

# ENVIRONMENTAL PRODUCT DECLARATION

# **Ecophon Master Rigid/Plant**<sup>TM</sup>



Programme: The International EPD® System, www.environdec.com Programme operator: EPD International AB Version: 1.0 Registration number: S-P-04296

Date of publication (issue): 2021-08-31 Date of revision: 2021-08-31 Date of validity: 2026-07-13 In accordance with ISO 14025, ISO 21930 and EN 15804





## Summary Environmental product declaration

Content summary	
Verified by (external third- party verifier)	Martin Erlandsson, IVL Swedish Environmental Research Institute
Programme used	The International EPD System. For more information see www.environdec.com
Registration No	S-P-04296
Owners declaration by	Saint-Gobain Ecophon AB Box 500 265 03 Hyllinge Sweden
Declaration as construction products	The products to be verified herein are acoustic glass wool panels made for sound absorbing ceilings. The present environmental product declaration complies with standard ISO 14025 and describes the environmental impact. Its purpose is to promote compatible and sustainable environmental development of related construction methods. Reference PCR document: EN 15804 as the core PCR + International EPD System Product Category Rules – PCR for constructions products and construction services, Acoustical systems solutions (sub-oriented PCR; appendix to PCR 2012:01) - previously Acoustic ceilings. EPD of construction products may not be comparable if they do not comply with
Validity	EN 15804. 2026-07-13
Content of the declaration	This is an environmental product declaration containing environmental information of the product in the Ecophon family Master Rigid/Plant. The values presented in this EPD are represented for the following products: Master Rigid A, Master Rigid Dp, Master Rigid E Supplemental product information can be found at
	www.ecophon.com
Issued date	2021-08-31

Product responsible:

Huberth

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Independent third party verifier:

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Martin Erlandsson LCA Business Development Manager IVL

# **Product description**

### Product description and description of use:

This Environmental Product Declaration (EPD) describes the environmental impact of 1 m<sup>2</sup> of acoustic ceiling with the intended use to increase sound absorption in a room to create a better indoor environment.

This Environmental Product Declaration (EPD) are valid for products produced in Ecophon production plants in Sweden, Denmark, Poland and Finland with a high-quality glass wool in different densities and thicknesses. The glass wool is covered with a painted or woven surface layer and cut into panels of different sizes and edge designs. The edges are painted and the panels are packed in cardboard boxes.

The structure of glass wool gives the material excellent sound energy absorption properties. Sound absorption is the main function of acoustic glass wool panels. The panels are also light, stable, and easy to handle and cut.

Acoustic glass wool panels are commonly used in schools, offices, health care facilities and production premises where there is a need for noise reduction to improve the working environment. The decrease in reverberation time, sound pressure level and other acoustic parameters are related to the amount of panels used in the room as well as the placement of the panels. The acoustic panels need no maintenance and do not age. They can last as long as the building itself. For aesthetic reasons, normal room surface cleaning is advised.

Parameter	Value (Weight in %)	Post-consumer recycled content
Product thickness	40 mm	-
Glass wool	65% - 78%	70%
Waterborne paint	3% - 7%	-
Glass tissue	16% - 25%	-
Waterborne glue	3% - 7%	-
Plastic wrapping	40 g	-

#### Description of the main product components and materials for 1 m<sup>2</sup> of product:

	Total weights						
	Master	Master	Master				
Product	Rigid A	Rigid Dp	Rigid E				
Total weight [kg]	1,6	2,5	1,7				

All raw materials contributing more than 5% to any environmental impact are listed in the table above. The panels are free from substances of very high concern (SVHC). The product contains no substances from the REACH Candidate list (of 13.07.2021).

If there in future occur production changes that generate an increased impact larger than 10% the EPD will be updated and re-verified.

## **Other environmental indicators**

Regarding the indoor environment, the Master Rigid/Plant products are certified for or fulfil regulations according to the following table:

Certificate and Regulations	
Finnish M1	
Eurofins Indoor Air Comfort GOLD	

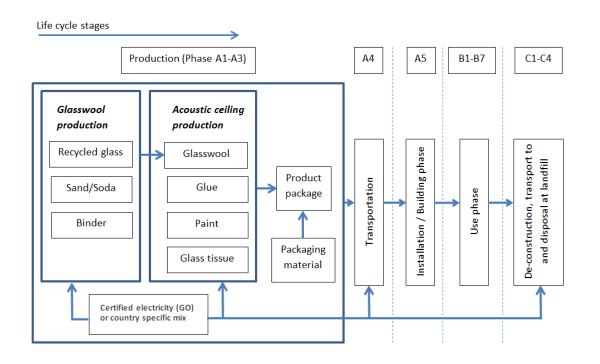
# LCA calculation information

Declared unit	1 m² of acoustic celling panel.
Functional unit	1 m <sup>2</sup> acoustic ceiling with sound absorption class A installed at an ODS of 200mm according to ISO 354.
System boundaries	Cradle to grave: Mandatory stages = A1-3, A4-5, B1-7, C1-4 and optional stage = D This EPD covers the environmental impact of acoustic panels without grid or suspension system.
Reference Service Life (RSL)	50 years
Cut-off rules	The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%). Flows related to human activities such as employee transport are excluded. Biogenic carbon has not been included in calculations. The construction of plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the production of the building product when compared at these systems lifetime level.
Allocations	Allocation criteria are based on mass.
Geographical coverage and time period	For A1-A3: Global For A4: European covering (2019)

According to EN 15804, EPD of construction products might not be comparable if they do not comply with this standard. According to ISO 21930, EPD's might not be comparable if they are from different EPD administrating schemes.

# Life Cycle stages

## Flow diagram of the Life Cycle





### Description of the stage:

The product stage of the glass wool products is divided into 3 modules: A1 "Raw material and supply", A2 "Transport to the manufacturer" and A3 "Manufacturer". The aggregation of the modules A1, A2 and A3 is a possibility considered by the EN 15 804 standard. This rule is applied in this EPD.

#### A1 Raw material supply

This module takes into account the extraction and processing of all raw materials and energy which occur upstream to the studied manufacturing process.

Specifically, the glass wool raw material supply covers production of the plant based binder components and sourcing (quarry) of raw materials for fiber production, e.g. sand and borax. Besides these raw materials, recycled materials (glass cullet) are also used as input. Other major raw materials are paint, glass tissue and glue which also are included in the calculation. All electricity is taken account for in (GOs) or at least country specific mix. Production of packaging materials is also covered.

#### A2 Transport to the manufacturer

The raw materials are transported to the manufacturing site. In our case, the modelling includes: road, boat or train transportations (average values) of each raw material.

#### A3 Manufacturing

The manufacturing includes two steps; glass wool production and glass wool panel production. The glass wool panels are produced in a continuous online process starting with applying glass tissue on the glass wool baseboard. The panels are cut into correct size and the edges of the panels are painted. After drying the panels are packed in cardboard boxes.

Manufacturing covers all processes linked to production, which comprises various related operations besides on-site activities such as grinding, painting and drying, packaging and internal transportation. The manufacturing process also yields data on the combustion of refinery products, such as natural gas, diesel and gasoline, related to the production process.

The environmental profile of these energy carriers is modelled for local conditions. Packagingrelated flows in the production process and all up-stream packaging are included in the manufacturing module, i.e. wooden pallets, cardboard and PE-film. Apart from production of packaging material, the supply and transport of packaging material are also considered in the LCA model. They are reported and allocated to the module where the packaging is applied. Data on packaging waste created during this step is then generated. It is assumed that packaging waste generated in the course of production and up-stream processes is100% collected and either recycled or incinerated with energy recovery, related to material and quality, in ratios according to the local material handling companies.

The glass wool raw material is supplied from three different external locations to all four Ecophon production sites. A representative electricity mix for glass wool production in each country of origin was used. The finished product can be produced in any of Ecophon's four production sites, the split was calculated by mass allocation from production data for year 2019 for all sites involved.

## **Construction process stage, A4-A5**

### Description of the stage:

The construction process is divided into 2 modules: A4 "Transport to the building site" and A5 "Installation in the building.

## Description of scenarios and additional technical information:

## A4 Transport to the building site

This module includes transport from the production gate to the building site. Transport is calculated on the basis of a scenario with the parameters described in the following table.

Parameter	Value
Fuel type, consumption of fuel and vehicle or vehicle type used for transport	Average truck trailer with a 24t payload, diesel consumption 31.7 litres for 100 km
Distance	475 km (based on transports in 2019)
Capacity utilisation (including empty returns)	90% of the capacity in volume 100% of empty returns
Bulk density of transported products (if available)	54 - 98 kg/m <sup>3</sup>
Volume capacity utilisation factor (if available)	0.45

The transport distance has been calculated from a European average transport for Ecophon in 2019 from the parameters in the table above.

## A5:1 Installation in the building

This module includes waste of products during the implementation, i.e. the additional production processes to compensate the loss and the waste processing which occur in this stage.

Scenarios used for quantity of product wastage and waste processing are:

Parameter	Value
W aste of materials on the building site before waste processing, generated by the product's installation	5%
Output materials (specified bytype) as results of waste processing at the building site e.g. of collection for recycling, for energy recovering, disposal	Packaging waste is 100% collected and modelled as material for recycling Ceiling panel losses are landfilled

## A5:2 Energy usage

As a general figure the time to install 1 m<sup>2</sup> ceiling is considered to be 20 minutes. During this time the installer is considered to use handheld appliances for about 5% of this time which in this case results in 1 minute. A handheld device such as a cordless screwdriver is considered to have a power of 0.7 kilowatt. Therefore, in one minute it will consume a total energy of 0.7\*60 = 4.2 kilojoule = 0.0042 MJ, per m<sup>2</sup> ceiling. In this context it is a negligible contribution and will not be part of the LCA calculation (lower than 0.1% of the total energy consumption).

## Use stage (excluding potential savings), B1-B7

### Description of the stage:

The use stage is divided into 7 modules, B1 "Use", B2 "Maintenance", B3 "Repair", B4 "Replacement", B5 "Refurbishment", B6 "Operational energy use", B7 "Operational water use"

### Description of scenarios and additional technical information:

Once installation is complete, no actions or technical operations are required during the use stages until the end of life stage. Therefore, acoustic ceiling panels have no impact (excluding potential energy savings) on this stage.

## End-of-life stage C1-C4

### Description of the stage:

The end-of life stage is divided into 4 modules; C1 "De-construction, demolition", C2 "Transport to waste processing", C3 "Waste processing for reuse, recovery and/or recycling", C4 "Disposal".

### Description of scenarios and additional technical information:

#### C1, De-construction, demolition

The dismantling of acoustic ceiling panels takes part during renovation or demolition of the building. In this case, the environmental impact is assumed to be very small and can be neglected.

#### C2, Transport to waste processing

The model for transportation (see A4, Transportation to the building site) is applied.

C3, Waste processing for reuse, recovery and/or recycling;

The product is considered to be landfilled without reuse, recovery or recycling.

### C4, Disposal;

The product is assumed to be 100% landfilled.

Parameter	Value/description
Collection process specified by type	1200 - 5100 g of acoustic ceiling (collected with mixed construction waste)
Recovery system specified by type	No reuse, recycling or energy recovery
Disposal specified by type	1200 - 5100 g of acoustic ceiling will go to landfill
Assumptions for scenario development	Average truck trailer with a 24t payload, diesel consumption 31.7 litres for 100 km
(e.g. transportation)	50 km (distance to landfill)

## Reuse/recovery/recycling potential, D

Not declared.

# LCA results

LCA model, aggregation of data and environmental impact are calculated through the GaBi Professional software. Secondary data is mainly taken from Ecoinvent 3.6 with some GaBi datasets.

Raw materials and energy consumption, as well as transport distances have been taken directly from the manufacturing plants of Saint-Gobain Ecophon in 2019.

Modules declared, geographical scope, share of specific data, and variation between sites (last two percentages given in GWP indicator) are stated in the following table. For stages A1-A3 (largest contribution to total GWP), the raw materials are modelled with very low amount of generic data – over 90% of the GWP comes from specific data.

	Product phase			pro	uction cess ase			U	[se p]	hase			En	d of li	ife pha	ase	Reso urce recov ery phase
	Raw material and supply	Iransport to the manufacturer	Manufacturing	Transport to the building site	installation in the building	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Iransport to waste processing	Waste processing	Disposal	Reuse-Recovery-Recycling- potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	Х	Х	Х	Х	Х	х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	MND
Geography	SE, NL, FR, DK, PL, DE, FI, GB, EU, GLO	SE, NL, FR, DK, PL, DE, FI, GB, EU, GLO	SE, DK, PL, FI	GB, EU, GLO	EU, GLO								GB, EU, GLO	GB, EU, GLO	GB, EU, GLO	GB, EU, GLO	-
Specific data		> 90 %	7							-							
Variation sites										-							-

Summary of the LCA results are detailed in the tables below.

All results in the EPD are written in logarithmic base of ten. Reading example:  $5.2E - 0.3 = 5.2*10^{-3} = 0.0052$ .

MND (module not declared), is equal to MNA (module not assessed).

## Environmental impact.

Paran		Environ	mental impacts		
	neters		Master Rigid A	Master Rigid Dp	Master Rigid
		A1-A3	2.95E+00	4,54E+00	3,22E+0
		A4	6,94E-02	1.08E-01	7,63E-0
		A5	2,06E-01	3,19E-01	2,26E-0
		B1-B7	0,00E+00	0,00E+00	0,00E+0
		C1	0,00E+00	0,00E+00	0,00E+0
		C2	6,43E-03	9,98E-03	6,59E-0
		C3	0,00E+00	0,00E+00	0,00E+0
	Global Warming Potential	C4	3.22E-01	3.35E-01	3.46E-0
	(GWP) - kg CO <sub>2</sub> equiv/FU	D	MND	MND	MND
		Total A-C	3,55E+00	5,31E+00	3,87E+0
			The global war the total contrib from the emissi	ming potential of ution to global wa ion of one unit of t e reference gas,	a gas refers arming result that gas relat
				is assigned a vali	
		A1-A3	2,65E-07	4,26E-07	2,87E-0
		A4	1,58E-17	2,47E-17	1,74E-1
		A5	1,33E-08	2,13E-08	1,43E-0
$\odot$		B1-B7	0,00E+00	0,00E+00	0,00E+0
		C1	0,00E+00	0,00E+00	0,00E+0
S		C2	1,46E-18	2,27E-18	1,50E-1
		C3	0,00E+00	0,00E+00	0,00E+0
	Ozone Depletion (ODP) kg	C4	-3,56E-16	-2,87E-16	-3,90E-1
	CFC 11 equiv/FU	D	MND	MND	MND
		Total A-C	2.79E-07	4,48E-07	3.02E-0
		rotal A.C		stratospheric ozone	
		A1-A3	the earth from ul destruction of ozon chlorine and/ (chlorofluorocarbon they reach the stra	Itraviolet radiation ha e is caused by the b or bromine containin s or halogens), whic atosphere and then c ozone molecules.	rmful to life. Th reakdown of ce g compounds h break down v atalytically des
		AI-AS A4	1,66E-02	2,66E-02	1,83E-0
		A4 A5	9,39E-05	1,47E-04	1,03E-0
		A5 B1-B7	8,47E-04 0,00E+00	1,36E-03	9,41E-0
		Cl		0,00E+00	0,00E+0
			0,00E+00	0,00E+00	0,00E+0
65		C2	8,70E-06	1,35E-05	8,92E-0
Ξ.	Acidification potential (AP)	C3	0,00E+00	0,00E+00	0,00E+0
	kg SO <sub>2</sub> equiv/FU	C4	1,73E-04	2,49E-04	1,80E-0
		D	MND	MND	MND
		Total A-C	1,77E-02	2,84E-02 s have negative im	1,96E-0
		A1–A3	acidifying substa combustion use 5,14E-03	e main sources for ances are agricultu ed for electricity pro- and transport. 8,17E-03	tre and fossil oduction, heat 5,68E-0
		A4	1,99E-05	3,10E-05	2,18E-0
		A5	3,32E-04	5,25E-04	3,66E-0
		B1-B7	0,00E+00	0,00E+00	0,00E+0
		C1	0,00E+00	0,00E+00	0,00E+0
۲		C2	1,84E-06	2,85E-06	1,88E-0
	Eutrophication potential	C3	0,00E+00	0,00E+00	0,00E+0
	(EP) kg (PO4)3- equiv/FU	C4	4,25E-04	4,34E-04	4,58E-0
		D	MND	MND	MND
(EP) kg (PO₄) <sup>3</sup> - equiv/FU	Total A-C	5,92E-03	9,17E-03	6,53E-0	
			surfaces with	chment of waters nutrients, and th	e associated
			surfaces with		e associated
		A1-A3	surfaces with adve	n nutrients, and th erse biological eff	e associated ects.
			surfaces with adve 1,82E-03	nutrients, and there biological eff 2,53E-03	e associated ects. 1,95E-0
		A4	surfaces with adve 1,82E-03 -2,81E-05	nutrients, and the erse biological eff 2,53E-03 -4,39E-05	e associated ects. 1,95E-0 -3,09E-0
		A4 A5	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04	nutrients, and the erse biological eff 2,53E-03 -4,39E-05 1,51E-04	e associated ects. 1,95E-0 -3,09E-0 1,15E-0
		A4 A5 B1–B7	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00	2,53E-03 -4,39E-05 1,51E-04 0,00E+00	e associated ects. 1,95E-0 -3,09E-0 1,15E-0 0,00E+0
3		A4 A5 B1–B7 C1	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00	2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00	e associated ects. 1,95E-0 -3,09E-0 1,15E-0 0,00E+0 0,00E+0
8	Photochemical ozone	A4 A5 B1–B7 C1 C2	surfaces with advertised 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 -2,60E-06	2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 -4,04E-06	e associated iects. 1,95E-0 -3,09E-0 1,15E-0 0,00E+0 0,00E+0 -2,66E-0
Ð	creation (POPC) kg	A4 A5 B1-B7 C1 C2 C3	surfaces with advertised 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 -2,60E-06 0,00E+00	2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 -4,04E-06 0,00E+00	e associated ects. 1,95E-0 -3,09E-0 1,15E-0 0,00E+0 0,00E+0 -2,66E-0 0,00E+0
B		A4 A5 B1-B7 C1 C2 C3 C4	surfaces with advertised 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 -2,60E-06 0,00E+00 1,07E-04	2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 -4,04E-06 0,00E+00 1,13E-04	e associated ects. 1,95E-0 -3,09E-0 1,15E-0 0,00E+0 -2,66E-0 0,00E+0 1,14E-0
2	creation (POPC) kg	A4 A5 B1-B7 C1 C2 C3 C4 D	surfaces with adver 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND	2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 -4,04E-06 0,00E+00 1,13E-04 MND	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND
2	creation (POPC) kg	A4 A5 B1-B7 C1 C2 C3 C4	surfaces with advertised 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 -2,60E-06 0,00E+00 1,07E-04	2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 -4,04E-06 0,00E+00 1,13E-04	e associated ects. 1,95E-0 -3,09E-( 1,15E-0 0,00E+( 0,00E+( -2,66E-( 0,00E+( 1,14E-0 MND
8	creation (POPC) kg	A4 A5 B1-B7 C1 C2 C3 C4 D Total A-C	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa	nutrients, and the rise biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about to reaction of hitrog the reaction of hitrog the presence of mple of a photoch	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C -2,66E-C 0,00E+C -2,66E-C 0,00E+C 1,14E-0 MND 2,15E-0 y the light en en oxides with sunlight to for en oxides with the sunlight of the sunlight to for en oxides and the sunlight to for en oxid
3	creation (POPC) kg	A4 A5 BI-B7 C1 C2 C3 C4 D Total A-C	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i san exa 5,49E-06	nutrients, and th erse biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 -4,04E-06 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about b reaction of nitrog n the presence of mple of a photoch 7,81E-06	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C -2,66E-C 0,00E+C 1,14E-0 MND 2,15E-0 oy the light en emical reactions sunlight to for emical reactions 6,18E-0
3	creation (POPC) kg	A4 A5 BI-B7 C1 C2 C3 C4 D Total A-C	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa 5,49E-06	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 1 e reaction of nitrog 1 the presence of mple of a photoch 7,81E-06 3,99E-09	e associated ects. 1,95E-0 -3,09E-0 1,15E-0 0,00E+0 0,00E+0 0,00E+0 0,00E+0 1,14E-0 MND 2,15E-0 oy the light en en oxides with to for emical reacti 6,18E-0 2,81E-0
	creation (POPC) kg Ethene equiv/FU	A4 A5 BI-B7 C1 C2 C3 C4 D Total A-C A1-A3 A4 A5	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about the reaction of nitrog the resence of mple of a photoch 7,81E-06 3,99E-09 3,90E-07	e associated ects. 1,95E-0 -3,09E-0 1,15E-0 0,00E+0 0,00E+0 -2,66E-0 0,00E+0 1,14E-0 MND 2,15E-0 opt he light en en coxides wis sunlight to fo emical reacti 6,18E-0 2,81E-0 3,08E-0
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential	A4 A4 A5 BI-B7 C1 C2 C3 C4 D Total A-C A1-A3 A4 A5 BI-B7	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00	nutrients, and the erse biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 -4,04E-06 0,00E+00 -4,04E-06 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 1 e reaction of nitrog n the presence of 7,81E-06 3,99E-07 0,00E+00	e associated ects. 1,95E-0 -3,09E-0 1,15E-0 0,00E+0 0,00E+0 0,00E+0 0,00E+0 0,00E+0 0,00E+0 0,00E+0 0,00E+0 0,15E-0 0,00E+0
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources	A4 A5 B1-B7 C1 C2 C3 C4 D Total A-C	surfaces with adve 1,82E-03 -2,81E-05 1,07Z=-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of hitrog 1,781E-06 7,81E-06 3,99E-09 3,99E-09 0,00E+00	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND 2,15E-0 Who sunlight of for emical reaction 6,18E-0 2,81E-0 3,08E-0 0,00E+C 0,
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	A4 A5 B1-B7 C1 C2 C3 C4 D Total A-C	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 2,36E-10	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ms brought about 16 reaction of nitrog the resence of mple of a photoch 7,81E-06 3,99E-09 3,90E-07 0,00E+00 3,67E-10	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND 0,00E+C 1,14E-0 MND 0,00E+C 2,15E-0 0,00E+C 2,81E-0 2,82E-0
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources	A4 A5 BI-B7 C1 C2 C3 C4 D Total A-C A1-A3 A4 A5 B1-B7 C1 C1 C2 C3	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 -4,04E-06 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about b reaction of nitrog n the presence of 7,81E-06 3,99E-07 0,00E+00 0,00E+00	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND 2,15E-0 0ythe light en emical reaction 8,08E-0 2,81E-0 3,08E-0 0,00E+C
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	A4 A5 BI-B7 C1 C2 C3 C4 D Total A-C A4 A5 BI-B7 C1 C2 C3 C4	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i 020ne is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 -1,67E-09	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of hitrog 1,99E-09 3,99E-09 3,99E-09 0,00E+00 0,00E+00 0,00E+00 0,00E+00 -4,02E-10	e associated ects. 1,95E-0. -3,09E-C 1,15E-0. 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0. MND 2,15E-0. y the light en- emical react 6,18E-0. 2,81E-0. 3,08E-0. 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0. 1,14E-0
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	A4 A5 B1-B7 C1 C2 C3 C4 D Total A-C Total A-C A4 A5 B1-B7 C1 C2 C3 C4 D C3 C4 D	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbone i 0,276E-09 2,74E-07 0,00E+00 2,36E-10 0,00E+00 2,36E-11 0,00E+00 1,67E-09 MND	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of nitrog n the presence of myple of a photoch 7,81E-06 3,99E-09 3,90E-07 0,00E+00 3,67E-10 0,00E+00 3,67E-10 0,00E+00 3,67E-10 0,00E+00 3,67E-10 0,00E+00 3,67E-10 0,00E+00	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND 0,00E+C 1,14E-0 MND 0,00E+C 2,81E-0 3,08E-0 0,00E+C 2,81E-0 3,08E-0 0,00E+C 2,81E-0 3,08E-0 0,00E+C 1,14E-0 MND 0,00E+C 1,14E-0 1,1
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	A4 A5 BI-B7 C1 C2 C3 C4 D Total A-C A4 A5 BI-B7 C1 C2 C3 C4	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i 020ne is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 -1,67E-09	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of hitrog 1,99E-09 3,99E-09 3,99E-09 0,00E+00 0,00E+00 0,00E+00 0,00E+00 -4,02E-10	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND 0,00E+C 1,14E-0 MND 0,00E+C 2,81E-0 3,08E-0 0,00E+C 2,81E-0 3,08E-0 0,00E+C 2,81E-0 3,08E-0 0,00E+C 1,14E-0 MND 0,00E+C 1,14E-0 1,1
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	A4 A5 B1-B7 C1 C2 C3 C4 D Total A-C Total A-C A4 A5 B1-B7 C1 C2 C3 C4 D C3 C4 D	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbone i 0,276E-09 2,74E-07 0,00E+00 2,36E-10 0,00E+00 2,36E-11 0,00E+00 1,67E-09 MND	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of nitrog n the presence of myple of a photoch 7,81E-06 3,99E-09 3,90E-07 0,00E+00 3,67E-10 0,00E+00 3,67E-10 0,00E+00 3,67E-10 0,00E+00 3,67E-10 0,00E+00 3,67E-10 0,00E+00	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C -2,66E-C 0,00E+C 1,14E-0 MND 2,15E-0 mND 2,15E-0 modes 0,00E+C 6,18E-0 2,81E-0 3,08E-0 0,00E+C
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	A4 A5 BI-B7 C1 C2 C3 C4 D Total A-C	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i cozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 0,00E+00 1,67E-09 MND 5,76E-06	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 -4,04E-06 0,00E+00 -4,04E-06 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 1 te reaction of nitrog n the presence of 7,81E-06 3,99E-07 0,00E+00 0,00E+00 0,00E+00 -4,02E-10 0,00E+00 -4,02E-10 MND 8,20E-06	e associated ects. 1,95E-0. -3,09E-C. 1,15E-0. 0,00E+C. 0,00E
2	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	Al-A3 BI-B7 C1 C2 C3 C4 D Total A-C Total A-C B1-B7 C1 C1 D Total A-C C C3 C4 C1 C2 C3 C4 C1 C1 C1 C1 C1 C2 C3 C4 C1 C1 C1 C1 C1 C1 C2 C2 C3 C4 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1	surfaces with adve 1,82E-03 -2,81E-05 1,077E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i 020ne is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 0,00E+00 1,67E-09 MND 5,76E-06 3,99E+01	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of hitrog 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of hitrog 1,39E-09 3,99E-09 3,99E-09 3,99E-09 3,99E-09 3,99E-09 3,99E-09 3,99E-09 0,00E+00 0,00E+00 0,00E+00 4,02E-10 MND 8,20E-06 6,06E+01	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C -2,66E-C 0,00E+C 1,14E-0 MND 2,15E-0 0,01E+C 0,15E-0 0,00E+C 1,4E-D 0,00E+C 1,4E-D 0,00E+C 1,4E-D 0,00E+C 1,4E-D 0,00E+C 1,4E-D 0,00E+C 1,4E-D 0,00E+C 1,4E-D 0,00E+C 1,42E+D 1,42E+D 1,42E+D 1,42E+D 1,42E+D 1,42E+D 1,42E+D 1,43E+D 1,43E+D 1,43E+D 1,43E+D 1,43E+D 1,43E+D 1,55E+C 1
€.	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	Al-A3 BI-B7 CI Q2 C3 C4 D Total AC BI-B7 C1 BI-B7 C1 C1 C2 BI-B7 C1 C2 C3 C4 C3 C4 C4 D D Total AC C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	surfaces with adve 1,82E-03 -2,81E-05 1,07Z=04 0,00E+00 0,00E+00 0,00E+00 1,07Z=04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 0,00E+00 0,00E+00 1,67Z=06 3,99E+01 2,09E+00	nutrients, and the rese biological eff 2,532-03 -4,392-05 1,512-04 0,002+00 0,002+00 0,002+00 1,132-04 MND 2,742-03 ns brought about 1 ereaction of nitrog 1,781E-06 3,992-09 3,992-09 3,992-09 0,002+00 0,002+00 0,002+00 0,002+00 0,002+00 1,492E-10 MND 8,202E-06 6,606E+01 1,492E+00 3,192E+00	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C -2,66E-C 0,00E+C -2,66E-C 0,00E+C -2,66E-C 0,00E+C -2,66E-C 0,00E+C -2,68E-C 0,00E+C -2,68E-C 0,00E+C -2,48E-0 0,00E+C -2,48E-0 0,00E+C -2,48E-0 0,00E+C -2,48E-0 0,00E+C -2,48E-0 0,00E+C -2,48E-0 0,00E+C -2,48E-0 0,00E+C -2,48E-0 -0,00E+C -2,48E-0 -0,00E+C -2,48E-0 -0,00E+C -2,48E-0 -0,00E+C -2,48E-0 -0,00E+C -2,48E-0 -0,00E+C -1,48E-0 -0,00E+C -1,48E-0 -0,00E+C -1,48E-0 -0,00E+C -1,48E-0 -0,00E+C -1,48E-0 -0,00E+C -1,48E-0 -0,00E+C -1,48E-0 -0,00E+C -1,48E-0 -0,00E+C -1,48E-0 -1
	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	Al-A3 BI-B7 C2 C3 C4 D TOUAAC TOUAAC BI-B7 C12 C3 C4 BI-B7 C12 C3 C4 C4 D C12 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	Surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocatbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 1,67E-09 MND 5,76E-06 3,99E+01 2,09E+00 0,00E+00 1,07E-04	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of hitrog 1,13E-04 MND 2,74E-03 ns brought about 16 reaction of hitrog 1,39E-09 3,99E-00 3,	e associated ects. 1,95E-0. -3,09E-C. 1,15E-0. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 0,00E+C. 1,92E-C. MND. 0,00E+C. 0,00E+C. 1,92E-C. MND. 0,00E+C. 0,00E+C. 1,92E-C. MND. 0,00E+C. 1,92E-C. 1,92E-C. 1,92E-C. 1,14E-0. 1,15E-0. 1,15E-0. 1,15E-0. 1,15E-0. 1,15E-0. 1,15E-0. 1,05E+0
€.	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg 5b	Al-A3 BI-B7 CI C2 C3 C4 D TotalAC BI-B7 C1 B2-B7 C1 C2 C2 C3 C3 C4 D D D C1 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i Chemical reactio of the sun. Th hydrocarbons i Corene is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 1,67E-09 MND 5,76E-06 3,99E+01 9,55E-01 2,09E+00 0,00E+00	nutrients, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 r exection of nitro presence of n the presence of n the presence of n the presence of 3,99E-09 3,90E-07 0,00E+00 0,00E+00 1,49E+00 3,19E+00 0,00E+00 0,00E+00	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C -2,66E-C 0,00E+C 1,14E-0 MND 2,15E-0 MND 2,81E-0 3,08E-0 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,05E+C 2,30E+C 0,00E+C
€.	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg Sb equiv/FU	Al-A3 Bi-B7 C1 C2 C3 C3 D Total-A5 Bi-B7 C1 C3 Bi-B7 C3 C4 D D Total-AC C3 C3 C4 Bi-B7 C1 C3 C4 D D C3 C4 C3 C3 C4 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 1,67E-09 MND 5,76E-06 3,99E+01 9,55E-01 2,09E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00	nutrients, and the preversion of the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 1 reaction of nitrog 2,74E-03 ns brought about 1 reaction of nitrog 0,00E+00 1,39E-09 0,00E+00 0,00E+00 0,00E+00 4,02E-10 MND 8,20E-06 6,06E+01 1,49E+00 0,00E+00 0,00E+00 0,00E+00 1,37E-01	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C -2,66E-C 0,00E+C -2,66E-C 0,00E+C -2,66E-C 0,00E+C -2,66E-C 0,00E+C -2,61E-C 0,00E+C -2,41E-O -2,00E+C -2,42E-1 0,00E+C -2,42E-1 0,00E+C -2,42E-1 0,00E+C -2,32E+C 1,05E+C 2,33E+C 0,00E+C
€.	Abiotic depletion potential equiv/FU	A1-A3 BI-B7 C1 C2 C3 C4 D Total AC Total AC BI-B7 C1 C3 C4 D Total AC C3 C4 D D Total AC C3 C4 D D Total AC C3 C4 C3 C3 C4 C3 C3 C4 C3 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	Surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocatbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 1,67E-09 MND 5,76E-06 3,99E+01 2,95E-01 2,09E+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 0,00E+00 1,07E-04	nutrients, and the preceived product of 4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about to reaction of hitrog 1,39E-09 3,99E-09 3,99E-09 3,99E-09 3,90E-07 0,00E+00 0,00E+00 1,37E-01 0,00E+00	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND 2,15E-0 y the light en- teren oxides with sunight to for emical reacti- 6,18E-0 2,31E-0 3,08E-0 3,08E-0 0,00E+C 1,92E-C MND 6,48E-0 4,37E+C 1,05E+C 2,30E+C 0,00E+C 0,00E+C 1,92E-C MND 6,48E-0 4,37E+C 1,95E+C 2,30E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,92E-C
€.	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg Sb equiv/FU Abiotic depletion potential for fossil resources (ADP-	Al-A3 BI-B7 C1 C2 C3 C3 C4 D D TotalAC A4 A5 BI-B7 C1 C2 C3 C3 C4 D D TotalAC C4 C1 C2 C3 C3 C4 C1 C2 C2 C3 C3 C4 C1 C2 C3 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 -2,60E-06 0,00E+00 -2,60E-06 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocarbons i 0,25E-09 2,74E-07 0,00E+00 2,36E-10 0,00E+00 1,67E-09 MND 5,76E-06 3,99E+01 9,55E-01 2,09E+00 0,00E+00 0,0	nutrents, and the rese biological eff 2,53E-03 -4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about 16 resection of nitrog n the presence of moment of a photoch 7,81E-06 3,99E-09 3,90E-07 0,00E+00 0,00E+00 3,67E-10 0,00E+00 1,49E+00 3,19E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 5,83E-01	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND 0,114E-0 MND 0,00E+C 0,00E+C 0,00E+C 0,14E-0 2,81E-0 3,08E-0 0,00E+C
€.	creation (POPC) kg Ethene equiv/FU Abiotic depletion potential for non-fossil resources (ADP-elements) - kg Sb equiv/FU Abiotic depletion potential for fossil resources (ADP-	A1-A3 BI-B7 C1 C2 C3 C4 D Total AC Total AC BI-B7 C1 C3 C4 D Total AC C3 C4 D D Total AC C3 C4 D D Total AC C3 C4 C3 C3 C4 C3 C3 C4 C3 C3 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	Surfaces with adve 1,82E-03 -2,81E-05 1,07E-04 0,00E+00 0,00E+00 0,00E+00 1,07E-04 MND 2,01E-03 Chemical reactio of the sun. Th hydrocatbons i ozone is an exa 5,49E-06 2,55E-09 2,74E-07 0,00E+00 0,00E+00 1,67E-09 MND 5,76E-06 3,99E+01 2,95E-01 2,09E+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 0,00E+00 1,07E-04	nutrients, and the preceived product of 4,39E-05 1,51E-04 0,00E+00 0,00E+00 0,00E+00 1,13E-04 MND 2,74E-03 ns brought about to reaction of hitrog 1,39E-09 3,99E-09 3,99E-09 3,99E-09 3,90E-07 0,00E+00 0,00E+00 1,37E-01 0,00E+00	e associated ects. 1,95E-0 -3,09E-C 1,15E-0 0,00E+C 0,00E+C 0,00E+C 0,00E+C 0,00E+C 1,14E-0 MND 2,15E-0 y the light en- teren oxides with sunight to for emical reacti- 6,18E-0 2,31E-0 3,08E-0 3,08E-0 0,00E+C 1,92E-C MND 6,48E-0 4,37E+C 1,05E+C 2,30E+C 0,00E+C 0,00E+C 1,92E-C MND 6,48E-0 4,37E+C 1,95E+C 2,30E+C 0,00E+C 0,00E+C 0,00E+C 1,92E-C MND 6,48E-0 4,37E+C 1,05E+C 2,30E+C 0,00E+C 1,05E+C 2,30E+C 0,00E+C 0,

## Resource use

Parameters		Enviro	imental impacts		
a as afficiers		A1-A3	Master Rigid A	Master Rigid Dp	Master Rigid E
		A4	2,33E-02	5,46E+01 3,63E-02	2,56E-02
Us Us	se of renewable primary	A5 B1-B7	1,65E+00	2,70E+00	1,68E+00
<b>.</b>	energy excluding newable primary energy	Cl	0,00E+00 0,00E+00	0,00E+00 0,00E+00	0,00E+00 0,00E+00
	resources used as raw	C2	2,15E-03	3,34E-03	2,21E-03
	materials - MJ / FU	C3	0,00E+00	0,00E+00	0,00E+00
	- 110 / 1 0	C4 D	-7,72E-02 MND	-5,34E-02 MND	-8,54E-02 MND
		Total A-C	3,48E+01	5,72E+01	3,55E+01
		A1-A3	4,22E+00	8,02E+00	6,61E+00
_		A4 A5	0,00E+00 -2,94E+00	0,00E+00 -5.20E+00	0,00E+00 -5.32E+00
	e of renewable primary	B1-B7	0,00E+00	0,00E+00	0,00E+00
	ergy used as raw terials	Cl	0,00E+00	0,00E+00	0,00E+00
	IJ / FU	C2 C3	0,00E+00 0.00E+00	0,00E+00 0.00E+00	0,00E+00 0.00E+00
		C4	-1,28E+00	-2,82E+00	-1,29E+00
		D	MND	MND	MND
		Total A-C A1-A3	0,00E+00	0,00E+00	0,00E+00
		A4	3,75E+01 2,33E-02	6,26E+01 3,63E-02	4,05E+01 2,56E-02
		A5	-1,29E+00	-2,50E+00	-3,64E+00
	of renewable primary ources (primary energy	B1-B7	0,00E+00	0,00E+00	0,00E+00
nd primary	energy resources used	C1 C2	0,00E+00 2,15E-03	0,00E+00 3,34E-03	0,00E+00 2,21E-03
as	raw materials) - MJ / FU	C3	0,00E+00	0,00E+00	0,00E+00
		C4	-1,36E+00	-2,87E+00	-1,38E+00
		D Total A-C	MND	MND	MND
		I otal A-C	3,48E+01 Master Rigid A	5,72E+01 Master Rigid Dp	3,55E+01 Master Rigid E
		A1-A3	4.05F+01	6.25E+01	4.47E+01
		A4	9,65E-01	1.51E+00	1,06E+00
<b>.</b>	Use of non-renewable	A5 B1-B7	2,11E+00	3,25E+00	2,33E+00
	imary energy excluding	B1-B7 C1	0,00E+00 0.00E+00	0,00E+00 0.00E+00	0,00E+00 0.00E+00
	on-renewable primary ergy resources used as	C2	8,93E-02	1,39E-01	9,16E-02
г	aw materials - MJ /FU	C3	0,00E+00	0,00E+00	0,00E+00
		C4 D	3,18E-01 MND	4,95E-01 MND	3,26E-01 MND
		Total A-C	4,39E+01	6,79E+01	4,85E+01
		A1-A3	4,67E+00	4,57E+00	5,03E+00
_		A4 A5	0,00E+00 -1.29E+00	0,00E+00 -1.29E+00	0,00E+00 -1.27E+00
	e of non-renewable	B1-B7	0,00E+00	0,00E+00	0,00E+00
primary energy used as raw materials - MJ / FU	Cl	0,00E+00	0,00E+00	0,00E+00	
	C2 C3	0,00E+00 0.00E+00	0,00E+00 0.00E+00	0,00E+00 0,00E+00	
		C4	0,00E+00	0,00E+00	0,00E+00
		D	MND	MND	MND
		Total A-C A1-A3	3,38E+00 4,51E+01	3,28E+00 6,71E+01	3,76E+00 4,97E+01
		A4	9,65E-01	1,51E+00	1,06E+00
		A5	8,20E-01	1,96E+00	1,06E+00
	i non-renewable primary ources (primary energy	B1-B7 C1	0,00E+00	0,00E+00	0,00E+00
nd primary	energy resources used naterials) - MJ / FU	C1 C2	0,00E+00 8.93E-02	0,00E+00 1.39E-01	0,00E+00 9.16E-02
	macrims) - 510 / 1 C	C3	0,00E+00	0,00E+00	0,00E+00
		C4 D	3,18E-01 MND	4,95E-01 MND	3,26E-01 MND
		Total A-C	4,73E+01	7,12E+01	5,23E+01
			Master Rigid A	Master Rigid Dp	Master Rigid E
		A1-A3	8,90E-01	1,87E+00	9,05E-01
		A4 A5	0.00E+00 4,45E-02	0,00E+00 9,34E-02	0.00E+00 4,52E-02
_ 🕙		B1-B7	4,45E-02 0,00E+00	9,34E-02 0,00E+00	4,52E-02 0,00E+00
Us	e of secondary material Kg / FU	Cl	0,00E+00	0,00E+00	0,00E+00
		C2	0,00E+00	0,00E+00	0,00E+00
		C3 C4	0,00E+00 0,00E+00	0,00E+00 0,00E+00	0,00E+00 0,00E+00
		D	MND	MND	MND
		Total A-C	9,35E-01	1,96E+00	9,50E-01
			Master Rigid A	Master Rigid Dp	Master Rigid E
		A1-A3 A4	0,00E+00 0,00E+00	0,00E+00 0,00E+00	0,00E+00 0,00E+00
6	e of renewable	A4 A5	0,00E+00	0,00E+00	0,00E+00 0,00E+00
11		B1-B7	0,00E+00	0,00E+00	0,00E+00
sec	secondary fuels MJ / FU	C1	0,00E+00	0,00E+00	0,00E+00
sec	/FU			0.005.00	
sec	/ FU	C2 C3	0,00E+00	0,00E+00 0.00E+00	0,00E+00 0.00E+00
sec	/ FU	C2 C3 C4	0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00	0,00E+00 0,00E+00
sec	/FU	C2 C3 C4 D	0,00E+00 0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND
sec	/FU	C2 C3 C4	0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00
sec	/FU	C2 C3 C4 D Total A-C	0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid Dp	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid E
sec MJ	/FU	C2 C3 C4 D	0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND
sec MJ		C2 C3 C4 D Total A-C A1–A3 A4 A5	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid E 0,00E+00 0,00E+00 0,00E+00
sec MJ	/ FU e of non-renewable ondary fuels - MJ / FU	C2 C3 C4 D Total A-C A1–A3 A4 A5 B1–B7	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid E 0,00E+00 0,00E+00 0,00E+00
sec MJ	e of non-renewable	C2 C3 C4 D Total A-C A1–A3 A4 A5	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid E 0,00E+00 0,00E+00 0,00E+00 0,00E+00
sec MJ	e of non-renewable	C2 C3 C4 D Total A-C A1–A3 A4 A5 B1–B7 C1 C2 C3	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid E 0,00E+00 0,00E+00 0,00E+00
sec MJ	e of non-renewable	C2 C3 C4 D Total A-C A1-A3 A4 A5 B1-B7 C1 C2 C3 C3 C4	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A 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 MND 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 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00
sec MJ	e of non-renewable	C2 C3 C4 D Total A-C A1–A3 A4 A5 B1–B7 C1 C2 C3	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND 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 0,00E+00 MND	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid E 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND
sec MJ	e of non-renewable	C2 C3 C4 D Total A-C A1-A3 A4 A5 B1-B7 C1 C2 C3 C3 C4 D	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00
sec MJ	e of non-renewable	C2 C3 C4 D Total A-C A1-A3 A4 A5 B1-B7 C1 C2 C3 C3 C4 D	0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MMD	0,00E+00 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND
sec MJ	e of non-renewable	C2 C3 C4 D Total A-C A1-A3 A4 A5 B1-B7 C1 C2 C3 C4 D Total A-C	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 0,00E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 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 MND
Sec MJ Use Sec	: of non-renevable ondary fuels - MJ / FU	C2 C3 C4 D Total A-C A1-A3 A4 A5 B1-B7 C1 C2 C3 C4 D Total A-C A1-A3 A4 A5	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 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 NND 0.00E+00 NND 0.00E+00 NND 0.00E+00 NAME S,00E+02 5,88E-06 2,54E-03 2,54E-03	0,00E+00 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 MAster Rigid Dy 8,19E-02 9,21E-06 4,07E-03	0,00E+00 0,00E+00 MND 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 MND 0,00E+00 MND 5,36E-02 6,48E-06 2,67E-03
Sec MJ Use Sec	e of non-renewable	C2 C3 C4 D Total A-C A1-A3 A4 A5 B1-B7 C1 C3 C3 C4 D Total A-C A A4 A5 B1-B7	0.00E+00 0.00E+00 0.00E+00 NND 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 0.00E+00 NND 0.00E+00 NND 0.00E+000E+0	0.00E+00 0.00E+00 MND 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 0.00E+00 MND 0.00E+00 MND 0.00E+00 4.07E+03 0.00E+00	0.00E+00 0.00E+00 MND 0.00E+00 Mster Bigle E 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 MND 0.00E+00 MND 0.00E+00 S,36E-02 6,48E-06 2,67E-03 0.00E+00
Sec MJ Use Sec	s of non-rene vable ondary fitels - MJ / FU c of net fitesh water	C2 C3 C4 D Total A-C A1-A3 A4 A5 B1-B7 C1 C2 C3 C4 D Total A-C A1-A3 A4 A5	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 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 NND 0.00E+00 NND 0.00E+00 NND 0.00E+00 NAME S,00E+02 5,88E-06 2,54E-03 2,54E-03	0,00E+00 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 MAster Rigid Dy 8,19E-02 9,21E-06 4,07E-03	0.00E+00 0.00E+00 MND 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 0.00E+00 MND 0.00E+00 MND 0.00E+00 MS-00E+00 MND
Sec MJ Use Sec	s of non-rene vable ondary fitels - MJ / FU c of net fitesh water	C2 C3 C4 D TrataAC A4 A5 B-B7 C1 C3 C4 D C3 C4 D C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4 C4	0.00E+00 0.00E+00 0.00E+00 NND 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 0.00E+00 0.00E+00 NND ND0 ND0 ND0 ND0 ND0 ND0 ND0 ND0 N	0.00E+00 0.00E+00 MND 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 0.00E+00 0.00E+00 NND 0.00E+00 NAD 0.00E+00 0	0.00E+00 0.00E+00 MND 0.00E+00 Master kigid E 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 MND 0.00E+00 MND 0.00E+00 MND 0.00E+00 MND 0.00E+00 0.00
Sec MJ Use Sec	s of non-rene vable ondary fitels - MJ / FU c of net fitesh water	C2 C3 C4 D Total A-C A-S B1-B7 C1 C2 C3 C4 D Total A-C A-A3 A4 A5 B1-B7 C1 C1 C2	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 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 NND 0.00E+00 NND 0.00E+00 XND 0.00E+00 XND	0.00E+00 0.00E+00 MND Mars High bp 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 MND 0.00E+00 8.19E-02 9.21E-06 4.07E+03 0.00E+00 9.00E+00 8.19E-02 9.21E-06 4.07E+03 0.00E+00	0.00E+00 0.00E+00 MND 0.00E+00 Mnter Eigle E 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 MND 0.00E+00 MND 0.00E+00 Mster Eigle E 5.36E-02 6.48E-06 2.67E-03 0.00E+00

## Waste categories

		Enviror	nmental impacts		
Paran	ieters		Master Rigid A	Master Rigid Dp	Master Rigid E
		A1-A3	3,24E-08	5,42E-08	3,28E-08
		A4	1,03E-11	1,61E-11	1,13E-11
		A5	1,62E-09	2,71E-09	1,64E-09
	Hazardous waste disposed kg / FU	B1-B7	0,00E+00	0,00E+00	0,00E+00
<u> </u>		C1	0,00E+00	0,00E+00	0,00E+00
		C2	9,51E-13	1,48E-12	9,75E-13
		C3	0,00E+00	0,00E+00	0,00E+00
		C4	1,55E-11	3,42E-11	1,49E-11
		D	MND	MND	MND
		Total A-C	3,40E-08	5,70E-08	3,45E-08
			Master Rigid A	Master Rigid Dp	Master Rigid E
		A1-A3	3.94E-01	8.85E-01	4.43E-01
		A4	2,59E-05	4,05E-05	2,85E-05
		A5	9,29E-02	1,59E-01	1,03E-01
<b>F</b>	Non-hazardous	B1-B7	0,00E+00	0,00E+00	0,00E+00
$\mathbf{U}$	waste	C1	0,00E+00	0,00E+00	0,00E+00
	disposed - kg / FU	C2	2,40E-06	3,72E-06	2,46E-06
		C3	0,00E+00	0,00E+00	0,00E+00
		C4	1,50E+00	2,38E+00	1,53E+00
		D	MND	MND	MND
		Total A-C	1,99E+00	3,42E+00	2,08E+00
			Master Rigid A	Master Rigid Dp	Master Rigid E
		A1-A3	9,58E-05	1,25E-04	1,01E-04
		A4	1,13E-06	1,77E-06	1,24E-06
-	Radioactive waste	A5	-2,06E-06	-4,44E-06	-2,49E-06
J	disposed	B1-B7	0,00E+00	0,00E+00	0,00E+00
-	ka / FU	C1	0,00E+00	0,00E+00	0,00E+00
	Ng/10	C2	1,05E-07	1,62E-07	1,07E-07
		C3	0,00E+00	0,00E+00	0,00E+00
		C4	-3,70E-05	-3,52E-05	-4,01E-05
		D	MND	MND	MND

## Output flow

Environmental impacts							
Param	ieters		Master Rigid A	Master Rigid Dp	Master Rigid E		
	Components for re-use kg/FU	A1-A3	-	-	-		
		A4	-	-	-		
5		A5	-	-	-		
		B1-B7	-	-	-		
-		C1	-	-	-		
		C2	-	-	-		
		C3		-	-		
		C4		-	-		
		D	MND	MND	MND		
		Total A-C	-	-	-		
	Materials for recycling kg/FU		Master Rigid A	Master Rigid Dp	Master Rigid E		
		A1-A3	0.00E+00	0,00E+00	0.00E+00		
		A4	0,00E+00	0,00E+00	0,00E+00		
_		A5	0,00E+00	0,00E+00	0,00E+00		
6		B1-B7	0,00E+00	0,00E+00	0,00E+00		
-		C1	0,00E+00	0,00E+00	0,00E+00		
		C2	0,00E+00	0,00E+00	0,00E+00		
		C3	0,00E+00	0,00E+00	0,00E+00		
		C4	0,00E+00	0,00E+00	0,00E+00		
		D	MND	MND	MND		
		Total A-C	-	-	-		
	Materials for energy reovery - kg/FU		Master Rigid A	Master Rigid Dp	Master Rigid E		
		A1-A3	-	-	-		
		A4	-	-	-		
		A5	-	-	-		
6.		B1-B7	-	-	-		
<u> </u>		C1	-	-	-		
		C2	-	-	-		
		C3	-	-	-		
		C4	-	-	-		
		D	MND	MND	MND		
		Total A-C	-	-	-		
	Exported energy MJ/FU		Master Rigid A	Master Rigid Dp	Master Rigid E		
		A1-A3	0,00E+00	0,00E+00	0,00E+00		
		A4	0,00E+00	0,00E+00	0,00E+00		
-		A5	0,00E+00	0,00E+00	0,00E+00		
6		B1-B7	0,00E+00	0,00E+00	0,00E+00		
		C1	0,00E+00	0,00E+00	0,00E+00		
		C2	0,00E+00	0,00E+00	0,00E+00		
		C3	0,00E+00	0,00E+00	0,00E+00		
		C4	0,00E+00	0,00E+00	0,00E+00		
		D	MND	MND	MND		
		Total A-C	-	-	-		

## Summary

Aggregation of results from A1 to C4 in selected impact categories.

	Master Rigid A	Master Rigid Dp	Master Rigid E
Global warming kg CO <sub>2</sub> equiv/FU	3,55	5,31	3,87
Non-renewable resources consumption [1]	43	66	48
Energy consumption [2] MJ/FU	82	128	88
Water consumption [3]	0,05	0,09	0,06
Waste production [4]	1,99	3,42	2,08

[1] This indicator corresponds to the abiotic depletion potential of fossil resources.

[2] This indicator corresponds to the total use of primary energy.

[3] This indicator corresponds to the use of net fresh water.

[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed.

## **Reference list**

ISO 354:2003: Acoustics -- Measurement of sound absorption in a reverberation room

Finnish M1: Emission classification of building materials (M1 Classification): general instructions 12 November 2014

Eurofins Indoor Air Comfort: Eurofins Indoor Air Comfort GOLD and Indoor Air Comfort Version 7.0 May 2020

Reach: EU REACH Regulation (EC) No 1907/2006

LCA report: Project report on Ecophon LCA Plant 2021-08-04

**EN 15804:2012+A1:2013:** Sustainability of construction works - Environmental product declarations

Acoustical systems solutions (sub-oriented PCR; appendix to PCR 2012:01) - previously Acoustic ceilings.

PCR 2012:01 Construction products and construction services (version 2.33 dated 2020-09-18)

## **CONTACT INFORMATION**

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