Environmental Product Declaration

In accordance with ISO14025:2006 and EN15804:2012+A2:2019

Steinull hf. Stone Wool Insulation, Density Group 20-75 kg/m³

STEINULL

EPD-Global

Owner of the declaration:
Steinull hf.

Product name:
Steinull hf. Stone Wool Insulation, Density Group 20-75 kg/m³

Declared unit:
1 m² of stone wool with a thermal resistance of 1 m²K/W.

Product category /PCR:
CEN Standard EN 15804+A2 serves as core PCR. NPCR Part A Construction Products and Services NPCR 012 Part B for Thermal Insulation Products.

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-14863-15551

Registration number:
NEPD-14863-15551

Issue date:
09.02.2026

Valid to:
09.02.2031

General information

Product:
Steinull hf. Stone Wool Insulation, Density Group 20-75 kg/m^3

Program operator:
EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 23 08 80 00
e-mail: post@epd-norge.no

Declaration number:
NEPD-14863-15551

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR. NPCR Part A (version 2.0) Construction Products and Services NPCR 012 Part B (version 2.0) for Thermal Insulation Products.

Statement of liability:
The owner of the declaration shall be liable for the underlying information and evidence. EPD-Global shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

Declared unit:
1 m^2 of stone wool with a thermal resistance of 1 m^{2}K/W.

Declared unit with option:
Cradle-to-grave and module D

A1-A3, A4, A5, B1, B2, B3, B4, B5, C1, C2, C3, C4, D

Functional unit:
1 m^2 of stone wool with a thermal resistance of 1 m^{2}K/W, a bulk density of 20-75 kg/m^3 and a reference service life that matches the building lifetime (> 60 years).

Verification:
Independent verification of the declaration and data, according to ISO14025:2010

internal ☐   external ☒

Andrea A. Nistad
Andrea Arntzen Nistad, Asplan Viak AS
Independent verifier approved by EPD-Global

Owner of the declaration:
Steinull hf.
Contact person: Rafn Ingi Rafnsson
Phone: +354 455 3007
e-mail: rafn@steinull.is

Manufacturer:
Steinull hf.
Skarðseyri 5, 550 Sauðárkrókur, Iceland
Phone: +354 455 3000
e-mail: steinull@steinull.is

Place of production:
Sauðárkrókur, Iceland

Management system:
ISO 9001, ISO 14001, ISO 45001

Organisation no:
590183-0249

Issue date:
09.02.2026

Valid to:
09.02.2031

Year of study:
2023

Comparability:
EPD of construction products may not be able to compare if they do not comply with EN 15804 and are seen in a building context.

The EPD has been worked out by:
Eldar Máni Gíslason, EFLA Consulting Engineers

Eldar Máni Gíslason   •EFLA
Approved

Hákon Hauorn

Manager of EPD-Global

Product

Product description:

The product is stone wool (mineral wool) made in Iceland from melting basalt and other minerals, spinning, and tempering with binders. Stone wool is a construction material, mainly used for thermal and acoustic insulation. It is available in various bulk densities, with varying thermal conductivity and compressive strength. Stone wool is a fire-safe material (A1 according to ÍST EN 13501). The manufacturing plant is located in Sauðárkrókur, in the northern part of Iceland. The melting is done with electricity (electric arc furnace), as opposed to burning coke and gas (cupola furnace). The stone wool is ready for use directly after production. Some products in this category have lamination (cover facing), which is dealt with separately.

Product specification:

Materials	[kg/m²]*	%
Basalt sand	0,80	71%
Shell sand	0,14	12%
Other minerals	0,15	13%
Binders	0,03	2%
Dust binding oil	0,01	<1%

The raw materials are sourced locally and internationally: basalt sand and shell sand from Iceland, olivine sand from Norway, alumina from Brazil, and binders and dust-binding oil from Europe. Materials are transported to the fabrication site in Iceland by truck and ship, depending on origin, before processing into the final product.

Packaging	[kg/m²]*
Plastic packaging	0,018
Pallets	0,056

* Per declared unit (1 m² of stone wool with R = 1 m²K/W)

Technical data:

The stone wool is produced according to ÍST EN 13162:2012+A1:2015.

Bulk density, ρ [kg/m³]	Thermal conductivity, λ [W/mK]	Thickness for R = 1 m²K/W [mm]	Area density for R = 1 m²K/W [kg/m²]
20 – 75 (average 30,5)	0,037	37	1,13 (av. product)

Market:

Five scenarios: Reykjavík in Iceland (IS), The Faroe Islands (FO), The United Kingdom (UK), mainland Europe (EU) and Norway (NO).

Reference service life, product:
Matches the lifetime of the building (> 60 years).

Reference service life, building:
> 60 years

Additional technical information
Products in the considered bulk density product category (20-75 kg/m^3) covered by this EPD. Multiplication factors are provided to enable users to get product-specific results.

Product	End use application according to ÍST EN 16783	Bulk dens. [kg/m^3]	Thermal conduct. [W/mK]	Multiplic. factor* (M_P)	Lamination**
Léttull Rúlla (ICEROCK R23)	DAD, DZ, DI, VR	22	0,039	0,76	
Stokkaeinangrun L (ICEROCK DUCTWRAP)	BEL, IL	40	0,034	1,21	L2
Þéttull	DAD, DZ, DI, VR, WZ, WI, WTR	30	0,037	0,98	
Þéttull með vindpappa	DAD, DZ, DI, VR, WZ, WI, WTR	30	0,037	0,98	L1
Þéttull – Plús	DAD, DZ, DI, VR, WZ, WI, WTR	40	0,034	1,21	
Þakull	DZ, VR	27	0,037	0,89	L1
Hljóðísogsplata	DEO, DES	60	0,034	1,81	L3 or L4
Loftstokkaplata 10	BEL	70	0,034	2,11	L3

* To extract environmental data for specific products, the results can be multiplied by the corresponding multiplication factor.

** For products indicated with lamination, follow the procedure described on page 5 to account for the lamination material.

The environmental impacts of the lamination materials are provided for a reference product thickness. Products laminated with L1 are assumed to have a thickness of 185 mm, products laminated with L2 are assumed to have a thickness of 35 mm, and products laminated with L3 or L4 are assumed to have a thickness of 50 mm. To account for the actual product thickness, the environmental impacts of the lamination materials are adjusted by applying the corresponding multiplication factor for the relevant thickness and lamination material, as specified in the table below.

Actual product thickness [mm]	Multiplication factor (M$_{L1}$) L1	Multiplication factor (M$_{L2}$) L2	Multiplication factor (M$_{L34}$) L3 and L4
25	7,40	1,40	2,00
30	6,17	1,17	1,67
40	4,63	0,88	1,25
50	3,70	0,70	1,00
60	3,08	0,58	0,83
75	2,47	0,47	0,67
80	2,31	0,44	0,63
95	1,95	0,37	0,53
100	1,85	0,35	0,50
120	1,54	0,29	0,42
145	1,28	0,24	0,34
180	1,03	0,19	0,28
200	0,93	0,18	0,25
220	0,84	0,16	0,23

To obtain the environmental impacts for a specific product (I$_P$) without lamination, the impacts for the average product (I$_{avg}$) are multiplied by the relevant multiplication factor (M$_P$).

$$I_P = I_{avg} \times M_P$$

The environmental impacts of a product with lamination (I$_{PL}$) are calculated by multiplying the average product impacts (I$_{avg}$) by the product-specific factor (M$_P$) and adding the lamination impacts (I$_L$) multiplied by the relevant thickness-adjustment factor (M$_{L1}$, M$_{L2}$ or M$_{L34}$).

$$I_{PL} = (I_{avg} \times M_P) + (I_L \times M_{L1/L2/L34})$$

The equations above give the environmental impacts per 1 m² of the specific product that achieves a thermal resistance of R = 1 m²K/W. The thickness adjustment factor for the lamination materials is used only to scale the amount of lamination. It does not define results for a specific physical thickness.

LCA: Calculation rules

The LCA was conducted using LCA for Experts software (version 10.9.3.0) by Sphera. Background data were sourced from Sphera's MLC database (version 2025.2) and the Ecoinvent database (version 3.11). The cut-off by classification method was applied in the assessment. Environmental impact indicators were calculated using characterisation factors according to EN 15804+A2.

Declared unit:
1 m² of stone wool with a thermal resistance of 1 m²K/W.

Cut-off criteria:
All major raw materials and all the essential energy is included. The cut-off criteria of 1% of total mass input required by ÍST EN 15804+A2 was fulfilled in the assessment. The only excluded processes are silane (0,005%).

Allocation:

The allocation is made in accordance with the provisions of EN 15804+A2. Incoming energy and water and waste production inhouse 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. The recycling process and transportation of the material is allocated to this analysis.

In the stone wool manufacturing process, a co-product known as lausull (loose stone wool) is produced. Since lausull is a marketable product, it qualifies as a co-product according to ÍST EN 15804+A2. As there is a significant difference in revenue between regular stone wool and lausull, the environmental impacts in are allocated based on economic value.

Data quality:

The assessment is based on production data from 2023. Specific data was used for the stone wool manufacturing itself and for raw materials, when available. The international databases from Sphera (Sphera MLC Professional and Construction database 2025.2) and the international Ecoinvent 3.11 database were used for generic background data. All generic background processes have been updated within the last 10 years, as required by ÍST EN 15804+A2. Table E.1 in Annex E of EN 15804+A2 was used to assess the data quality of relevant data.

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

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
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	X	X	X	X	X	MNR	MNR	X	X	X	X	X

System boundary:

The production stage (module A1-A3) covers raw materials production (e.g. basalt sand, shell sand); binder components production (e.g. resin); transport of raw materials to manufacturing plant; product manufacturing (electricity, fuel, emissions); production of packaging materials; waste disposal or treatment until end-of-waste state. Transport to building site (A4) is based on scenarios.

The lifetime product matches that of the building (> 60 years) so the whole use stage (B) is assumed to be zero. There are no in situ impacts during installation (A5), except for the waste treatment of plastic packaging. Disassembly requires negligible energy use so module C1 is assumed to be zero. Generally, stone wool is delivered unsorted to landfilling so module C3 is assumed to be zero.
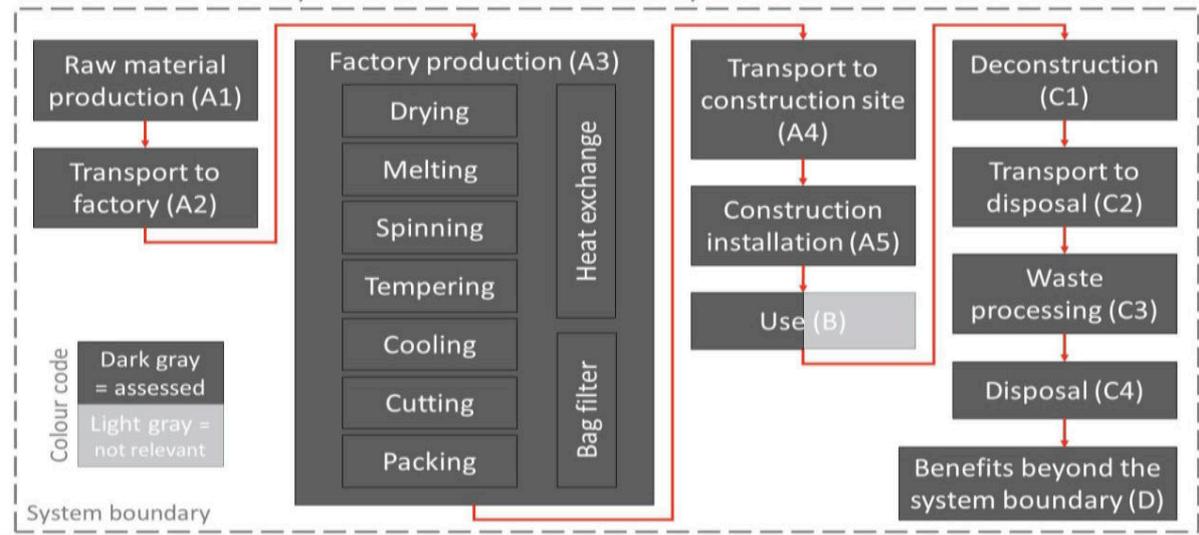
LCA: Scenarios and additional technical information

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

Transport from production place to assembly/user (A4)

Transport from production place to assembly/user (A4)	Type of vehicle	Capacity utilisation (incl. return) [%]	Distance [km]					Fuel consumption [kg/tkm]
			IS	FO	UK	EU	NO	
Truck (Iceland)	Truck, Euro mix, 27 t payload	15	285	120	120	120	120	0,064
Container ship	Container ship, 8200 DWT, 698 TEU	17	0	870	1970	2230	2840	0,024
Truck	Truck, Euro mix, 27 t payload	15	0	10	300	300	300	0,064

Five market scenarios were considered, i.e. Reykjavík in Iceland (IS), The Faroe Islands (FO), The United Kingdom (UK), mainland Europe (EU) and Norway (NO). The stone wool is pressed before to double its bulk density during transport to 61 kg/m³. Product transport weight in a 40-feet container was found based on the maximum volume and pressed bulk density. The capacity utilisation was calculated by dividing the product transport weight either by truck payload or ship deadweight tonnage, taking into account how many containers the ship can carry. Transport impacts for lamination materials (modules A4, C2) were assumed to be zero because they add negligible volume to the stone wool and transport of stone wool is volume-limited, not weight-limited.

Assembly (A5)

	Unit*	Value
Plastic packaging	kg	1,8E-02
Wooden pallets	kg	2,8E-03

* Per declared unit (1 m² of stone wool with R = 1 m²K/W)

Stone wool is a lightweight material and requires negligible energy for installation. The only relevant impacts in phase A5 are associated with the treatment of plastic packaging waste and waste pallets. Pallets are assumed to be reused 20 times prior to final disposal. The transport of waste plastic and pallets to incineration, as well as the impacts from incineration, are included in module A5, while the benefits from energy recovery are reported in module D.

Use (B1-B7)

There is no environmental related impact by the stone wool during service life so B1 is assumed to be zero. The lifetime of the stone wool matches the building

lifetime (> 60 years) and modules B2-B5 are therefore assumed to be zero. Modules B6 (operational energy) and B7 (water use) are not relevant for insulation materials by default because they do not use energy during the use phase according to ÍST EN 16783.

End of Life (C1, C3, C4)

	Unit*	Value
To landfill	kg	1,13

* Per declared unit (1 m² of stone wool with R = 1 m²K/W)

Stone wool is a light material that requires negligible energy during deconstruction and module C1 is therefore assumed to be zero. Stone wool is an inert material and is generally disposed at a landfill in Iceland and waste treatment (C3) is therefore assumed to be zero. It is assumed that the stone wool will be transported to an inert landfill at the End of Life (C4). It is assumed that the stone wool will be transported to an inert landfill at the End of Life (C4). Different scenarios for this transport (C2) are presented for the market scenarios (Iceland, Faroe Islands, United Kingdom, mainland Europe and Norway).

Transport to waste processing (C2)

Transport to waste processing (C2)	Type of vehicle	Capacity utilisation (incl. return) [%]	Distance [km]					Fuel consumption [kg/tkm]
			IS	FO	UK	EU	NO	
Truck (Iceland)	Truck, Euro mix, 27 t payload	15	20	2	100	100	100	0,064

Benefits and loads beyond the system boundaries (D)

Benefits and loads beyond the system boundaries (D)	Unit*	Value
Substitution of electricity, in Europe	MJ	0,12
Substitution of thermal energy, district heating, in Europe	MJ	0,22

* Per declared unit (1 m² of stone wool with R = 1 m²K/W)

Waste plastic packaging and wooden pallets are incinerated and the energy recovery benefits of replacing average European electricity and steam are considered in module D. The considered end of life scenario for stone wool is disposal so that gives no benefits or loads beyond the system boundaries.

LCA: Results

The result tables are given using a location based approach for foreground system (A3) More information about transparent reporting of electricity in the additional requirements section.

The impacts of packaging are included in the results. Modules B1-B5, C1 and C3 are 0 for all impact categories.

Core environmental impact indicators

Indicator	Unit	A1-A3	A4 (EU)	A5	B1-B5	C1	C2 (EU)	C3	C4	D
GWP - total	kg CO2 eq	6,29E-01	3,47E-01	5,93E-02	0	0	2,55E-02	0	1,73E-02	-1,71E-02
GWP - fossil	kg CO2 eq	6,20E-01	3,48E-01	5,51E-02	0	0	2,58E-02	0	1,73E-02	-1,65E-02
GWP - biogenic	kg CO2 eq	-3,05E-03	-2,28E-03	4,18E-03	0	0	-5,67E-04	0	-5,58E-05	-2,95E-04
GWP - luluc	kg CO2 eq	1,15E-02	1,18E-03	2,23E-06	0	0	2,63E-04	0	7,08E-05	-2,62E-04
ODP	kg CFC11 eq	1,03E-08	4,10E-14	3,58E-15	0	0	4,25E-15	0	4,85E-14	-5,01E-14
AP	molc H+ eq	1,05E-02	7,92E-03	6,53E-06	0	0	4,12E-05	0	1,22E-04	-1,29E-05
EP-freshwater	kg P eq	8,15E-05	3,67E-07	8,86E-10	0	0	6,90E-08	0	2,57E-08	-1,44E-08
EP -marine	kg N eq	9,24E-04	1,89E-03	1,53E-06	0	0	1,68E-05	0	3,19E-05	-4,81E-06
EP - terrestrial	molc N eq	4,09E-02	2,07E-02	3,05E-05	0	0	1,80E-04	0	3,48E-04	-5,46E-05
POCP	kg NMVOC eq	3,08E-03	5,37E-03	4,36E-06	0	0	3,68E-05	0	9,56E-05	-1,23E-05
ADP-M&M[2]	kg Sb-Eq	2,30E-06	1,34E-08	5,09E-11	0	0	1,70E-09	0	1,07E-09	-1,07E-09
ADP-fossil[2]	MJ	9,44E+00	4,20E+00	9,56E-03	0	0	3,28E-01	0	2,27E-01	-3,83E-01
WDP[2]	m³	4,05E-01	9,56E-04	5,53E-03	0	0	1,17E-04	0	1,86E-03	-1,14E-03

GWP-total: *Global Warming Potential;* *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; See "additional Norwegian requirements" for indicator given as PO4 eq.* *EP-marine:* *Eutrophication potential, fraction of nutrients reaching freshwater end compartment;* *EP-terrestrial:* *Eutrophication potential, Accumulated Exceedance;* *POCP*: *Formation potential of tropospheric ozone;* *ADP-M&M*: *Abiotic depletion potential for non-fossil resources (minerals and metals);* *ADP-fossil:* *Abiotic depletion potential for fossil resources;* *WDP:* *Water deprivation potential, deprivation weighted water consumption*

Reading example: $9.0\ E\text{-}03 = 9.0 \cdot 10^{-3} = 9.0 \cdot \frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10} = 0.009$ $9.0\ E\text{+}03 = 9.0 \cdot 10^{3} = 9.0 \cdot 10 \cdot 10 \cdot 10 = 9000$

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4 (EU)	A5	B1-B5	C1	C2 (EU)	C3	C4	D
PM	Disease incidence	9,05E-08	1,37E-07	3,96E-11	0	0	3,54E-10	0	1,52E-09	-1,58E-10
IRP[1]	kBq U235 eq.	2,11E-02	8,40E-04	6,87E-05	0	0	8,89E-05	0	2,58E-04	-4,92E-03
ETP-fw[2]	CTUe	1,42E+01	3,89E+00	5,48E-03	0	0	4,26E-01	0	1,75E-01	-8,39E-03
HTP-c[2]	CTUh	7,48E-09	5,62E-11	4,29E-13	0	0	5,75E-12	0	3,02E-12	-5,11E-12
HTP-nc[2]	CTUh	5,65E-09	1,94E-09	5,89E-12	0	0	3,22E-10	0	1,13E-10	-4,21E-11
SQP[2]	Dimensionless	2,39E+00	6,52E-01	3,24E-03	0	0	1,45E-01	0	5,80E-02	-9,37E-02

PM: *Particulate matter emissions;* *IRP:* *Ionising radiation, human health;* *ETP-fw:* *Ecotoxicity (freshwater);* *ETP-c:* *Human toxicity, cancer effects;* *HTP-nc:* *Human toxicity, non-cancer effects;* *SQP:* *Land use related impacts / soil quality*

[1] 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.

[2] 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

Resource use

Parameter	Unit	A1-A3	A4 (EU)	A5	B1-B5	C1	C2 (EU)	C3	C4	D
PERE	MJ	2,45E+01	1,24E-01	2,21E-03	0	0	2,47E-02	0	4,38E-02	-1,64E-01
PERM	MJ	8,62E-01	0,00E+00	0,00E+00	0	0	0,00E+00	0	0,00E+00	0,00E+00
PERT	MJ	2,53E+01	1,24E-01	2,21E-03	0	0	2,47E-02	0	4,38E-02	-1,64E-01
PENRE	MJ	6,22E+00	4,20E+00	9,56E-03	0	0	3,28E-01	0	2,27E-01	-3,83E-01
PENRM	MJ	3,22E+00	0,00E+00	0,00E+00	0	0	0,00E+00	0	0,00E+00	0,00E+00
PENRT	MJ	9,44E+00	4,20E+00	9,56E-03	0	0	3,28E-01	0	2,27E-01	-3,83E-01
SM	kg	5,29E-02	0,00E+00	0,00E+00	0	0	0,00E+00	0	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0,00E+00	0	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0,00E+00	0	0,00E+00	0,00E+00
FW	m³	2,58E-02	7,11E-05	1,30E-04	0	0	1,22E-05	0	5,46E-05	-2,12E-04

PERE Renewable primary energy resources used as energy carrier; **PERM** Renewable primary energy resources used as raw materials; **PERT** Total use of renewable primary energy resources; **PENRE** Nonrenewable primary energy resources used as energy carrier; **PENRM** Nonrenewable primary energy resources used as 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.

End of life – Waste

Parameter	Unit	A1-A3	A4 (EU)	A5	B1-B5	C1	C2 (EU)	C3	C4	D
HWD	kg	5,55E-02	1,54E-10	4,15E-12	0	0	1,32E-11	0	4,99E-11	-2,51E-10
NHWD	kg	4,16E-01	4,25E-04	3,01E-04	0	0	4,58E-05	0	1,13E+00	-2,29E-04
RWD	kg	6,20E-06	6,00E-06	4,30E-07	0	0	6,19E-07	0	2,37E-06	-4,24E-05

HWD Hazardous waste disposed; **NHWD** Non-hazardous waste disposed; **RWD** Radioactive waste disposed.

End of life – output flow

Parameter	Unit	A1-A3	A4 (EU)	A5	B1-B5	C1	C2 (EU)	C3	C4	D
CRU	kg	0,00E+00	0,00E+00	5,29E-02	0	0	0,00E+00	0	0,00E+00	0,00E+00
MFR	kg	8,93E-04	0,00E+00	0,00E+00	0	0	0,00E+00	0	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	2,03E-02	0	0	0,00E+00	0	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0,00E+00	0	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0,00E+00	0	0,00E+00	0,00E+00

CRU Components for reuse; **MFR** Materials for recycling; **MER** Materials for energy recovery; **EEE** Exported electric energy; **EET** Exported thermal energy.

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in the accompanying packaging	kg C	2,32E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 (approx. 3.67) kg CO_2

Alternative transport scenarios

Parameter	Unit	A4					C2		
		IS	FO	UK	EU	NO	IS	FO	UK, EU, NO
GWP - total	kg CO2 eq	7,68E-02	1,26E-01	3,20E-01	3,47E-01	4,11E-01	5,09E-03	5,09E-04	2,55E-02
GWP - fossil	kg CO2 eq	7,78E-02	1,27E-01	3,21E-01	3,48E-01	4,12E-01	5,15E-03	5,15E-04	2,58E-02
GWP - biogenic	kg CO2 eq	-1,71E-03	-6,88E-04	-2,31E-03	-2,28E-03	-2,22E-03	-1,13E-04	-1,13E-05	-5,67E-04
GWP - luluc	kg CO2 eq	7,95E-04	3,66E-04	1,18E-03	1,18E-03	1,18E-03	5,27E-05	5,27E-06	2,63E-04
ODP	kg CFC11 eq	1,28E-14	1,45E-14	3,84E-14	4,10E-14	4,71E-14	8,49E-16	8,49E-17	4,25E-15
AP	molc H+ eq	1,25E-04	3,08E-03	7,02E-03	7,92E-03	1,00E-02	8,24E-06	8,24E-07	4,12E-05
EP- freshwater	kg P eq	2,08E-07	1,18E-07	3,60E-07	3,67E-07	3,83E-07	1,38E-08	1,38E-09	6,90E-08
EP -marine	kg N eq	5,09E-05	7,33E-04	1,68E-03	1,89E-03	2,39E-03	3,36E-06	3,36E-07	1,68E-05
EP - terrestrial	molc N eq	5,45E-04	8,02E-03	1,84E-02	2,07E-02	2,62E-02	3,60E-05	3,60E-06	1,80E-04
POCP	kg NMVOC eq	1,11E-04	2,08E-03	4,76E-03	5,37E-03	6,80E-03	7,36E-06	7,36E-07	3,68E-05
ADP-M&M	kg Sb-Eq	5,13E-09	4,63E-09	1,28E-08	1,34E-08	1,50E-08	3,40E-10	3,40E-11	1,70E-09
ADP-fossil	MJ	9,89E-01	1,52E+00	3,88E+00	4,20E+00	4,95E+00	6,56E-02	6,56E-03	3,28E-01
WDP	m³	3,53E-04	3,31E-04	9,05E-04	9,56E-04	1,08E-03	2,34E-05	2,34E-06	1,17E-04

Lamination materials

In the four tables below, the environmental impact of lamination materials is given per functional unit, i.e. per m² of stone wool with R = 1 m²·K/W. To obtain the impacts of laminated stone wool, follow the procedure described on page 5. This will give the correct environmental impact of laminated stone wool per m² of stone wool with R = 1 m²K/W. Modules A4-A5, B1-B5, and C1-C3 are 0 for all impact categories.

Lamination L1 – Windproof paper

Products laminated with windproof paper: Þakull and Þéttull með vindpappa.

The environmental impacts in the table below are based on a reference product with a thickness of 185 mm. To obtain results for a different thickness, multiply the impacts by the multiplication factor M_{L1} corresponding to the relevant thickness, as specified in the table on page 4.

Indicator	Unit	A1-A3	C4	D
GWP - total	kg CO2 eq	1,02E-02	1,79E-02	-2,37E-03
GWP - fossil	kg CO2 eq	2,89E-02	1,10E-03	-2,30E-03
GWP - biogenic	kg CO2 eq	-1,90E-02	1,68E-02	-4,06E-05
GWP - luluc	kg CO2 eq	2,00E-04	1,50E-06	-3,61E-05
ODP	kg CFC11 eq	3,08E-10	2,31E-15	-6,91E-15
AP	molc H+ eq	2,14E-04	5,53E-06	-1,79E-06
EP- freshwater	kg P eq	3,16E-06	1,62E-07	-1,99E-09
EP -marine	kg N eq	5,68E-05	3,10E-06	-6,66E-07
EP - terrestrial	molc N eq	5,98E-04	1,94E-05	-7,56E-06
POCP	kg NMVOC eq	1,93E-04	1,10E-05	-1,71E-06
ADP-M&M	kg Sb-Eq	5,16E-08	4,84E-11	-1,48E-10
ADP-fossil	MJ	5,27E-01	1,59E-02	-5,31E-02
WDP	m³	1,07E-02	8,29E-05	-1,57E-04

Lamination L2 – Aluminium foil

Products laminated with aluminium foil: Stokkaeinangrun L (ICEROCK DUCTWRAP).

The environmental impacts in the table below are based on a reference product with a thickness of 35 mm. To obtain results for a different thickness, multiply the impacts by the multiplication factor M_{L2} corresponding to the relevant thickness, as specified in the table on page 4.

Indicator	Unit	A1-A3	C4	D
GWP - total	kg CO2 eq	6,24E-01	1,58E-03	0,00E+00
GWP - fossil	kg CO2 eq	6,17E-01	1,57E-03	0,00E+00
GWP - biogenic	kg CO2 eq	3,19E-03	3,43E-06	0,00E+00
GWP - luluc	kg CO2 eq	4,43E-03	3,27E-06	0,00E+00
ODP	kg CFC11 eq	2,08E-09	1,64E-11	0,00E+00
AP	molc H+ eq	3,61E-03	9,79E-06	0,00E+00
EP- freshwater	kg P eq	9,69E-06	4,41E-07	0,00E+00
EP -marine	kg N eq	7,22E-04	3,97E-06	0,00E+00
EP - terrestrial	molc N eq	7,88E-03	3,18E-05	0,00E+00
POCP	kg NMVOC eq	2,20E-03	9,96E-06	0,00E+00
ADP-M&M	kg Sb-Eq	4,02E-06	1,79E-09	0,00E+00
ADP-fossil	MJ	9,21E+00	2,78E-02	0,00E+00
WDP	m³	1,80E-01	-7,60E-03	0,00E+00

Lamination L3 – Black glass fibre fabric

Products laminated with black glass fibre fabric: Loftstokkaplata 10 and Hljóðísogsplata.

The environmental impacts in the table below are based on a reference product with a thickness of 50 mm. To obtain results for a different thickness, multiply the impacts by the multiplication factor M_{L34} corresponding to the relevant thickness, as specified in the table on page 4.

Indicator	Unit	A1-A3	C4	D
GWP - total	kg CO2 eq	1,64E-01	7,22E-04	0,00E+00
GWP - fossil	kg CO2 eq	1,63E-01	7,21E-04	0,00E+00
GWP - biogenic	kg CO2 eq	9,36E-04	-1,75E-06	0,00E+00
GWP - luluc	kg CO2 eq	1,54E-04	2,69E-06	0,00E+00
ODP	kg CFC11 eq	7,16E-09	2,14E-15	0,00E+00
AP	molc H+ eq	1,17E-03	4,88E-06	0,00E+00
EP- freshwater	kg P eq	3,89E-05	1,11E-07	0,00E+00
EP -marine	kg N eq	2,49E-04	1,22E-06	0,00E+00
EP - terrestrial	molc N eq	2,74E-03	1,33E-05	0,00E+00
POCP	kg NMVOC eq	7,55E-04	3,70E-06	0,00E+00
ADP-M&M[2]	kg Sb-Eq	1,24E-05	4,59E-11	0,00E+00
ADP-fossil[2]	MJ	2,68E+00	1,01E-02	0,00E+00
WDP[2]	m³	9,84E-02	8,08E-05	0,00E+00

Lamination L4 – White glass fibre fabric
Products laminated with white glass fibre fabric: Hljóðísogsplata.

The environmental impacts in the table below are based on a reference product with a thickness of 50 mm. To obtain results for a different thickness, multiply the impacts by the multiplication factor M_{L34} corresponding to the relevant thickness, as specified in the table on page 4.

Indicator	Unit	A1-A3	C4	D
GWP - total	kg CO2 eq	2,09E-01	1,23E-03	0,00E+00
GWP - fossil	kg CO2 eq	2,09E-01	1,23E-03	0,00E+00
GWP - biogenic	kg CO2 eq	-4,43E-04	-1,60E-06	0,00E+00
GWP - luluc	kg CO2 eq	3,84E-04	3,94E-06	0,00E+00
ODP	kg CFC11 eq	8,42E-09	3,93E-15	0,00E+00
AP	molc H+ eq	1,24E-03	7,79E-06	0,00E+00
EP- freshwater	kg P eq	4,88E-05	4,47E-07	0,00E+00
EP -marine	kg N eq	2,78E-04	1,82E-06	0,00E+00
EP - terrestrial	molc N eq	2,91E-03	1,99E-05	0,00E+00
POCP	kg NMVOC eq	1,10E-03	5,63E-06	0,00E+00
ADP-M&M[2]	kg Sb-Eq	1,06E-05	8,08E-11	0,00E+00
ADP-fossil[2]	MJ	4,36E+00	1,88E-02	0,00E+00
WDP[2]	m^3	9,68E-02	1,45E-04	0,00E+00

Lausull (Loose stone wool)
The carbon footprint (GWP - total) of the production of loose stone wool (A1-A3) is 0,17 kg CO_2-eq/kg. The value is expressed per kilogram of material and not per functional unit (e.g. per m^2 at R = 1).

Additional requirements

Transparent reporting of energy

The EPD provides in the main result tables environmental impact categories based on a location based approach. The information below is provided so EPD users are able to understand the effect of these methodological choices.

The table below shows calculation of GWP-total for energy resources used in the manufacturing process (A3) for each approach.

Energy source	Data source	Amount [kWh]	GWP$_{total}$ [kg CO_2 -eq/kWh]	SUM [kg CO_2 -eq]
Location based approach				
Electricity grid mix, Iceland	Sphera MLC 2025.2	2,66E+00	1,87E-02	4,97E-02
Market based approach				
Electricity, medium voltage, residual mix, Iceland	Ecoinvent 3.11	2,66E+00	7,12E-01	1,89E+00

The data for the residual mix is sourced from the Ecoinvent 3.11 database, which calculates the residual mix based on statistics from AIB using the methodology of grexel. The composition of the residual mix is for the year 2023.

The GWP-total for life cycle stages A1-A3 in the stone wool production is 2,47 kg CO_2 eq. when using the residual mix, compared to 0,63 kg CO_2 eq. using the location-based approach.

Additional environmental impact indicators required for construction products

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.

Modules B1-B5, C1 and C3 are 0.

Parameter	Unit	A1-A3	A4 (EU)	A5	B1-B5	C1	C2 (EU)	C3	C4	D
GWP-IOBC	kg CO_2-eq.	6,32E-01	3,50E-01	5,51E-02	0	0	2,60E-02	0	1,74E-02	-1,68E-02

GWP-IOBC *Global warming potential calculated according to the principle of instantaneous oxidation.*

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

The product contains no substances given by the REACH Candidate list.

Indoor environment

No tests have been carried out on the product concerning indoor climate.

Carbon footprint

While a carbon footprint analysis has not been conducted for the product separately, the results section does include an evaluation of Global Warming Potential (GWP) with such an analysis. The GWP total results presented in this EPD document represents the carbon footprint of the product studied.

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	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
ISO 21930:2017	Sustainability in building construction - Environmental declaration of building products
EPD-Norge (2021)	NPCR Part A: Construction products and services. Version 2.0
EPD-Norge (2022)	NPCR 012 - Part B for thermal insulation products. Version 2.0
ÍST EN 16783:2017	Thermal insulation products – Product category rules (PCR) for factory made and in-situ formed products for preparing environmental product declarations
ÍST EN 13162:2012+A1:2015	Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification
ÍST EN 13501-1:2018	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests
EN 15251:2007	Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics
EFLA Consulting Engineers (2025)	Life Cycle Assessment of Icelandic Stone Wool. 2025 Update. Steinull hf.
Ecoinvent (2024)	Ecoinvent database. Version 3.11
Sphera Solutions (2025)	Managed LCA Content database. Version 2025.2
Sphera Solutions (2024)	LCA for Experts. Version 10.9.3.0

	Program Operator	Phone:	+47 23 08 80 00
	EPD-Global		
	Post Box 5250 Majorstuen, 0303 Oslo	e-mail:	post@epd-norge.no
	Norway	Website:	www.epd-global.com
	Publisher	Phone:	+47 23 08 80 00
	EPD-Global		
	Post Box 5250 Majorstuen, 0303 Oslo	e-mail:	post@epd-norge.no
	Norway	Website	www.epd-global.com
	Owner of the declaration	Phone:	+354 455 3000
	Steinull hf.		
	Skarðseyri 5, 550 Sauðárkrókur	e-mail:	steinull@steinull.is
	Iceland	Website:	www.steinull.is
	Author of the life cycle assesment	Phone:	+354 412 6000
	EFLA Consulting Engineers		
	Lyngháls 4, 110 Reykjavík	e-mail:	efla@efla.is
	Iceland	Website:	www.efla.is
	ECO Platform ECO Portal	Website: Website:	www.eco-platform.org ECO Portal