Value: Good Name: Time_representativeness, Value: Good Name: Geographical_representativeness, Value: Good Name: Completeness, Value: Not_evaluated_unknown Name: Precision, Value: Good Name: Methodological_appropriateness_and_consistency, Value: Not_applicable Name: Overall_quality, Value: Good, ReviewDetails: The method to set up the LCI data are related to the requirements in ISO 14040 and 14044 for LCA studies. The documentation includes all relevant information concerning data quality and scope of the application of the respective LCI result / data set. The dataset represents the state-of-the-art of the referenced functional unit. In the PEF context the field \Methodlogical appropriateness and consistency\ applies solely to the criterium for implementation of the defined EoL formula, as any other methodologial requirements are defined as mandatory., ReferenceToNameOfReviewerAndInstitutions: thinkstep(Contact_dataset, b167f9ca-9178-45f5-b34e-a176cb8e2952, 11.00.000),otherReviewDetails: Good overall quality (2,0) interpreted into \good quality\ in the PEF quality validation scheme. The quality indicator for completeness was not requested to be quantified as a single DQI for all tenders. If a value “Not evaluated / unknown” completeness is given, this indicates that a single DQI was not explicitly requested but the completeness is still to be understood as very good. The Data Quality Indicator Results are conservative expert judgements, confirmed or - if necessary - corrected by the reviewers, based on their methodological as well as process understanding and considering semi-quantitatively the contribution of the DQIs of the used EF energy and transport datasets and of EF-related DQIs provided and reviewed within the GaBi databases. The overall DQIs of the datasets take into account primarily the quality and representativeness of the foreground technology information and that of the key upstream processes. If datasets are e.g. energy and transport intensive - or gain credits from energy recovery - the DQIs of the used EF energy and transport datasets influence the overall DQI significantly and have stronger been taken into account, via expert judgement. Analogous applies for other key background datasets. For the DQIs of the mentioned GaBi secondary datasets, similar DQIs had already been assigned to those datasets and were considered by the reviewers via expert judgement when assigning of the overall DQIs. In case of doubt, lower (i.e. lower quality) DQIs were assigned., ReviewType: Independent_review_panel Scopes: ScopeName: Raw_data, ScopeName: Unit_processes_single_operation, ScopeName: Unit_processes_blackbox, ScopeName: LCIresults_or_partly_terminated_system, ScopeName: LCIA_results, ScopeName: Documentation, ScopeName: Life_cycle_inventory_methods, ScopeName: LCIA_results_calculation, ScopeName: Goal_and_scope_definition, DataQualityIndicators: Name: Technological_representativeness, Value: Good Name: Time_representativeness, Value: Good Name: Geographical_representativeness, Value: Good Name: Precision, Value: Good Name: Methodological_appropriateness_and_consistency, Value: Not_applicable			

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		Name: Overall_quality, Value: Good, ReviewDetails: „The dataset is compliant to \PEF/OEF implementation, mandatory data 2016-2020\ and \ILCD Data Network - Entry-level\. The representativeness of the data set regarding geography, technology and time is given, as recent data for the specific country/region as well as the employed technologies was available for the relevant parts of the whole life cycle (particularly energy raw materials exploitation and conversion (e.g. refinery)). The completeness of the inventory is also very good, as the product chain from cradle to gate is well established and the emissions and resources that relevantly contribute to all product-specific relevant impact categories are well covered in the relevant processes also from cradle to gate. The precision of the data is good, given some uncertainties of measured and reported data for some emissions in the energy carrier exploitation and to a smaller degree for energy conversion processes. The results are plausible, both for the impact category level results as well as for the most relevant elementary flows. The data set documentation is reflecting what has been modelled and is appropriate in terms of content and level of detail. The system boundaries include all relevant processes and activity types from cradle to gate, the not covered activities and flows (cut-off due to data limitations for less relevant contributors) jointly contribute less than a few % to the overall environmental impacts. An active cut-off, i.e. by excluding available data, has not been found. The LCI modelling choices follow the PEF and OEF guides, such as allocation, consistency of included processes, and LCI methodology in general; further requirements of the PEF guide and the PEF and OEF guidance documents (version 5.2 of February 2016) are equally observed. The pre-calculated LCIA results that are provided for the 15 EF impact categories have been calculating in correspondence of the Input and Output elementary flows (including their geographical validity, e.g. country-specific water consumption) with the applied LCIA method(s). In the PEF context the field \Methodological appropriateness and consistency\ applies solely to the criterion for implementation of the defined EoL formula, as any other methodological requirements are defined as mandatory.\Methodlogical appropriateness and consistency\ applies solely to the criterium for implementation of the defined EoL formula, as any other methodologial requirements are defined as mandatory.", ReferenceToNameOfReviewerAndInstitutions: Manfred Russ(Contact_dataset, 920016fd-e842-41c2-926d-268a8f72209f, 00.00.000) Peter Shonfield (PhD)(Contact_dataset, 0dc85e5c-85a3-4887-a8a6-c626f4d4661a, 00.00.000) Paolo Masoni (Contact_dataset, 761a2956-2823-4520-ae2c-0020c37049fb, 30.00.000),otherReviewDetails: Good overall quality (2,0) interpreted into \good quality\ in the PEF quality validation scheme. The quality indicator for completeness was not requested to be quantified as a single DQI for all tenders. If a value “Not evaluated / unknown” completeness is given, this indicates that a single DQI was not explicitly requested but the completeness is still to be understood as very good. The Data Quality Indicator Results are conservative expert judgements, confirmed or - if necessary - corrected by the reviewers, based on their methodological as well as process understanding and considering semi-quantitatively the contribution of the DQIs of the used EF energy and transport datasets and of EF-related DQIs provided and reviewed within the GaBi databases. The overall DQIs of the datasets take into account primarily the quality and representativeness of the foreground technology information and that of the key upstream processes. If datasets are e.g. energy and transport intensive - or gain credits from energy recovery - the DQIs of the used EF energy and transport datasets influence the overall DQI significantly and have stronger been taken into account, via expert judgement. Analogous applies for other key background datasets. For the DQIs of the mentioned GaBi secondary datasets, similar DQIs had already been assigned to those datasets and were considered by the reviewers via expert judgement when assigning of the overall DQIs. In case of doubt, lower (i.e. lower quality) DQIs were assigned., ReferenceToCompleteReviewReport: EU-28+EFTA Pallet, plastic (80x60) agg(Source_dataset, 371f8fae-e184-4025-92d0-d3f336c12273, 00.00.000), ComplianceDeclarations: Compliances:			

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3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		ReferenceToComplianceSystem: ISO 14044:2006. Environmental Management – Life Cycle Assessment – Requirements and guidelines. (Source_dataset, 1adb438d-4a8b-4919-885e-0a66da3c0f2a, 30.00.000) approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Not_defined methodologicalCompliance: Fully_compliant reviewCompliance: Not_defined documentationCompliance: Fully_compliant qualityCompliance: Not_defined, ReferenceToComplianceSystem: ILCD Data Network - Entry-level(Source_dataset, d92a1a12-2545-49e2-a585-55c259997756, 30.00.000) approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Fully_compliant methodologicalCompliance: Fully_compliant reviewCompliance: Fully_compliant documentationCompliance: Fully_compliant qualityCompliance: Not_defined, ReferenceToComplianceSystem: ISO 14040 Environmental Management – Life Cycle Assessment – Principles and Framework, 2006(Source_dataset, 1ea48531-e397-4ca7-ac08-056e4fa11826, 30.00.000) approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Not_defined methodologicalCompliance: Fully_compliant reviewCompliance: Fully_compliant documentationCompliance: Not_defined qualityCompliance: Not_defined, ReferenceToComplianceSystem: PEF/OEF implementation, mandatory data 2016-2020(Source_dataset, 66279383-8dc3-46c1-80d1-99866cc01e6a, 00.00.000) approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Fully_compliant methodologicalCompliance: Fully_compliant reviewCompliance: Fully_compliant documentationCompliance: Fully_compliant qualityCompliance: Fully_compliant --- Administrative Information CommissionerAndGoal: ReferenceToCommissioners: European Commission, DG ENV(Contact_dataset, e0c82c5f-6b85-4d66-a84c-147d54abb889, 00.00.000),project: Provision of product environmental footprint-compliant life cycle inventory datasets. Contract number ENV.B.1/SER/2016/0048vl,intendedApplications: Life Cycle Inventory (LCI) datasets to be used in Product Environmental Footprint Category Rules (PEFCRs) and Organisation Environmental Footprint Sectoral Rules (OEFSRs) developed in the context of the Environmental Footprint pilot phase launched by the Commission in 2013.,			
EUR-flat pallet {RER}| EUR-flat pallet production | EN15804, U	Ecoinvent v3.11	Module includes only materials (no production process) and should only be used for the packing and transportation of products. Synonym: Palett stillage Production volume: 3.0E8 p	Last edited: 8/19/21	sampling procedure: internet search	--

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		Included activities end: Includes only the materials and not the process of construction. The examined system is from gate to gate and as in most cases the paletts have a long life-span the waste treatment is not included. It must be included in the packing module Geography: The inventory is modelled for Europe Technology level: Current Technology: Standard composition of materials Start date: 01/01/2000 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 114.3.0.0 Created: 5/4/19 10:53:54			
Lubricating oil {RER}| lubricating oil production | EN15804, U	Ecoinvent v3.11	This dataset represents the production of 1 kg of liquid lubricating oil, including additives. The most important function of lubricants is the reduction of friction and wear. Apart from important applications in internal combustion engines, vehicle and industrial gearboxes, compressors, turbines, or hydraulic systems, there are a vast number of other applications which mostly require specifically tailored lubricants. In terms of quantity, mineral oil components continue to be the most important ingredients of lubricants. Petrochemical components and, increasingly, derivatives of natural, harvestable raw materials from the oleo-chemical industry are finding increasing acceptance because of their environmental compatibility and some technical advantages. This dataset is based on literature and industrial data. The additives included in the lubricating oil are based on Raimondi et al. (2012). The energy consumption is approximated based on data from a large chemical factory (Gendorf 2016). References: Mang, T., Noll, S. and Bartels, T. 2011. Lubricants, 1. Fundamentals of Lubricants and Lubrication. Ullmann's Encyclopedia of Industrial Chemistry. Andrea Raimondi, Giorgia Girotti, Gian Andrea Blengini and Debora Fino (2012) LCA of petroleum-based lubricants: state of art and inclusion of additives. Int J Life Cycle Assess (2012) 17:987–996. Gendorf (2016) Umwelterklärung 2015, Werk Gendorf Industriepark, www.gendorf.de. Production volume: 7.2036E9 kg Included activities start: From the reception of diesel at the factory gate. Included activities end: This activity ends with 1 kg of lubricating oil at the factory gate. The dataset includes the input materials, energy uses, infrastructure and emissions. Geography: The inventory is modelled for Europe Technology level: Current Technology: A huge variety of different compositions are known under the name “lubricants” – actually, 5’000 to 10’000 different formulations are used to satisfy about 90% of the different lubricants applications. In terms of quantity, mineral oil components continue to be the most important ingredients. But more and more, derivatives of natural, harvestable raw materials from the oleo-chemical sector are finding their acceptance within the used substances. In 1999 around 37 Mt of lubricants have been consumed – thereof more than half in the automotive sector (56%), and another 29% as industrial lubricants. This amount is produced by around 1700 producers worldwide. Thereof, about 200 are vertically-integrated petroleum companies where lubricants are only a minor part of their profit. Nevertheless, less than 2% of all lubricant manufacturers are producing more than 60% of the total production volume. In case of the remaining 1500 companies, lubricants are their core business. In terms of the volume, base oils are the most important parts of lubricants. The rest is composed of additives. For this dataset, the additives are based on data published in Raimondi et al. (2012). The image above represents the typical yields of the different cuts from a conventional lubricating oil refining process	--	sampling procedure: Data based on literature and estimations. The energy consumption is based on data from a large chemical factory located in Germany. The process emissions are based on estimations only.	--

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(National landline)
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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		To achieve base oils, a variety of different steps have to be done starting with the crude oil that is extracted until the right components are isolated. Different steps therefore are for example refining, distillation, de-asphalting, traditional refining process, solvent dewaxing or finishing. Additional steps that are often used are as well hydrogenation and hydrocracking operations. Based on the fact that a multitude of different processes are possible for the production of lubricants, the following choices are done for this dataset – with the aim to create a typical dataset for petrochemical lubricants – called “lubricants”: - Hydrocracking as basic technology for the extraction of the lubricant oils due to the fact that according to Bartels et al. (2003) more than 50% of the new manufacturing plants work with this principle. - Distillation and dewaxing as subsequent process steps to achieve high-quality base lubricant oil - Diesel as input due to the fact that these hydrocracker need low-sulphur oils. References: Bartels T., Bock W., Braun J., Busch C., Dresel W., Freiler C., Harperscheid M., Heckler R.-P., Hörner D., Kubicki F., Lingg G., Losch A., Luther R., Mang T., Noll S. and Omeis J. (2003) Lubricants and Lubrication. In: Ullmann's Encyclopedia of Industrial Chemistry, Sixth Edition, 2003 Electronic Release (ed. Häussinger P., Leitgeb P. and Schmücker B.), 6 th Electronic Release Edition. Wiley InterScience, New York, Online-Version under: http://www.mrw.interscience.wiley.com/ueic/ull_search_fs.html. Andrea Raimondi, Giorgia Girotti, Gian Andrea Blengini and Debora Fino (2012) LCA of petroleum-based lubricants: state of art and inclusion of additives. Int J Life Cycle Assess (2012) 17:987–996. Start date: 01/01/2000 End date: 31/12/2024 Is data valid for entire period: True Time period: Date of published literature. The energy consumption is based on data published by the Gendorf factory that were collected between 2011 and 2015. The time period has been adjusted accordingly. For more details, see the comments of the exchanges. Macro-economic scenario name: Business-as-Usual Version: 4.3.0.0			
Steel, low-alloyed {RER}| steel production, converter, low-alloyed | EN15804, U	Ecoinvent v3.11	"Background: This activity represents the production of primary low-alloyed steel in a basic oxygen furnace (BOF), a discontinuous process involving the following steps: 1) pretreatment of hot metal (pig iron) from the blast furnace (desulphurisation, deslagging, etc.); 2) mixing of charge (including alloying additions), weighing, transfer and reladling ; 3) oxidation in the BOF (decarburisation and oxidation of impurities); 4) secondary metallurgical treatment in a ladle furnace; and 5) casting (continuous and/or ingot). Modelling approach: Data on were mostly taken from the IPPC Best Available Technology report from the European Commission (Remus et al., 2013); note that where only data ranges were provided, the geometric mean of reported values was used here. The proportion of each by-product that is recycled internally (i.e. returned as an input to the process after it has been produced) is based on measured data from plants worldwide reported by worldsteel (2010): slag (including desulphurisation slag, BOF slag, slag from secondary metallurgy and slag from continuous casting), 14%; spittings, 100%; dust and sludge, 22%; and mill scale, 89%. References: Remus, R., Aguado-Monsonet, M. A., Roudier, S. & Samcho, L. D. (2013). JRC reference report - Best available techniques (BAT) reference document for iron and steel production. Joint Research Centre - European Commission, Luxemboug. Worldsteel (2010). Steel industry by-products. World Steel Association: Brussels, Belgium." Production volume: 1.907885187028E10 kg	Last edited: 8/17/21		

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3030-289 Coimbra
www.itecons.uc.pt
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		Included activities start: At the gate of the steelmaking plant with the arrival of the hot metal (pig iron). Included activities end: At the gate of the steelmaking plant with the cast steel ready for transport to manufacturers and fabricators. Geography: The inventory is modelled for Europe Technology level: Modern Technology: Represents average European technology; LD converter and secondary metallurgy Start date: 01/01/2013 End date: 31/12/2024 Is data valid for entire period: True Time period: Data are mostly compiled from reports published between 2005 and 2010 but are considered representative of modern operations. Macro-economic scenario name: Business-as-Usual Version: 6.3.0.0 Created: 3/2/20 5:04:11			
Synthetic rubber {RER}| synthetic rubber production | EN15804, U	Ecoinvent v3.11	This module refers to the EPDM elastomer as it is used in technical products. Thus, according to DIN the name "rubber" (meaning only the un-vulcanised polymer without any fillers etc.) would actually be wrong. EPDM is one of many different rubbers and there are EPDM elastomers of many different compositions. The elastomer modelled in this data could typically be used as seals (for e.g. windows) Production volume: 3.924E9 kg Included activities end: Production of EPDM-rubber, production of EPDM elastomer, extrusion and vulcanisation of EPDM profiles. Also included are the transports of the raw materials to the polymerisation and elastomer production plant. Energy values: Undefined Geography: The inventory is modelled for Europe Technology level: Current Technology: Ziegler-Natter solution polymerisation of EPDM. Internal mixing of elastomer. Salt vulcanisation after extrusion Start date: 01/01/1995 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 129.3.1.0 Created: 7/28/10 6:27:19	--	sampling procedure: Literature	extrapolations: none
Diesel, burned in building machine {GLO}| diesel, burned in building machine | EN15804, U	Ecoinvent v3.11	This module is based on the data included in the report Oekoinventare von Energiesystemen 1996. The diesel consumption and the emissions are updated using the Swiss "Offroad database" and applied to year 2000. This moduleshould not be used if its relative importance would be high in a certain environmental inventory. Synonym: construction engine Production volume: 1.0 MJ Included activities end: Includes the inputs " building machine" for infrastructure, lubricating oil and fuel consumption, and some measured air emissions as output. Energy values: Undefined Geography: The inventory is modelled for Global Technology level: Current Technology: Average current technology for one typical machine representing the category. Start date: 01/01/1996		sampling procedure: Some data from the LCA study Oekoinventare von Energiesystemen 1996 and emissions from the Swiss "Offroad" database.	extrapolations: See geography

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Tel: (+351) 239 79 89 49
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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 120.3.1.0 Created: 7/28/10 6:12:09			
Sodium hypochlorite production {RER} | technology mix | production mix, at plant | 100% active substance | LCI result	EF database v2.0	Process UUID: 1bde1cf6-9dd8-4c78-a05a-07e491913641 Version: 03.00.009 General Comment: TYPE OF DATASET For every chemical compound three datasets are created; the unit process (partially terminated system), the non-energy and transport component of the partially terminated system, and the cumulative life cycle inventory dataset (system process). For more information and flow chart see the report (ecoinvent, 2017, Data on the Production of Chemicals created for the EU Product Environmental Footprint (PEF) pilot phase implementation, www.ecoinvent.org, ecoinvent Association, Z\xc3\xbcrich, Switzerland). This dataset represent the cumulative life cycle inventory dataset (system process). PROCESS DESCRIPTION This dataset represents the production of 1 kg of sodium hypochlorite (NaOCl) from chlorine emissions captured in a 50% sodium hydroxide solution. Sodium hypochlorite is an inorganic compound which takes the form of a pale yellow-greenish liquid with a chlorine odor. It is used primarily for household sanitizing and bleaching solutions as well as for water treatment (pools). The activity starts when the raw materials enter the process. This activity ends with the production of sodium hypochlorite. The dataset includes all precursor compounds, as well as emissions to air and infrastructure. References ecoinvent (2017) Data on the Production of Chemicals created for the EU Product Environmental Footprint (PEF) pilot phase implementation, www.ecoinvent.org, ecoinvent Association, Z\xc3\xbcrich, Switzerland Gendorf (2016) Umwelterkl\xc3\xa4rung 2015, Werk Gendorf Industriepark, www.gendorf.de Water content of the reference product: 0.0 kg Biogenic carbon content of the reference product: 0.0 kg DATA QUALITY ASSESSMENT The data quality ratings for the datasets were determined as the average of the 5 individual ratings for Technological Representativeness, Geographical Representativeness, Time-related representativeness, Precision/uncertainty, and implementation of the End of Life Formula. The final scores for these 5 descriptors were determined by the independent, external reviewer after a discussion with the internal reviewers. The basis for this determination was generally a contribution analysis of the material and energy inputs as well as direct resource uses and emissions. This process was required by the tender. The contribution analysis is based on the most important flows in the dataset, defined in the tender specifications as \xe2\x80\x9cthe unit processes contributing cumulatively to at least to 80% of the total environmental impact based on characterised and normalised results\xe2\x80\x9d. In addition to unit processes, direct emissions also qualified as input exchanges for this approach. For the normalization, the normalisation factors \xe2\x80\x9cEC-JRC Global (2010 or 2013), per person\xe2\x80\x9d available at http://eplca.jrc.ec.europa.eu/?page_id=140 were used. For each parameter, the DQR scores were chosen to best reflect the conditions and quality of the amount value, the appropriateness of the chosen exchange for the specific needs of the system under analysis, and the quality of the foreground and background data for aggregated inputs of exchanges from the technosphere, i.e. not direct emissions or resource uses. ENERGY AND TRANSPORT INFORMATION SOURCE	--	--	--

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		Energy and transport was used in both the foreground and background of this dataset. When building the dataset, energy and transport demands were supplied directly by datasets provided by thinkstep. The background for every other input from technosphere uses a modified version of the ecoinvent database, created specifically for the PEF. In this version, every instance of energy and transport supply, anywhere in the database, was replaced by a dataset from thinkstep. This ensures that every demand for energy and transport, in the foreground and in the background, is supplied by a thinkstep dataset. BILL OF MATERIALS The bill of material includes the following inputs: chemical factory, organics: 4e-10 unit chlorine, gaseous: 0.95244787411 kg tap water: 0.026 kg Electricity: 0.0281504 kWh Thermal energy (MJ): 1.634196 MJ sodium hydroxide, without water, in 50% solution state: 1.07441948482 kg. NOT INCLUDED EXCHANGES The following exchanges have not been included in the inventory as they are not part of the official list of elementary exchanges published by the JRC. The EC and JRC were not able to provide an extended flow list during the duration of the data creation. If the JRC decides to include these exchanges in the master data, they may be added to the exchange section of the dataset by ecoinvent as part of a maintenance. The absence of these exchanges does not change the scores calculated with the ILCD recommended methods, but that might not be the case for other LCIA methods. Fatty acid methyl ester, Emissions to air, Emissions to air, unspecified: 6.35e-15 kg inland water bodies, Resources, Land occupation: 8.04e-05 m2*a sodium hydroxide, Emissions to water, Emissions to water, unspecified: 6.4e-14 kg sodium hypochlorite, Emissions to water, Emissions to water, unspecified: 1.19e-13 kg PROCESS DIAGRAM LEGEND The file 'chemical_dataset_diagram.jpg' presents the relationship between partially terminated datasets, energy and transport from datasets from thinkstep, and the aggregated inputs dataset. The aggregated inputs dataset is available on the node, under the name 'Sodium hypochlorite production, aggregated inputs, RER.xml' The following datasets from thinkstep are used as inputs of energy: 0.0282 kWh of Electricity from Electricity grid mix 1kV-60kV - EU-28+3 0.234 MJ of Thermal energy (MJ) from Thermal energy from hard coal - EU-28+3 0.351 MJ of Thermal energy (MJ) from Thermal energy from light fuel oil (LFO) - EU-28+3 1.05 MJ of Thermal energy (MJ) from Thermal energy from natural gas - EU-28+3 The following datasets from thinkstep are used as inputs of transport: 0.00873 metric ton*km of Transport from Freight train, diesel traction - EU-28+3 0.0118 metric ton*km of Transport from Freight train, electricity traction - EU-28+3 0.00889 metric ton*km of Transport from Freight train, average (without fuel) - EU-28+3 0.00525 metric ton*km of Transport from Articulated lorry transport, Euro 3, Total weight >32 t (without fuel) - EU-28+3 0.000385 metric ton*km of Transport from Articulated lorry transport, Euro 3, Total weight 20-26 t (without fuel) - EU-28+3 0.00226 metric ton*km of Transport from Articulated lorry transport, Total weight 20-26 t, mix Euro 0-5 - ROW w/o EU-28+3 0.0017 metric ton*km of Transport from Articulated lorry transport, Total weight 14-20 t, mix Euro 0-5 - ROW w/o EU-28+3 0.00113 metric ton*km of Transport from Articulated lorry transport, Total weight 28-32 t, mix Euro 0-5 - ROW w/o EU-28+3 0.000193 metric ton*km of Transport from Articulated lorry transport, Euro 3, Total weight 28-32 t (without fuel) - EU-28+3 0.000313 metric ton*km of Transport from Articulated lorry transport, Euro 3, Total weight 14-20 t (without fuel) - EU-28+3 0.000294 metric ton*km of Transport from Articulated lorry transport, Euro 3, Total weight <7.5 t (without fuel) - EU-28+3			

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itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		2.4e-05 metric ton*km of Transport from Articulated lorry transport, Euro 3, Total weight 12-14 t (without fuel) - EU-28+3 5.4e-05 metric ton*km of Transport from Articulated lorry transport, Euro 3, Total weight 7,5-12 t (without fuel) - EU-28+3 0.00485 metric ton*km of Transport from Articulated lorry transport, Euro 4, Total weight >32 t (without fuel) - EU-28+3 0.000159 metric ton*km of Transport from Articulated lorry transport, Euro 4, Total weight 20-26 t (without fuel) - EU-28+3 0.000255 metric ton*km of Transport from Articulated lorry transport, Euro 4, Total weight 12-14 t (without fuel) - EU-28+3 0.000334 metric ton*km of Transport from Articulated lorry transport, Euro 4, Total weight 14-20 t (without fuel) - EU-28+3 0.000191 metric ton*km of Transport from Articulated lorry transport, Euro 4, Total weight <7.5 t (without fuel) - EU-28+3 3.82e-05 metric ton*km of Transport from Articulated lorry transport, Euro 4, Total weight 7,5-12 t (without fuel) - EU-28+3 0.00206 metric ton*km of Transport from Articulated lorry transport, Euro 5, Total weight >32 t (without fuel) - EU-28+3 0.000104 metric ton*km of Transport from Articulated lorry transport, Euro 5, Total weight 12-14 t (without fuel) - EU-28+3 6.42e-05 metric ton*km of Transport from Articulated lorry transport, Euro 5, Total weight 20-26 t (without fuel) - EU-28+3 0.000136 metric ton*km of Transport from Articulated lorry transport, Euro 5, Total weight 14-20 t (without fuel) - EU-28+3 7.64e-05 metric ton*km of Transport from Articulated lorry transport, Euro 5, Total weight <7.5 t (without fuel) - EU-28+3 1.8e-05 metric ton*km of Transport from Articulated lorry transport, Euro 5, Total weight 7,5-12 t (without fuel) - EU-28+3 # Process Metadata # - Process Information --- Dataset Information BaseName: Sodium hypochlorite production TreatmentStandardsRoutes: technology mix MixAndLocationTypes:production mix, at plant FunctionalUnitFlowProperties:100% active substance --- Time Representativeness referenceYear: 2017 dataSetValidUntil: 2020 timeRepresentativenessDescription: --- Technology Description technologyDescriptionAndIncludedProcesses: Based on literature data and plant data in Europe and North America. The yield of this production process is close to 100% according to industry sources.,technologicalApplicability: --- Mathematical Relations Description modelDescription: --- Modelling and Validation LCIMethodAndAllocation: typeOfDataSet: LCI_result LCIMethodPrinciple: Attributional deviationsFromLCIMethodPrinciple: The background data use the \\xe2\\x80\\x9cRecycled content cut-off\\xe2\\x80\\x9d approach to allocate end-of-life by-products and secondary materials. This allocation is explained in the description of the recycled content system model (http://www.ecoinvent.org/database/system-models-in-ecoinvent-3/cut-off-system-model/allocation-cut-off-by-classification.html)., LCIMethodApproaches: Allocation_market_value deviationsFromLCIMethodApproaches: Allocation following the ISO 14044 hierarchy.,modellingConstants: All modelling constants follow the requirements listed in the Tender Specifications ENV.B.1/SER/2016/0038vl. Completeness: All known environmental flows are included. All known resource uses and emissions are listed in the inventory. Water use: water use is modelled at country level using separate flows for water withdrawal, water release and water evaporation. Cut-off: All known environmental flows are included. All known resource uses and emissions are listed in the inventory. Handling multi-functional processes: the following PEF multi- functionality decision hierarchy is applied for resolving all multi- functionality			

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		problems: (1) subdivision or system expansion; (2) allocation based on a relevant underlying physical relationship (substitution may apply here); (3) allocation based on some other relationship. Direct land use change: GHG emissions from direct LUC allocated to good/service for 20 years after the LUC occurs, with IPCC default values. Carbon storage and delayed emissions: credits associated with temporary (carbon) storage or delayed emissions up to 300 years are not be considered. Emissions off-setting: are not included. Capital goods (including infrastructures) and their End of life: they are included. System boundaries: system boundaries include all processes linked to the product supply chain (e.g. maintenance). Time period: emissions and removals are modelled as if released or removed at the beginning of the assessment method. Fossil and biogenic carbon emissions and removals: removals and emissions are modelled as follows: All GHG emissions from fossil fuels (including peat and limestone) are modelled consistently with the most updated ILCD list of elementary flows. The non-fossil (biogenic) carbon flows are modelled consistently with the most updated ILCD list of elementary flows.,deviationsFromModellingConstants: None , DataSourcesTreatmentAndRepresentativeness: dataCutOffAndCompletenessPrinciples: All known environmental flows are included. All known resource uses and emissions are listed in the inventory. The dataset dry mass balance has been checked to ensure the inventory is complete. Capital goods (e.g. infrastructure) and their end-of-life are included.,deviationsFromCutOffAndCompletenessPrinciples: None,dataSelectionAndCombinationPrinciples: These datasets include, in both their foreground and background data, links to energy and transport data provided specifically for the PEF pilot projects. The relevant background data on energy and transport are from the existing LCDN data node (http://lcdn.thinkstep.com/Node/). All other background data in the supply chain of this product are from the ecoinvent v3.3 database (www.ecoinvent.org).,deviationsFromSelectionAndCombinationPrinciples: None,dataTreatmentAndExtrapolationsPrinciples: Several data sources have been used to model the inventory.,deviationsFromTreatmentAndExtrapolationPrinciples: None,annualSupplyOrProductionVolume: ,samplingProcedure: ,dataCollectionPeriod: ,uncertaintyAdjustments: None,useAdviceForDataSet: , Completeness: completenessProductModel: Allrelevant_flows_quantified, validation: Reviews: ReviewType: Dependent_internal_review Scopes: ScopeName: Raw_data Methods: MethodName: Expert_judgement MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Mass_balance MethodName: Documentation MethodName: Energy_balance, ScopeName: Unit_processes_single_operation Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset			

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		MethodName: Expert_judgement MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044 MethodName: Documentation, ScopeName: Unit_processes_blackbox Methods: MethodName: Expert_judgement MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: LCIresults_or_partly_terminated_system Methods: MethodName: Validation_of_data_sources MethodName: Sample_tests_on_calculations MethodName: Energy_balance MethodName: Element_balance MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement MethodName: Mass_balance MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: LCIA_results Methods: MethodName: Cross_check_with_other_source MethodName: Cross_check_with_other_dataset MethodName: Expert_judgement, ScopeName: Documentation Methods: MethodName: Expert_judgement MethodName: Compliance_with_iSO_14040_to_14044, ScopeName: Life_cycle_inventory_methods Methods: MethodName: Compliance_with_iSO_14040_to_14044, DataQualityIndicators: Name: Overall_quality, NumericValue: 2, Value: Good Name: Time_representativeness, NumericValue: 1, Value: Very_good Name: Geographical_representativeness, NumericValue: 1, Value: Very_good Name: Technological_representativeness, NumericValue: 2, Value: Good Name: Precision, NumericValue: 2, Value: Good Name: Methodological_appropriateness_and_consistency, NumericValue: 3, Value: Fair, ReviewDetails: The dataset is compliant with both the ISO 14040 and 14044 standards as well as the ILCD Data Network, Compliance rules and entry-level requirements. The documentation describes in adequate detail the type of activity modelled, data quality, modelling choices, system boundaries as well as other relevant information. The dataset represent activity modelled using the best available data from both primary and secondary sources. In the PEF context the field 'Methodological appropriateness and consistency' applies solely to the criteria for implementation of the defined EoL formula.,			

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		ReferenceToCompleteReviewReport: review report for Sodium hypochlorite production - RER.pdf(Source_dataset, 7daf7f36-a78c-51f2-87ba-3065b45900b9, 01.00.000), ReviewType: Independent_review_panel DataQualityIndicators: Name: Overall_quality, NumericValue: 2, Value: Good Name: Time_representativeness, NumericValue: 1, Value: Very_good Name: Geographical_representativeness, NumericValue: 1, Value: Very_good Name: Technological_representativeness, NumericValue: 2, Value: Good Name: Precision, NumericValue: 2, Value: Good Name: Methodological_appropriateness_and_consistency, NumericValue: 3, Value: Fair, ReviewDetails: The dataset is compliant with all the following standards: PEF/OEF implementation, mandatory data 2016-2020; ILCD Data Network, Compliance rules and entry-level requirements; ISO 14040 and ISO 14044 The dataset is also structured respecting requirements listed in the following documents/ correspondence: ILCD, Documentation of LCA data sets; Tender Specifications \\xe2\\x80\\x93 Provision of \\xe2\\x80\\x9cchemicals\\xe2\\x80\\x9d process-based product environmental footprint-compliant life cycle inventory datasets (ENV.B.1/SER/2016/0038vl); The dataset also fulfills all the requirements specified by the European Commission (Directorate B, Unit B.1) during the data collection via e-mail or telephone conversations The representativeness of the dataset and its supply chain regarding geography, technology and time is clearly stated in the dataset. The data used to model the activity in given geography, technology and time are best available and are considered adequate representation of the production in real life. The overall completeness of the inventory is on a very high level. Both the foreground activity as well as the background activities are well established and report well all the relevant products used and emissions released. All the reported exchanges cover well the relevant impact categories. The dataset documentation is reflecting what has been modelled and is appropriate in terms of content and level of detail. It is always clear what type of production the dataset represents. The precision of the data is good, given some uncertainties of measured and reported data for some emissions. The key parameters crucial for the final LCIA results have been cross-referenced by information from other sources demonstrating their plausibility. The LCIA results are plausible. The inventory was reviewed both on the unit process (UPR) level as well as the LCI level. The balances \\xe2\\x80\\x93 dry mass, wet mass, carbon - have been used to confirm the correctness of the modelling. The LCIA scores of all datasets for all the ILCD methods have been reviewed. The new LCIA scores of datasets which already existed in the ecoinvent version 3.3 database were compared with the old ones. The LCIA results of all the products for which activities were created were also compared with each other. There are no intentional cut-offs in the inventory no matter how small their contribution to all the ILCD impact categories is. Every known elementary and intermediate exchange is listed. The elementary and intermediate exchanges included in the inventory reflect very well all the process steps included within the system boundaries of the activity as described in the documentation. All the other modelling choices, such as allocation and regionalized water exchanges are modelled according to PEF specifications. The end-of-life is modelled following the cut-off by classification ecoinvent system model. In the PEF context the field 'Methodological appropriateness and consistency' applies solely to the criteria for implementation of the defined EoL formula., ComplianceDeclarations: Compliances: ReferenceToComplianceSystem: PEF/OEF implementation, mandatory data 2016-2020(Source_dataset, 66279383-8dc3-46c1-80d1-99866cc01e6a, 29.00.000)			

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Fully_compliant methodologicalCompliance: Fully_compliant reviewCompliance: Fully_compliant documentationCompliance: Fully_compliant qualityCompliance: Fully_compliant, ReferenceToComplianceSystem: ISO 14040 conformity system(Source_dataset, ab25397d-fbf8-4563-889a-5bb7fb1baa93, 29.00.000) approvalOfOverallCompliance: Fully_compliant nomenclatureCompliance: Not_defined methodologicalCompliance: Fully_compliant reviewCompliance: Fully_compliant documentationCompliance: Not_defined qualityCompliance: Fully_compliant --- Administrative Information CommissionerAndGoal: ReferenceToCommissioners: European Commission, European Commission(Contact_dataset, e0c82c5f-6b85-4d66-a84c-147d54abb889, 29.00.000),project: Provision of chemicals process-based product environmental footprint-compliant life cycle inventory datasets. Contract number ENV.A.1/SER/2016/0038vl,intendedApplications: This dataset is to be used only within the pilot projects of the PEF/OEF. The dataset and background data contain modeling choices and data sources that are not generally recommended for use in LCAs beyond the PEF/OEF pilot projects.,			
Water, decarbonised {ES}| water production, decarbonised | EN15804, U	Ecoinvent v3.11	This dataset is created as a child of the global dataset with edited production volume for this geography. This dataset represents production of 1 kg of decarbonised water.Rough estimation for the process. [This dataset was already contained in the ecoinvent database version 2. It was not individually updated during the transfer to ecoinvent version 3. Life Cycle Impact Assessment results may still have changed, as they are affected by changes in the supply chain, i.e. in other datasets. This dataset was generated following the ecoinvent quality guidelines for version 2. It may have been subject to central changes described in the ecoinvent version 3 change report (http://www.ecoinvent.org/database/ecoinvent-version-3/reports-of-changes/), and the results of the central updates were reviewed extensively. The changes added e.g. consistent water flows and other information throughout the database. The documentation of this dataset can be found in the ecoinvent reports of version 2, which are still available via the ecoinvent website. The change report linked above covers all central changes that were made during the conversion process.] [This dataset is meant to replace the following datasets: - water production and supply, decarbonised, RER, 1993 - 1993 (6abc36ed-c8a8-4b29-892e-f4f26a77903c)] CAS number: 007732-18-5 Production volume: 6.572E11 kg Included activities start: From the intake of raw surface water into the plant. Included activities end: This dataset ends with the production of decarbonised water. It includes use of chemicals and some emissions for the treatment of water used in power plants. Geography: The inventory is modelled for Spain Technology level: Current Technology: Water treatment in power plants by precipitation or carbonates for the use as cooling water.	Last edited: 7/24/19	sampling procedure: Literature and information of plant manufacturer.	extrapolations: From single data to European situation. This dataset has been copied from an original dataset covering the geography GLO. Spain production volume data was used for regionalizing the dataset, the remaining exchanges were copied from the global dataset. The uncertainty has been adjusted accordingly.

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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		Decarbonazation is a method that removes carbon dioxide from water very effectively to minimizes the potential of carbonates precipitation of mineral salts. Moreover, reducing the carbon dioxide level in feed water also diminishes the ionic load on ion exchange processes mostly used in water treatment systems (Technology Deegremont, 2017). The treatment involves feeding water into the top of a tower, at atmospheric pressure while air is injected from the bottom of the tower in a countercurrent flow design. When water bicarbonates are in contacted with air, cat ion exchanging processes are carried out converting them to carbonic acids, which easily break into water and carbon dioxide (Paramount, 2015). As the air moves to the top of the tower, it starts saturating with CO2 when contacting the water, where it is finally removed. High surface contact area in the tower bed, enhances CO2 transformation from the liquid to the gas phase (Technology Deegremont, 2017). Start date: 01/01/2010 End date: 31/12/2024 Is data valid for entire period: True Time period: Time of publication. Macro-economic scenario name: Business-as-Usual Version: 5.3.0.0 Created: 12/20/17 11:13:13			
Tap water {Europe without Switzerland}| tap water production, underground water without treatment | EN15804, U	Ecoinvent v3.11	This dataset is created as a child of global dataset with edited production volume. This dataset represents production of 1 kg of tap water under pressure at facility gate, ready for distribution in network. It represents average operation of tap water from underground water without further treatments. Water is pumped from aquifer and pressurized for distribution. Inventory was constructed from reported energy inputs and wastes from a single plant located in Québec assumed to represent 53% of total production of tap water from this technology. [This dataset is meant to replace the following datasets: - tap water production and supply, Europe without Switzerland, 2000 - 2000 (bfb7cbe1-b023-40e6-b032-472fc9020703)] Synonym: potable water CAS number: 7732-18-5 Production volume: 4.778191488E13 kg Included activities start: From the intake pumping of raw surface water into the water treatment plant. Included activities end: This dataset ends with the production of tap water, at facility gate, under pressure. It includes energy for intake pumping, lighting and heating of the building as well as the energy of the pump pressurizing water to the beginning of the network. Infrastructure for the facility is estimated. It excludes energy for pumping stations and water losses within the network which is included in the tap water market. Emissions to the environment occurring during the treatment and during the distribution were not considered as they are assumed negligible. Main substance in water that would be released in the environment are assumed to be considered in wastewater processes. Geography: The inventory is modelled for Europe without Switzerland Technology level: Current Start date: 01/01/2012 End date: 31/12/2024 Is data valid for entire period: True Time period: Time of publication. Macro-economic scenario name: Business-as-Usual	Last edited: 5/28/14	sampling procedure: Based on data collected from a single pumping for distribution of underground water production facility in Quebec (Canada). See corresponding Quebec dataset for more information. Note that percent representativeness is not supplied because technology-specific global production volumes is too uncertain. Should this information become available, the representativeness can be calculated by dividing the sum of the water treated by the Quebec plants that served as a basis for the Global dataset by the technology-specific global production volume. (4.35E9 kg/a)	extrapolations: From a single pumping for distribution of underground water tap water production facility in Quebec (Canada) to global average of same technology. The uncertainty has been changed accordingly.

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Rua Pedro Hispano, s/n
3030-289 Coimbra
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Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		Version: 4.3.0.0 Created: 5/27/14 5:02:59			
Sodium chloride, powder {RER}| sodium chloride production, powder | EN15804, U	Ecoinvent v3.11	This dataset represents the production of 1 kg of sodium chloride. Sodium chloride (NaCl) forms odorless cubic crystals. Depending on its degree of purity, the color varies between colorless when pure and white to gray when in the form of rock salt. Sodium chloride has a huge variety of different uses. For example, salt is today the largest mineral feedstock consumed by the chemical industry. It is primarily used as a chemical feedstock for the production of chlorine and caustic soda in the chlor-alkali industry. Salt is also needed for the production of sodium chlorate and metallic sodium by electrolysis, and for the production of sodium sulfate and hydrochloric acid by reacting sodium chloride with sulfuric acid. Another very important area where sodium chloride is used is the human and animal nutrition, since all animals, humans included, need both sodium and chloride. Other relevant areas of use of salt are the maintenance and de-icing of roads as well as the conditioning of water. In Europe, the possibilities for producing salt by solar evaporation are rather poor and concentrated around the Mediterranean area. Therefore, this dataset represents the production of dry sodium chloride by underground mining (51%) and by solution mining (49%). This dataset is based on data from a European salt producer, as well as literature. References Althaus H.-J., Chudacoff M., Hischier R., Jungbluth N., Osses M. and Primas A. (2007) Life Cycle Inventories of Chemicals. ecoinvent report No. 8, v2.0. EMPA Dübendorf, Swiss Centre for Life Cycle Inventories, Dübendorf, CH,. Gendorf (2016) Umwelterklärung 2015, Werk Gendorf Industriepark, www.gendorf.de. Synonym: 7647-14-5 Halite Saline Salt Sodium chloride CAS number: 7647-14-5 Production volume: 6.05E8 kg Included activities start: The activity starts when the raw materials enter the process. Included activities end: This activity ends with the production of sodium chloride. The dataset includes the solution mining process of sodium chloride, its cleaning to remove impurities, and the drying step. It is sold as bulk and therefore no packaging materials are included. Geography: The inventory is modelled for Europe Technology level: Current Technology: For the production of dry salt, three different types of sodium chloride production methods can be distinguished namely, underground mining of halite deposits, solution mining with mechanical evaporation and solar evaporation. Their respective products are rock salt, evaporated salt and solar salt: - Underground mining: The main characteristic of this technique is the fact that salt is not dissolved during the whole process. Instead underground halite deposits are mined with traditional techniques like undercutting, drilling and blasting or with huge mining machines with cutting heads. In a second step, the salt is crushed and screened to the desired size and then hoisted to the surface. - Solution mining and mechanical evaporation: In this case, water is injected in a salt deposit, usually in about 150 to 500 m depth. The dissolution of the halite or salt deposits forms a cavern filled with brine. This brine is then pumped from the cavern back to the surface and transported to either an evaporation plant for the production of evaporated salt or transported directly to a chemical processing plant, e.g. a chlor-alkali plant.	--	sampling procedure: Questionnaire from one European solution mining site. Some values are calculated based on data from a large chemical factory located in Germany. For more details, see the comments of the exchanges.	--

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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		- Solar evaporation: In this case salt is produced with the aid of the sun and wind out of seawater or natural brine in lakes. Within a chain of ponds, water is evaporated by sun until salt crystallizes on the floor of the ponds. Due to their natural process drivers, such plants must be located in areas with only small amounts of rain and high evaporation rates - e.g. in the Mediterranean area where the rate between evaporation and rainfall is 3:1, or in Australia, where even a ratio up to 15:1 can be found. There are some impurities due to the fact that seawater contains not only sodium chloride. That leads to impurities of calcium and magnesium sulfate as well as magnesium chloride. With the aid of clean brine from dissolved fine salt, these impurities are washed out. As a fourth form on the market, the so-called 'salt in brine' may be found, which is especially used for the production of different chemicals. In this case, the solution mining technique without an evaporation step afterwards is used. This dataset represents the production of dry sodium chloride by underground mining (51%) and by solution mining (49%) with modern solution mining technology (thermo compressing technology). References: Althaus H.-J., Chudacoff M., Hischier R., Jungbluth N., Osses M. and Primas A. (2007) Life Cycle Inventories of Chemicals. ecoinvent report No. 8, v2.0. EMPA Dübendorf, Swiss Centre for Life Cycle Inventories, Dübendorf, CH. Start date: 01/01/2000 End date: 31/12/2024 Is data valid for entire period: True Time period: The data in this dataset come from different years, but overall form the most realistic picture of the production. Some values are based on data published by the Gendorf factory that were collected between 2011 and 2015. The time period has been adjusted accordingly. For more details, see the comments of the exchanges. Macro-economic scenario name: Business-as-Usual Version: 3.3.0.0			
Transport, freight, lorry, 3.5-7.5 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 3.5-7.5 metric ton, diesel, EURO 6 | EN15804, U	Ecoinvent v3.11	This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This is the market for 'transport, freight, lorry 3.5-7.5 metric ton, EURO6', in the geography of Europe. This market contains no transport or losses, as they are irrelevant for the delivered product. This is delivering the service of transportation of 1 metric ton across the distance of 1 km. This service only considers the transportation of goods. The vehicle operates with diesel, its emission standard is classified as EURO6 and it falls under the lorry size class of 3.5-7.5 metric tons. The average freight load factor of a 3.5-7.5 metric ton lorry is 0.98 tonnes, with a gross vehicle weight (GVW) of 4.98 tonnes. It has a lifetime capacity of 540,000 km. Data for transport is calculated for an average load factor, including empty return trips. Production volume: 9.0E8 tkm Included activities start: This activity starts with the service generation. Included activities end: This activity ends with the service supplied to its consumers. Transport or losses are considered irrelevant for this product. Geography: The inventory is modelled for Europe Technology level: Unknown Start date: 01/01/2009	Last edited: 5/31/18	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
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Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 2.3.0.0 Created: 5/4/18 2:08:17			
Waste rubber, unspecified {Europe without Switzerland}| treatment of waste rubber, unspecified, municipal incineration | EN15804, U	Ecoinvent v3.11	The process represents the treatment of 'waste rubber, unspecified' in a municipal solid waste incinerator (MSWI). Recommended use of this dataset: random commentInventoried waste consists of fraction: 100% rubber; .Waste composition (wet, in ppmw): gross heating value 29.3 MJ/kg; net heating value 27.19 MJ/kg; H2O na; O na; H 106690; C 852130; S 3700; N na; P na; B na; Cl 20000; Br 200; F na; I na; Ag na; As na; Ba na; Cd 8; Co na; Cr na; Cu na; Hg 0.001; Mn na; Mo na; Ni 20; Pb 70; Sb na; Se na; Sn na; V na; Zn 16000; Be na; Sc na; Sr na; Ti na; Tl na; W na; Si na; Fe na; Ca na; Al na; K na; Mg na; Na na.Share of carbon in initial waste input that is biogenic 0%.Share of metals in waste not oxidised and bulk-recyclable (exclude very small or thin parts) Iron: 0%; Alu: 0%; Copper: 0%.Recovery of metal scrap from bottom ash to recycling: 0g iron scrap, 0g aluminium scrap, 0g copper scrap. Net energy production: 3.25MJ/kg electric energy and 6.36MJ/kg thermal energy. Production volume: 1.09E9 kg Included activities start: The activity starts with the waste being available at the gate of the treatment facility. Collection and transportation of the waste to the treatment plant is not included. Included activities end: The activity ends with the waste being treated and waste-specific emissions from the incineration process and auxiliary material consumption for flue gas cleaning are released to the environment (air and water). Infrastructure and waste-specific energy demands for Municipal Solid Waste Incineration (MSWI) and net energy generation are included. Geography: The inventory is modelled for Europe without Switzerland Technology level: Current Technology: The waste is treated in the incineration plant with flue gas cleaning. Incineration is the controlled combustion of a waste. Auxiliary material consumption for this step of air pollution control (APC) are included in the process. Air polution control includes electrostatic precipitator for fly ash (ESP), wet flue gas scrubber and 25% SNCR , 42.77% SCR-high dust , 32.68% SCR-low dust -DeNOx facilities and 0% without DeNOx (weighted according to mass of burnt waste). Efficiency of iron scrap separation from slag : 58%. Efficiency of aluminium scrap separation from slag : 31%. Efficiency of copper scrap separation from slag : 31%. Gross electric efficiency technology mix 15.84% and Gross thermal efficiency technology mix 28.51% Start date: 01/01/2006 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 5.3.0.0 Created: 9/19/23 9:39:06	Last edited: 9/19/23	--	--
Waste polypropylene {RoW}| treatment of waste polypropylene, sanitary landfill | EN15804, U	Ecoinvent v3.11	This dataset represents the activity of waste disposal of 'waste polypropylene' in a sanitary landfill. Recommended use of this dataset: For PP, which goes to disposal as part of communal waste mixture. Inventoried waste consists of fraction: 100% PP; . Waste composition (wet, in ppmw): gross heating value 35.16 MJ/kg; net heating value 32.6 MJ/kg; H2O 159000; O na; H 118640; C 711700; S 412.07; N 584.94; P na; B na; Cl 1271; Br 8.3396; F 12.509; I na; Ag na; As 1.4786; Ba 208.49; Cd 29.521; Co 1.4594; Cr 10.841; Cu 35.975; Hg 0.041698; Mn 26.131; Mo na; Ni 0.83396; Pb 19.65; Sb 8.7565; Se 1.6342; Sn 3.3169; V 1918.1; Zn 297.42; Be 0.38909; Sc na; Sr 68.87; Ti 778.19; Tl 0.31127; W na; Si na; Fe 1334.3; Ca 2251.7; Al 155.64; K na; Mg 83.396; Na 1140.4. Share of carbon in initial waste waste that is biogenic 0%. Share of metals in waste not oxidised and bulk-recyclable (exclude very small or thin parts) Iron: 0%; Alu: 0%; Copper: 0%.	Last edited: 9/19/23	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		Overall degradability of waste during 100 years: 1%. Landfill gas capture and utilisation generates 0.005398 kWh of electricity and 0.009736 MJ of useful heat. 0.001551 kg waste mass remains in the landfill even after the long term period. CAS number: 9003-07-0 Production volume: 2.725788812277643E10 kg Included activities start: The activity starts with the waste being available at the gate of the treatment facility. Collection and transportation of the waste to the treatment plant is not included. Included activities end: The activity ends with the waste being treated and waste-specific emissions from the landfill are released to the environment (air due to landfil gas, water due to landfil leachate, and subsequent into groundwater). Geography: The inventory is modelled for Rest-of-World Technology level: Current Technology: This is an inventory for a sanitary (controlled) landfill for municipal solid waste. Ultimate average landfill height is 20 meters. Operation phase duration is 30 years. The total raw landfill gas mass produced in the landfill from this waste is 0.008063 kg. The total CH4 mass in the raw landfill gas is 0.006909 kg. Percentage of landfill gas directly emitted is 47w%. Percentage of landfill gas captured and flared is 18.02w%. Percentage of landfill gas captured and utilised is 34.98%. Conversion efficiencies are 27.8e% for electricity and 13.5e% for useful heat. Leachate collected during the first 100 years is collected and treated region-specifically before emission. Based on average waste composition and climate data the end of carbonate phase is estimated to be reached 2'863 years after waste deposition. Start date: 01/01/1994 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 2.3.0.0 Created: 9/19/23 10:13:52			
Photovoltaic slanted-roof installation, 3kWp, multi-Si, panel, mounted, on roof {GLO}| market for photovoltaic slanted-roof installation, 3kWp, multi-Si, panel, mounted, on roof | EN15804, U	Ecoinvent v3.11	This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This is the market for 'photovoltaic slanted-roof installation, 3kWp, multi-Si, panel, mounted, on roof', in the Global geography. Transport from producers to consumers of this product in the geography covered by the market is included. This is an immobile infrastructure, representing the installation of a photovoltaic slanted-roof, 3kWp, multi-Si, panel, mounted, on roof. The infrastructure has a capacity of 3kWp and a lifetime of 30 years. The process includes all the components for the installation of a photovoltaic plant, energy use for the mounting, and decommission. Production volume: 367428.27435 p Included activities start: This activity starts with the built infrastructure ready to use. Included activities end: This activity ends with the infrastructure made accessible to the users. Transport or losses are considered irrelevant for this product. Geography: The inventory is modelled for Global Technology level: Unknown Start date: 01/01/2011 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 5.3.1.0 Created: 8/2/11 9:58:50	Last edited: 8/2/11	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
Oil boiler, 10kW {CH}| oil boiler production, 10kW | EN15804, U	Ecoinvent v3.11	Inventory for an oil boiler with a life time of 20 years. Production volume: 0.033667542238713 p Included activities end: Infrastructure of the boiler, including electric equipment. Energy use for the production. Disposal of the facilities. Energy values: Undefined Geography: The inventory is modelled for Switzerland Technology level: Current Technology: Oil boiler used in one-family house. Start date: 01/01/1993 End date: 31/12/2024 Is data valid for entire period: True Time period: Materials investigated in 1993. Energy use estimated based on environmental report from 1998. Macro-economic scenario name: Business-as-Usual Version: 117.3.1.0 Created: 7/28/10 6:24:22	--	--	--
Industrial furnace, 1MW, oil {CH}| industrial furnace production, 1MW, oil | EN15804, U	Ecoinvent v3.11	Inventory for a furnace with a life time of 20 years. Production volume: 0.033667542238713 p Included activities end: Infrastructure of the furnace, including electric equipment. Energy use for the production. Disposal of the facilities. Energy values: Undefined Geography: The inventory is modelled for Switzerland Technology level: Current Technology: Oil furnace used in industrial production facilities. Start date: 01/01/1993 End date: 31/12/2024 Is data valid for entire period: True Time period: Materials investigated in 1993. Energy use estimated based on environmental report from 1998. Macro-economic scenario name: Business-as-Usual Version: 117.3.1.0 Created: 7/28/10 6:24:16	--	sampling procedure: Data provided by manufacturers.	extrapolations: Data for Germany used with assumptions for Swiss energy supply.
Waste wood, untreated {CH}| treatment of waste wood, untreated, sanitary landfill | EN15804, U	Ecoinvent v3.11	This dataset represents the activity of waste disposal of 'waste wood, untreated' in a sanitary landfill. Recommended use of this dataset: for waste material going to unsanitary landfill in a wet water infiltration class location, as part of unsorted, unmanaged, unscavenged municipal waste mixture. Inventoried waste consists of fraction: 100% natural wood; . Waste composition (wet, in ppmw): gross heating value 15.36 MJ/kg; net heating value 13.99 MJ/kg; H2O 174080; O 372180; H 50163; C 401470; S 125.51; N 986.98; P 108.97; B 2.1107; Cl 330.95; Br na; F 21.106; I na; Ag na; As 0.42213; Ba na; Cd 0.20051; Co 0.086772; Cr 0.65782; Cu 4.1482; Hg 0.31976; Mn 53.118; Mo 0.8302; Ni 0.55581; Pb 27.868; Sb na; Se na; Sn na; V na; Zn 17.807; Be na; Sc na; Sr na; Ti na; Tl na; W na; Si na; Fe 15.479; Ca 130.89; Al 6.3322; K 65.412; Mg 197.56; Na 14.071. Share of carbon in initial waste waste that is biogenic 100%. Share of metals in waste not oxidised and bulk-recyclable (exclude very small or thin parts) Iron: 0%; Alu: 0%; Copper: 0%. Overall degradability of waste during 100 years: 1.5%. Landfill gas capture and utilisation generates 0.004565 kWh of electricity and 0.008233 MJ of useful heat. 0.0001032 kg waste mass remains in the landfill even after the long term period. Production volume: 36617.6356136111 kg Included activities start: The activity starts with the waste being available at the gate of the treatment facility. Collection and transportation of the waste to the treatment plant is not included.	Last edited: 9/22/23	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		Included activities end: The activity ends with the waste being treated and waste-specific emissions from the landfill are released to the environment (air due to landfil gas, water due to landfil leachate, and subsequent into groundwater). Geography: The inventory is modelled for Switzerland Technology level: Current Technology: This is an inventory for a sanitary (controlled) landfill for municipal solid waste. Ultimate average landfill height is 20 meters. Operation phase duration is 30 years. The total raw landfill gas mass produced in the landfill from this waste is 0.01199 kg. The total CH4 mass in the raw landfill gas is 0.005842 kg. Percentage of landfill gas directly emitted is 47w%. Percentage of landfill gas captured and flared is 18.02w%. Percentage of landfill gas captured and utilised is 34.98%. Conversion efficiencies are 27.8e% for electricity and 13.5e% for useful heat. Leachate collected during the first 100 years is collected and treated region-specifically before emission. Based on average waste composition and climate data the end of carbonate phase is estimated to be reached 2'383 years after waste deposition. Start date: 01/01/1994 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 3.3.0.0 Created: 9/22/23 9:45:42			
Waste wood, untreated {CH}| treatment of waste wood, untreated, municipal incineration FAE | EN15804, U	Ecoinvent v3.11	The process represents the treatment of 'waste wood, untreated' in a municipal solid waste incinerator (MSWI). Recommended use of this dataset: For natural waste wood (natural means without any coatings, paint or antifouling etc.), which goes to disposal as part of communal waste mixture.Inventoried waste consists of fraction: 100% natural wood; . Waste composition (wet, in ppmw): gross heating value 15.36 MJ/kg; net heating value 13.99 MJ/kg; H2O 174080; O 372180; H 50163; C 401470; S 125.51; N 986.98; P 108.97; B 2.1107; Cl 330.95; Br na; F 21.106; I na; Ag na; As 0.42213; Ba na; Cd 0.20051; Co 0.086772; Cr 0.65782; Cu 4.1482; Hg 0.31976; Mn 53.118; Mo 0.8302; Ni 0.55581; Pb 27.868; Sb na; Se na; Sn na; V na; Zn 17.807; Be na; Sc na; Sr na; Ti na; Tl na; W na; Si na; Fe 15.479; Ca 130.89; Al 6.3322; K 65.412; Mg 197.56; Na 14.071. Share of carbon in initial waste input that is biogenic 100%.Share of metals in waste not oxidised and bulk-recyclable (exclude very small or thin parts) Iron: 0%; Alu: 0%; Copper: 0%.Recovery of metal scrap from bottom ash to recycling: 0g iron scrap, 0g aluminium scrap, 0g copper scrap. From this waste, the FLUWA process in the technology mix recovers 0.000107kg (DM) of a hydroxide sludge to be recycled in zinc furnaces. Net energy production: 1.74MJ/kg electric energy and 3.5MJ/kg thermal energy. Production volume: 3.1726E7 kg Included activities start: The activity starts with the waste being available at the gate of the treatment facility. Collection and transportation of the waste to the treatment plant is not included. Included activities end: The activity ends with the waste being treated and waste-specific emissions from the incineration process and auxiliary material consumption for flue gas cleaning are released to the environment (air and water). Infrastructure and waste-specific energy demands for Municipal Solid Waste Incineration (MSWI) and net energy generation are included. Geography: The inventory is modelled for Switzerland Technology level: Current Technology: The waste is treated in the incineration plant with flue gas cleaning. Incineration is the controlled combustion of a waste and it includes fly ash extraction (FAE). Auxiliary material consumption for this step of air pollution control (APC) are included in the process. Air polution control includes electrostatic precipitator for fly ash (ESP), wet flue gas scrubber and 25% SNCR , 42.77% SCR-high dust , 32.68% SCR-low dust -DeNOx facilities and 0% without DeNOx (weighted according to mass of burnt waste). Efficiency of iron scrap separation from slag : 58%. Efficiency of aluminium scrap separation from slag : 31%. Efficiency of copper scrap separation from slag : 31%. The technology mix for this dataset	Last edited: 4/4/23	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		includes a filter ash treatment (FLUWA) of a share of 46.22%. Gross electric efficiency technology mix 15.84% and Gross thermal efficiency technology mix 28.51% Start date: 01/01/2006 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 3.3.0.0 Created: 3/20/23 2:56:18			
Acetone, liquid {RER}| acetone production, from isopropanol | EN15804, U	Ecoinvent v3.11	This activity represents the production of acetone from isopropanol. Acetone can be produced both by hydrogenation or oxidation of isopropanol with the aid of a catalyst. This process represents the hydrogenation of isopropanol with the aid of a copper catalyst. Acetone is mainly used as a solvent (Lokras et al. 1970 and Scharf et al. 1981). Global production of acetone is around 5.5 million metric tons (Gallardo Hipolito 2011). Reference(s): Gendorf (2016) Umwelterklärung 2015, Werk Gendorf Industriepark, www.gendorf.de Gallardo Hipolito, M. 2011. Life Cycle Assessment of platform chemicals from fossil and lignocellulosic biomass scenarios LCA of phenolic compounds, solvent, soft and hard plastic precursors. Master in Industrial Ecology. Norwegian University of Science and Technology Department of Energy and Process Engineering. Retrieved from: http://daim.idi.ntnu.no/masteroppgaver/006/6362/tittelside.pdf, accessed 6 January 2017 Lokras et al. 1970 Catalytic Dehydrogenation Of 2-Propanol To Acetone. Ind. Eng. Chem. Process Des. Develop., Vol. 9, no. 2 Scharf et al. 1981 Process For The Production Of Acetone From Isobutyraldehyde. United States Patent 4,205,119 For more information on the model please refer to the dedicate ecoinvent report, access it in the Report section of ecoQuery (http://www.ecoinvent.org/login-databases.html) Synonym: 2-propanone Acetone Dimethyl ketone Dimethylformaldehyde Methyl ketone CAS number: 67-64-1 Production volume: 9.15789473684211E7 kg Included activities start: The activity starts when the raw materials enter the process. Included activities end: Materials entering the process are included as well as energy uses, infrastructure and emissions. Geography: The inventory is modelled for Europe Technology level: Current Technology: The production of acetone from dehydrogenation of isopropanol is preferred as it as an endothermic reaction and requires less control of the critical temperature. Isopropanol is dehydrogenated to acetone with the aid of a copper catalyst (Lokras et al. 1970 and Scharf et al. 1981). Lokras et al. (1981) suggest the use of Cu-SiO2 as a catalyst. The copper catalyst in not consider significant in terms of emissions for the reaction and it is therefore not included in the dataset and it is assumed to be taken into consideration in the input of chemical factory. Chemical reaction: (CH3)2CHOH -> (CH3)2CO + H2 This inventory representing production of a particular chemical compound is at least partially based on a generic model on the production of chemicals. The data generated by this model have been improved by compound-specific data when available.	Last edited: 7/25/22	sampling procedure: Literature data and stochiometric calculation.	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		The model on production of chemicals is using specific industry or literature data wherever possible and more generic data on chemical production processes to fill compound-specific data gaps when necessary. The basic principles of the model have been published in literature (Hischier 2005, Establishing Life Cycle Inventories of Chemicals Based on Differing Data Availability). The model has been updated and extended with newly available data from the chemical industry. In the model, unreacted fractions are treated in a waste treatment process, and emissions reported are after a waste treatment process that is included in the scope of this dataset. For volatile reactants, a small level of evaporation is assumed. Solvents and catalysts are mostly recycled in closed-loop systems within the scope of the dataset and reported flows are for losses from this system. The main source of information for the values for heat, electricity, water (process and cooling), nitrogen, chemical factory is industry data from Gendorf. The values are a 5-year average of data (2011 - 2015) published by the Gendorf factory (Gendorf, 2016, Umwelterklärung, www.gendorf.de), (Gendorf, 2015, Umwelterklärung, www.gendorf.de), (Gendorf, 2014, Umwelterklärung, www.gendorf.de). The Gendorf factory is based in Germany, it produces a wide range of chemical substances. The factory produced 1657400 tonnes of chemical substances in the year 2015 (Gendorf, 2016, Umwelterklärung, www.gendorf.de) and 740000 tonnes of intermediate products. Reference(s): Hischier, R. (2005) Establishing Life Cycle Inventories of Chemicals Based on Differing Data Availability (9 pp). The International Journal of Life Cycle Assessment, Volume 10, Issue 1, pp 59–67. 10.1065/lca2004.10.181.7 Gendorf (2016) Umwelterklärung 2015, Werk Gendorf Industriepark, www.gendorf.de Gallardo Hipolito, M. 2011. Life Cycle Assessment of platform chemicals from fossil and lignocellulosic biomass scenarios LCA of phenolic compounds, solvent, soft and hard plastic precursors. Master in Industrial Ecology. Norwegian University of Science and Technology Department of Energy and Process Engineering. Retrieved from: http://daim.idi.ntnu.no/masteroppgaver/006/6362/tittelside.pdf, accessed 6 January 2017 Lokras et al. 1970 Catalytic Dehydrogenation Of 2-Propanol To Acetone. Ind. Eng. Chem. Process Des. Develop., Vol. 9, no. 2 Scharf et al. 1981 Process For The Production Of Acetone From Isobutyraldehyde. United States Patent 4,205,119 For more information on the model please refer to the dedicate ecoinvent report, access it in the Report section of ecoQuery (http://www.ecoinvent.org/login-databases.html) Start date: 01/01/2015 End date: 31/12/2024 Is data valid for entire period: True Time period: The activity is based on stoichiometry and literature data, it is therefore considered not to change significantly over time in terms of inputs. The inputs of heat, electricity, water, factory and nitrogen are mostly taken as average of industry data. Industry data values are a 5-year average of data (2011 - 2015) published by the Gendorf factory (Gendorf, 2016, Umwelterklärung, www.gendorf.de), (Gendorf, 2015, Umwelterklärung, www.gendorf.de), (Gendorf, 2014, Umwelterklärung, www.gendorf.de). The Gendorf factory is based in Germany, it produces a wide range of chemical substances. The factory produced 1657400 tonnes of chemical substances in the year 2015 (Gendorf, 2016, Umwelterklärung, www.gendorf.de) and 740000 tonnes of intermediate products. The time period is therefore set based on the years from Gendorf reference. Macro-economic scenario name: Business-as-Usual Version: 8.3.0.0			
Transport, freight, lorry, diesel, unspecified {RER}| transport, freight, lorry, all sizes, EURO 6 to generic market for transport, freight,	Ecoinvent v3.11	This is a linking activity which transfers part of the production volume of the specific transport, freight, lorry of all sizes, EURO6 to the generic market for transport, freight, lorry, unspecified. The transport, freight, lorry, unspecified is meant to be used by activities, where the size and EURO class of the transport supplied is unkown.	Last edited: 2/4/15	--	--

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
lorry, unspecified | EN15804, U		[This dataset is meant to replace the following datasets:] Production volume: 1.485E10 tkm Geography: The inventory is modelled for Europe Technology level: New Start date: 01/01/2010 End date: 31/12/2024 Is data valid for entire period: True Macro-economic scenario name: Business-as-Usual Version: 1.3.0.0 Created: 1/13/15 3:52:20 Last edited: 2/4/15			
Electricity, low voltage {SE}| market for electricity, low voltage | EN15804, U	Ecoinvent v3.11	This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This dataset describes the electricity available on the high voltage level in Sweden. This is done by showing the transmission of 1kWh electricity at high voltage. The shares of electricity technologies on this market are valid for the year 2021. They have been calculated by the data provider and don't correspond with the production volumes entered in the undefined datasets of the different electricity supplying technologies. The shares have been calculated based on statistics from 2021. Grid losses are based on data from 2021. Production volume: 7.99092550135473E10 kWh Included activities start: This activity starts from 1kWh of electricity fed into the low voltage transmission network. Included activities end: This activity ends with the transport of 1 kWh of low voltage electricity in the transmission network over aerial lines and cables. This dataset includes: - electricity inputs produced in this country and from imports and transformed to low voltage - the transmission network - direct emissions to air (SF6 from the insulation gas in the high voltage level switchgear are allocated to the electricity demand on medium voltage). - electricity losses during transmission This dataset doesn't include - electricity losses during transformation from high to medium voltage or medium to low, as these are included in the dataset for transformation - leakage of insulation oil from cables and electro technical equipment (transformers, switchgear, circuit breakers) because this only happens in case of accidental release - SF6 emissions during production and deconstruction of the switchgear, as these are accounted for in the transmission network dataset. Geography: The inventory is modelled for Sweden Technology level: Unknown Technology: Average technology used to transmit and distribute electricity. Includes underground and overhead lines, as well as air-, vacuum- and SF6-insulated high-to-medium voltage switching stations. Electricity production according to related technology datasets. Definition of the voltage levels: - High voltage level above 24 kV (large scale industry) - Medium voltage level between 1 kV and 24 kV (medium to small scale industry, service sector and public buildings) - Low voltage level below 1 kV (Households) Start date: 01/01/2020 End date: 31/12/2024 Is data valid for entire period: True	Last edited: 6/27/23	sampling procedure: Literature, statistics	extrapolations: Assumptions for the amount of transmission network per kWh transported and emissions per kWh are based on Swiss data. Electricity losses data are based on IEA data and on data from Switzerland.

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Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		Time period: The 'Start of Period' and 'End of Period' do not refer to the year for which this market is valid. See general comment for the year for which the shares are based on. Macro-economic scenario name: Business-as-Usual Version: 1.3.0.0 Created: 6/27/23 11:12:06			
Electricity, low voltage {CH}| market for electricity, low voltage | EN15804, U	Ecoinvent v3.11	This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant. This dataset describes the electricity available on the high voltage level in Switzerland. This is done by showing the transmission of 1kWh electricity at high voltage. The production volume is valid for the year 2022. See general comment for sources. Production volume: 3.287070110818005E10 kWh Included activities start: This activity starts from 1kWh of electricity fed into the low voltage transmission network. Included activities end: This activity ends with the transport of 1 kWh of low voltage electricity in the transmission network over aerial lines and cables. This dataset includes: - electricity inputs produced in this country and from imports and transformed to low voltage - the transmission network - direct emissions to air (SF6 from the insulation gas in the high voltage level switchgear are allocated to the electricity demand on medium voltage). - electricity losses during transmission This dataset doesn't include - electricity losses during transformation from high to medium voltage or medium to low, as these are included in the dataset for transformation - leakage of insulation oil from cables and electro technical equipment (transformers, switchgear, circuit breakers) because this only happens in case of accidental release - SF6 emissions during production and deconstruction of the switchgear, as these are accounted for in the transmission network dataset. Geography: The inventory is modelled for Switzerland Technology level: Unknown Technology: Average technology used to transmit and distribute electricity. Includes underground and overhead lines, as well as air-, vacuum- and SF6-insulated high-to-medium voltage switching stations. Electricity production according to related technology datasets. Definition of the voltage levels: - High voltage level above 24 kV (large scale industry) - Medium voltage level between 1 kV and 24 kV (medium to small scale industry, service sector and public buildings) - Low voltage level below 1 kV (Households) Start date: 01/01/2021 End date: 31/12/2024 Is data valid for entire period: True Time period: The 'Start of Period' and 'End of Period' do not refer to the year for which this market is valid. See general comment for the year for which the shares are based on. Macro-economic scenario name: Business-as-Usual Version: 1.3.0.0 Created: 6/27/23 11:12:06	Last edited: 6/27/23	sampling procedure: Literature, statistics	extrapolations: Assumptions for the amount of transmission network per kWh transported and emissions per kWh are based on Swiss data. Electricity losses data are based on IEA data and on data from Switzerland.
Electricity, low voltage {FR}| market for electricity, low voltage | EN15804, U	Ecoinvent v3.11	This is a market activity. Each market represents the consumption mix of a product in a given geography, connecting suppliers with consumers of the same product in the same geographical area. Markets group the producers and also the imports of the product (if relevant) within the same geographical area. They also account for transport to the consumer and for the losses during that process, when relevant.	Last edited: 6/27/23	sampling procedure: Literature, statistics	extrapolations: Assumptions for the amount of transmission network per kWh

INSTITUTE FOR RESEARCH AND TECHNOLOGICAL DEVELOPMENT IN **CONSTRUCTION, ENERGY, ENVIRONMENT AND SUSTAINABILITY**
Rua Pedro Hispano, s/n
3030-289 Coimbra
www.itecons.uc.pt
Tel: (+351) 239 79 89 49
(National landline)
itecons@itecons.uc.pt

Name of the dataset	Database/ literary source	Technology/geographical coverage	Age of data	Collection method	Data treatment
		This dataset describes the electricity available on the high voltage level in France. This is done by showing the transmission of 1kWh electricity at high voltage. The shares of electricity technologies on this market are valid for the year 2021. They have been calculated by the data provider and don't correspond with the production volumes entered in the undefined datasets of the different electricity supplying technologies. The shares have been calculated based on statistics from 2021. Grid losses are based on data from 2021. Production volume: 2.75356395057099E11 kWh Included activities start: This activity starts from 1kWh of electricity fed into the low voltage transmission network. Included activities end: This activity ends with the transport of 1 kWh of low voltage electricity in the transmission network over aerial lines and cables. This dataset includes: - electricity inputs produced in this country and from imports and transformed to low voltage - the transmission network - direct emissions to air (SF6 from the insulation gas in the high voltage level switchgear are allocated to the electricity demand on medium voltage). - electricity losses during transmission This dataset doesn't include - electricity losses during transformation from high to medium voltage or medium to low, as these are included in the dataset for transformation - leakage of insulation oil from cables and electro technical equipment (transformers, switchgear, circuit breakers) because this only happens in case of accidental release - SF6 emissions during production and deconstruction of the switchgear, as these are accounted for in the transmission network dataset. Geography: The inventory is modelled for France Technology level: Unknown Technology: Average technology used to transmit and distribute electricity. Includes underground and overhead lines, as well as air-, vacuum- and SF6-insulated high-to-medium voltage switching stations. Electricity production according to related technology datasets. Definition of the voltage levels: - High voltage level above 24 kV (large scale industry) - Medium voltage level between 1 kV and 24 kV (medium to small scale industry, service sector and public buildings) - Low voltage level below 1 kV (Households) Start date: 01/01/2020 End date: 31/12/2024 Is data valid for entire period: True Time period: The 'Start of Period' and 'End of Period' do not refer to the year for which this market is valid. See general comment for the year for which the technology shares are based on. Macro-economic scenario name: Business-as-Usual Version: 1.3.0.0 Created: 6/27/23 9:57:55			transported and emissions per kWh are based on Swiss data. Electricity losses data are based on IEA data and on data from Switzerland.

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