epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

weber ML 5 T Tight Masonry Mortar M100/600 (weber ML 5 T Tiivismuurauslaasti M100/600)

The Norwegian EPD Foundation

Owner of the declaration:
Saint-Gobain Finland Oy

Product:
weber ML 5 T Tight Masonry Mortar M100/600 (weber ML 5 T Tiivismuurauslaasti M100/600)

Declared unit:
1 kg

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 009:2021 Part B for Technical - Chemical products for building and construction industry

Program operator:
The Norwegian EPD Foundation

Declaration number:

NEPD-4862-4110-EN

Registration number:

NEPD-4862-4110-EN

Issue date: 28.08.2023

Valid to: 28.08.2028

EPD Software:
LCA.no EPD generator ID: 64817

General information

Product

weber ML 5 T Tight Masonry Mortar M100/600 (weber ML 5 T Tiivismuurauslaasti M100/600)

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
Phone: +47 23 08 80 00
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Declaration number:

NEPD-4862-4110-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 009:2021 Part B for Technical - Chemical products for 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 ML 5 T Tight Masonry Mortar M100/600 (weber ML 5 T Tiivismuurauslaasti M100/600)

Declared unit with option:

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

Functional unit:

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

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. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. 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.

Third party verifier:

Anne Rønning, Norsus AS

(no signature required)

Owner of the declaration:

Saint-Gobain Finland Oy
Contact person: Anne Kaiser
Phone: +358400289933
e-mail: anne.kaiser@saint-gobain.com

Manufacturer:

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

Place of production:

Saint-Gobain Weber Ojakkala
Kehätie 1566 A
03250 Ojakkala, Finland

Management system:

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

Organisation no:

FI09515553

Issue date: 28.08.2023

Valid to: 28.08.2028

Year of study:

2022

Comparability:

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

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, 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: Päivi Pesu

Reviewer of company-specific input data and EPD: Helene Løvkvist Andersen

Approved:

Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

weber ML 5 T Tight Masonry Mortar is compact masonry mortar developed for masonry of clay and calcium silicate masonry units in facades exposed to strong slanting rain, e.g. sites located on banks and shore lines, in open places or where higher than usual protection against weather stress is desired for the structure.The product is grey in color. Delivered in 1000 kg bag and bulk. GTIN: 6415990424554 (1000 kg), 6415990123884 (bulk)

Product specification

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

Materials	Value	Unit
Binder	5-10	%
Filler	70-95	%
Additives	0-5	%
Packaging, PP	0,0014	kg

Technical data:

weber ML 5 T Tight Masonry Mortar meets the requirements of SFS-EN 998-2:2016 (Designed, general purpose masonry mortar for internal and external applications in structural masonry).

Water requirement: 3,0-3,5 L/25kg
Material consumption: see Product data sheet for more information.

www.fi.weber/muuraus-ja-rakennelaastit/varilliset-ja-erikoismuurauslaastit/weber-ml-5-t-tiivismuurauslaasti

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 weber ML 5 T Tight Masonry Mortar M100/600 (weber ML 5 T Tiivismuurauslaasti M100/600)

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
Filler	ecoinvent 3.6	Database	2019
Packaging	ecoinvent 3.6	Database	2019
Cement	NEPD-3758-2695-EN	EPD	2022

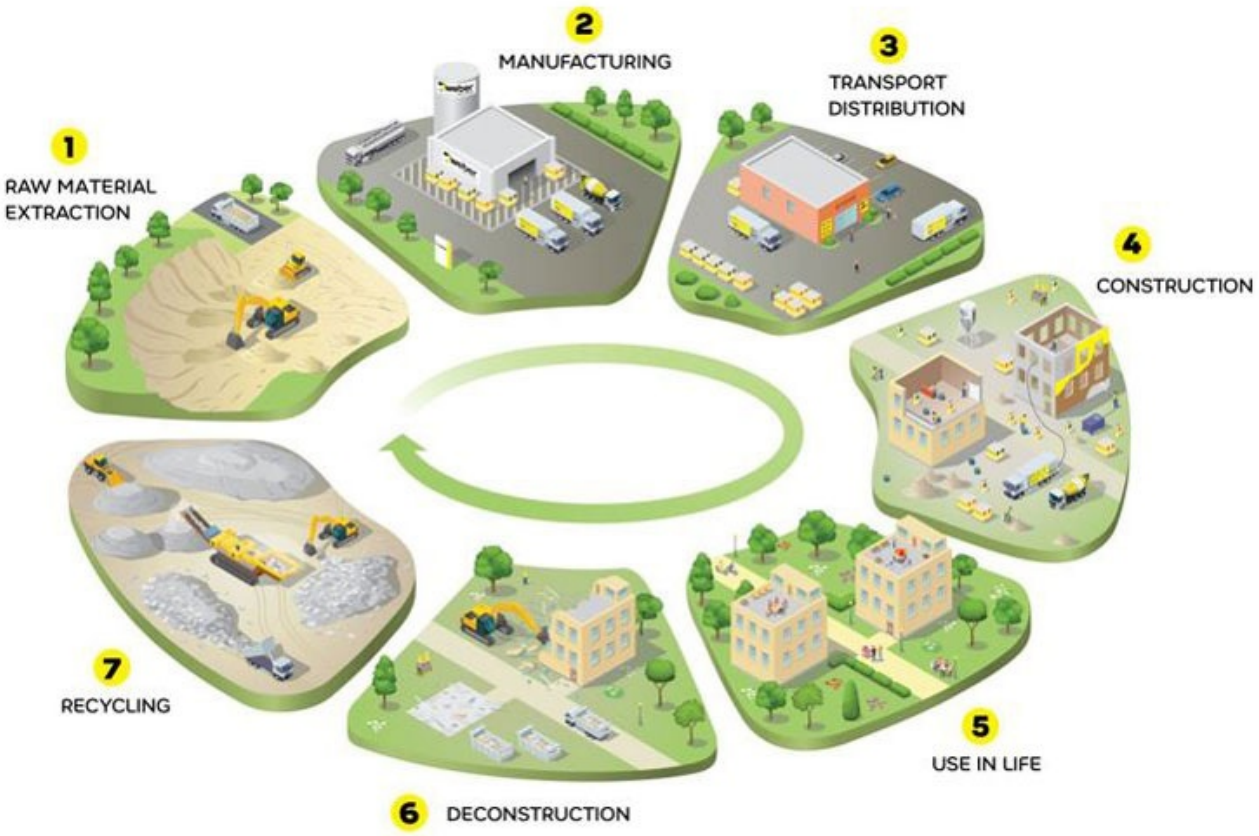
System boundaries (X=included, MND=module not declared, MNR=module not relevant)

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	D
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:

All processes from raw materials extraction to product transportation to the building site, assembly as well as end of life stage and phases beyond the system boundary (A1-A5, C1-C4, D) are included in the analysis.

The basic production process comprises of mixing raw materials together. Ready mixed product is then packed into bags for delivery or delivered as bulk in silos. Most representative packaging is selected for the LCA. At assembly phase, water is added according to the instructions and it is mixed. Stage B is not considered. When building is de-constructed at the end-of-life, the structure with mortar integrated into it is crushed. 90% of crushed material is recycled and used to replace natural gravel in soil construction, remaining 10% being disposed to 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 100% renewable electricity is used. This 100% renewable electricity bought is evidenced by Guarantee of Origin certificates (GOs) from LOS, valid for the study year (2022) and after.

LCA: Scenarios and additional technical information

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

Transportation of product is based on average transportation distance in Finland from the plant (2022). This product may also be delivered to the countries in the table "Additional A4 information". In order to adapt the impact of transportation to these countries, A4 figures from this EPD shall be multiplied by the multiplication factors below.

At installation stage, it is assumed that mixing is done by electric mixer. Electricity mix used is that of Finland. Material loss is considered to be 5%.

At end of life stage, it is assumed that all demolition waste is collected and 90% of crushed building material 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)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, over 32 tonnes, EURO 5 (km)	53,3 %	151	0,023	l/tkm	3,47

Transport from production place to user (A4)	Unit	Value			
Tullinge, Sweden (truck / ferry 519 km)	Multiplication factor GWP/A4	4,06			
Lillestrom, Norway (truck / ferry 1009 km)	Multiplication factor GWP/A4	7,30			
Karlslunde, Denmark (truck / ferry 1174 km)	Multiplication factor GWP/A4	8,39			
Tallinn, Estonia (truck / ferry 152 km)	Multiplication factor GWP/A4	1,13			
Riga, Latvia (truck / ferry 453 km)	Multiplication factor GWP/A4	3,13			
Kaunas, Lithuania (truck / ferry 719 km)	Multiplication factor GWP/A4	4,90			

Assembly (A5)	Unit	Value			
	kg	0,00			
Electricity, Finland (kWh)	kWh/DU	0,00			
Product loss during installation (percentage)	Units/DU	0,05			
Water, tap water (L)	kg/DU	0,14			

De-construction demolition (C1)	Unit	Value			
Demolition of building per kg product (kg)	kg/DU	1,00			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, over 32 tonnes, EURO 5 (km)	53,3 %	30	0,023	l/tkm	0,69

Waste processing (C3)	Unit	Value			
Waste treatment of product after demolition (kg)	kg/DU	0,90			

Disposal (C4)	Unit	Value			
Disposal of product in landfill (kg)	kg/DU	0,10			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary aggregates with crushed recycled inert products (kg)	kg/DU	0,90			

LCA: Results

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

Environmental impact										
	Indicator	**Unit**	A1-A3	A4	A5	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	1,31E-01	1,37E-02	8,34E-03	4,00E-03	2,73E-03	6,48E-04	8,22E-04	-2,10E-03
	GWP-fossil	kg CO_2 -eq	1,26E-01	1,37E-02	8,07E-03	4,00E-03	2,73E-03	6,39E-04	8,20E-04	-2,06E-03
	GWP-biogenic	kg CO_2 -eq	4,04E-03	5,63E-06	2,06E-04	7,50E-07	1,12E-06	5,52E-06	9,58E-07	-4,11E-05
	GWP-luluc	kg CO_2 -eq	1,09E-03	4,01E-06	6,05E-05	3,15E-07	7,96E-07	8,84E-07	2,02E-07	-1,39E-06
	ODP	kg CFC11 -eq	6,93E-09	3,17E-09	6,85E-10	8,64E-10	6,30E-10	1,26E-10	3,11E-10	-3,75E-10
	AP	mol H+ -eq	3,54E-04	5,77E-05	2,66E-05	4,19E-05	1,15E-05	5,17E-06	7,30E-06	-1,85E-05
	EP-FreshWater	kg P -eq	7,88E-07	1,05E-07	7,62E-08	1,46E-08	2,08E-08	4,04E-08	9,30E-09	-5,48E-08
	EP-Marine	kg N -eq	1,40E-04	1,73E-05	9,71E-06	1,85E-05	3,45E-06	1,52E-06	2,71E-06	-6,43E-06
	EP-Terrestial	mol N -eq	1,38E-03	1,92E-04	9,85E-05	2,00E-04	3,81E-05	1,75E-05	2,99E-05	-7,56E-05
	POCP	kg NMVOC -eq	3,60E-04	6,17E-05	2,66E-05	5,57E-05	1,23E-05	4,68E-06	8,56E-06	-2,00E-05
	ADP-minerals&metals[1]	kg Sb -eq	5,02E-07	2,34E-07	4,64E-08	6,14E-09	4,66E-08	8,11E-09	7,39E-09	-1,83E-07
	ADP-fossil[1]	MJ	6,36E-01	2,13E-01	6,67E-02	5,51E-02	4,24E-02	1,98E-02	2,26E-02	-3,49E-02
	WDP[1]	m^3	7,29E+00	1,64E-01	1,40E+00	1,17E-02	3,25E-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 Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"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

Remarks to environmental impacts

Product hardens after 5 to 6 hours from adding water and can then be disposed of as construction waste.

Additional environmental impact indicators

Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	PM	Disease incidence	3,03E-09	1,21E-09	5,04E-10	5,07E-09	2,40E-10	8,30E-11	1,56E-10	-3,95E-10
	IRP[2]	kgBq U235 -eq	2,31E-03	9,33E-04	6,07E-04	2,40E-04	1,85E-04	3,33E-04	1,03E-04	-3,20E-04
	ETP-fw[1]	CTUe	8,03E-01	1,56E-01	6,49E-02	3,01E-02	3,10E-02	1,41E-02	1,23E-02	-3,59E-02
	HTP-c[1]	CTUh	2,40E-11	0,00E+00	1,00E-12	1,00E-12	0,00E+00	1,00E-12	1,00E-12	-2,00E-12
	HTP-nc[1]	CTUh	6,78E-10	1,51E-10	5,50E-11	2,80E-11	3,00E-11	1,30E-11	9,00E-12	-4,40E-11
	SQP[1]	dimensionless	2,31E-01	2,45E-01	4,23E-02	6,69E-03	4,86E-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 = Potential Soil Quality Index (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										
Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	PERE	MJ	1,83E-01	2,69E-03	1,50E-02	3,00E-04	5,34E-04	1,02E-02	8,08E-04	-8,16E-03
	PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	1,83E-01	2,69E-03	1,50E-02	3,00E-04	5,34E-04	1,02E-02	8,08E-04	-8,16E-03
	PENRE	MJ	5,90E-01	2,13E-01	6,50E-02	5,51E-02	4,24E-02	1,99E-02	2,26E-02	-3,68E-02
	PENRM	MJ	5,16E-02	0,00E+00	2,58E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	6,41E-01	2,13E-01	6,76E-02	5,51E-02	4,24E-02	1,99E-02	2,26E-02	-3,68E-02
	SM	kg	8,22E-04	0,00E+00	4,11E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	4,97E-02	9,40E-05	2,56E-03	0,00E+00	1,87E-05	0,00E+00	1,68E-05	-1,67E-04
	NRSF	MJ	2,42E-01	3,15E-04	1,23E-02	0,00E+00	6,26E-05	0,00E+00	3,62E-05	-1,71E-04
	FW	m^3	1,45E-03	2,43E-05	2,34E-04	2,83E-06	4,83E-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 = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	HWD	kg	1,11E-02	1,17E-05	5,57E-04	1,62E-06	2,32E-06	1,98E-06	0,00E+00	-8,40E-06
	NHWD	kg	1,95E-02	1,86E-02	7,86E-03	6,52E-05	3,69E-03	6,26E-05	1,00E-01	-2,55E-04
	RWD	kg	3,09E-06	1,46E-06	4,59E-07	3,82E-07	2,90E-07	2,10E-07	0,00E+00	-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

Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	CRU	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
	MFR	kg	6,67E-04	0,00E+00	4,58E-02	0,00E+00	0,00E+00	9,00E-01	0,00E+00	0,00E+00
	MER	kg	9,57E-05	0,00E+00	4,79E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	EEE	MJ	2,95E-02	0,00E+00	1,48E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	EET	MJ	4,46E-01	0,00E+00	2,24E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in accompanying packaging	kg C	0,00E+00

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

Additional 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 CO2-eq/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	5-10%

Indoor environment

Not relevant

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products									
Indicator	**Unit**	A1-A3	A4	A5	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	3,93E-02	1,37E-02	3,80E-03	4,00E-03	2,73E-03	1,19E-03	0,00E+00	-2,20E-03

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

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+A2:2019 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., (2021) eEPD v2021.09 Background information for EPD generator tool system verification, LCA.no Report number: 07.21
Iversen et al., (2019) EPD generator for Saint-Gobain Weber and Scanspac - Background information and LCA data, LCA.no report number 05.18
Iversen et al., (2020) EPD generator for Saint-Gobain Weber Nordics and Scanspac Background information for customer application, and LCA data – Supplementary report for modules A5, C and D, LCA.no report number 04.20
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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