ENVIRONMENTAL PRODUCT DECLARATION

ISO 14025 ISO 21930 EN 15804

epd-norge.no
The Norwegian EPD Foundation

Owner of the declaration	Saint-Gobain Byggevarer as
Program holder	The Norwegian EPD Foundation
Declaration number	NEPD00262E
Issue date	02.07.2014
Valid to	02.07.2019

Leca Isoblokk 35 cm, Lightweight Concrete Block with PUR-insulation

Product

Saint-Gobain Byggevarer as

Owner of the declaration

General information

Product:
Leca Isoblokk 35 cm, Lightweight Concrete Block with PUR-insulation

Program holder:
The Norwegian EPD Foundation
P.O.Box 5250 Majorstuen
0303 Oslo
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Declaration number: NEPD00262E

This declaration is based on Product Category Rules:
EN 15804:2012+A1:2013 serve as core PCR
Requirements on the EPD for Lightweight concrete.

Declared unit:
1 m3 Leca Isoblokk 35 cm, Lightweight Concrete Block with PUR-insulation

Declared unit with option:
A1,A2,A3,A4

Functional unit:

The EPD has been worked out by:
The declaration has been developed using EPDGen-version 1.0, Approval: NEPDT02
Company specific data are collected and registry by:
Stian Gravnås
Company specific data are audited by:
Line Holaker

Verification:
Independent verification of data, other environmental information and EPD has been carried out in accordance with ISO14025, 8.1.3 and 8.1.4

externally

Senior Researcher Anne Rønning
(Independent verifier approved by EPD-Norway)

Owner of the declaration:
Saint-Gobain Byggevarer as
Contact person: Line Holaker
Phone: +47 22 88 77 00
e-mail: info(at)weber-norge.no

Manufacturer:
Saint-Gobain Byggevarer as

Place of production:
Weber Leca Borge, Moumgt.,
1658 Torp, Norway

Management system:
ISO 9001, ISO 14001

Org. No:
940 198 178

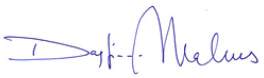
Issue date: 02.07.2014

Valid to: 02.07.2019

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

Year of study:
2014

Approved:



Dagfinn Malnes
Managing Director of EPD-Norway

Declared unit:
1 m3 Leca Isoblokk 35 cm, Lightweight Concrete Block with PUR-insulation

Key environmental indicators	Unit	Cradle to gate A1 - A3	Transport A4
Global warming	kg CO2 eqv	144,56	2,02
Energy use	MJ	2615,0472	26,4456
Dangerous substances		*	*

*The product contains no substances from the REACH Candidate list or the Norwegian priority list

Product

Product description:
Leca Isoblokk 35 cm is produced by Leca lightweight aggregate, cement, sand, water and PUR-insulation. Leca Isoblokk 35 cm is used for durable and moisture-proof exterior walls that require good insulation. The solution insulates better than the requirements of TEK-10 and satisfies the requirement for external wall insulation in Low Energy and Passive Houses. The solution is adapted for use as both a basement below ground and above ground exterior wall. The complete system Leca Isoblokk 35 cm consists of several components.

Technical data:
SINTEF Technical Approval - TG20031. For further information see www.weber-norge.no

Reference service life:
As for the building

Product specification:
The raw materials used for the Polyurethane polymer (PUR-insulation) are fully reacted in the final product. The composition of the product is described in the following table:

Materials	Percent
Cement	11,94
Aggregate	72,84
Water	8,23
Packaging	2,34
Insulation, Plastic based	4,65

Market:
Norway

LCA: Calculation rules

Declared unit:
1 m3 Leca Isoblokk 35 cm, Lightweight Concrete Block with PUR-insulation

Cut-off criteria:
All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included.

Allocation:
The allocation is made in accordance with provisions in EN 15804. Incoming energy and water, and in-house waste from the production, is allocated equally among all products through mass allocation. Effects of primary production of recycled materials are 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:

Materials	Data quality	Source	Year
Aggregate	EPD	NEPD00120E	2013
Aggregate	EPD	NEPD00120E	2013
Aggregate	Database	Østfoldforskning	2012
Cement	EPD	NEPD00024N	2013
Water			
Packaging			
Packaging	European Average	APME	
Insulation, Plastic based	Database	Plastic Europe	2014

System boundary:
All processes from raw material extraction to product from the factory gate are included in the analysis (A1-A3). In addition, transportation to a central warehouse placed in accordance with guidelines issued by the EPD Norway (A4) is included.

FlowChart:

LCA: Scenarios and additional technical information

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

Transport from production site to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	75 %	Lorry to market	50	0,015594	l/tkm	0,78
Railway	.	.	.	.	.	.
Boat	.	.	.	.	.	.
Other	.	.	.	.	.	.

Installation in the building (A5)

.	Unit	Value
Auxiliary	kg	0
Water consumption	m3	0
Electricity consumption	kWh	0
Other energy carriers	MJ	0
Material loss	kg	0
Output materials from waste treatment	kg	0
Dust in the air	kg	0

Label

Maintenance (B2)/Repair (B3)

.	Unit	Value
Maintenance cycle	.	0
Auxiliary	kg	0
Other resources	kg	0
Water consumption	M3	0
Electricity consumption	kWh	0
Other energy carriers	MJ	0
Material loss	kg	0

Use (B1):

.	Unit	Value
No effect	0	0

End of Life (C1, C3, C4)

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

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	0 %		0	0	l/tkm	0
Railway	.	.	.	.	.	.
Boat	.	.	.	.	.	.
Other	.	.	.	.	.	.

Benefits and loads beyond the system boundaries (D)

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	Construction/ Installation stage	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	MNR	MNR	MNR	MNR	MNR	MNR	MNR	MNR	MNR	MNR	MNR	MNR		MNR

Environmental impact

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2
GWP	kg CO_2 -eqv	1,29E+002	2,66E+000	1,29E+001	2,02E+000			
ODP	kg CFC11 -eqv	1,02E-004	0,00E+000	1,99E-006	0,00E+000			
POCP	kg C_2H_4-eqv	1,98E-001	2,84E-003	3,33E-002	5,34E-003			
AP	kg SO_2 -eqv	2,63E-001	9,71E-003	6,74E-003	1,23E-003			
EP	kg PO_4^{3-} -eqv	3,11E-001	1,51E-003	3,52E-003	8,22E-004			
ADPM	kg Sb -eqv	5,27E-001	0,00E+000	8,34E-005	0,00E+000			
ADPE	MJ	1,80E+003	3,51E+001	1,62E+002	2,65E+001			

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

Resource use

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2
RPEE	MJ	3,13E+002	4,72E-002	1,83E+002	4,56E-002			
RPEM	MJ	1,60E-001	1,61E-002	1,00E-001	0,00E+000			
TRPE	MJ	3,13E+002	6,33E-002	1,84E+002	4,56E-002			
NRPEE	MJ	1,67E+003	3,50E+001	1,77E+002	2,64E+001			
NRPEM	MJ	3,92E+002	0,00E+000	0,00E+000	0,00E+000			
TNRPE	MJ	2,06E+003	3,50E+001	1,77E+002	2,64E+001			
SM	kg	1,28E+001	0,00E+000	0,00E+000	0,00E+000			
RSF	MJ	0,00E+000	0,00E+000	0,00E+000	0,00E+000			
NRSF	MJ	2,37E+002	0,00E+000	0,00E+000	0,00E+000			
W	m^3	9,12E+001	3,25E-001	3,70E+001	2,36E-001			

RPEE Renewable primary energy resources used as energy carrier; **RPEM** Renewable primary energy resources used as raw materials; **TRPE** Total use of renewable primary energy resources; **NRPEE** Non renewable primary energy resources used as energy carrier; **NRPEM** Non renewable primary energy resources used as materials; **TNRPE** Total use of virgin, non-renewable resources with energy content; **SM** Use of secondary materials; **RSF** Use of renewable secondary fuels; **NRSF** Use of non renewable secondary fuels; **W** Use of net fresh water

End of life - Waste

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2
HW	kg	1,52E-002	0,00E+000	2,22E-002	0,00E+000			
NHW	kg	1,23E+001	7,40E-003	3,23E+000	4,93E-003			
RW	kg	0,00E+000	0,00E+000	0,00E+000	0,00E+000			

HW Hazardous waste disposed; **NHW** Non hazardous waste disposed, **RW** Radioactive waste disposed

End of life - Output flow

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2
CR	kg	0,00E+000	0,00E+000	2,00E-003	0,00E+000			
MR	kg	4,69E-002	0,00E+000	3,39E+000	0,00E+000			
MER	kg	0,00E+000	0,00E+000	0,00E+000	0,00E+000			
EEE	MJ	0,00E+000	0,00E+000	0,00E+000	0,00E+000			
ETE	MJ	0,00E+000	0,00E+000	0,00E+000	0,00E+000			

CR Components for reuse; **MR** Materials for recycling; **MER** Materials for energy recovery; **EEE** Exported electric energy; **ETE** Exported thermal energy

Additional Norwegian requirements

Electricity
The following data from ecoinvent v3 (June 2012) for Norwegian production mix included import, low voltage is used; Energy/Electricity country mix/Low voltage/Market: Electricity, low voltage {NO}| market for | Alloc Def, U. Production of transmission lines, in addition to direct emissions and loss in grid are included. Characterisation factors stated in EN 15804:2012+A1:2013 are used. This gives following greenhouse gas emissions: 24 g CO2-eqv/kWh

Hazardous substances
None of the following substances have been added to the product: Substances on the REACH Candidate list of substances of very high concern (checked 10.10.2014) substances on the Norwegian Priority list (checked 10.10.2014) and substances that lead to the product being classified as hazardous waste. The chemical content of the product complies with regulatory levels as given in the Norwegian Product Regulations

Indoor air
The product meets the requirements for low pollutant (M1) by EN15251:2007 Appendix E. The product has no impact on the indoor environment.

Bibliography

NS-EN ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
NS-EN ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines
NS-EN 15804:2012+A1:2013 Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
ISO 21930:2007 Sustainability in building construction - Environmental declaration of building products

www.bau-umvelt.com: Recuirements on the EPD for Light weight concrete. Vold, M and Edvardsen, T, 2013: Weber EPD Generator Background information, Østfoldforskning AS, Fredrikstad, Norge, Nov 2013

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