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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Saint Gobain Denmark A/S -Weber
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-1731-710-EN
Registration number:	NEPD-1731-710-EN
ECO Platform reference number:	-
Issue date:	02.04.2019
Valid to:	02.04.2024

Funktionsmørtel FM5

Saint Gobain Denmark A/S -Weber

www.epd-norge.no

General information

Product:

Funktionsmørtel FM5

Owner of the declaration:

Saint Gobain Denmark A/S -Weber
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Program operator:

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Manufacturer:

Saint Gobain Denmark A/S -Weber

Declaration number: NEPD-1731-710-EN

Place of production:

Saint Gobain Weber Karlstrup, Denmark

ECO Platform reference number:

Management system:

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

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR.

Organisation no:

59 98 30 16

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.

Issue date: 02.04.2019

Valid to: 02.04.2024

Declared unit:

1 kg Funktionsmørtel FM5

Year of study:

2019

Declared unit with option:

A1,A2,A3

Comparability:

EPD of construction products may not be comparable if they not 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
Approval:
Company specific data are:

Collected/registered by: Chi – Manh Tran

Internal verification by: Jens Kristian Rønde

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)

Approved:

Sign

Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

The weber FM5 functional mortar is used as a wall and joint mortar for brick and light clay concrete brickwork. It can be used for pudding on concrete, brick and light clinker substrates.
It is a factory-made dry mortar that is only required to add water before use. Its composition ensures significantly better material properties than the traditional mortar types among others in terms of shorter mixing time, improved machinability and higher adhesion strength.

Product specification

Materials	
Binders	7-14 %
Fillers	80-88 %
Additives and packaging	<3 %

Technical data:

Mortar group: M5
Compressive strength 28 days >5 MPa
Flexural strength 28 days > 0,25 MPa
The production of Funktionsmørtel FM5 is certified according to EN 998-2.
For further information, see www.weber.dk

Market:

Denmark

Reference service life, product

Not declared

Reference service life, building

Not declared

LCA: Calculation rules

Declared unit:

1 kg Funktionsmørtel FM5

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.

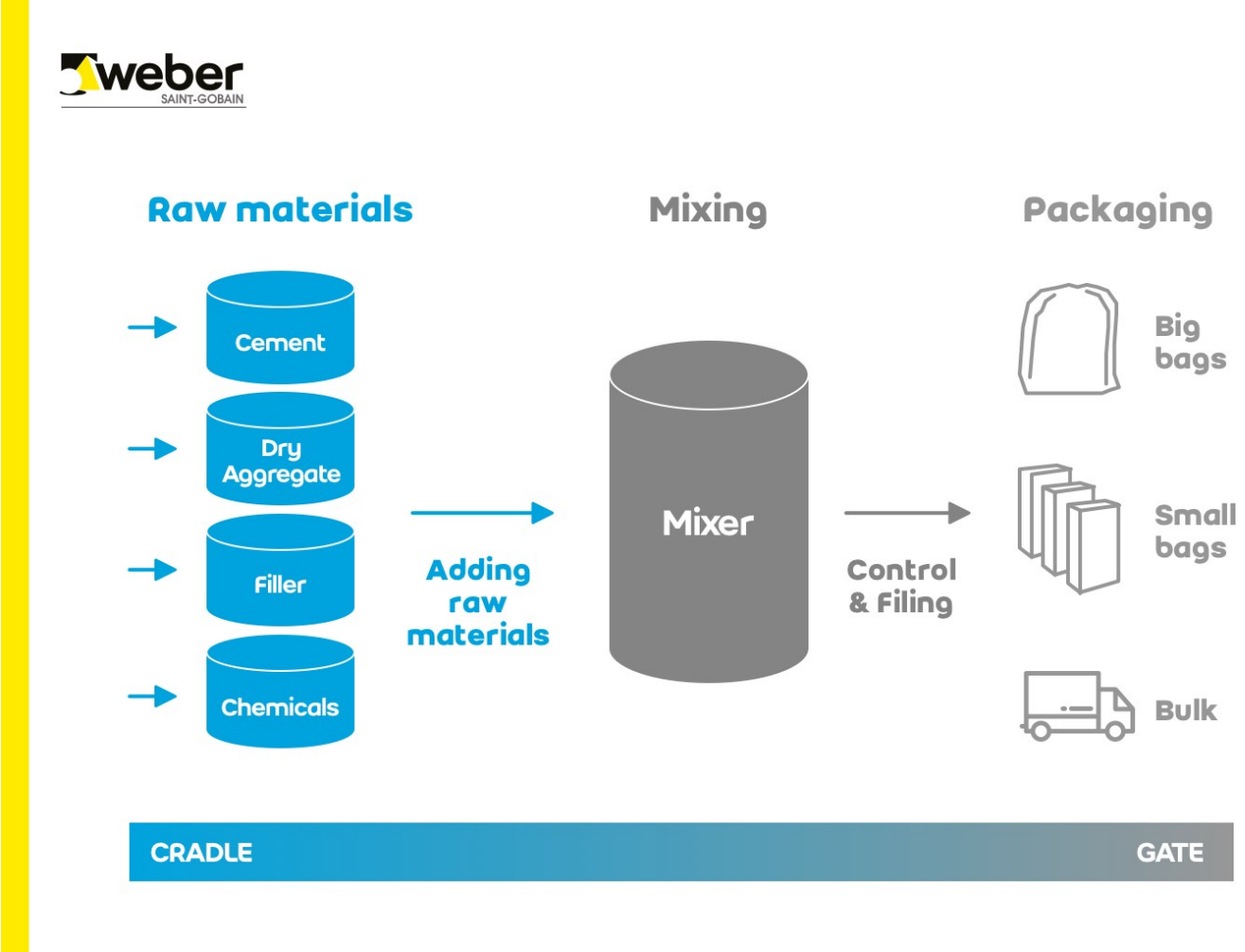
Data quality:

Specific data for the product composition are provided by the manufacturer. 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.

Materials	Source	Data quality	Year
Aggregate	Østfoldforskning	Database	2016
Filler	ecoinvent 3.4	Database	2017
Packaging	ecoinvent 3.4	Database	2017
Packaging	Modified ecoinvent 3.4	Database	2017
Cement	NEPD-1419-466	EPD	2017
FMK	Owner of EPD	Database	
FML	Owner of EPD	Database	

System boundary:

This is a cradle to gate (A1-A3) EPD with no declared modules after the factory gate. Transport from place of production to user (A4) has to be calculated by the user.



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)

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	

Assembly

.	Unit	Value
Auxiliary	kg	
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss		
Output materials from waste treatment		
Dust in the air		
VOC emissions		

Use (B1)

.	Unit	Value

Maintenance (B2)/Repair (B3)

.	Unit	Value
Maintenance cycle*	-	
Auxiliary	kg	
Other resources	kg	
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
VOC emissions	kg	

ment (B4)/Refurbishment (B5)

.	Unit	Value
Re		
Electric	kWh	
Replacement		

* Described above

Operational energy (B6) and water consumption (B7)

.	Unit	Value
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Power output of equipment	kW	

End of Life (C1, C3, C4)

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction waste	kg	
Reuse	kg	
Recycling	kg	
Energy recovery	kg	
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	

Scenarios after A1-A3 are not included

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 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	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	.	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	.	MND

Environmental impact

Parameter	Unit	A1-A3
GWP	kg CO_2 -eq	1,44E-01
ODP	kg CFC11 -eq	4,26E-09
POCP	kg C_2H_4-eq	1,29E-05
AP	kg SO_2 -eq	2,48E-04
EP	kg PO_4^{3-} -eq	8,59E-05
ADPM	kg Sb -eq	1,31E-07
ADPE	MJ	9,19E-01

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-A3
RPEE	MJ	7,60E-01
RPEM	MJ	1,12E-01
TPE	MJ	8,72E-01
NRPE	MJ	9,87E-01
NRPM	MJ	2,83E-02
TRPE	MJ	1,02E+00
SM	kg	3,55E-02
RSF	MJ	5,50E-02
NRSF	MJ	6,15E-02
W	m^3	2,91E-03

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-A3
HW	kg	2,10E-04
NHW	kg	3,47E-02
RW	kg	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-A3
CR	kg	0,00E+00
MR	kg	5,66E-03
MER	kg	6,00E-05
EEE	MJ	INA*
ETE	MJ	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

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
Electricity, Denmark (kWh)	ecoinvent 3.4 Alloc Rec	395,53	g CO2-ekv/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

Indoor environment

No test performed

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.
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Iversen et al., (2018) eEPD v3.0 - Background information for EPD generator system.

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