

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

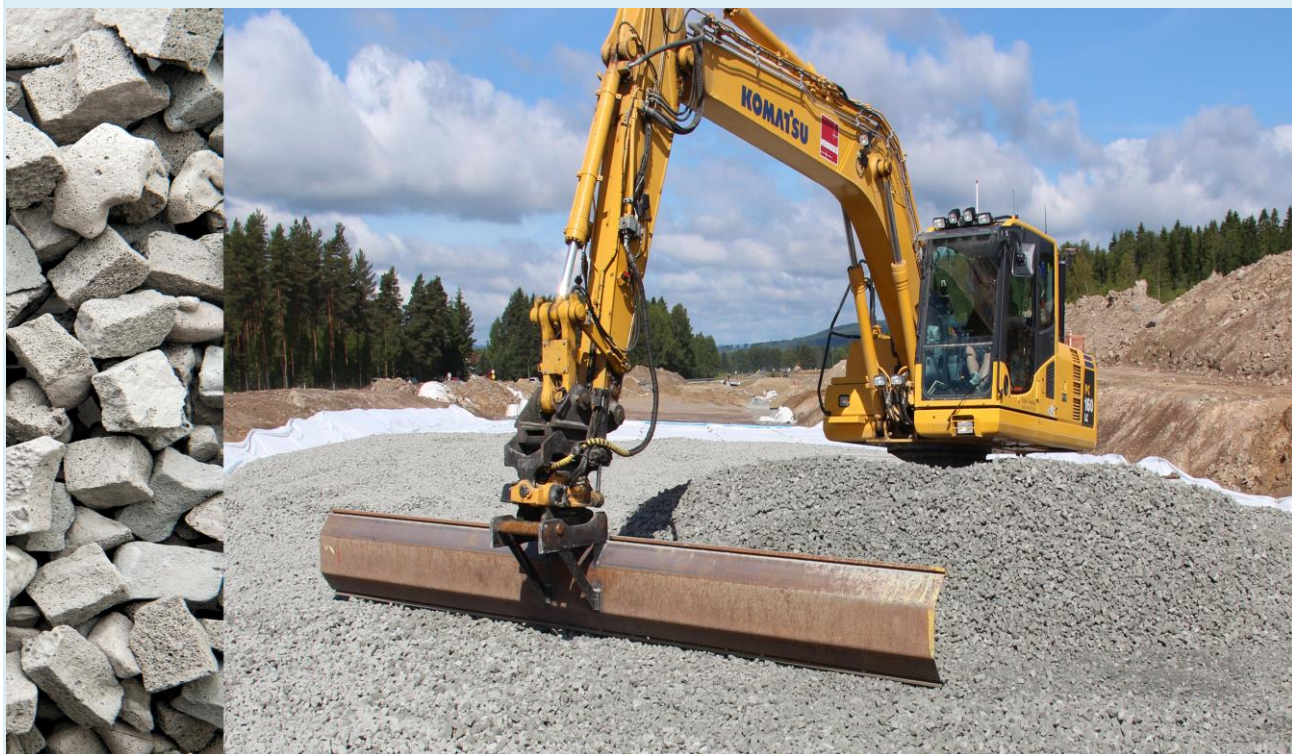
Owner of the declaration:	Glasopor AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	B000EG HUI B
Registration number:	B000EG HUI B
ECO Platform reference number:	E
Issue date:	H000E
Valid to:	H000EGG (validity extended to 31.06.2022)

Glasopor 10-60 (Cellular glass aggregate)

Glaspor AS

www.epd-norge.no

Glaspor



General information

Product:

Glasopor 10-60 (Cellular glass aggregate)

Program operator:

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

Declaration number:

POUØFG HUI ØP

ECO Platform reference number:

E

This declaration is based on Product Category Rules:

CEN Standard EN 15804 serves as core PCR
 Requirements on the EPD for www.bau-umwelt.com
 Lightweight aggregates / Bulk granulate v. 30.07.2014

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.

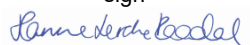
Declared unit:A1-A3: 1 m³ of Glasopor, bulk (180 kg/m³) to factory gate**Declared unit with option:****Functional unit:****Verification:**

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:

sign



(Independent verifier approved by EPD Norway)

Owner of the declaration:

Glasopor AS
 Contact person: Svein Lund
 Phone: 61 21 36 50 / 907 75 233
 e-mail: svein.lund@glasopor.no

Manufacturer:

Glasopor AS
 Haslevangen 14, 0579 Oslo
 Phone: 23 17 39 80
 e-mail: svein.lund@glasopor.no

Place of production:

Glasopor AS, Industrivegen 63, 2690 Skjåk

Management system:

TI certificate no 1261: NS-ISO 9001, NS-ISO 14001, NS-ISO 50001, OHSAS 18001

Organisation no:

No 884 334 662

Issue date:

HUI ØP

Valid to:

HUI ØP (validity extended to 31.06.2022)

Year of study:

2016

Comparability:

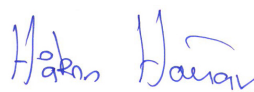
EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

The EPD has been worked out by:

Mie Vold




Approved



Håkon Hauan
 Managing Director of EPD-Norway

Allocation:

The allocation is made in accordance with the provisions of EN 15804. All incoming energy and water and waste production in-house is allocated to Glasopor. Effects of primary production of recycled materials allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

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. This cut-off rule does not apply for hazardous materials and substances.

LCA: Scenarios and additional technical information
Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Truck	53 %	Lorry <32 tonne	50	0,02 l/tkm	1

Additional technical information

Glasopor AS is a supplier of insulation and ground fillings for all types of construction. The products are made of the waste fraction from recycled glass. The material has an indefinite service life and require no maintenance during use.

This product be re-excavated and used as filling for new construction's service life.

The kilns are redesigned for electrical operation in May 2016. The company buys guarantees of origin for all electricity used both in Fredrikstad and in Skjåk.

Results

The results reflect the declared unit from cradle to factory gate (A1 to A3).

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	A1	A2	A3	A1- A3	A4			
GWP	kg CO ₂ -eqv	2,27	3,70	1,00	6,96	0,79			
ODP	kg CFC11-eqv	2,00E-07	7,28E-07	8,02E-08	1,01E-06	1,56E-07			
POCP	kg C ₂ H ₄ -eqv	3,97E-04	6,04E-04	1,84E-04	1,19E-03	1,29E-04			
AP	kg SO ₂ -eqv	2,43E-04	1,32E-03	1,44E-03	3,01E-03	2,83E-04			
EP	kg PO ₄ ³⁻ -eqv	6,87E-03	1,02E-02	5,10E-03	2,22E-02	2,19E-03			
ADPM	kg Sb-eqv	9,91E-07	7,10E-06	1,15E-05	1,96E-05	1,52E-06			
ADPE	MJ	40	59	7,80	107	12,55			

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

Resource use

Parameter	Unit	A1	A2	A3	A1-A3	A4			
RPEE	MJ	32	0,87	404	438	0,19			
RPEM	MJ	0,02	0,29	0,14	0,45	6,32E-02			
TPE	MJ	32	1,17	405	438	0,25			
NRPE	MJ	40	60	8,20	108	12,78			
NRPM	MJ	0	0	0,04	0,04	-			
TRPE	MJ	40	60	8,24	108	12,78			
SM	kg	180	0	0	180	-			
RSF	MJ	1,45E-05	0	1,83E-04	1,97E-04	-			
NRSF	MJ	-5,31E-07	0	-6,68E-06	-7,22E-06	-			
W	m ³	0,00E+00	0,00E+00	0,00E+00	0,00	-			

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

End of life - Waste

Parameter	Unit	A1	A2	A3	A1- A3	A4			
HW	kg	3,62E-05	3,45E-05	3,58E-03	3,65E-03	7,38E-06			
NHW	kg	6,09E-02	5,47E+00	2,81E-01	5,81E+00	1,17E+00			
RW	kg	INA	INA	INA	INA	INA			

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

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

End of life - Output flow

Parameter	Unit	A1	A2	A3	A1- A3	A4			
CR	kg	0	0	0	0	0			
MR	kg	1,19E-03	0,00E+00	2,36E-02	2,48E-02	0			
MER	kg	1,39E-05	0,00E+00	1,75E-04	1,89E-04	0			
EEE	MJ	0	0	0	0	0			
ETE	MJ	0	0	0	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

Additional Norwegian requirements

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

Glasopor AS b̃y g̃ arant^^ of origine of electricity for both their production locations. Data from LCI from 11 Norwegian Hydro electricity Power stations, representing 4,5 % of the total Norwegian Hydro electricity use is therefore used for production in Skjåk and for drying/milling in Fredrikstad.

Data source	Amount	Unit
Østfoldforskning	5,8	g 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 (Avfallsforskriften, Annex III), see table.

Name	CAS no.	Amount

Indoor environment

The product has no influence on indoor climate

Transport:




Transport from production site to central warehouse in Norway is 50 km

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>
Vold Mie, 2016	Livsløpsdata for Glasopor® fra Skjåk etter innføring av elektrisk produksjon ved fabrikken - Bakgrunnsdata for miljøvaredeklarasjon
www.bau-umwelt.com	PCR Guidance-Texts for Building-Related Products and Services. From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU). Part.B: Requirements on the EPD for www.bau-umwelt.com Lightweight aggregates / Bulk granulate v. 30.07.2014

 epd-norge.no The Norwegian EPD Foundation	Program operator V@A[!, ^* æ Å Ö Å } å æ } Ú[•Ö] Ç Á Ç É Á æ ;• ç ^} Æ Ç H Å • P[!, æ	Phone: É Í Á Ç H Å Ç Å Ç e-mail:][•Ö^] å æ [!*^æ[web: æ æ æ][!*^æ[
	Publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo Norway	Phone: +47 23 08 82 92 e-mail: post@epd-norge.no web: www.epd-norge.no
	Owner of the declaration Glasopor AS Svein Lund Haslevangen 14, 0579 Oslo	Phone: 23 17 39 80 Fax: e-mail: svein.lund@glasopor.no web: www.glasopor.no
	Author of the Life Cycle Assessment Østfoldforskning AS Mie Vold Stadion 4, 1671 Kråkerøy	Phone: 414 69 800 Fax: +47 69 34 24 94 e-mail: mie@ostfoldforskning.no web: www.ostfoldforskning.no