

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:

Program operator:

Publisher:

Declaration number:

Registration number:

ECO Platform reference number:

Issue date: Valid to: Saint-Gobain Byggevarer as The

Norwegian EPD Foundation The

Norwegian EPD Foundation

NEPD-1957-864-EN

NEPD-1957-864-EN

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12.12.2019

12.12.2024

weber Murmørtel M5

Saint-Gobain Byggevarer as



www.epd-norge.no



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General information Owner of the declaration: Product: weber Murmørtel M5 Saint-Gobain Byggevarer as Contact person: Line Holaker Phone: +47 41 63 50 46 e-mail: info(at)weber-norge.no Program operator: Manufacturer: The Norwegian EPD Foundation Saint-Gobain Byggevarer as Pb. 5250 Majorstuen, 0303 Oslo Phone: +47 97722020 e-mail: post@epd-norge.no Place of production: **Declaration number:** NEPD-1957-864-EN Saint-Gobain Byggevarer - Ski, Norway Management system: ECO Platform reference number: ISO 9001, ISO 14001 This declaration is based on Product Category Rules: Organisation no: 940 198 178 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: Issue date: 12.12.2019 The owner of the declaration shall be liable for the underlying Valid to: 12.12.2024 information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences. **Declared unit:** Year of study: 2019 1 kg weber Murmørtel M5 Declared unit with option: Comparability: EPD of construction products may not be comparable if they not A1,A2,A3,A4 comply with EN 15804 and seen in a building context. **Functional unit:** Author of the Life Cycle Assessment: The declaration is developed using eEPD v3.0 from LCA.no Company specific data are: Collected/registered by: Line Holaker Internal verification by: Anne Kaiser Verification: Approved: 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:

Senior Research Scientist, Anne Rønning

(Independent verifier approved by EPD Norway)

Håkon Hauan Managing Director of EPD-Norway

Sign



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.

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. 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.

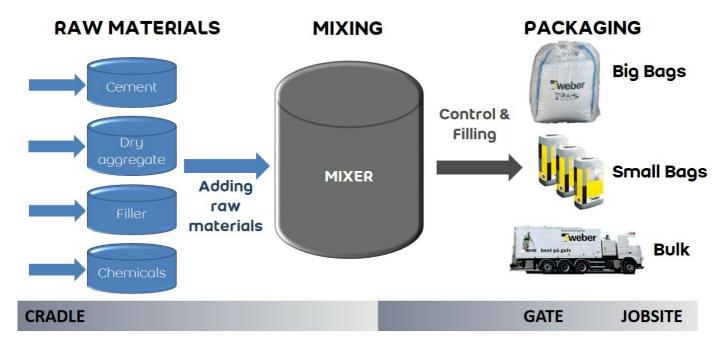
Materials	Source	Data quality	Year
Chemicals	Chemicals below cut-off	No data	0
Filler	Østfoldforskning	Supplier data	2013
Cement	NEPD-1217-383	EPD	2015
Aggregate	Østfoldforskning	Database	2016
Filler	Østfoldforskning	Supplier specific	2016
Packaging	ecoinvent 3.4	Database	2017
Packaging	Modified ecoinvent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

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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)

Туре	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (I/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		1		
Other energy carriers	MJ				
Material loss	kg		1		
Output materials fr ste treatment	kg		1		
Dust in the air	kg				
VOC emissions	kg		1		
Maintenance (B2)/Repair (B3)			Replacement (B4)/Refurbishment (B5)		
	Unit	Value		Unit	Value
Maintenance cycle*	2.CO		Replacement cycle*		
Auxiliary	cha.		Electricity consumption	kWh	
Other resources	4/ic)_	Replacement of worn parts		
Water consumption	m ³	36	* Described above if relevant	-	
Electricity consumption	kWh	.,(6	r -		
Other energy carriers	MJ		47		
Material loss	kg		'Aa		
VOC emissions	kg		dra		
Operational energy (B6) and water consumpt	ion (B7)		Replacement (B4)/Refurbishment (B5) Replacement cycle* Electricity consumption Replacement of worn parts Described above if relevant A 7 A 4 A 6 End of Life (C1, C) A 7 A 7 A 7 A 7 A 7 A 7 A 7 A 7 A 7 A		
	Unit	Value	in	Unit	Value
Water consumption	m ³		Hazardous waste disposed	kg	
Electricity consumption	kWh		Collected as mixed construction was	kg	
Other energy carriers	MJ		Reuse	kg	
Power output of equipment	R/V		Recycling		
			Energy recovery		
			To landfill	kg	

Transport to waste processing (C2)

Туре	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (I/t)
Truck					I/tkm	
Railway					I/tkm	
Boat			3		I/tkm	
Other Transportation					I/tkm	

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LCA: Results

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

Pro	oduct sta	age	instal	ruction llation age			U	lser staç	je				End of I	ife stage	9	Beyond the system bondaries
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	А3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	. D
Х	Х	Х	Х	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	. MND

Environmental impact

Parameter	Unit	A1	A2	А3	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
АР	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

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Resource use

Parameter	Unit	A1	A2	А3	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*10-3 = 0.009

*INA Indicator Not Assessed

End of life - Waste

Parameter	Unit	A1	A2	А3	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*10-3 = 0,009

*INA Indicator Not Assessed

End of life - Output flow

Parameter	Unit	A1	A2	А3	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*10-3 = 0.009

*INA Indicator Not Assessed

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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

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NPCR 009 Part B for technical-chemical products. Ver. 1.0 June 2018, EPD-Norge.

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