Environmental product declaration

In accordance with ISO 14025 and EN 15804 +A2

weber stolpebeton

Owner of the declaration:
Saint Gobain Denmark A/S -Weber

Declared unit:
1 kg weber stolpebeton

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 009:2018 Part B for Technical - Chemical products in the building and construction industry

Program operator:
The Norwegian EPD Foundation

Declaration number:

NEPD-4022-3057-EN

Registration number:

NEPD-4022-3057-EN

Issue date: 09.12.2022

Valid to: 09.12.2027

EPD Software:
LCA.no EPD generator
System ID:
46100

The Norwegian EPD Foundation

General information

Product

weber stolpebeton

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
Phone: +47 23 08 80 00
web: post@epd-norge.no

Declaration number:
NEPD-4022-3057-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 009:2018 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 stolpebeton

Declared unit with option:

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

Functional unit:

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. Individualthird 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.

Third party verifier:

Anne Rønning, Norsus AS

(no signature required)

Owner of the declaration:

Saint Gobain Denmark A/S -Weber
Contact person: Eirini Adamopoulou
Phone: 004542127774
e-mail: Eirini.Adamopoulou@saint-gobain.com

Manufacturer:

Saint Gobain Denmark A/S -Weber
Silovej 3 , Dk 2690 Karlslunde
Denmark

Place of production:

Saint Gobain Weber Karlstrup, Denmark
, Karlstrup
Denmark

Management system:

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

Organisation no:

59 98 30 16

Issue date: 09.12.2022

Valid to: 09.12.2027

Year of study:

2021

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:

Eirini Adamopoulou

Reviewer of company-specific input data and EPD:

Helene Løvkvist Andersen

Approved:

Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

weber stolpebeton is used to anchor for example post boxes, swing stands, poles and posts of tree, iron, concrete etc.
For further information, see https://www.saint-gobain.dk/produkt/weber-stolpebeton

Product specification

Materials	
Binders	12-18%
Fillers/Aggregates	81-88%
Additives/packaging	10-20%

Technical data:

Compression strength: larger than 15 MPa
For further information, https://www.saint-gobain.dk/produkt/weber-stolpebeton

Market:

Nordic

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 stolpebeton

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.

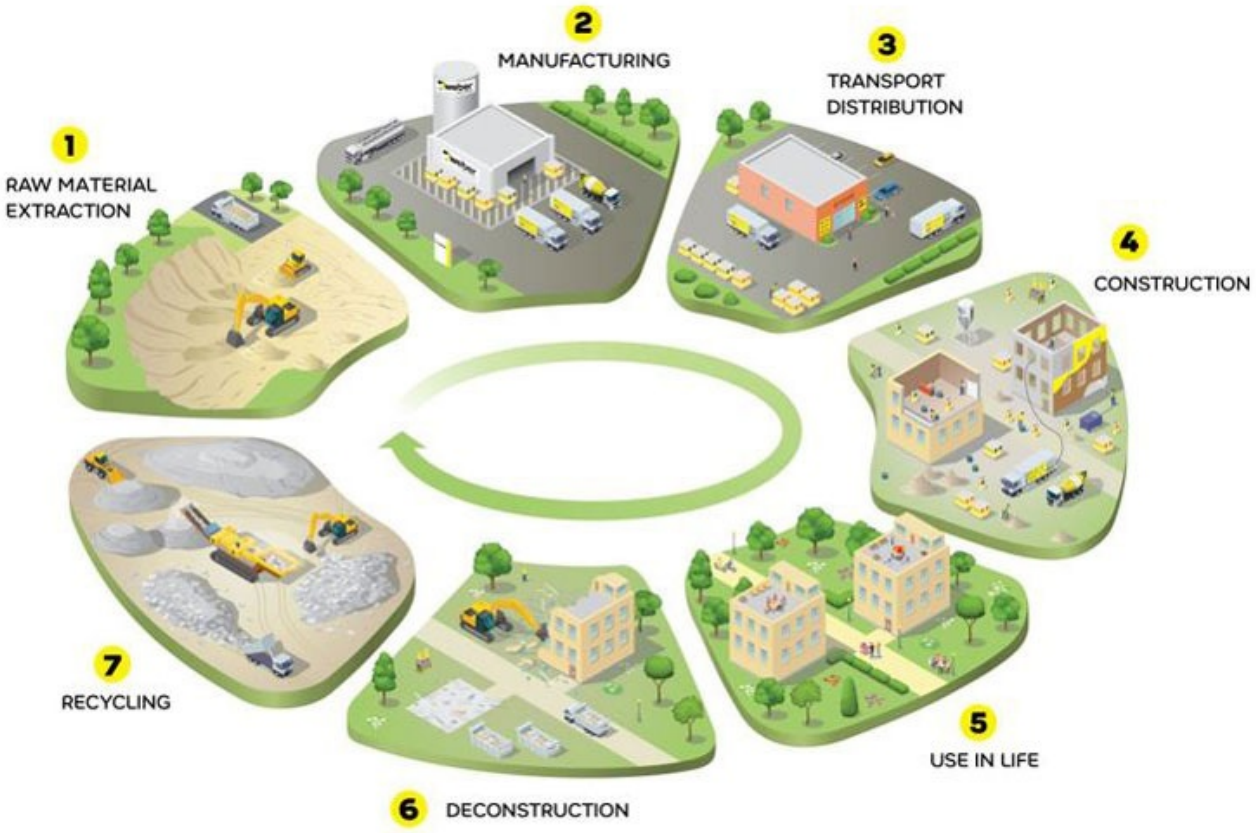
Materials	Source	Data quality	Year
Aggregate	ecoinvent 3.6	Database	2019
Cement	ecoinvent 3.6	Database	2019
Packaging	ecoinvent 3.6	Database	2019

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	MNR	MNR	MNR	MNR	MNR	MNR	MNR	X	X	X	X	X

System boundary:

All processes from raw material extraction, product transport, the construction site, assembly, end of product life and beyond the system boundaries are included in the analysis.
The flow chart below illustrates the system boundaries for the full life cycle analysis.



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)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 5 (km)	38,8 %	50	0,045	l/tkm	2,25

Additional A4 information	Unit/Range	Value			
Lillestrøm, Norway (truck to jobsite: 791 km)	Multiplication factor GWP/A4	15,83			
Vingåker, Sweden (truck to jobsite: 885 km)	Multiplication factor GWP/A4	17,75			
Timburdeild, Faroe Islands (truck / roro boat / truck to jobsite: 1675 km)	Multiplication factor GWP/A4	11,21			
Reykjavik, Iceland (truck / roro boat / truck to jobsite: 2979 km)	Multiplication factor GWP/A4	29,86			

Assembly (A5)	Unit	Value			
Waste, cardboard and paper packaging, to average treatment (kg)	kg	0,16			
Waste, plastic, mixture, to average treatment (kg)	kg	0,00			
Waste, wood, average treatment (kg)	kg	0,02			
Water, tap water (L)	kg/DU	0,12			
Electricity, Denmark (kWh)	kWh/DU	0,00			

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

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 5 (km)	38,8 %	30	0,045	l/tkm	1,35

Waste processing (C3)	Unit	Value			
Waste treatment of cement-based product after demolition (kg)	kgkm	0,90			

Disposal (C4)	Unit	Value			
Disposal of cement-based product in landfill (kg	kg	0,10			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary aggregates with crushed recycled cement-based products (kg	kg	0,78			

LCA: Results

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

Environmental impact										
	Parameter	**Unit**	A1-A3	A4	A5	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	1,28E-02	8,34E-03	3,76E-03	4,00E-03	5,00E-03	6,48E-04	8,10E-04	-1,83E-03
	GWP-fossil	kg CO_2 -eq	2,79E-01	8,33E-03	3,75E-03	4,00E-03	5,00E-03	6,39E-04	8,08E-04	-1,79E-03
	GWP-biogenic	kg CO_2 -eq	-2,67E-01	0,00E+00	7,88E-06	7,50E-07	0,00E+00	5,52E-06	9,44E-07	-3,57E-05
	GWP-luluc	kg CO_2 -eq	1,54E-03	2,92E-06	1,32E-06	3,15E-07	1,75E-06	8,84E-07	1,99E-07	-1,21E-06
	ODP	kg CFC11 -eq	2,46E-08	1,85E-09	6,76E-10	8,64E-10	1,11E-09	1,26E-10	3,06E-10	-3,26E-10
	AP	mol H+ -eq	1,39E-03	3,41E-05	1,86E-05	4,19E-05	2,04E-05	5,17E-06	7,19E-06	-1,61E-05
	EP-FreshWater	kg P -eq	2,09E-05	6,55E-08	4,52E-08	1,46E-08	3,93E-08	4,04E-08	9,16E-09	-4,75E-08
	EP-Marine	kg N -eq	3,22E-04	1,01E-05	6,74E-06	1,85E-05	6,06E-06	1,52E-06	2,67E-06	-5,58E-06
	EP-Terrestial	mol N eq	3,56E-03	1,12E-04	7,04E-05	2,00E-04	6,69E-05	1,75E-05	2,95E-05	-6,56E-05
	POCP	kg NMVOC -eq	9,75E-04	3,42E-05	1,95E-05	5,57E-05	2,05E-05	4,68E-06	8,44E-06	-1,73E-05
	ADP-minerals&metals[1]	Kg Sb-eq	2,47E-06	2,26E-07	7,75E-08	6,14E-09	1,35E-07	8,11E-09	7,28E-09	-1,59E-07
	ADP-fossil[1]	MJ	3,73E+00	1,26E-01	4,77E-02	5,51E-02	7,54E-02	1,98E-02	2,22E-02	-3,03E-02
	WDP[1]	m^3	2,19E+01	1,20E-01	1,06E-01	1,17E-02	7,19E-02	2,19E+00	1,37E-01	-1,42E+00

GWP total Global Warming Potential total; GWP fossil Global Warming Potential fossil fuels ; GWP biogenic Global Warming Potential biogenic; GWP luluc Global W Potential land use change; ODP Ozone Depletion; AP Acidification; EP freshwater Eutrophication aquatic freshwater; EP marine Eutrophication aquatic marine; EP terrestrial Eutrophication terrestrial ;POCP Photochemical zone formation; ADPE Abiotic Depletion Potential minerals and metals; ADPf Abiotic Depletion Potential fossil fuels; WDP Water Depletion Potential

"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

Additional environmental impact indicators

Parameter		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	PM	Disease incidence	2,29E-08	5,50E-10	2,55E-10	5,07E-09	3,30E-10	8,30E-11	1,53E-10	-3,43E-10
	IRP[2]	kgBq U235 eq.	1,72E-02	5,50E-04	2,03E-04	2,40E-04	3,30E-04	3,33E-04	1,02E-04	-2,78E-04
	ETP-fw[1]	CTUe	1,63E+01	9,26E-02	6,23E-02	3,01E-02	5,55E-02	1,41E-02	1,21E-02	-3,12E-02
	HTP-c[1]	CTUh	1,48E-10	0,00E+00	2,00E-12	1,00E-12	0,00E+00	1,00E-12	0,00E+00	-2,00E-12
	HTP-nc[1]	CTUh	4,96E-09	1,00E-10	1,12E-10	2,80E-11	6,00E-11	1,30E-11	9,00E-12	-3,90E-11
	SQP[1]	Pt	3,59E+01	8,66E-02	3,44E-02	6,69E-03	5,20E-02	1,12E-02	8,56E-02	6,87E-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 Soil Quality (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

Parameter		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	PERE	MJ	5,46E-02	1,78E-03	2,58E-03	3,00E-04	1,07E-03	1,02E-02	7,96E-04	-7,09E-03
	PERM	MJ	6,35E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	6,41E+00	1,78E-03	2,58E-03	3,00E-04	1,07E-03	1,02E-02	7,96E-04	-7,09E-03
	PENRE	MJ	3,60E+00	1,27E-01	4,78E-02	5,51E-02	7,60E-02	1,99E-02	2,22E-02	-3,19E-02
	PENRM	MJ	1,87E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	3,79E+00	1,27E-01	4,78E-02	5,51E-02	7,60E-02	1,99E-02	2,22E-02	-3,19E-02
	SM	kg	1,80E-03	5,05E-05	4,54E-05	2,70E-05	3,03E-05	1,71E-05	9,65E-06	-6,12E-05
	RSF	MJ	2,15E-02	6,35E-05	9,66E-05	7,33E-06	3,81E-05	2,07E-04	1,65E-05	-1,45E-04
	NRSF	MJ	4,61E-03	2,27E-04	1,42E-04	-1,10E-04	1,36E-04	-1,28E-05	3,57E-05	-1,49E-04
	FW	m^3	1,00E-02	1,33E-05	1,50E-04	2,83E-06	7,95E-06	3,40E-05	2,74E-05	-1,11E-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 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
	HWD	kg	1,60E-03	6,40E-06	4,00E-04	1,62E-06	3,84E-06	1,98E-06	1,57E-06	-7,29E-06
	NHWD	kg	3,32E-02	6,01E-03	4,40E-03	6,52E-05	3,60E-03	6,26E-05	9,87E-02	-2,21E-04
	RWD	kg	1,73E-05	8,55E-07	2,99E-07	3,82E-07	5,13E-07	2,10E-07	1,45E-07	-2,40E-07

HWD Hazardous waste disposed; NHWDNon-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

Parameter		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	CRU	kg	1,23E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	4,41E-04	7,05E-07	1,51E-01	2,66E-05	4,23E-07	9,00E-01	8,79E-06	-1,43E-06
	MER	kg	2,25E-04	4,20E-05	3,35E-06	8,23E-08	2,52E-05	2,07E-06	1,66E-07	-5,36E-05
	EEE	MJ	5,90E-04	4,87E-06	2,53E-02	2,82E-07	2,92E-06	3,55E-06	1,37E-05	-1,29E-05
	EET	MJ	8,92E-03	7,35E-05	3,83E-01	4,27E-06	4,41E-05	5,38E-05	2,07E-04	-1,96E-04

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

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

Biogenic Carbon Content

Parameter	Unit	At the factory gate
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in accompanying packaging	kg C	8,10E-02

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

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, 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 dangerous substances, more than 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.

Name	CASNo	Amount
Natural quartz sand	14808-60-7	75-100%
Portland Cement	65997-15-1	10-20%
Flue dust, cement	68475-76-3	2-3%

Indoor environment

No test performed

Additional Environmental Information

Environmental impact indicators EN 15804+A1 and NPCR Part A v2.0

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	2,80E-01	8,30E-03	3,73E-03	3,95E-03	4,98E-03	6,30E-04	7,92E-04	-1,91E-03
ODP	kg CFC11 -eq	2,32E-08	1,50E-09	5,49E-10	6,86E-10	9,00E-10	1,56E-10	2,47E-10	-2,96E-10
POCP	kg C_2H_4-eq	6,10E-05	1,10E-06	5,79E-07	6,09E-07	6,61E-07	1,40E-07	1,86E-07	-3,99E-07
AP	kg SO_2 -eq	1,05E-03	1,64E-05	1,06E-05	5,84E-06	9,82E-06	2,37E-06	2,20E-06	-4,68E-06
EP	kg PO_4^{3-} -eq	2,53E-04	1,75E-06	2,31E-06	6,50E-07	1,05E-06	3,13E-07	2,60E-07	-5,49E-07
ADPM	kg Sb -eq	2,47E-06	2,26E-07	7,75E-08	6,14E-09	1,35E-07	8,11E-09	7,28E-09	-1,59E-07
ADPE	MJ	3,07E+00	1,26E-01	4,66E-02	5,47E-02	7,54E-02	7,62E-03	2,13E-02	-3,03E-02
GWPIOBC	kg CO_2 -eq	9,45E-01	8,30E-03	2,56E-04	5,37E+00	4,98E-03		0,00E+00	-1,91E-03

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; GWP-IOBC/GHG Global warming potential calculated according to the principle of instantanious oxidation (except emissions and uptake of biogenic carbon)

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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ECO PLATFORM EPD VERIFIED	ECO Platform ECO Portal	Web: Web:	www.eco-platform.org ECO Portal

EPD for the best environmental decision

The Norwegian EPD Foundation

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