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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 Finland Oy
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
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Issue date:	08.04.2021
Valid to:	08.04.2026

webervetonit 4601 Industry Base Extra (webervetonit 4601 Teollisuus Pohja Plaano)

Saint-Gobain Finland Oy

www.epd-norge.no

General information

Product:

webervetonit 4601 Industry Base Extra (webervetonit 4601 Teollisuus Pohja Plaano)

Owner of the declaration:

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Manufacturer:

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P.O. Box 70, Fi-00381 Helsinki
Finland

Declaration number:

NEPD-2779-1470-EN

Place of production:

Saint-Gobain Finland Oy
P.O. Box 70, Fi-00381 Helsinki
Finland

ECO Platform reference number:

Management system:

ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007

This declaration is based on Product Category Rules:

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

NPCR 009:2018 Part B for Technical - Chemical products in the building and construction industry

Organisation no:

FI09515553

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: 08.04.2021

Valid to: 08.04.2026

Declared unit:

1 kg webervetonit 4601 Industry Base Extra (webervetonit 4601 Teollisuus Pohja Plaano)

Year of study:

2019

Declared unit with option:

A1,A2,A3,A4,A5,C1,C2,C3,C4,D

Comparability:

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

Functional unit:

Functional unit is not used because use stage is not considered.

Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

Developer of EPD:

Riitta Helio

Reviewer of company-specific input data and EPD:

Anne Kaiser

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 i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the proccess is reviewed annualy. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Anne Rønning, Norsus AS

(no signature required)

Approved:

Sign

Håkon Hauan, CEO EPD-Norge

Product

Product description:

webervetonit 4601 Industry Base Extra is hand applicable and pumpable, fast-setting, low-alkaline, fiber-reinforced cementitious concrete floor screed without casein for industrial floor levelling in industrial spaces with light loads (pallet jacks, pedestrian, etc.) and where surface finishing is done with epoxy or polyurethane coatings. The product is suitable for medium load flooring as a levelling screed for webervetonit 4650, webervetonit 4655 and weberfloor 4630. Coating with epoxy or acrylic coatings after 1-3 days. Delivered in 20 kg bags, 1000 kg big bags and as bulk in silos.

Product specification

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

Materials	%
Binder	10-30%
Aggregate	40-65%
Filler	20-35%
Additives	1-5%

Technical data:

webervetonit 4601 Industry Base Extra is produced according to the requirements of EN 13813 (Screed material and floor screeds - Screed materials).

Density: 1.6 - 1.8 kg/dm3.
Recommended layer thickness: 5-30 mm.
Consumption: 1,8 kg/m²/ 1 mm

More information: https://www.fi.weber/lattiaratkaisut-ja-tuotteet/teollisuus-ja-varilliset-lattiatuotteet/webervetonit-4601-teollisuus-pohja-plaano

Market:

Nordic and Baltic countries.

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 webervetonit 4601 Industry Base Extra (webervetonit 4601 Teollisuus Pohja Plaano)

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 the 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 for 2019. Raw materials, transport and production volumes are also for 2019.

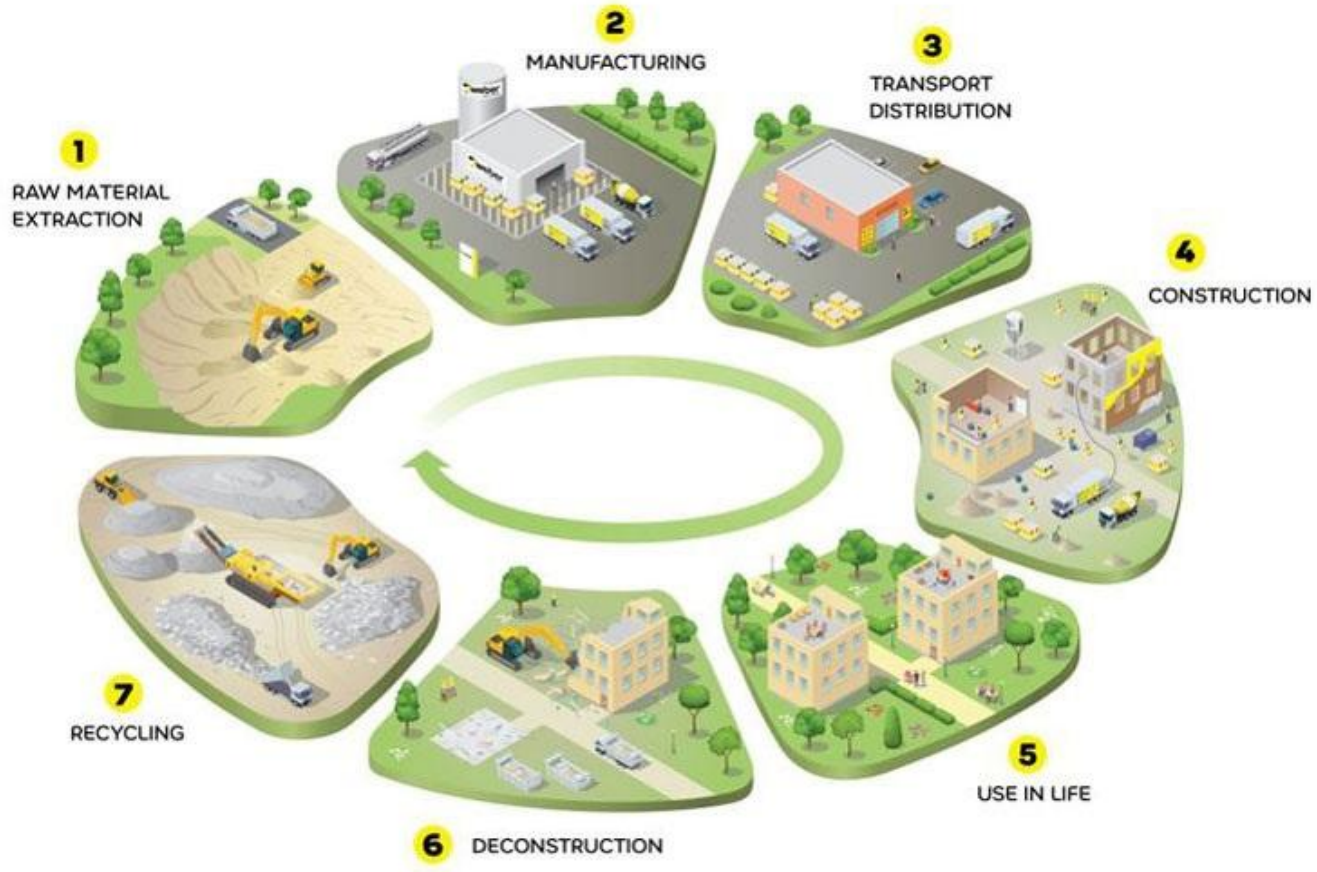
Materials	Source	Data quality	Year
Chemicals	Chemicals below cut-off	No data	0
Binder	EPD-BVG-20140073-IAG1-EN	EPD	2014
Additives	ecoinvent 3.4	Database	2017
Aggregate	ecoinvent 3.4	Database	2017
Filler	ecoinvent 3.4	Database	2017
Packaging	ecoinvent 3.4	Database	2017
Packaging	Modified ecoinvent 3.4	Database	2017
Cement	Supplier	EPD	2019

System boundary:

All processes from raw material extraction to product transport to the construction site and assembly are included in the analysis as well as end of life stage and phases beyond the system boundary (A1 - A5, C1-C4, D). The basic production process comprises mixing of raw materials together. Raw materials are cement, aggregate, filler and additives delivered as bulk, big bags or smaller bags from EU. Ready mixed product then packed to small bags, big bags or in silos for bulk deliveries. Floor screeds are also delivered as bulk, where only water is added to pump truck silo being ready for the installation.

Floor screed doesn't require any maintenance during the use stage, so stage B is not considered. When building is demolished at the end-of-life floor structure with floor screed integrated into concrete slab are crushed. 90 % of crushed concrete is recycled and used to replace natural gravel in soil construction, remaining 10% being disposed into landfill.

System boundaries (cradle-to-gate with options) are illustrated in the picture below.



Additional technical information:

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) from LOS, 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 distance to the construction site (A4) is estimated to be 90 km from the manufacturing site (Kiikala – Helsinki). It is assumed that all the demolition waste is collected and 90% of crushed concrete is recycled and 10% is disposed into landfill. Transport distance to processing is estimated to be < 30 km.

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 5	90	0,022823	l/tkm	2,05
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m^3	
Electricity consumption	kWh	0,0021
Other energy carriers	MJ	
Material loss	kg	
Output materials from waste treatment	kg	0,0299
Dust in the air	kg	
VOC emissions	kg	

End of Life (C1, C3, C4)

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction waste	kg	
Reuse	kg	
Recycling	kg	0,8928
Energy recovery	kg	
To landfill	kg	0,0992

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	38,8 %	Truck, lorry 16-32 tonnes, EURO 5	30	0,044606	l/tkm	1,34
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

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Benefits and loads beyond the system boundaries (D)

.	Unit	Value
Substitution of primary aggregates with crushed recycled cement-based products (kg)	kg	0,89

LCA: Results

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

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	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	.	X

Environmental impact

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	2,80E-01	7,85E-03	1,92E-03	3,96E-03	4,88E-03	7,77E-04	5,14E-04	-3,54E-03
ODP	kg CFC11 -eq	1,17E-08	1,53E-09	2,45E-10	6,86E-10	9,00E-10	1,54E-10	1,70E-10	-4,59E-10
POCP	kg C_2H_4-eq	6,39E-05	1,27E-06	3,38E-07	6,63E-07	7,95E-07	1,43E-07	1,57E-07	-9,23E-07
AP	kg SO_2 -eq	7,03E-04	2,55E-05	8,16E-06	2,99E-05	1,56E-05	3,93E-06	3,75E-06	-2,05E-05
EP	kg PO_4^{3-} -eq	2,10E-04	4,28E-06	1,86E-06	6,53E-06	2,58E-06	6,96E-07	6,62E-07	-3,64E-06
ADPM	kg Sb -eq	1,75E-06	1,77E-08	3,46E-09	1,70E-11	1,49E-08	4,80E-11	1,00E-11	-1,90E-10
ADPE	MJ	3,39E+00	1,23E-01	1,87E-02	5,47E-02	7,35E-02	7,55E-03	1,44E-02	-3,78E-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-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	1,38E+00	2,23E-03	3,24E-01	3,00E-04	1,07E-03	1,01E-02	1,18E-04	-1,27E-02
RPEM	MJ	5,29E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,90E+00	2,23E-03	3,24E-01	3,00E-04	1,07E-03	1,01E-02	1,18E-04	-1,27E-02
NRPE	MJ	3,61E+00	1,27E-01	3,56E-02	5,52E-02	7,53E-02	1,98E-02	1,47E-02	-5,21E-02
NRPM	MJ	1,55E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	3,62E+00	1,27E-01	3,56E-02	5,52E-02	7,53E-02	1,98E-02	1,47E-02	-5,21E-02
SM	kg	5,08E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	4,63E-02	0,00E+00	4,04E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	3,76E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	1,90E-03	2,99E-05	2,39E-04	4,75E-06	1,41E-05	4,96E-06	1,59E-05	-1,03E-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	A4	A5	C1	C2	C3	C4	D
HW	kg	8,22E-05	6,75E-08	4,00E-08	1,50E-07	4,40E-08	1,83E-08	2,18E-08	-2,09E-07
NHW	kg	6,48E-02	1,15E-02	1,43E-03	2,50E-04	3,96E-03	2,23E-04	9,92E-02	-1,84E-03
RW	kg	INA*	INA*	INA*	INA*	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-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	4,65E-05	0,00E+00	7,43E-03	0,00E+00	0,00E+00	8,93E-01	0,00E+00	0,00E+00
MER	kg	3,22E-04	0,00E+00	2,25E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	INA*	INA*	INA*	INA*	INA*	INA*	INA*	INA*
ETE	MJ	INA*	INA*	INA*	INA*	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

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, with Guarantee of Origin from LOS 2018 (kWh)	Saint-Gobain	54,39	g CO2-ekv/kWh

Dangerous substances

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

Indoor environment

Regarding indoor air quality webervetonit 4601 Industry Base Extra has a M1 indoor air emission classification granted by the Finnish Building Information Foundation RTS (https://www.rakennustieto.fi/index/tuotteet/m1_luokitukset.html).

Bibliography

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