





THE INTERNATIONAL EPD® SYSTEM

The International EPD® System:

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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



Version 1

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Scope of the EPD®: Sweden and

other Nordic countries





# **Programme information**

**PROGRAMME:** The International EPD® System

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CEN standard EN 15804:2012+A2:2019/AC:2021 as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction Products, version 1.3.2

**PCR review was conducted by:** The Technical Committee of the International EPD System. See www.environdec.com for a list of members.

Review chair: Claudia A. Peña, University of Concepción, Chile.

The review panel may be contacted via the Secretariat www.environdec.com/contact.

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☐ EPD process certification ☐ EPD verification

Third party verifier: Andrew Norton, Renuables ltd. E-mail: a.norton@renuables.co.uk

Approved by: The International EPD© System

Procedure for follow-up of data during EPD validity involves third part verifier: ☐ Yes ☐ No

The EPD owner has the sole ownership, liability and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.



## **Product information**

Product name: weber REP 45

Declared unit: 1 kg

UN CPC CODE: 37510 Non-refractory mortars and concretes

**GTIN Number:** 7391479745077

# **Company information**

Manufacturer: Saint-Gobain Sweden AB, Weber, Pålamalmsvägen 60 146 33 Tullinge

Website: weber.se

Production plant(s): Riksten, Sweden

Management system - related certifications: ISO 9001 (Certificate No.: SE009960), ISO 14001

(Certificate No.: SE009958)

## **LCA & EPD Information**

Owner of the declaration: Saint-Gobain Sweden AB, Weber

Contact person: Malin Dalborg (malin.dalborg@saint-gobin.com)

**EPD®** prepared by: Malin Dalborg (malin.dalborg@saint-gobin.com)

**Type of EPD:** Cradle to gate with options and optional modules (A+B+C+D)

Geographical scope of the EPD®: Sweden and Nordic countries

Year of data collection: 2023





# **Product description**

### Product description and description of use

This Environmental Product Declaration (EPD®) describes the environmental impacts of 1 kg of weber REP 45 delivered in 20 kg bags

weber REP 45 is a dry mix with plastic fiber intended for repair of concrete without formwork. Only mixed with water to obtain a ready-to-use repairs with high strength and normally good adhesion and durability. REP 45 is part of Weber's system for concrete repairs. Repair class R4 according to 1504-3.

All technical characteristics and properties for the product could be found on the website:

https://www.se.weber/betong-cement-vagglagning/reparationsbetong/weber-rep-45-reparationsbruk

This EPD applies for one specific product produced at the Riksten Factory in Sweden by Saint-Gobain Sweden AB, Weber.

## Technical data/physical characteristics:

Тес	hnical data / physical characteristics	
Recommended layer thickness	5 - 50 mm	
Compressive strength 28 days	>40 MPa	EN 12390-3
Frost resistance	Yes	SS 137244
Exposure class	X0, XC4, XS2, XD2, XF4, XA1	XEN 206-1

## Declaration of the main product components and/or materials

Description of the main components and/or materials:

Product components	Weight (%)	Post-consumer material weight (%)	Biogenic material weight- % and kg C/ DU					
Binder	20 – 40 %	0%	-					
Filler / Aggregates	60 – 80 %	0%	-					
Additives	< 3 %	0%	-					
Sum	100%	0%	-					

Packaging materials	Weight (kg)	Weight-% (vs the product)	Biogenic material, weight- kg C/ DU
Paper bag	0,0033 kg	0,33%	0,0014 kg
LDPE	0,0007 kg	0,07%	-
Wooden pallet	0,0260 kg	2,60%	0,011 kg

#### Hazardous substances

During the life cycle of the product one or more hazardous substance listed in the "Candidate List of Substances of Very High Concern (SVHC) for authorization" has been used in a percentage higher than 0.1% of the weight of the product.

The verifier and the program operator do not make any claim nor have any responsibility of the legality of the product.



# LCA calculation information

Parameter	Information
Type of epd	Cradle to gate with options, modules C1-C4 and module D.
Declared unit	1 kg weber REP 45
System boundaries	Mandatory stages = A1-A3; C1-C4 and D; Optional stages = A4-A5; B1-B7
Reference service life (rsl)	The Reference Service Life (RSL) of the mortar product is 50 years. This 50-year value is the amount of time that we recommend our products last for without refurbishment and corresponds to standard building design life.
Cut-off rules	All data is available, no cut-off rules has been applied. In the case that there is not enough information, the process energy and materials representing less than 1% of the whole energy and mass used can be excluded (if they do not cause significant impacts). The addition of all the inputs and outputs excluded cannot be bigger than the 5% of the whole mass and energy used, as well of the emissions to environment occurred.  Flows related to human activities such as employee transport are excluded.  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 has been avoided when possible and when not possible a mass allocation has been applied.  The polluter pays and the modularity principles as well have been followed.
Geographical coverage And time period	Scope: Sweden*  Data is collected from one production site Riksten, Sweden  Data collected for the year 2023  *Additional result for Denmark, Norway and Finland
Background data source Software	The databases Sphera 2023.2 and ecoinvent v.3.9.1 Sphera LCA for experts (GaBi) 10



# LCA scope

System boo	undari	es (X=	inclu	ıded. N	MND=mo	odule	e not	decla	red)								
	Product stage Construction stage								Jse st	age			En	Benefits and loads beyond the system boundary			
	Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-recovery
Module	A1	A2	АЗ	A4	A5	В1	B2	ВЗ	В4	B5	B6	В7	C1	C2	С3	C4	D
Modules declared	х	Х	Х	х	x	х	Х	Х	Х	Х	Х	х	Х	Х	Х	Х	×
Geography	GLO	GLO	SE	SE*	SE				SE				SE	SE	SE	SE	SE
Specific data used <sup>1</sup>	:	>5,2%															
Variation products		0%															
Variation sites		0%															

<sup>\*</sup> The product is also sold to Denmark, Norway and Finland, see additional information for transport information.

# Life cycle stages



<sup>&</sup>lt;sup>1</sup> For this study, specific data is considered as energy and water consumptions, wastes and emissions related to the manufacturing process.



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### A1-A3. Product stage

The product stage of plaster products is subdivided into 3 modules:

### A1. Raw materials supply

This module includes the extraction and transformation of raw materials.

#### A2. Transport to the manufacturer

This module includes the transportation of raw materials and packaging to the manufacturing site. The modelling includes road, boat and/or train transportations.

#### A3. Manufacturing

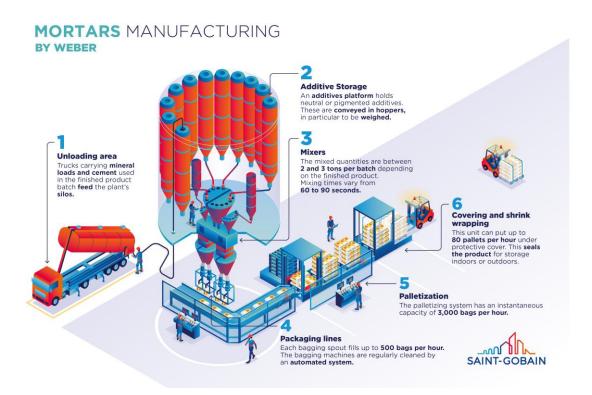
This module includes the manufacture of products and the manufacture of packaging. The production of packaging material is considered at this stage. The processing of any waste arising from this stage is also included.

During the manufacturing process, electricity based on 100% renewable electricity bought with Guarantee of Origin (GO) has been used. The amount of electricity purchases with GO's correspond to 100% of the electricity consumed at the manufacturing site, leaving 0% to be covered by Swedish national grid mix.

## Manufacturing process flow diagram

#### System diagram:

Basic scheme of a Mortar Production line



#### Manufacturing in detail:

The manufacturing activities include grinding, drying, storing, mixing and loading onto truck.



# **Electricity information**

The factory based in Riksten, Sweden, uses the following electricity description

Parameter	Value / description
Location	Electricity purchased by Saint-Gobain Gobain Sweden AB
Share of electricity covered by Guarantee of Origin	100% of the electricity consumption is covered by the GO
Geographical representativeness description	Split of electricity bought with Guarantee of Origin: Hydro 100 %
Reference year	2023 The GO will be prolonged to be valid at least to the validity of this EPD.
Type of dataset	Cradle to gate from Sphera and ecoinvent databases
Source	Guarantee of Origin: Sphera dataset (2023) and Entilios (Supplier of GO)
CO <sub>2</sub> emission (kg CO <sub>2</sub> eq. / kWh) (Based on Climate Change Fossil Indicator)	Guarantee of Origin: 0,006 kg of CO <sub>2</sub> eq /kWh

## A4-A5. Construction process stage

The construction process is divided into 2 modules:

### A4. Transport to the building site:

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

Parameter	Value / Description
Fuel type and consumption of vehicle or vehicle type used for transport e.g., long distance truck, boat, etc.	Freight truck, maximum load weight of 27 t and consumption of 0,38 liters diesel per km. Real 24 t payload
Distance	300 km by truck (Sweden)*
Capacity utilization (including empty returns)	100% of the capacity in volume 89% of the capacity in weight 30% of empty returns
Bulk density of transported products	1299 kg/m3

<sup>\*</sup>Result for transport to Denmark, Norway and Finland, see additional information.



#### A5. Installation in the building:

This module includes the parameters for installing the product at the building site. All installation materials and their waste processing are included.

Parameter	Value / Description
Secondary materials for installation (specified by materials)	None
Water use	0,15 liters/kg of dry mortar
Other resource use	None
Quantitative description of energy type (regional mix) and consumption during the installation process	0,00396 MJ/kg of dry mortar
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	Product: 5% Paper bag: 100% LDPE: 100% Wooden pallet: 100%
Output materials (specified by type) as results of waste processing at the building site e.g., of collection for recycling, for energy recovering, disposal (specified by route)	Product: 0,05 kg: 100% landfill  Paper bag: 0,0033 kg: 50% landfill, 50% energy recovery  LDPE: 0,0007 kg: 10% recycled, 90% energy recovery  Wooden pallet: 0,026 kg: 50% recycled, 50% energy
Use of pallet	7 times before end of life
Distance to waste treatment facilities	50 km to landfill
Direct emissions to ambient air, soil, and water	None

## **B1-B7.** Use stage (excluding potential savings)

The use stage is divided into the following modules:

- B1: Use
- B2: Maintenance
- B3: Repair
- B4: Replacement
- B5: Refurbishment
- B6: Operational energy use
- B7: Operational water use

Once installation is complete, no actions or technical operations are required during the use stages until the end-of-life stage. The product does not require any energy, water or material input to keep it in working condition. The product covered by this EPD does not require any maintenance as it is aimed for gluing different types of tiles. In addition, due to the product durability, maintenance, repair, replacement, or restoration are irrelevant in the specified applications. Declared product performances therefore assume a working life that equals the building's lifetime. For this reason, no environmental loads are attributed to any of the modules between B1 and B7 and carbonation has not been included for this product.



## C1-C4. End of Life Stage

This stage includes the next modules:

#### C1. Deconstruction, demolition

The de-construction and/or dismantling of the product take part of the demolition of the entire building.

#### C2. Transport to waste processing

Transport to waste processing

#### C3. Waste processing for reuse, recovery and/or recycling

Waste processing for reuse, recovery and/or recycling 90% of the product is considered to be recycled.

#### C4. Disposal

10% of the product is considered to be sent to landfill.

### Description of the scenarios and additional technical information for the end of life:

Parameter	Value / Description
Energy for de-construction / demolition	0.045 MJ/kg diesel
Collection process specified by type	1 kg mortar + part of water from A5 collected with mixed construction waste.
Recovery system specified by type	90% of product to recycling
Disposal specified by type	10% of product to municipal landfill
Assumptions for scenario development (e.g., transportation)	The waste going to landfill will be transported by truck with 24 t payload, using diesel as a fuel and consuming 0,38 liter per km.  Distance to landfill: 50 km  Distance to recycling: 50 km

# D. Reuse/recovery/recycling potential

90% of the product wastes is recycled which is accounted for in module D.

The LDPE film is considered to be 10% recycled and 90% incinerated with energy recovery.

The wooden Pallet is considered, after it has been reused several times, to go to 50% recycling and 50% to incineration with energy recovery.

The paper bag is considered to go to 50% landfill and 50% incineration with energy recovering.



## LCA results

As specified in EN 15804:2012+A2:2019/AC:2021 and the Product-Category Rules, the environmental impacts are declared and reported using the baseline characterization factors are from the ILCD. Raw materials and energy consumption, as well as transport distances have been taken directly from the manufacturing plant. Characterization factors of EN15804 are based on EF 3.1.

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

All emissions to air, water, and soil, and all materials and energy used have been included.

The results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological, and geographical representativeness. Caution should be taken when using the results of these indicators for decision-making purposes.

Since this EPD includes module C, we strongly advise not to use the results of modules A1-A3 without considering the results of module C.

All figures refer to a declared unit of 1 kg of weber REP 45 produced at a single plant; Riksten, Sweden.



# **Environmental Impacts**

		Product stage	Construc	tion stage			U	Jse st	tage				Benefits and loads beyond the life cycle			
Environmental indicators		A1/A2/A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
	Climate Change (total) [kg CO <sub>2</sub> eq.]	3,01E-01	2,03E-02	6,89E-02	0	0	0	0	0	0	0	4,39E-03	3,65E-03	0	1,64E-03	2,21E-04
(0)2	Climate Change (fossil) [kg CO <sub>2</sub> eq.]	3,41E-01	2,01E-02	2,49E-02	0	0	0	0	0	0	0	4,39E-03	3,60E-03	0	1,63E-03	-2,98E-05
	Climate Change (biogenic) [kg CO <sub>2</sub> eq.]	-3,98E-02	5,33E-05	4,39E-02	0	0	0	0	0	0	0	3,81E-06	9,58E-06	0	4,55E-06	2,32E-04
	Climate Change (land use change) [kg CO <sub>2</sub> eq.]	2,11E-04	1,89E-04	2,25E-05	0	0	0	0	0	0	0	8,36E-08	3,39E-05	0	5,13E-06	1,88E-05
	Ozone depletion [kg CFC-11 eq.]	5,54E-09	1,79E-15	2,65E-11	0	0	0	0	0	0	0	3,38E-16	3,37E-16	0	4,20E-15	-7,55E-12
\$	Acidification terrestrial and freshwater [Mole of H+ eq.]	9,58E-04	2,31E-05	5,24E-05	0	0	0	0	0	0	0	6,91E-06	4,19E-06	0	1,17E-05	1,78E-05
_	Eutrophication freshwater [kg P eq.]	1,07E-05	7,44E-08	4,86E-07	0	0	0	0	0	0	0	8,49E-10	1,33E-08	0	3,32E-09	-1,65E-06
	Eutrophication marine [kg N eq.]	3,30E-04	7,88E-06	1,82E-05	0	0	0	0	0	0	0	2,39E-06	1,44E-06	0	3,02E-06	1,63E-05
	Eutrophication terrestrial [Mole of N eq.]	3,61E-03	9,31E-05	1,68E-04	0	0	0	0	0	0	0	2,64E-05	1,70E-05	0	3,33E-05	1,34E-04
	Photochemical ozone formation - human health [kg NMVOC eq.]	9,87E-04	2,00E-05	4,86E-05	0	0	0	0	0	0	0	7,23E-06	3,64E-06	0	9,13E-06	3,76E-05
	Resource use, mineral and metals [kg Sb eq.] <sup>2</sup>	7,62E-07	1,33E-09	1,34E-08	0	0	0	0	0	0	0	4,44E-11	2,38E-10	0	7,63E-11	1,01E-09
	Resource use, energy carriers [MJ] <sup>2</sup>	3,02E+00	2,78E-01	2,11E-01	0	0	0	0	0	0	0	5,84E-02	4,98E-02	0	2,20E-02	-1,49E-02
(3)	Water deprivation potential [m³ world equiv.]²	2,24E+01	2,35E-04	1,09E-02	0	0	0	0	0	0	0	1,13E-05	4,24E-05	0	1,81E-04	2,21E-04



<sup>&</sup>lt;sup>2</sup> Disclaimer 2: The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

# **Resources Use**

		Product stage	Construc	tion stage	Use stage								Benefits and loads beyond the life cycle			
Res	ources Use indicators	A1/A2/A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
*	Use of renewable primary energy (PERE) [MJ] <sup>3</sup>	8,56E-01	1,97E-02	7,05E-02	0	0	0	0	0	0	0	2,58E-04	3,53E-03	0	3,58E-03	-9,79E-02
*	Use of renewable primary energy resources used as raw materials (PERM) [MJ] <sup>3</sup>	5,37E-02	0	-4,03E-01	0	0	0	0	0	0	0	0	0	0	0	0
*	Total use of renewable primary energy resources (PERT) [MJ] <sup>3</sup>	9,09E-01	1,97E-02	-3,32E-01	0	0	0	0	0	0	0	2,58E-04	3,53E-03	0	3,58E-03	-9,79E-02
O	Use of non-renewable primary energy (PENRE) [MJ] <sup>3</sup>	1,75E+00	2,78E-01	1,61E-01	0	0	0	0	0	0	0	5,86E-02	4,99E-02	0	2,20E-02	-1,49E-02
O	Non-renewable primary energy resources used as raw materials (PENRM) [MJ] <sup>3</sup>	1,27E+00	0	4,27E-02	0	0	0	0	0	0	0	0	0	- 4,37E -02	0	0
O	Total use of non-renewable primary energy resources (PENRT) [MJ] <sup>3</sup>	3,02E+00	2,78E-01	2,03E-01	0	0	0	0	0	0	0	5,86E-02	4,99E-02	- 4,37E -02	2,20E-02	-1,49E-02
	Input of secondary material (SM) [kg]	2,08E-03	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*	Use of renewable secondary fuels (RSF) [MJ]	1,48E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	Use of non-renewable secondary fuels (NRSF) [MJ]	9,12E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
()	Use of net fresh water (FW) [m³]	1,25E-03	2,17E-05	2,66E-04	0	0	0	0	0	0	0	4,19E-07	3,89E-06	0	5,55E-06	9,18E-07

<sup>&</sup>lt;sup>3</sup> From EPD International Construction Product PCR 1.3.2 (Annex 3). The option B was retained to calculate the primary energy use indicators.



# **Waste Category & Output flows**

	Product stage	Construc	tion stage	Use stage								Benefits and loads beyond the life cycle			
Waste Category & Output Flows	A1/A2/A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational	B7 Operational water	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Hazardous waste disposed (HWD) [kg]	7,98E-05	1,03E-12	1,10E-06	0	0	0	0	0	0	0	1,69E-13	1,81E-13	0	4,79E-13	2,40E-07
Non-hazardous waste disposed (NHWD) [kg]	4,69E-02	4,01E-05	5,93E-02	0	0	0	0	0	0	0	1,21E-05	7,24E-06	0	1,10E-01	-4,11E-02
Radioactive waste disposed (RWD) [kg]	2,28E-05	3,60E-07	5,43E-06	0	0	0	0	0	0	0	6,76E-08	6,76E-08	0	2,51E-07	-2,15E-06
Components for re-use (CRU) [kg]	0	0	2,39E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	2,11E-04	0	1,80E-03	0	0	0	0	0	0	0	0	0	9,89E-01	0	0
Material for Energy Recovery (MER) [kg]	2,81E-06	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	6,40E-07	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported thermal energy (EET) [MJ]	9,71E-06	0	3,76E-02	0	0	0	0	0	0	0	0	0	0	0	0



## Additional indicators from EN 15804

		Product stage Construction stage Use stage					End of life stage			Benefits and loads beyond the life cycle						
Enviro	onmental indicators	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
	GWP-GHG / GWP-IOBC [kg CO <sub>2</sub> eq.] <sup>4</sup>	3,41E-01	2,03E-02	2,50E-02	0	0	0	0	0	0	0	4,39E- 03	3,64 E-03	0	1,63E- 03	-1,11E-05

# Information on biogenic carbon content

		At factory gate			
Biogeni	c Carbon Content in kg C	A1 / A2 / A3			
9	Biogenic carbon content in product [kg]	0			
P	Biogenic carbon content in packaging [kg]	1,20E-02			

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2.

The product contains biogenic carbon due to the additives used. Regarding packaging, biogenic carbon is quantified due to wooden pallets.



<sup>&</sup>lt;sup>4</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

# **Additional information:**

# **Transport to other countries**

The transport to building site (A4) in the main result is based on Sweden. Transport to other countries has been calculated, and a full set of indicators for A4 can be found below. The following transport assumptions has been made:

Country	Truck (km)	Ship (km)	Rail (km)
Denmark	850	0	0
Finland	480	125	0
Norway	797	0	0

Climate Change [kg CO <sub>2</sub> eq.]   5,76E-02   3,48E-02   5,40E-02		Denmark	Finland	Norway
Climate Change [kg CO2 eq.]   5,76E-02   3,48E-02   5,40E-02   Climate Change (fossil) [kg CO2 eq.]   5,69E-02   3,44E-02   5,34E-02   Climate Change (biogenic) [kg CO2 eq.]   1,51E-04   8,70E-05   1,42E-04   Climate Change (land use change) [kg CO2 eq.]   1,51E-04   8,70E-05   1,42E-04   Climate Change (land use change) [kg CO2 eq.]   5,36E-04   3,03E-04   5,02E-04   Ozone depletion [kg CFC-11 eq.]   5,06E-15   3,01E-15   4,75E-15   Acidification terrestrial and freshwater [Mole of H+ eq.]   6,54E-05   1,16E-04   6,13E-05   Eutrophication fershwater [kg P eq.]   2,1E-07   1,20E-07   1,98E-07   Eutrophication marine [kg N eq.]   2,23E-05   3,11E-05   2,09E-05   Eutrophication - human health [kg NMVOC eq.]   5,67E-05   8,48E-05   5,32E-04   2,47E-04   Photochemical ozone formation - human health [kg NMVOC eq.]   5,67E-05   8,48E-05   5,32E-05   Resource use, energy carriers [MJ]   7,87E-01   4,72E-01   7,37E-01   7,37E-01   4,72E-01   7,37E-01   7,37E-0		(A4)	(A4)	
Climate Change (fossil)   Kg CO2 eq.   5,69E-02   3,44E-02   5,34E-02   Climate Change (blogenic)   Kg CO2 eq.   1,51E-04   8,70E-05   1,42E-04   Climate Change (land use change)   kg CO2 eq.   5,36E-04   3,03E-04   5,02E-04   Climate Change (land use change)   kg CO2 eq.   5,06E-15   3,01E-15   4,75E-15   Acidification terrestrial and freshwater [Mole of H+ eq.   6,54E-05   1,16E-04   6,13E-05   Eutrophication freshwater [Kg P eq.   2,21E-07   1,20E-07	Environmental indicators	S		
Climate Change (biogenic)   [kg CO <sub>2</sub> eq.]   1,51E-04   8,70E-05   1,42E-04   Climate Change (land use change)   [kg CO <sub>2</sub> eq.]   5,36E-04   3,03E-04   5,02E-04   Cozno depletion   [kg CPC-11 eq.]   5,06E-15   3,01E-15   4,75E-15   Acidification terrestrial and freshwater [Mole of H+ eq.]   6,54E-05   1,16E-04   6,13E-05   Eutrophication freshwater   [kg P eq.]   2,11E-07   1,20E-07   1,98E-07   Eutrophication terrestrial [Mole of N eq.]   2,23E-05   3,11E-05   2,09E-05   Eutrophication terrestrial [Mole of N eq.]   2,34E-04   3,52E-04   2,47E-04   Photochemical ozone formation - human health   [kg NMVOC eq.]   5,67E-05   8,48E-05   5,32E-05   Resource use, energy carriers   [MJ]   7,87E-01   4,72E-01   7,37E-01   4,72E-01   7,37E-01   Water deprivation potential [m³ world equiv.]   6,67E-04   3,80E-04   6,25E-04   Resource Use   Indicators   Use of renewable primary energy (PERE)   [MJ]   5,57E-02   3,16E-02   5,22E-02   Primary energy resources used as raw materials   (PERM)   [MJ]   0   0   0   0   0   0   0   0   0	Climate Change [kg CO <sub>2</sub> eq.]	5,76E-02	3,48E-02	5,40E-02
Climate Change (land use change) [kg CO <sub>2</sub> eq.]   5,36E-04   3,03E-04   5,02E-04     Ozone depletion [kg CFC-11 eq.]   5,06E-15   3,01E-15   4,75E-15     Acidification terrestrial and freshwater [Mole of H+ eq.]   6,54E-05   1,16E-04   6,13E-05     Eutrophication freshwater [kg P eq.]   2,11E-07   1,20E-07   1,98E-07     Eutrophication terrestrial [kg N eq.]   2,23E-05   3,11E-05   2,09E-05     Eutrophication terrestrial [Mole of N eq.]   2,64E-04   3,52E-04   2,47E-04     Photochemical ozone formation - human health [kg NMVOC eq.]   5,67E-05   8,48E-05   5,32E-05     Resource use, mineral and metals [kg Sb eq.]   3,76E-09   2,14E-09   3,52E-09     Resource use, energy carriers [MJ]   7,87E-01   4,72E-01   7,37E-01     Water deprivation potential [m³ world equiv.]   6,67E-04   3,80E-04   6,25E-04     Resource Use Indicators   Use of renewable primary energy (PERE) [MJ]   5,57E-02   3,16E-02   5,22E-02     Primary energy resources used as raw materials (PERM) [MJ]   0	Climate Change (fossil) [kg CO <sub>2</sub> eq.]	5,69E-02	3,44E-02	5,34E-02
Ozone depletion [kg CFC-11 eq.]   5,06E-15   3,01E-15   4,75E-15     Acidification terrestrial and freshwater [Mole of H+ eq.]   6,54E-05   1,16E-04   6,13E-05     Eutrophication freshwater [kg P eq.]   2,11E-07   1,20E-07   1,98E-07     Eutrophication marine [kg N eq.]   2,23E-05   3,11E-05   2,09E-05     Eutrophication terrestrial [Mole of N eq.]   2,64E-04   3,52E-04   2,47E-04     Photochemical ozone formation - human health [kg NMVOC eq.]   5,67E-05   8,48E-05   5,32E-05     Resource use, mineral and metals [kg Sb eq.]   3,76E-09   2,14E-09   3,52E-09     Resource use, energy carriers [MJ]   7,87E-01   4,72E-01   7,37E-01     Water deprivation potential [m³ world equiv.]   6,67E-04   3,80E-04   6,25E-04     Resource Use Indicators   Use of renewable primary energy (PERE) [MJ]   5,57E-02   3,16E-02   5,22E-02     Primary energy resources used as raw materials (PERM) [MJ]   0	Climate Change (biogenic) [kg CO <sub>2</sub> eq.]	1,51E-04	8,70E-05	1,42E-04
Acidification terrestrial and freshwater [Mole of H+ eq.]   6,54E-05   1,16E-04   6,13E-05   1,98E-07   1,98	Climate Change (land use change) [kg CO <sub>2</sub> eq.]	5,36E-04	3,03E-04	5,02E-04
Eutrophication freshwater [kg P eq.]   2,11E-07   1,20E-07   1,98E-07		5,06E-15	3,01E-15	4,75E-15
Eutrophication marine [kg N eq.]   2,23E-05   3,11E-05   2,09E-05	Acidification terrestrial and freshwater [Mole of H+ eq.]	6,54E-05	1,16E-04	6,13E-05
Eutrophication terrestrial [Mole of N eq.]   2,64E-04   3,52E-04   2,47E-04		2,11E-07	1,20E-07	1,98E-07
Photochemical ozone formation - human health [kg NMVOC eq.]   5,67E-05   8,48E-05   5,32E-05   Resource use, mineral and metals [kg Sb eq.]   3,76E-09   2,14E-09   3,52E-09   Resource use, energy carriers [MJ]   7,87E-01   4,72E-01   7,37E-01   Water deprivation potential [m³ world equiv.]   6,67E-04   3,80E-04   6,25E-04   Resource Use Indicators   Use of renewable primary energy (PERE) [MJ]   5,57E-02   3,16E-02   5,22E-02   Primary energy resources used as raw materials (PERM) [MJ]   0   0   0   0   0   0   0   0   0		2,23E-05	3,11E-05	2,09E-05
Resource use, mineral and metals [kg Sb eq.]   3,76E-09   2,14E-09   3,52E-09   Resource use, energy carriers [MJ]   7,87E-01   4,72E-01   7,37E-01   Water deprivation potential [m³ world equiv.]   6,67E-04   3,80E-04   6,25E-04   Resource Use Indicators   Use of renewable primary energy (PERE) [MJ]   5,57E-02   3,16E-02   5,22E-02   Primary energy resources used as raw materials (PERM) [MJ]   0   0   0   0   0   0   0   0   0		2,64E-04	3,52E-04	2,47E-04
Resource use, energy carriers [MJ]   7,87E-01   4,72E-01   7,37E-01		5,67E-05	8,48E-05	5,32E-05
Water deprivation potential [m³ world equiv.]   6,67E-04   3,80E-04   6,25E-04   Resource Use Indicators   Use of renewable primary energy (PERE) [MJ]   5,57E-02   3,16E-02   5,22E-02   Primary energy resources used as raw materials (PERM) [MJ]   5,57E-02   3,16E-02   5,22E-02   Use of renewable primary energy resources (PERT) [MJ]   5,57E-02   3,16E-02   5,22E-02   Use of non-renewable primary energy (PENRE) [MJ]   7,89E-01   4,73E-01   7,39E-01   Non-renewable primary energy resources used as raw materials (PENRM) [MJ]   0   0   0   0   0   0   0   0   0	Resource use, mineral and metals [kg Sb eq.]			
Use of renewable primary energy (PERE) [MJ]   5,57E-02   3,16E-02   5,22E-02		7,87E-01	4,72E-01	
Use of renewable primary energy (PERE) [MJ] 5,57E-02 3,16E-02 5,22E-02 Primary energy resources used as raw materials (PERM) [MJ] 0 0 0 0 0 Total use of renewable primary energy resources (PERT) [MJ] 5,57E-02 3,16E-02 5,22E-02 Use of non-renewable primary energy (PENRE) [MJ] 7,89E-01 4,73E-01 7,39E-01 Non-renewable primary energy resources used as raw materials (PENRM) [MJ] 0 0 0 0 0 0 Total use of non-renewable primary energy resources (PENRT) [MJ] 7,89E-01 4,73E-01 7,39E-01 [MJ] 7,89E-01 [MJ] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Water deprivation potential [m³ world equiv.]	6,67E-04	3,80E-04	6,25E-04
Primary energy resources used as raw materials (PERM) [MJ]         0         0         0           Total use of renewable primary energy resources (PERT) [MJ]         5,57E-02         3,16E-02         5,22E-02           Use of non-renewable primary energy (PENRE) [MJ]         7,89E-01         4,73E-01         7,39E-01           Non-renewable primary energy resources used as raw materials (PENRM) [MJ]         0         0         0           Total use of non-renewable primary energy resources (PENRT) [MJ]         7,89E-01         4,73E-01         7,39E-01           Input of secondary material (SM) [kg]         0         0         0         0           Use of renewable secondary fuels (NRSF) [MJ]         0         0         0         0           Use of non-renewable secondary fuels (NRSF) [MJ]         0         0         0         0         0           Use of net fresh water (FW) [m³]         6,13E-05         3,48E-05         5,75E-05         5,75E-05           Waste category & Output flows           Hazardous waste disposed (HWD) [kg]         2,92E-12         1,73E-12         2,74E-12           Non-hazardous waste disposed (RWD) [kg]         1,14E-04         6,67E-05         1,07E-04           Radioactive waste disposed (RWD) [kg]         0         0         0           Mat		-		
Total use of renewable primary energy resources (PERT) [MJ] 5,57E-02 3,16E-02 5,22E-02 Use of non-renewable primary energy (PENRE) [MJ] 7,89E-01 4,73E-01 7,39E-01 Non-renewable primary energy resources used as raw materials (PENRM) [MJ] 0 0 0 0 0 Total use of non-renewable primary energy resources (PENRT) [MJ] 7,89E-01 4,73E-01 7,39E-01 MJ 7,89E-01 MJ 7,39E-01 MJ		5,57E-02	3,16E-02	5,22E-02
Use of non-renewable primary energy (PENRE) [MJ]   7,89E-01   4,73E-01   7,39E-01		-	ū	~
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]		5,57E-02	3,16E-02	5,22E-02
Total use of non-renewable primary energy resources (PENRT)		7,89E-01	4,73E-01	7,39E-01
Input of secondary material (SM) [kg]		0	0	0
Use of renewable secondary fuels (RSF) [MJ]	• • • • • • • • • • • • • • • • • • • •	7,89E-01	4,73E-01	7,39E-01
Use of non-renewable secondary fuels (NRSF) [MJ]       0       0       0         Use of net fresh water (FW) [m³]       6,13E-05       3,48E-05       5,75E-05         Waste category & Output flows         Hazardous waste disposed (HWD) [kg]       2,92E-12       1,73E-12       2,74E-12         Non-hazardous waste disposed (NHWD) [kg]       1,14E-04       6,67E-05       1,07E-04         Radioactive waste disposed (RWD) [kg]       1,02E-06       6,08E-07       9,56E-07         Components for re-use (CRU) [kg]       0       0       0         Materials for Recycling (MFR) [kg]       0       0       0         Material for Energy Recovery (MER) [kg]       0       0       0         Exported electrical energy (EEE) [MJ]       0       0       0         Exported thermal energy (EET) [MJ]       0       0       0         Additional Indicator	Input of secondary material (SM) [kg]	0	0	0
Use of net fresh water (FW) [m³] 6,13E-05 3,48E-05 5,75E-05  Waste category & Output flows  Hazardous waste disposed (HWD) [kg] 2,92E-12 1,73E-12 2,74E-12  Non-hazardous waste disposed (NHWD) [kg] 1,14E-04 6,67E-05 1,07E-04  Radioactive waste disposed (RWD) [kg] 1,02E-06 6,08E-07 9,56E-07  Components for re-use (CRU) [kg] 0 0 0  Materials for Recycling (MFR) [kg] 0 0 0  Material for Energy Recovery (MER) [kg] 0 0 0  Exported electrical energy (EEE) [MJ] 0 0 0  Exported thermal energy (EET) [MJ] 0 0 0  Additional Indicator	Use of renewable secondary fuels (RSF) [MJ]	0	0	0
Waste category & Output flows           Hazardous waste disposed (HWD) [kg]         2,92E-12         1,73E-12         2,74E-12           Non-hazardous waste disposed (NHWD) [kg]         1,14E-04         6,67E-05         1,07E-04           Radioactive waste disposed (RWD) [kg]         1,02E-06         6,08E-07         9,56E-07           Components for re-use (CRU) [kg]         0         0         0           Materials for Recycling (MFR) [kg]         0         0         0           Material for Energy Recovery (MER) [kg]         0         0         0           Exported electrical energy (EEE) [MJ]         0         0         0           Exported thermal energy (EET) [MJ]         0         0         0           Additional Indicator	Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0
Hazardous waste disposed (HWD) [kg]   2,92E-12   1,73E-12   2,74E-12     Non-hazardous waste disposed (NHWD) [kg]   1,14E-04   6,67E-05   1,07E-04     Radioactive waste disposed (RWD) [kg]   1,02E-06   6,08E-07   9,56E-07     Components for re-use (CRU) [kg]   0   0   0     Materials for Recycling (MFR) [kg]   0   0   0     Material for Energy Recovery (MER) [kg]   0   0   0     Exported electrical energy (EEE) [MJ]   0   0   0     Exported thermal energy (EET) [MJ]   0   0   0     Additional Indicator	Use of net fresh water (FW) [m <sup>3</sup> ]	6,13E-05	3,48E-05	5,75E-05
Non-hazardous waste disposed (NHWD) [kg]   1,14E-04   6,67E-05   1,07E-04     Radioactive waste disposed (RWD) [kg]   1,02E-06   6,08E-07   9,56E-07     Components for re-use (CRU) [kg]   0   0   0     Materials for Recycling (MFR) [kg]   0   0   0     Material for Energy Recovery (MER) [kg]   0   0   0     Exported electrical energy (EEE) [MJ]   0   0   0     Exported thermal energy (EET) [MJ]   0   0   0     Additional Indicator	Waste category & Output flo	ows		
Radioactive waste disposed (RWD) [kg]         1,02E-06         6,08E-07         9,56E-07           Components for re-use (CRU) [kg]         0         0         0           Materials for Recycling (MFR) [kg]         0         0         0           Material for Energy Recovery (MER) [kg]         0         0         0           Exported electrical energy (EEE) [MJ]         0         0         0           Exported thermal energy (EET) [MJ]         0         0         0           Additional Indicator         Additional State         0         0         0	Hazardous waste disposed (HWD) [kg]	2,92E-12	1,73E-12	2,74E-12
Components for re-use (CRU) [kg]         0         0         0           Materials for Recycling (MFR) [kg]         0         0         0           Material for Energy Recovery (MER) [kg]         0         0         0           Exported electrical energy (EEE) [MJ]         0         0         0           Exported thermal energy (EET) [MJ]         0         0         0           Additional Indicator         0         0         0	Non-hazardous waste disposed (NHWD) [kg]	1,14E-04	6,67E-05	1,07E-04
Materials for Recycling (MFR) [kg]         0         0         0           Material for Energy Recovery (MER) [kg]         0         0         0           Exported electrical energy (EEE) [MJ]         0         0         0           Exported thermal energy (EET) [MJ]         0         0         0           Additional Indicator         0         0         0		1,02E-06	6,08E-07	9,56E-07
Material for Energy Recovery (MER) [kg]         0         0         0           Exported electrical energy (EEE) [MJ]         0         0         0           Exported thermal energy (EET) [MJ]         0         0         0           Additional Indicator         0         0         0	Components for re-use (CRU) [kg]	0	0	
Exported electrical energy (EEE) [MJ] 0 0 0  Exported thermal energy (EET) [MJ] 0 0 0  Additional Indicator	Materials for Recycling (MFR) [kg]	0	0	0
Exported thermal energy (EET) [MJ] 0 0 0  Additional Indicator	Material for Energy Recovery (MER) [kg]		0	0
Additional Indicator	Exported electrical energy (EEE) [MJ]	0	0	0
	Exported thermal energy (EET) [MJ]	0	0	0
GWP-GHG / GWP-IOBC [kg CO <sub>2</sub> eq.] 5,75E-02 3,47E-02 5,39E-02				
	GWP-GHG / GWP-IOBC [kg CO₂ eq.]	5,75E-02	3,47E-02	5,39E-02



# **Information related to Sector EPD**

This is a product specific EPD, therefore no information needed.

# Differences with previous versions of the EPD

This is the first version of the EPD.



### References

- 1. ISO 14040:2006: Environmental Management-Life Cycle Assessment-Principles and framework.
- 2. ISO 14044:2006: Environmental Management-Life Cycle Assessment-Requirements and guidelines.
- 3. ISO 14025:2006: Environmental labels and Declarations-Type III Environmental Declarations-Principles and procedures.
- 4. EN 998-1:2016 Specification for mortar for masonry Rendering and plastering mortar
- 5. EN 15804:2012+A1:2013 Sustainability of construction works Environmental product declarations Core rules for the product category of construction products
- 6. EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works Environmental product declarations Core rules for the product category of construction products
- 7. EPD International (2021) General Programme Instructions for the International EPD® System. Version 4.0. www.environdec.com.
- 8. EN 15978 Sustainability of construction works Assessment of environmental performance of buildings Calculation method
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- 10. European Chemical Agency, Candidate List of substances of very high concern for Authorization. https://echa.europa.eu/candidate-list-table
- 11. LCA report, Riksten, Saint-Gobain Sweden AB, Weber, 11.2024\_v3

