



ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Finja AB
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEÚÖË 62Ë 6ËEN
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Issue date:	01.12.201Ï
Valid to:	01.12.2022

Blokk Exakt, Lightweight Concrete Block with EPS-insulation

Finja Betong AB



www.epd-norge.no



General information

Product:

Blokk Exakt, Lightweight Concrete Block with EPS-insulation

Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo
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Declaration number:

NEUÖB | 62B | 6BEN

ECO Platform reference number:

E

This declaration is based on Product Category Rules:

CEN Standard EN 15804 serves as core PCR

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 block part and 1 kg EPS insulation part. Whith support from table on page 8 can the impact from A1-3 be calculated for any individual Exakt Blokk.

Declared unit with option:

A1-A4

Functional unit:

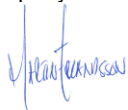
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Verification:

The CEN Norm EN 15804 serves as the core PCR. Independent verification of the declaration and data, according to ISO14025:2010

internal external

Third party verifier:



Martin Erlandsson, IVL Swedish Environmental Research Inst.
(Independent verifier approved by EPD Norway)

Owner of the declaration:

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Manufacturer:

Finja Betong AB
Betongvägen 1, S-281 93 Finja
Phone: 010-455 20 00
e-mail: info@finja.se

Place of production:

Strängnäs, Sweden

Management system:

ISO 14001

Organisation no:

556101-6840

Issue date:

01.12.2011

Valid to:

01.12.2022

Year of study:

2017

Comparability:


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

The EPD has been worked out by:

Ulf Liljenroth



Approved



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

Exact insulated blocks have extra insulation, are light in weight and are manufactured with great precision. The strong adhesive joint between the cellular plastic and the light clinker gives the block great strength. The grey cellular plastic together with the light clinker provide exceptional U values. Available in widths 250*, 290, 350 and 400 mm.

*Exakt 250 mm insulated blocks are only sold on the Swedish market.

Technical data:

Walling block for walls and pillars in accordance with SS-EN 771-3.

For further information see www.finja.no

Market:

Nordic countries

Reference service life,

Same as for the wall it is part of

Product specification:

The composition of the product is described in the table below

Materials	kg	% concrete part	% EPS part
Cement		16	
EPS			100
Glue		1	
Leca aggregate		43	
Gravel		26	
Water		14	
Packaging		<1	

LCA: Calculation rules

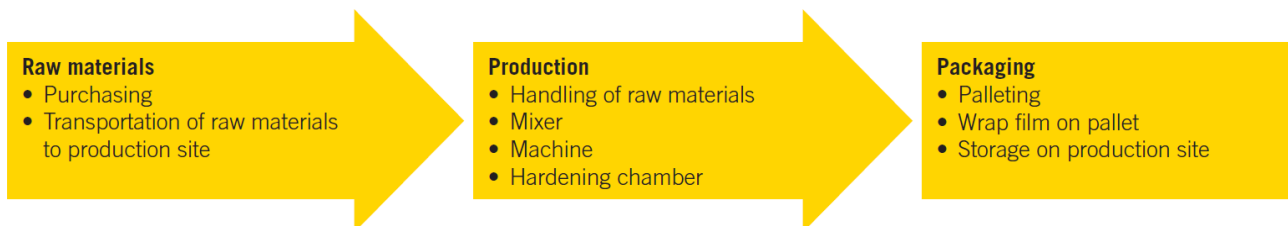
Declared unit:

One Blokk Exakt where the impact A1-3 for the lightweight concrete block and EPS-insulation part are reported separately. These two tables need to be combined to get result for a complete block, based on information given in the table on page 8.

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.

Flow Chart



Data quality:

Materials	Data quality	Source	Year
Cement	Specific EPD	EPD-HCG-20140205-CAA1-EN	2014
EPS	Specific EPD	EPS. EPD-EUM-20160273-IBG1-EN	2013
Glue	Industry data	Ecoinvent v3.3	
Leca aggregate	Specific EPD	NEPD 00120E	2013
Gravel	Industry data	Ecoinvent v3.3	
Water	Industry data	Ecoinvent v3.3	
Packaging	Industry data	Ecoinvent v3.3	

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 allocated to the main product in which the material was used.

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 (<0,2%) are not included (except packaging). This cut-off rule does not apply for hazardous materials and substances.

LCA: Scenarios and additional technical information

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

Products are transported from manufacturing unit in Strängnäs to warehouse in Oslo.

Transport from production place to user (A4) per kg product

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption, l/tkm	Value (l/t)
Truck (50% biodiesel)	85%	Lorry	450	0.02	13.8

LCA: Results for concrete block part

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

Product stage				Assembly 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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	

Environmental impact

Parameter	Unit/kg block part	A1	A2	A3	A1-A3	A4			
GWP*	kg CO ₂ -eqv				2.45E-01	2.41E-02			
ODP	kg CFC11-eqv				2.91E-09	7.31E-09			
POCP	kg C ₂ H ₄ -eqv				7.01E-05	7.46E-06			
AP	kg SO ₂ -eqv				7.12E-04	2.61E-04			
EP	kg PO ₄ ³⁻ -eqv				5.56E-04	6.07E-05			
ADPM	kg Sb-eqv				4.03E-07	0			
ADPE	MJ				2.05E+00	6.84E-01			

* Emission and uptake of biogenic carbon as CO₂ is not accounted for as in accordance to EN 15804.

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/kg block part	A1	A2	A3	A1-A3	A4			
RPEE	MJ				4.60E-01	9.24E-03			
RPEM	MJ				0	0			
TPE	MJ				4.60E-01	9.24E-03			
NRPE	MJ				1.91E+00	6.83E-01			
NRPM	MJ				4.81E-01	0			
TRPE	MJ				2.39E+00	6.83E-01			
SM	kg				1.98E-02	0			
RSF	MJ				9.71E-02	0			
NRSF	MJ				4.36E-01	0			
W	m ³				2.75E-02	4.00E-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

End of life - Waste

Parameter	Unit/kg block part	A1	A2	A3	A1- A3	A4			
HW	kg				1.69E-06	0			
NHW	kg				1.62E-02	0			
RW	kg				2.70E-05	0			

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

End of life - Output flow

Parameter	Unit/kg block part	A1	A2	A3	A1- A3	A4			
CR	kg				0	0			
MR	kg				9.09E-05	0			
MER	kg				0	0			
EEE	MJ				0	0			
ETE	MJ				0	0			

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 = $9,0 \cdot 10^{-3}$ = 0,009

LCA: Results for EPS insulation part

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

Product stage			Assembly 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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Environmental impact

Parameter	Unit/kg EPS	A1	A2	A3	A1-A3	A4			
GWP*	kg CO ₂ -eqv				3.21E+00	2.41E-02			
ODP	kg CFC11-eqv				2.01E-01	7.31E-09			
POCP	kg C ₂ H ₄ -eqv				1.31E-02	7.46E-06			
AP	kg SO ₂ -eqv				8.18E-03	2.61E-04			
EP	kg PO ₄ ³⁻ -eqv				8.00E-04	6.07E-05			
ADPM	kg Sb-eqv				1.55E-06	0			
ADPE	MJ				8.89E+01	6.84E-01			

* Emission and uptake of biogenic carbon as CO₂ is not accounted for as in accordance to EN 15804.

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/kg EPS	A1	A2	A3	A1-A3	A4			
RPEE	MJ				1.86E+00	9.24E-03			
RPEM	MJ				3.20E-02	0			
TPE	MJ				1.89E+00	9.24E-03			
NRPE	MJ				5.03E+01	6.83E-01			
NRPM	MJ				4.06E+01	0			
TRPE	MJ				9.09E+01	6.83E-01			
SM	kg				0	0			
RSF	MJ				0	0			
NRSF	MJ				0	0			
W	m ³				1.73E-02	4.00E-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

End of life - Waste

Parameter	Unit/kg EPS	A1	A2	A3	A1- A3	A4			
HW	kg				9.53E-04	0			
NHW	kg				4.26E-02	0			
RW	kg				7.87E-04	0			

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

End of life - Output flow

Parameter	Unit/kg EPS	A1	A2	A3	A1- A3	A4			
CR	kg				0	0			
MR	kg				0	0			
MER	kg				0	0			
EEE	MJ				0	0			
ETE	MJ				0	0			

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

Reading example: $9,0 \text{ E-03} = 9,0 \cdot 10^{-3} = 0,009$

Key figures to define the impact for different blocks

In order to calculate environmental impact for different blocks use the following table with weight information.

Varetekst	Finja Art.nr	Høyde, m	Bredde, m	Lengde, m	Vekt hela block, kg	Volum, m ³	Vekt betong, kg	Vekt cellplast, kg
NORMALBLOKK EXAKT 250X197X600	16252060	0.1970	0.2500	0.6000	14.9	0.030000	14.73	0.17
NORMALBLOKK EXAKT 290X197X600	16292060	0.1970	0.2900	0.6000	14.9	0.034278	14.62	0.28
NORMALBLOKK EXAKT 350X197X600	16352060	0.1970	0.3500	0.6000	15	0.041370	14.57	0.43
NORMALBLOKK EXAKT 400X197X500	16402050	0.1970	0.4000	0.5000	13.9	0.039400	13.44	0.46
TILPASNINGSBLOKK EXAKT 290X95X600	16290960	0.0950	0.2900	0.6000	7.5	0.016530	7.37	0.13
TILPASNINGSBLOKK EXAKT 350X95X600	16350960	0.0950	0.3500	0.5900	7.4	0.019618	7.20	0.20
TILPASNINGSBLOKK EXAKT 400X95X500	16400950	0.9500	0.4000	0.5000	6.9	0.190000	6.68	0.22

Additional Norwegian requirements

Greenhouse gas emission from the use of electricity in the manufacturing phase

Electricity use in production is based on consumption figures for 2016. Emission data is taken from Ecoinvent 3.3 "Electricity, medium voltage {SE} market for | Alloc Rec, S" (2016).

Data source	Amount	Unit
Ecoinvent v3.3 (2016)	48 gram	CO ₂ -eqv/kWh

Dangerous substances

- The product contains no substances given by the REACH Candidate list or the Norwegian priority list
- The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforkiften, Annex III), see table.

Indoor environment




The emission test is based on a representative Exakt Normal block product (350x197x600 mm) and meets the requirements for the recommended class in M1 (ammonia and odour not measured) and Emicode EC1^{PLUS}. EMICODE EC1^{PLUS} includes the strongest requirements on low VOC emissions compared to EMICODE EC1 and Blue Angel, AgBB, DIBt and California (Section 01350). The product has no detectable impact on the indoor environment.

Carbon footprint

Carbon footprint has not been worked out for the product.

Bibliography

ISO 14025:2010	<i>Environmental labels and declarations - Type III environmental declarations - Principles and procedures</i>
ISO 14044:2006	<i>Environmental management - Life cycle assessment - Requirements and guidelines</i>
EN 15804:2012+A1:2013	<i>Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products</i>
ISO 21930:2007	<i>Sustainability in building construction - Environmental declaration of building products</i>
LCI Report	<i>LCA Report Finja Lightweight concrete blocks. Ulf Liljenroth, WSP 2017.</i>
Emicode EC1PLUS	www.emicode.com/fileadmin/redaktion/Service/Downloads_GB/GEV-Green_Building.pdf

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