



#### THE GREEN YARDSTICK



# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with EN 15804 and ISO 14025

# **Ecophon Master Rigid/Plant**™



 $Programme: The \ International \ EPD \textcircled{\$} \ System, www.environdec.com$ 

 $Programme\,operator;\, EPD\,\,International\,AB$ 

Version: 1.0

Registration number: S-P-04296

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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 EN 15804.
Validity	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	2021-07-13

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LCA Business Development Manager

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## **Product description**

#### Product description and description of use:

This Environmental Product Declaration (EPD) describes the environmental impact of  $1 \text{ m}^2$  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.

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

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	-

T otal 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 reverified.

## 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	

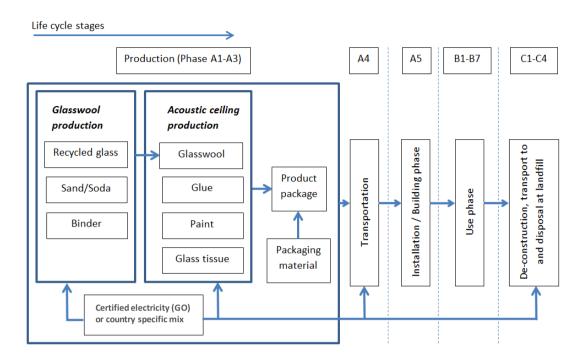
## LCA calculation information

Declared unit	1 m² of acoustic celling panel.
Functional unit	1 m² 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





### Product stage, A1-A3

#### 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 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. Packaging-related 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 is 100% 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
Capacity difficulting empty relations	100% of empty returns
Bulk density of transported products (if available)	54 - 98 kg/m³
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
Waste of materials on the building site before waste processing, generated by the product's installation	5%
Output materials (specified by type) as results of waste processing at the building site e.g. of collection for recycling,	Packaging waste is 100 % collected and modelled as material for recycling
for energy recovering, disposal	Ceiling panel losses are landfilled

#### A5:2 Energy usage

As a general figure the time to install  $1 \text{ m}^2$  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  $\text{m}^2$  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 (e.g. transportation)	Average truck trailer with a 24t payload, diesel consumption 31.7 litres for 100 km 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			Construction Use phase process phase			Eı	nd of li	fe phas	5e	Resou rce recov ery phase						
	Raw material and supply	Transportto 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	Transport to waste processing	Waste processing	Disposal	Reuse Recovery-Recycling-potential
Module	A1	A2	А3	A4	A5	В1	В2	В3	В4	В5	В6	В7	C1	C2	С3	C4	D
Modules declared	Х	Χ	Х	Х	Х	х	Χ	Χ	Χ	Χ	Χ	Χ	Х	Χ	Χ	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 %					-								-			
Variation sites	< 25 %									-							

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).

<b>-</b>		Enviro	nmental impacts		
	meters		Master Rigid A	Master Rigid Dp	Master Rigid E
		A1-A3	2,98E+00	4,65E +00	3,26E+00
		A4-A5	2,77E-01	4,32E-01	3,04E-01
		B1-B7			
200		C1-C4	0,00E +00	0,00E +00	0,00E +00
			3,28E-01	3,45E-01	3,53E-01
	<b>Global Warming Potential</b>	D	MND	MND	MND
	(GWP) - kg CO <sub>2</sub> equiv/FU	Total A-C	3,59E+00	5,43E+00	3,91E+00
			the total contrib from the emissi to one unit of th which i	ming potential of ution to global wo on of one unit of t e reference gas, s assigned a valu	arming resulting hat gas relative carbon dioxide,
		A1-A3	2,66E-07	4,27E-07	2,87E-07
		A4-A5	1,33E-08	2,14E-08	1,44E-08
		B1-B7	0,00E +00	0,00E+00	0,00E+00
		C1-C4	-3,55E-16	-2,85E-16	-3,89E-16
<b></b>		D	MND	MND	MND
	Ozone Depletion (ODP) kg CFC 11 equiv/FU	Total A-C	2,80E-07	4,49E-07	3,02E-07
			destruction of ozon- chlorine and/ (chlorofluorocarbon they reach the stro	Itraviolet radiation had e is caused by the b for bromine containing s or halogens), which itosphere and then cozone molecules.	reakdown of certair g compounds h break down when atalytically destroy
		A1-A3	1,66E-02	2,67E-02	1,84E-02
		A4-A5	9,44E-04	1,52E-03	1,05E-03
		B1-B7	0,00E+00	0,00E+00	0,00E+00
35		C1-C4	1,82E-04	2,63E-04	1,89E-04
	Acidification potential	D	MND	MND	MND
	(AP) kg SO <sub>2</sub> equiv/FU	Total A-C	1,77E-02	2,85E-02	1,97E-02
	(Ai / kg 502 equiv/i o		Acid depositions	have negative im	pacts on natural
		A1-A3	buildings . The acidifying substa combustion use	d the man-made e e main sources for inces are agricultu d for electricity pro and transport.	emissions of re and fossil fuel oduction, heating
			5,20E-03	8,32E-03	5,74E-03
		A4-A5	3,54E-04	5,64E-04	3,91E-04
		B 1-B 7	0,00E+00	0,00E+00	0,00E+00
Age		C1-C4	4,27E-04	4,37E-04	4,60E-04
	Eutrophication potential	D	MND	MND	MND
	(EP) kg (PO <sub>4</sub> ) <sup>3</sup> - equiv/FU	Total A-C	surfaces with	9,32E-03 chment of waters a nutrients, and the crse biological eff	e associated
		A1-A3	1,83E-03	2,56E-03	1,97E-03
		A4-A5	7,89E-05	1,08E-04	8,41E-05
n con		B1-B7	0,00E+00	0,00E+00	0,00E+00
	Photochemical ozone	C1-C4	1,04E-04	1,09E-04	1,11E-04
	creation (POPC) kg	D	MND	MND	MND
	Ethene equiv/FU	Total A-C	2,02E-03	2,78E-03	2,16E-03
		41.42	Chemical reactio of the sun. The hydrocarbons i ozone is an exa	ns brought about be e reaction of nitrog n the presence of m ple of a photoch	by the light energ en oxides with sunlight to form emical reaction.
	Abiotic depletion	A1-A3 A4-A5	5.51E-06	7.84E-06	6,19E-06
	potential for non-fossil		2,78E-07	3,95E-07	3,12E-07
	resources (ADP-	B1-B7	0,00E +00	0,00E +00	0,00E+00
	elements) - kg Sb	C1-C4	-1,43E-09	-3,50E-11	-1,68E-09
	equiv/FU	D	MND	MND	MND
		Total A-C	5,78E-06	8,24E-06	6,50E-06
		A1-A3	4,00E+01	6,08E +01	4,38E+01
		A 4-A 5	3,06E+00	4,69E +00	3,36E+00
(Pr	Abiotic depletion	B 1-B 7	0,00E+00	0,00E+00	0,00E+00
	potential for fossil	C1-C4	5,00E-01	7,20E-01	5,18E-01
	resources (ADP-fossil	D	MND	MND	MND
	fuels) - MJ/FU	Total A-C	4,35E+01	6,63E+01	4,77E+01
			Consumption	n of non-renewab ring their availab generations.	le resources,

Paran		Enviror	mental impacts		
	neters		Master Rigid A	Master Rigid Dp	Master Rigid E
		A1-A3	3,32E+01	5,45E+01	3,38E+01
w W	Use of renewable primary	A4-A5	1,67E+00	2,74E+00	1,70E+00
*	energy excluding	B1-B7	0,00E+00	0,00E+00	0,00E+00
	renewable primary energy resources used as raw	C1-C4			
	resources used as raw materials		-7,51E-02	-5,01E-02	-8,32E-02
	- MJ /FU	D	MND	MND	MND
	- M3 / 1 O	Total A-C	3,48E+01	5,72E+01	3,55E+01
		A1-A3	4,23E+00	8,04E+00	6,62E+00
*	Use of renewable primary	A4-A5	- 2,85E +00	- 5,04E +00	-5,11E+00
	energy used as raw	B1-B7	0,00E+00	0,00E+00	0,00E+00
	materials - MJ /FU	C1-C4	0,00E+00	0,00E+00	0,00E+00
		D	MND	MND	MND
		Total A-C	1,38E+00	3,00E+00	1,51E+00
		A1-A3	3,75E+01	6,26E+01	4,05E+01
T otal	luse of renewable primary	A4-A5			
	resources (primary energy		- 1,18E+00	- 2,30E +00	-3,41E+00
	mary energy resources used	B1-B7	0,00E+00	0,00E+00	0,00E+00
	as rawmaterials)	C1-C4	- <i>7,</i> 51E-02	-5,01E-02	-8,32E-02
	- MJ /FU	D	MND	MND	MND
		Total A-C	3,62E+01	6,02E+01	3,70E+01
			Master Rigid A	Master Rigid Dp	Master Rigid E
		A1-A3	4,05E+01	6,26E+01	4,47E+01
	Use of non-renewable	A4-A5	3,08E+00	4,77E+00	3,39E+00
	primary energy excluding	B 1-B 7	0,00E+00	0.00E+00	0,00E+00
	non-renewable primary	C1-C4	· · · · · · · · · · · · · · · · · · ·	.,	
	energy resources used as	D D	4,07E-01 MND	6,34E-01 MND	4,18E-01 MND
	rawmaterials - MJ /FU	Total A-C	4,40E+01	6,80E+01	4,85E+01
		A1-A3			
	Use of non-renewable		4,67E+00	4,57E+00	5,03E+00
	primary energy used as	A4-A5	- 1,29E+00	- 1,29E +00	- 1,27E+00
	rawmaterials - MJ /FU	B 1-B 7	0,00E+00	0,00E+00	0,00E+00
		C1-C4	0,00E+00	0,00E+00	0,00E+00
		D	MND	MND	MND
		Total A-C	3,38E+00	3,28E+00	3,76E+00
		A1-A3	4,52E+01	6,71E+01	4,98E+01
	se of non-renewable primary	A4-A5	1,79E+00	3,48E+00	2,12E+00
	resources (primary energy	B1-B7	0,00E+00	0,00E+00	0,00E+00
	mary energy resources used	C1-C4	4,07E-01	6,34E-01	4,18E-01
CIS I	rawmaterials) - MJ/FU	D	4,07E-01	0,54E=01	MND
		Total A-C			
		T OIG A-C	4,74E+01	7,12E+01	5,23E+01
			Master Rigid A	Master Rigid Dp	Master Rigid E
		A 1-A 3	8,98E-01	1,88E+00	9,13E-01
20	Use of secondary material	A4-A5	4,49E-02	9,42E-02	4,56E-02
0	Use of secondary material Ka/FU	A4-A5 B1-B7			
	Use of secondary material Kg/FU		0,00E+00	0,00E+00	0,00E+00
<b>3</b>		B1-B7 C1-C4	0,00E +00 0,00E +00	0,00E+00 0,00E+00	0,00E+00 0,00E+00
<b>***</b>		B 1-B 7 C1-C4 D	0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND
<b>3</b>		B1-B7 C1-C4	0,00E+00 0,00E+00 MND 9,43E-01	0,00E+00 0,00E+00 MND 1,97E+00	0,00E+00 0,00E+00 MND 9,59E-01
		B 1-B 7 C1-C4 D	0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND
<b>6</b>	Kg∕FÚ	B 1-B 7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01	0,00E+00 0,00E+00 MND 1,97E+00	0,00E+00 0,00E+00 MND 9,59E-01
	Kg/FÚ Use of renewable	B 1-B7 C1-C4 D Total A-C	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp	0,00E+00 0,00E+00 MND 9,59E-01 Master Rigid E 0,00E+00
	Kg∕FÚ	B 1-B 7 C1-C4 D T ot d A-C	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 9,59E-01 Master Rigid E 0,00E+00
	Kg/FU Use of renewable secondary fuels	B 1-B7 C1-C4 D T otd A-C A1-A3 A4-A5 B1-B7	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00	0,00E +00 0,00E +00 MND 9,59E - 01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00
	Kg/FU Use of renewable secondary fuels	B 1-B7 C1-C4 D T otal A-C A1-A3 A4-A5 B 1-B7 C1-C4	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 9,59E-01 Master Rigid E 0,00E+00 0,00E+00 0,00E+00 0,00E+00
	Kg/FU Use of renewable secondary fuels	B1-B7 C1-C4 D T of d A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND 9,59E-01 Master Rigid E 0,00E+00 0,00E+00 0,00E+00 MND
	Kg/FU Use of renewable secondary fuels	B 1-B7 C1-C4 D T otal A-C A1-A3 A4-A5 B 1-B7 C1-C4	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E +00 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00
<b>%</b>	Kg/FU Use of renewable secondary fuels	B1-B7 C1-C4 D T of d A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND	0,00E+00 0,00E+00 MND 9,59E-01 Master Rigid E 0,00E+00 0,00E+00 0,00E+00 MND
	Kg/FU Use of renewable secondary fuels MJ/FU	B1-B7 C1-C4 D T of d A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00	0,00E +00 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00
<b>%</b>	Kg/FU  Use of renewable secondary fuels MJ/FU  Use of non-renewable	B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00	0,00E +00 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 MND Master Rigid E
\$ 1	Kg/FU Use of renewable secondary fuels MJ/FU	B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D Total A-C	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 Moster Rigid A	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 Moster Rigid Dp	0,00E +00 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 MND 0,00E +00 0,00E +00 0,00E +00
\$	Kg/FU  Use of renewable secondary fuels MJ/FU  Use of non-renewable	B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D Total A-C A1-A3 A4-A5	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E +00 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 MND 0,00E +00 0,00E +00 0,00E +00 0,00E +00 0,00E +00 0,00E +00
\$	Kg/FU  Use of renewable secondary fuels MJ/FU  Use of non-renewable	B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 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 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 MND 0,00E +00
\$ S	Kg/FU  Use of renewable secondary fuels MJ/FU  Use of non-renewable	B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 Moster Rigid A 0,00E+00 0,00E+00 0,00E+00 Moster Rigid A	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 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 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 MODE +00 0,00E +00 0,00E +00 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND
\$ S	Kg/FU  Use of renewable secondary fuels MJ/FU  Use of non-renewable	B1-B7 C1-C4 D Torid A-C A1-A3 A4-A5 B1-B7 C1-C4 D Torid A-C A1-A3 A4-A5 B1-B7 C1-C4	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 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 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 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 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 0,00E +00 0,00E +00 0,00E +00 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 0,00E +00 0,00E +00 0,00E +00
<b>%</b>	Kg/FU  Use of renewable secondary fuels MJ/FU  Use of non-renewable	B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 Moster Rigid A 0,00E+00 0,00E+00 0,00E+00 Moster Rigid A	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 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 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 0,00E +00 0,00E +00 0,00E +00 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 0,00E +00 0,00E +00 0,00E +00
<u>s</u>	Kg/FU  Use of renewable secondary fuels MJ/FU  Use of non-renewable	B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 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 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 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 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 0,00E +00 0,00E +00 0,00E +00 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 0,00E +00 0,00E +00 0,00E +00
<b>So</b>	Kg/FU  Use of renewable secondary fuels MJ/FU  Use of non-renewable	B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D Total A-C A1-A3 A4-A5 B1-B7 C1-C4 D Total A-C	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 Moster Rigid Dp 0,00E+00 Moster Rigid Dp 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 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 0,00E +00 0,00E +00 Moster Rigid E 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
<b>S</b>	Use of renewable secondary fuels MJ /FU  Use of non-renewable secondary fuels - MJ /FU	B1-B7 C1-C4 D Torid A-C A1-A3 A4-A5 B1-B7 C1-C4 D Torid A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 5,11E-02 2,55E-03	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 Moster Rigid Dp 0,00E+00 MnD 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	0,00E +00 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00
<b>3 3 3 3 3 3 3 3 3 3</b>	Use of renewable secondary fuels MJ /FU  Use of non-renewable secondary fuels - MJ /FU  Use of net fresh water	B1-B7 C1-C4 D Torid A-C A1-A3 A4-A5 B1-B7 C1-C4 D Torid A-C A1-A3 A4-A5 B1-B7 C1-C4 D Torid A-C	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 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 NND 0,00E+00 MSD 0,00E+00	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 MND 0,00E+00 Moster Rigid Dp	0,00E +00 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00 0,00E +00 0,00E +00 Mster Rigid E 0,00E +00
	Use of renewable secondary fuels MJ /FU  Use of non-renewable secondary fuels - MJ /FU  Use of net fresh water	B1-B7 C1-C4 D Torid A-C A1-A3 A4-A5 B1-B7 C1-C4 D Torid A-C A1-A3 A4-A5 B1-B7 C1-C4 D	0,00E+00 0,00E+00 MND 9,43E-01 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 MND 0,00E+00 0,00E+00 0,00E+00 Master Rigid A 0,00E+00 0,00E+00 0,00E+00 0,00E+00 0,00E+00 5,11E-02 2,55E-03	0,00E+00 0,00E+00 MND 1,97E+00 Master Rigid Dp 0,00E+00 0,00E+00 0,00E+00 MND 0,00E+00 Moster Rigid Dp 0,00E+00 MnD 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	0,00E +00 0,00E +00 MND 9,59E-01 Master Rigid E 0,00E +00 0,00E +00 0,00E +00 MND 0,00E +00

Environmental impacts									
Parameters		Master Rigid A	Master Rigid Dp	Master Rigid E					
	A1-A3	3.24E-08	5.42E-08	3.28E-08					
Hazardous waste	A4-A5	1,63E-09	2,73E-09	1,65E-09					
disposed	B1-B7	0,00E+00	0,00E+00	0,00E+00					
kg /FU	C1-C4	1,65E-11	3,57E-11	1,59E-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	4,37E-01	1.01E+00	4,87E-01					
Non-hazardous	A4-A5	9,50E-02	1,65E-01	1,05E-01					
₩as te	B1-B7	0,00E+00	0,00E+00	0,00E+00					
disposed - kg /FU	C1-C4	1,50E+00	2,38E+00	1,53E+00					
	D	MND	MND	MND					
	Total A-C	2,03E+00	3,56E+00	2,12E+00					
		Master Rigid A	Master Rigid Dp	Master Rigid E					
Radioactive waste	A1-A3	7.19E-05	8.26E-05	7.27E-05					
disposed	A4-A5	-2,13E-06	-4,80E-06	-2,65E-06					
kg /FU	B1-B7	0,00E+00	0,00E+00	0,00E+00					
- 19/10	C1-C4	-3,69E-05	-3,50E-05	- 4,00E - 05					
	D	MND	MND	MND					

## **Output flow**

	Environ	mental impacts		
Parameters		Master Rigid A	Master Rigid Dp	Master Rigid E
Components for re-use kg/FU	A1-A3	<u>-</u>	-	-
	A4-A5	-	-	-
	B 1-B7	-	-	-
	C1-C4	-	-	-
	D	MND	MND	MND
	Total A-C	-	-	-
Materials for recycling kg/FU		Master Rigid A	Master Rigid Dp	Master Rigid E
	A1-A3	2,77E-03	2,97E-03	2,87E-03
	A4-A5	1,39E-04	1,49E-04	1,44E-04
	B 1-B 7	0,00E+00	0,00E+00	0,00E+00
	C1-C4	0,00E+00	0,00E+00	0,00E+00
	D	MND	MND	MND
	Total A-C	2,91E-03	3,12E-03	3,01E-03
Materials for energy reovery- kg/FU		Master Rigid A	Master Rigid Dp	Master Rigid E
	A1-A3	-		-
	A4-A5	-	-	-
	B1-B7	-	-	-
	C1-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-A5	0,00E+00	0,00E+00	0,00E+00
	B 1-B7	0,00E+00	0,00E+00	0,00E+00
	C1-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	Master Rigid Dp	Master Rigid E
Global warming			
kg CO <sub>2</sub> equ	3,59	5,43	3,91
Non-renewable resources consumption	[1]		
MJ/FU	44	66	48
Energy consumption [2]			
MJ/FU	84	131	89
Water consumption [3]			
m³/FU	0,05	0,09	0,06
Waste production [4]			
kg/FU	2,03	3,56	2,12

<sup>[1]</sup> This indicator corresponds to the abiotic depletion potential of fossil resources.

<sup>[2]</sup> This indicator corresponds to the total use of primary energy.

<sup>[3]</sup> This indicator corresponds to the use of net fresh water.

<sup>[4]</sup> 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 2021-07-22

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)

## Difference from previous versions

New company logo and correction of few product weights on page 3.

### CONTACT INFORMATION

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