

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Saint-Gobain Byggevarer as The Norwegian EPD Foundation
Program operator:	The Norwegian EPD Foundation
Publisher:	Norwegian EPD Foundation
Declaration number:	NEPD-1957-864-EN
Registration number:	NEPD-1957-864-EN
ECO Platform reference number:	-
Issue date:	12.12.2019
Valid to:	12.12.2024

weber Murmørtel M5

Saint-Gobain Byggevarer as



www.epd-norge.no



General information

Product:

weber Murmørtel M5

Program operator:

The Norwegian EPD Foundation
 Pb. 5250 Majorstuen, 0303 Oslo
 Phone: +47 97722020
 e-mail: post@epd-norge.no

Declaration number:

NEPD-1957-864-EN

ECO Platform reference number:
This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR.
 PCR-PART A: Construction products and services, and PCR-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 Murmørtel M5

Declared unit with option:

A1,A2,A3,A4

Functional unit:
Verification:

Independent verification of data, other environmental information and the declaration according to ISO14025:2010, § 8.1.3 and § 8.1.4

External

Third party verifier:

Sign



Senior Research Scientist, Anne Rønning

(Independent verifier approved by EPD Norway)

Owner of the declaration:

Saint-Gobain Byggevarer as
 Contact person: Line Holaker
 Phone: +47 41 63 50 46
 e-mail: [info\(at\)weber-norge.no](mailto:info(at)weber-norge.no)

Manufacturer:

Saint-Gobain Byggevarer as

Place of production:

Saint-Gobain Byggevarer - Ski, Norway

Management system:

ISO 9001, ISO 14001

Organisation no:

940 198 178

Issue date: 12.12.2019

Valid to: 12.12.2024

Year of study:

2019

Comparability:

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

Author of the Life Cycle Assessment:

The declaration is developed using eEPD v3.0 from LCA.no

Approval:

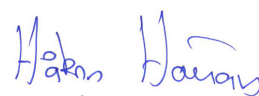
Company specific data are:

Collected/registered by: Line Holaker

Internal verification by: Anne Kaiser

Approved:

Sign



Håkon Hauan
 Managing Director of EPD-Norway

Product

Product description:

weber Murmørtel M5 is a dry mortar based on cement, lime and sand. When mixed with water, it is a ready-to-use mortar for indoor and outdoor use. weber Murmørtel M5 can be used for traditional bricklaying with a spoon or with Leca Mørtelkasse for quick laying of Leca blocks. The mortar is also pumpable. weber Murmørtel M5 is well suited for most masonry and rendering work with bricks, Leca® and concrete blocks.

Product specification

The composition of the product is described in the following table:

Materials	%
Binder	10-30
Aggregate	60-90
Filler	1-10
Additives	<0,1
Packaging	2-3

Technical data:

Mortar class M5 (EN 998-2).
Compressive strength 28 days: > 5 MPa.
Flexural strength 28 days: > 2,2 MPa.
The production of weber Murmørtel M5 is certified according to EN 998-2. For further information see www.weber-norge.no

Market:

Norway

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 Murmørtel M5

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.

Machines and facilities (capital goods) required for and during production are excluded, as is transportation of employees.

Data quality:

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

Plant manufacturing data is collected from previous year. Waste data from the process is an average value from the last 5 years.

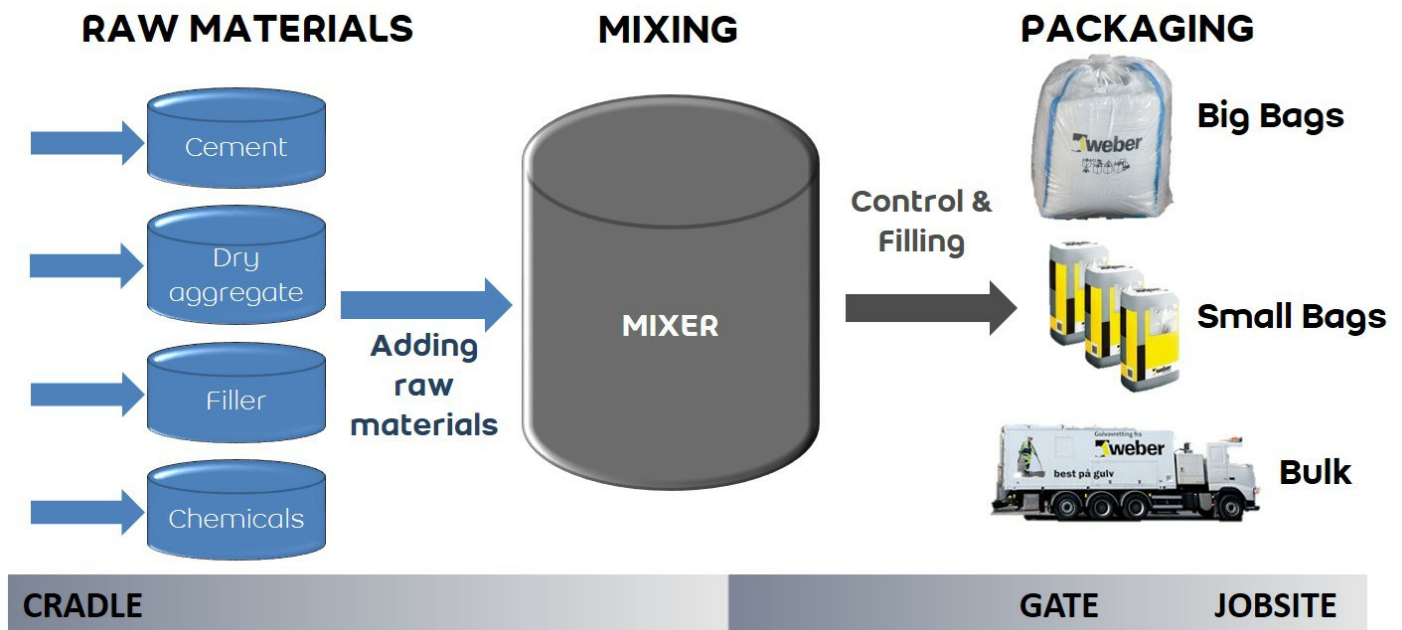
The calculations are based on production in Ski, and delivery in 25 kg plastic bags. Transportation used in A4 is 30 km.

Materials	Source	Data quality	Year
Chemicals	Chemicals below cut-off	No data	0
Filler	Østfoldforskning	Supplier data	2013
Cement	NEPD-1217-383	EPD	2015
Aggregate	Østfoldforskning	Database	2016
Filler	Østfoldforskning	Supplier specific	2016
Packaging	ecoinvent 3.4	Database	2017
Packaging	Modified ecoinvent 3.4	Database	2017

System boundary:

All processes from raw material extraction to product transport to the construction site are included in the analysis (A1-A4).

The flow chart below illustrates the system boundaries for the A1 to A3 part of the analysis. Transportation from production plant to Oslo is included in A4.



Additional technical information:

2 kg dry mortar gives approximately 1 liter of final product. The remaining powder is classified as hazardous waste. Cured material is inactive and not classified as hazardous waste and may be disposed as construction waste to disposal or recycling. The packaging properly emptied is not classified as hazardous waste.

The LCA calculation has been made taking into account the fact that during the manufacturing process it is used 100% renewable electricity. This 100% renewable electricity bought is evidenced by Guarantee of Origin certificates (GOs), valid for the period chosen in the calculation (2019).

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)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	55,0 %	Truck, lorry over 32 tonnes, EURO 6	30	0,022606	l/tkm	0,68
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Assembly (A5)			Use (B1)			
.	Unit	Value	.	Unit	Value	
Auxiliary	kg					
Water consumption	m ³					
Electricity consumption	kWh					
Other energy carriers	MJ					
Material loss	kg					
Output materials from waste treatment	kg					
Dust in the air	kg					
VOC emissions	kg					
Maintenance (B2)/Repair (B3)			Replacement (B4)/Refurbishment (B5)			
.	Unit	Value	.	Unit	Value	
Maintenance cycle*			Replacement cycle*			
Auxiliary			Electricity consumption	kWh		
Other resources			Replacement of worn parts			
Water consumption	m ³		* Described above if relevant			
Electricity consumption	kWh					
Other energy carriers	MJ					
Material loss	kg					
VOC emissions	kg					
Operational energy (B6) and water consumption (B7)			End of Life (C1, C2)			
.	Unit	Value	.	Unit	Value	
Water consumption	m ³		Hazardous waste disposed	kg		
Electricity consumption	kWh		Collected as mixed construction waste	kg		
Other energy carriers	MJ		Reuse	kg		
Power output of equipment	kW		Recycling			
			Energy recovery			
			To landfill	kg		
Transport to waste processing (C2)						
Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck					l/tkm	
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

LCA: Results

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

Product stage				Construction installation stage	User 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	D	
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	

Environmental impact

Parameter	Unit	A1	A2	A3	A4
GWP	kg CO ₂ -eq	1,42E-01	8,74E-03	2,02E-03	2,48E-03
ODP	kg CFC11 -eq	1,76E-09	1,79E-09	3,30E-10	5,10E-10
POCP	kg C ₂ H ₄ -eq	1,73E-05	1,38E-06	3,15E-07	3,88E-07
AP	kg SO ₂ -eq	1,52E-04	2,43E-05	8,49E-06	6,41E-06
EP	kg PO ₄ ³⁻ -eq	1,60E-04	3,73E-06	1,59E-06	8,84E-07
ADPM	kg Sb -eq	5,21E-08	1,98E-08	4,39E-09	5,91E-09
ADPE	MJ	8,22E-01	1,43E-01	2,63E-02	4,08E-02

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

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

*INA Indicator Not Assessed

Resource use

Parameter	Unit	A1	A2	A3	A4
RPEE	MJ	5,23E-01	2,53E-03	3,26E-02	7,41E-04
RPEM	MJ	3,94E-01	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	9,18E-01	2,53E-03	3,26E-02	7,41E-04
NRPE	MJ	8,73E-01	1,47E-01	2,84E-02	4,20E-02
NRPM	MJ	1,42E-01	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	1,01E+00	1,47E-01	2,84E-02	4,20E-02
SM	kg	2,25E-03	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	5,64E-06	0,00E+00
NRSF	MJ	2,88E-01	0,00E+00	0,00E+00	0,00E+00
W	m ³	1,81E-03	3,41E-05	5,13E-06	9,95E-06

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE 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; W Use of net fresh water

Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

End of life - Waste

Parameter	Unit	A1	A2	A3	A4
HW	kg	4,42E-05	7,76E-08	1,40E-08	2,24E-08
NHW	kg	1,34E-02	1,30E-02	5,17E-03	3,84E-03
RW	kg	INA*	INA*	INA*	INA*

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

End of life - Output flow

Parameter	Unit	A1	A2	A3	A4
CR	kg	0,00E+00	0,00E+00	2,96E-04	0,00E+00
MR	kg	6,02E-05	0,00E+00	2,94E-05	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	INA*	INA*	INA*	INA*
ETE	MJ	INA*	INA*	INA*	INA*

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$

*INA Indicator Not Assessed

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
El-mix, Norway (kWh)	ecoinvent 3.4	31,04	g CO2-ekv/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskriften, Annex III), see table.





Name	CASNo	Amount
Portland Cement	65997-15-1	10-30%
Calcium hydroxide	1305-62-0	1-5%

Indoor environment

The product has no impact on the indoor environment.

Bibliography

- ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
 ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
 EN 15804:2012+A1:2013 Environmental product declaration - Core rules for the product category of construction products.
 ISO 21930:2017 Sustainability in buildings and civil engineering works. Core rules for environmental product declarations of construction products.
 ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.
 Iversen et al., (2018) eEPD v3.0 - Background information for EPD generator system, LCA.no report number 04.18
 Iversen et al., (2019) EPD generator for Saint-Gobain Weber and Scanspac - Background information and LCA data, LCA.no report number 05.18
 NPCR Part A: Construction products and services. Ver. 1.0. April 2017, EPD-Norge.
 NPCR 009 Part B for technical-chemical products. Ver. 1.0 June 2018, EPD-Norge.

	epd-norge.no The Norwegian EPD Foundation	Program operator and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo 0303 Oslo Norway Phone: +47 97722020 e-mail: post@epd-norge.no web: www.epd-norge.no
	Owner of the declaration Saint-Gobain Byggevarer as P.O. Box 216 Alnabru 0614 Oslo, Norway	Phone: +47 41 63 50 46 Fax: +47 22 64 54 54 e-mail: info(at)weber-norge.no web: www.weber-norge.no
	Author of the Life Cycle Assessment LCA.no AS Dokka 1C 1671 Kråkerøy	Phone: +47 916 50 916 Fax: e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 1C 1671 Kråkerøy	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no