

Environmental product declaration

In accordance with ISO 14025 and EN 15804 +A2

weber EXM 702 DK



The Norwegian EPD Foundation

Owner of the declaration:

Saint Gobain Denmark A/S -Weber

Declared unit:

1 kg weber EXM 702 DK

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 009:2018 Part B for Technical - Chemical products in the
building and construction industry

Product Category:

Program operator:

The Norwegian EPD Foundation

Declaration number: NEPD-3636-2583-DK

Registration number: NEPD-3636-2583-DK

Issue date: 06.07.2022

Valid to: 06.07.2027

EPD Software:

LCA.no EPD generator

System ID:

50626

General information

Product

weber EXM 702 DK

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
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Declaration number: NEPD-3636-2583-EN

ECO Platform reference number:

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 009:2018 Part B for Technical - Chemical products in the building and construction industry

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit:

1 kg weber EXM 702 DK

Declared unit with option:

A1-A3,A4,A5,C1,C2,C3,C4,D

Functional Unit

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Individual third party verification of each EPD is not required when the EPD tool is integrated into the company's environmental management system, if the procedures for use of the EPD tool are approved by EPD Norway, and if the process is reviewed annually. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4

Third party verifier:

Anne Rønning, Norsus AS
(Independent verifier approved by EPD Norway)

Owner of the declaration:

Saint Gobain Denmark A/S -Weber
Contact person: Eirini Adamopoulou
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e-mail: Eirini.Adamopoulou@saint-gobain.com

Manufacturer:

Saint Gobain Denmark A/S -Weber
Silovej 3, Dk 2690 Karlslunde
Denmark

Place of production:

Saint Gobain Denmark A/S -Weber
Silovej 3, Dk 2690 Karlslunde
Denmark

Management system:

DS/EN ISO 14001, DS/EN ISO 9001.

Organisation no:

59 98 30 16

Issue date: 06.07.2022

Valid to: 06.07.2027

Year of study:

2021

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

The EPD has been worked out by:

The declaration is created using EPD tool lca.tools ver EPD2021.09, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD:

Eirini Adamopoulou

Reviewer of company-specific input data and EPD:

Helene Løvkvist Andersen

Approved:



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

weber EXM 702 DK is used for:

- Casting under machines, railway rails, structures, bridge foundations, prefabricated concrete elements, etc.
- Grouting between prefabricated concrete elements
- Filling in cracks and repairing damaged structures
- Anchoring of bolts and railings

For further information, see <https://www.saint-gobain.dk/produkt/weber-exm-702-dk>

Product specification

Materials	%
Binders	20-40%
Fillers/Aggregates	50-65%
Additives/Packaging	10-14%

Technical data:

Compression strength: larger than 60 MPa

For further information, see <https://www.saint-gobain.dk/produkt/weber-exm-702-dk>

Market:

Denmark

Reference service life, product

The reference service life of the product is similar to the service life of the building.

Reference service life, building

60 Years

LCA: Calculation rules

Declared unit:

1 kg weber EXM 702 DK

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Additives	ecoinvent 3.6	Database	2019
Aggregate	ecoinvent 3.6	Database	2019
Cement	ecoinvent 3.6	Database	2019
Filler	ecoinvent 3.6	Database	2019
Packaging	ecoinvent 3.6	Database	2019
Additives	EPD-EFC-20210193-IBG1-EN	EPD	2021

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D1
X	X	X	X	X	MNR	MNR	MNR	MNR	MNR	MNR	MNR	X	X	X	X	X

System boundary:

All processes from raw material extraction, product transport, the construction site, assembly, end of product life and beyond the system boundaries are included in the analysis.

The flow chart below illustrates the system boundaries for the full life cycle analysis.



Additional technical information:














LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonn)
Truck, 16-32 tonnes, EURO 5 (km)	36,7 %	50	0,044	l/tkm	2,20
Assembly (A5)		Unit	Value		
Waste, cardboard and paper packaging, to average treatment (kg)	kg	0,01			
Waste, plastic packaging mixture, to average treatment (kg)	kg	0,06			
Waste, wood packaging, average treatment (kg)	kg	0,02			
Water, tap water (L)	kg/DU	0,14			
Electricity, Denmark (kWh)	kWh/DU	0,00			
End of Life (C1, C3, C4)		Unit	Value		
Demolition of building per kg of cement-based product (kg)	kg/DU	1,00			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonn)
Truck, 16-32 tonnes, EURO 5 (km)	36,7 %	30	0,044	l/tkm	1,32
Waste processing (C3)		Unit	Value		
Waste treatment of cement-based product after demolition (kg)	kg	0,90			
Disposal (C4)		Unit	Value		
Disposal of cement-based product in landfill (kg)	kg	0,10			
Benefits and loads beyond the system boundaries (D)		Unit	Value		
Substitution of primary aggregates with crushed recycled cement-based products (kg)	kg	0,90			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact										
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	5,96E-01	8,34E-03	5,95E-03	4,00E-03	5,00E-03	6,48E-04	8,22E-04	-2,10E-03	
 GWP-fossil	kg CO ₂ -eq	6,10E-01	8,33E-03	5,94E-03	4,00E-03	5,00E-03	6,39E-04	8,20E-04	-2,06E-03	
 GWP-biogenic	kg CO ₂ -eq	-1,61E-02	3,40E-06	6,04E-06	7,50E-07	2,04E-06	5,52E-06	9,58E-07	-4,11E-05	
 GWP-luluc	kg CO ₂ -eq	1,33E-03	2,91E-06	9,19E-07	3,15E-07	1,75E-06	8,84E-07	2,02E-07	-1,39E-06	
 ODP	kg CFC11 -eq	3,39E-08	1,90E-09	4,28E-10	8,64E-10	1,14E-09	1,26E-10	3,11E-10	-3,77E-10	
 AP	mol H ⁺ -eq	2,89E-03	3,41E-05	1,25E-05	4,19E-05	2,04E-05	5,17E-06	7,30E-06	-1,85E-05	
 EP-FreshWater	kg P -eq	1,32E-05	6,55E-08	3,85E-08	1,46E-08	3,93E-08	4,04E-08	9,30E-09	-5,48E-08	
 EP-Marine	kg N -eq	4,90E-04	1,01E-05	8,02E-06	1,85E-05	6,06E-06	1,52E-06	2,71E-06	-6,43E-06	
 EP-Terrestrial	mol N eq	5,50E-03	1,12E-04	4,81E-05	2,00E-04	6,70E-05	1,75E-05	2,99E-05	-7,56E-05	
 POCP	kg NMVOC -eq	1,66E-03	3,42E-05	1,40E-05	5,57E-05	2,05E-05	4,68E-06	8,56E-06	-2,00E-05	
 ADP-minerals&metals ¹	Kg Sb -eq	3,71E-05	2,26E-07	4,19E-08	6,14E-09	1,35E-07	8,11E-09	7,39E-09	-1,83E-07	
 ADP-fossil ¹	MJ	7,35E+00	1,26E-01	3,25E-02	5,51E-02	7,54E-02	1,98E-02	2,26E-02	-3,49E-02	
 WDP ¹	m ³	1,67E+01	1,20E-01	1,40E-01	1,17E-02	7,19E-02	2,19E+00	1,39E-01	-1,63E+00	

GWP total Global Warming Potential total; GWP fossil Global Warming Potential fossil fuels ; GWP biogenic Global Warming Potential biogenic; GWP luluc Global W Potential land use change; ODP Ozone Depletion; AP Acidification; EP freshwater Eutrophication aquatic freshwater; EP marine Eutrophication aquatic marine; EP terrestrial Eutrophication terrestrial ;POCP Photochemical zone formation; ADPE Abiotic Depletion Potential minerals and metals; ADPf Abiotic Depletion Potential fossil fuels; WDP Water Depletion Potential







"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*1NA Indicator Not Assessed

1. 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
3. Eutrophication aquatic freshwater shall be in kg P-eq., there is a typo in EN 15804:2012+A2:2019 regarding this unit. Eutrophication calculated as PO₄-eq is presented on page 11

Remarks to environmental impacts

Additional environmental impact indicators

Parameter		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	PM	Disease incidence	1,93E-08	6,00E-10	1,83E-10	5,07E-09	3,60E-10	8,20E-11	1,56E-10	-3,96E-10
	IRP ²	kgBq U235 eq.	1,72E-02	5,49E-04	1,43E-04	2,40E-04	3,30E-04	3,33E-04	1,03E-04	-3,20E-04
	ETP-fw ¹	CTUe	7,27E+00	9,26E-02	3,51E-02	3,01E-02	5,55E-02	1,41E-02	1,23E-02	-3,59E-02
	HTP-c ¹	CTUh	2,03E-10	0,00E+00	2,00E-12	1,00E-12	0,00E+00	1,00E-12	0,00E+00	-1,00E-12
	HTP-nc ¹	CTUh	6,27E-09	1,00E-10	6,90E-11	2,80E-11	6,00E-11	1,10E-11	8,00E-12	-4,30E-11
	SQP ¹	Pt	3,85E+00	8,66E-02	4,54E-02	6,69E-03	5,20E-02	1,12E-02	8,69E-02	7,91E-02











PM Particulate Matter emissions; IRP Ionizing radiation – human health; ETP-fw Eco toxicity – freshwater; HTP-c Human toxicity – cancer effects; HTP-nc Human toxicity – non cancer effects; SQP Soil Quality (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

1. 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
2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Resource use




Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
 PERE	MJ	4,13E-01	1,77E-03	3,03E-03	3,00E-04	1,06E-03	1,02E-02	8,08E-04	-8,16E-03
 PERM	MJ	3,99E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
 PERT	MJ	8,13E-01	1,77E-03	3,03E-03	3,00E-04	1,06E-03	1,02E-02	8,08E-04	-8,16E-03
 PENRE	MJ	5,92E+00	1,26E-01	3,25E-02	5,51E-02	7,54E-02	1,99E-02	2,26E-02	-3,68E-02
 PENRM	MJ	1,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
 PENRT	MJ	7,37E+00	1,26E-01	3,25E-02	5,51E-02	7,54E-02	1,99E-02	2,26E-02	-3,68E-02
 SM	kg	1,69E-03	0,00E+00	1,71E-05	2,70E-05	0,00E+00	1,71E-05	9,79E-06	-7,05E-05
 RSF	MJ	1,50E-02	6,35E-05	1,12E-04	7,33E-06	3,81E-05	2,07E-04	1,68E-05	-1,67E-04
 NRSF	MJ	3,21E-03	2,27E-04	9,57E-05	-1,10E-04	1,36E-04	-1,28E-05	3,62E-05	-1,71E-04
 FW	m ³	7,24E-03	1,32E-05	1,66E-04	2,83E-06	7,94E-06	3,40E-05	2,78E-05	-1,28E-03

PERE Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM Use of renewable primary energy resources used as raw materials; PERT Total use of renewable primary energy resources; PENRE Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM Use of non renewable primary energy resources used as raw materials; PENRT Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; FW Use of net fresh water

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

End of life - Waste






Parameter		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	HWD	kg	9,28E-04	6,41E-06	2,41E-04	1,62E-06	3,85E-06	1,98E-06	1,59E-06	-8,40E-06
	NHWD	kg	5,44E-02	6,01E-03	3,18E-02	6,52E-05	3,60E-03	6,26E-05	1,00E-01	-2,55E-04
	RWD	kg	2,00E-05	8,57E-07	1,99E-07	3,82E-07	5,14E-07	2,10E-07	1,47E-07	-2,76E-07

HWD Hazardous waste disposed; NHWD Non-hazardous waste disposed; RWD Radioactive waste disposed;

*Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow

Parameter		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	CRU	kg	1,22E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	8,11E-04	0,00E+00	3,85E-02	2,66E-05	0,00E+00	9,00E-01	8,92E-06	-1,65E-06
	MER	kg	2,05E-04	0,00E+00	1,03E-06	8,23E-08	0,00E+00	2,07E-06	1,68E-07	-6,17E-05
	EEE	MJ	5,66E-04	0,00E+00	1,60E-02	2,82E-07	0,00E+00	3,55E-06	1,39E-05	-1,49E-05
	EET	MJ	8,56E-03	0,00E+00	2,42E-01	4,27E-06	0,00E+00	5,38E-05	2,10E-04	-2,25E-04

CRU Components for re-use; MFR Materials for recycling; MER Materials for energy recovery; EEE Exported electrical energy; EET Exported energy Thermal

*Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

Biogenic Carbon Content

Parameter	Unit	At the factory gate
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in accompanying packaging	kg C	2,08E-02

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

Additional Norwegian requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Data source	Amount	Unit
Renewable electricity Saint-Gobain, based on 100% hydro power, with Guarantee of Origin from LOS 2021 (kWh)	ecoinvent 3.6	4,26	g CO ₂ -eq/kWh

Dangerous substances

The product contains dangerous substances, more than 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.

Name	CASNo	Amount
Cement	65997-15-1	25-50%
calciumoxid	1305-78-8	1-2%
Flue dust, cement	68475-76-3	5-10%

Indoor environment

No test performed

Additional Environmental Information

Environmental impact indicators EN 15804+A1 and NPCR Part A v2.0									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq	6,02E-01	8,25E-03	5,13E-03	3,95E-03	4,95E-03	6,30E-04	8,04E-04	-2,20E-03
ODP	kg CFC11 -eq	2,54E-08	1,50E-09	3,49E-10	6,86E-10	9,00E-10	1,56E-10	2,50E-10	-3,42E-10
POCP	kg C ₂ H ₄ -eq	1,61E-04	1,10E-06	8,13E-07	6,09E-07	6,61E-07	1,40E-07	1,89E-07	-4,59E-07
AP	kg SO ₂ -eq	2,23E-03	1,64E-05	6,74E-06	5,84E-06	9,82E-06	2,37E-06	2,23E-06	-5,39E-06
EP	kg PO ₄ ³⁻ -eq	2,08E-04	1,75E-06	3,06E-06	6,50E-07	1,05E-06	3,13E-07	2,64E-07	-6,32E-07
ADPM	kg Sb -eq	3,51E-05	2,26E-07	4,19E-08	6,14E-09	1,35E-07	8,11E-09	7,39E-09	-1,83E-07
ADPE	MJ	7,36E+00	1,23E-01	3,13E-02	5,47E-02	7,39E-02	7,62E-03	2,16E-02	-3,49E-02
GWPIOBC	kg CO ₂ -eq	7,82E-01	8,34E-03	3,29E-04	5,37E+00	5,00E-03	0,00E+00	0,00E+00	-2,20E-03

Bibliography

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 NPCR Part A: Construction products and services. Ver. 2.0, 24.03.2021 EPD Norway.
 NPCR 009 Part B for technical-chemical products. Ver. 2.0 October 2021, EPD-Norge.

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