ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804:2012+A1:2013 for:

Glass mineral wool insulation
λ 0.040 – 0.046 W/mK

From

KNAUF INSULATION

Program:	The International EPD® System www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-01750
Publication date:	2019-10-27
Validity date:	2024-12-22

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Programme-related information and verification

EPD programme:	The International EPD® System
EPD programme operator:	EPD International AB Box 210 60 SE-100 31 Stockholm - Sweden www.environdec.com info@environdec.com
EPD registration number:	S-P-01750
Published:	2019-10-27
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EPD owner:	Knauf Insulation (Northern Europe) Stafford Road St Helens Merseyside WA10 3N - UK
Product Category Rules:	CEN standard EN 15804+A1:2013 serves as the Core Product Category Rules (PCR) PCR 2012:01. Construction products and construction services. Version 2.3 Sub-PCR-I Thermal insulation products (EN 16783) Version 2018-11-22
PCR review conducted by:	The Technical Committee of the International EPD® System
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	☐ internal certification ☒ external verification
Third-party Verifier:	Ugo Pretato, Studio Fieschi & Soci S.r.l. Italy
Procedure for follow-up of data during EPD validity involves third-party Verifier:	☒ Yes ☐ No
LCA conducted by:	EuGeos Limited, UK +44 (0)1625 434423 www.eugeos.co.uk
Product group classification:	UN CPC 37
Reference year for manufacturing data:	2018
Geographical application scope:	Europe

The EPD owner has the sole ownership, liability and responsibility for the EPD.
EPD within the same product category but from different programmes may not be comparable.
EPD of construction products may not be comparable if they do not comply with EN 15804.

About the company

Knauf Insulation has more than 40 years of experience in the insulation industry and is one of the most respected names in insulation worldwide.

At Knauf Insulation, we are committed to helping our customers meet the increasing demand for energy efficiency and sustainability in homes, non-residential buildings and industrial applications.

As the only manufacturer of both Glass and Rock Mineral Wool, we are uniquely placed to provide the best insulation solution for each application. We offer a wide range of insulation solutions for all applications in commercial and residential buildings, for both new build and refurbishment projects, in addition to solutions for HVAC, industrial applications and fire protection, green roofs and bespoke applications.

COMPANY CERTIFICATIONS

All Knauf Insulation sites, including the manufacturing facilities for products covered by this EPD, are ISO 9001, ISO 14001, ISO 5001 and OHSAS 18001 certified under the scope "Design, Development and Production of Insulation Materials and Systems".

PRODUCTION SITES

Data used for the product LCA were collected from Knauf Insulation (Northern Europe)'s two glass insulation manufacturing facilities in the UK:

Knauf Insulation, Stafford Road, St Helens, Merseyside
Knauf Insulation, Cwmbran, Torfaen, Wales

About glass mineral wool production

Glass mineral wool insulation is available in two forms:

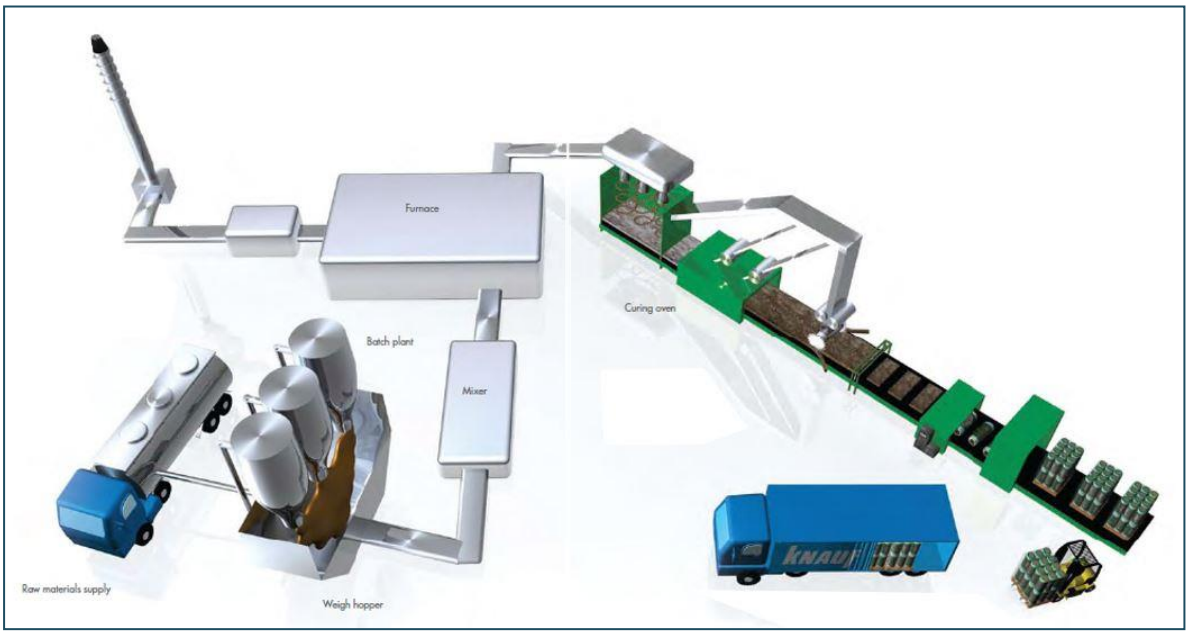
Glass Mineral Wool (GMW) products contain binder and are manufactured in the form of slabs and rolls.
Blowing wool products contain no binder for loose-fill applications.

In the manufacturing process, recovered waste glass is melted together with other raw materials needed to achieve glass of the target composition. As molten glass leaves the furnace, it is cooled and formed into glass fibres. This is transformed directly into the blowing wool product. For mineral wool products, binder is then applied as a solution prior to the forming and oven-curing of the final product

Both GMW and blowing wool are produced at Knauf Insulation (Northern Europe)'s glass insulation manufacturing facilities in the UK.

This EPD concerns Glass Mineral Wool products in the form of slabs and rolls compliant with the requirements of BS EN 13162. These are manufactured by first forming glass fibres, to which a solution of the binder resin is then applied. Mats of this fibre are formed before curing in an oven yields the finished product.

The production process for glass mineral wool is shown in the figure below



Product information

PRODUCT DESCRIPTION

Glass mineral wool is approximately 95% glass; this comprises recycled glass (external cullet, up to 80% of the composition) with other mineral raw materials - mainly sand and dolomite. The remaining 5% comprises a bio-based resin binder, and small quantities of additives that aid performance.
Glass mineral wool is used for thermal and acoustic insulation in buildings.
The principal performance characteristic of thermal insulation is its thermal conductivity (Lambda, λ).
The product is mainly marketed in Northern Europe, particularly the UK and Scandinavia.

RECYCLED MATERIAL

The external cullet content applied in the LCA for this EPD was taken from 2018 usage data for Cwmbran and St Helens factories.

PACKAGING AND TRANSPORTATION

All glass insulation products are compressed when packed to optimise their transport to customers.

USE AND MAINTENANCE

The product does not require maintenance or replacement.
In normal conditions of use, the product is not visible in either internal or external areas, and will not be in contact with water.

END-OF-LIFE

The product may be disposed of as a non-hazardous material, EWC code 17 06 04

UN CPC

Under the UN CPC classification system v2.1, Knauf Insulation (NE) mineral wool insulation products are classified CPC 37990.

PRODUCT RANGE

Knauf Insulation Northern Europe's glass mineral wool products have been divided into a number of groups; each group encompasses products with thermal conductivity (lambda, λ) within a specified range.

This EPD is for products with thermal conductivity in the range λ 0.040 – 0.046 W/mK.

The products to which it applies are listed in the following table.

THERMAL CONDUCTIVITY	Λ 0.040 – 0.046 W/MK
DENSITY RANGE	8 - 13 KG/M^3
PRODUCTS	EARTHWOOL LOFT ROLL 44 EARTHWOOL ACOUSTIC ROLL (75MM) EARTHWOOL FACTORYCLAD ROLL 40 EARTHWOOL OMNIFIT ROLL EARTHWOOL SPACE BLANKET EARTHWOOL UNIVERSAL ROLL EARTHWOOL ACOUSTIC ROLL (100MM) EARTHWOOL STEELTHERM ROLL 40 KALZIP PLUS 40 EARTHWOOL FRAMETHERM ROLL 40 EARTHWOOL LOFT ROLL 40 SPACE ROLL 039 KNAUF INSULATION GLASS MW ROLL 10KG KNAUF INSULATION GLASS OEM ROLL THERMA-QUILT

TECHNICAL CHARACTERISTICS

The products are intended for use as thermal and/or acoustic insulation in buildings. They comply with BS EN 13162 and the CE mark.

Key technical properties are shown in the table below; consult the relevant product Technical Data Sheet for a comprehensive specification.

PARAMETER	VALUE
THERMAL CONDUCTIVITY (EN 12667) AT 10°C	Λ 0.040 - 0.046 W/MK
GROSS DRY DENSITY RANGE (EN 1602)	8 - 13 KG/M^3
WATER VAPOUR DIFFUSION RESISTANCE FACTOR (EN 13162)	1
WATER ABSORPTION WP (BS EN 29767)	<1 KG/M^2
REACTION TO FIRE (BS EN 13501-1:2002)	EUROCLASS A1

REFERENCE SERVICE LIFE

The expected lifetime of the product is as long as the lifetime of the building equipment in which it is installed (at least 50 years).

RESIDUAL RISKS AND EMERGENCIES

There are no residual risks associated with the normal day-to-day use of insulation products. Care must be taken to install the products in accordance with guidance issued by Knauf Insulation Northern Europe.

The product is classified as non-hazardous. The International Agency for Research on Cancer (IARC) classifies mineral wool fibres in group 3: "*not classified as to their carcinogenicity to humans*". These fibres are exempt from carcinogenic classification under European Regulation 1272/2008, having bio-persistence below the values defined in its note "Q". This exemption is certified by the European Certification Board (EUCEB, www.euceb.org).

CONTENT DECLARATION

No substance included in the Candidate List of Substances of Very High Concern for authorisation under the REACH Regulations is present in these insulation products, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

FURTHER PRODUCT INFORMATION

Detailed product information and datasheets can be found

- on our website: https://www.knaufinsulation.co.uk/
- or by contacting Customer Service by telephone: 01744 766 766
- or by email: technical.uk@knaufinsulation.com

LCA information

This section of the EPD records key features of the LCA on which it is based.

DECLARED UNIT

The declared unit is 1m^2 at 100mm thickness.
The applicable thermal conductivity is λ 0.040 –0.046W/mK.

Indicator values are declared for product with densities: 9 kg/m^3 and 11 kg/m^3. If indicator values for other densities are required, they may be obtained by linear extrapolation of these values.

SCOPE AND SYSTEM BOUNDARIES

The system boundary of the EPD is defined using the modular approach set out in EN 15804 as shown in the table below.
This a cradle-to-gate with options EPD.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BEYOND BOUNDARIES
RAW MATERIAL SUPPLY	TRANSPORT	MANUFACTURING	TRANSPORT TO THE SITE	ASSEMBLY	USE	MAINTENANCE	REPAIR	REPLACEMENT	REFURBISHMENT	OPERATIONAL ENERGY USE	OPERATIONAL WATER USE	DE-CONSTRUCTION DEMOLITION	TRANSPORT	WASTE DISPOSAL	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	MND	MND	MND	MND	MND	MND	MND	MND	X	MND	X	MND

Modules declared in the EPD: X: included in LCA; MND: module not declared or NR for not relevant

PRODUCT STAGE

This stage includes the extraction and manufacture of raw materials, intermediate products and energy, as well as waste processing up to the end-of-waste state (i.e. no longer considered a waste material) or disposal of final residues arising during the product stage.
All upstream resource extraction and manufacturing processes are included in the system. All energy used in factories and factory support offices is included but energy used in head offices and sales offices etc. is not. Maintenance of equipment is also excluded.
Modules A1, A2 and A3 are declared as one aggregated module: A1 – A3.

Details of the product and packaging applied in the LCA are provided in the table below.

PRODUCT PARAMETERS	VALUE
DECLARED DENSITY	9 & 11 KG/M^3
GLASS MINERAL WOOL WEIGHT (WITHOUT FACING WEIGHT)	0.90 & 1.10 KG
SURFACE	1 M^2
THICKNESS	100 MM
VOLUME	0.1 M^3
FACING	NA
PACKAGING PLASTIC SHEET	0.004 KG & 0.005 KG
PACKAGING WOODEN PALLET	0.009 KG & 0.011 KG

CONSTRUCTION STAGE

Module A4 covers transport of product from the place of manufacture to the construction site. It includes the transport distance and the relevant transport mode. This module is included in the LCA using a scenario.
Module A5 covers installation of the product in the building. Glass mineral wool products are installed manually, therefore module A5 is included in the LCA as product wastage and management of product packaging after use.

The parameters applied for both modules are shown in the table below:

PARAMETER	VALUE
AVERAGE TRANSPORT DISTANCE	600 KM
TYPE OF FUEL AND VEHICLE CONSUMPTION OR TYPE OF VEHICLE USED FOR TRANSPORT	TRUCK. EURO 6, 16 – 32 T / 16 T PAYLOAD 21L / 100 KM
TRUCK CAPACITY UTILISATION (INCLUDING 30% OF EMPTY RETURNS)	35 %
LOSS OF MATERIALS ON SITE	2%
PACKAGING WOODEN PALLET	31% RECYCLED, 69% TO LANDFILL
PACKAGING PLASTIC SHEET	45% RECYCLED, 14% INCINERATED, 41% TO LANDFILL

END-OF-LIFE STAGE

Module C2 concerns transport of the end-of-life construction product, after removal from the building, to a waste processing facility.
Module C4 covers final disposal of the end-of-life construction product.

These modules are included in the LCA using scenarios; the parameters used for these modules are shown in the table below:

PARAMETER	VALUE
DISPOSAL TYPE (MINERAL WOOL)	100% LANDFILL
AVERAGE TRANSPORT DISTANCE WASTE (C2)	50 KM
TYPE OF FUEL AND VEHICLE CONSUMPTION OR TYPE OF VEHICLE USED FOR TRANSPORT	TRUCK, EURO 4, 7.5-16 T , 18 L/ 100 KM
TRUCK CAPACITY UTILISATION	35 %

ADDITIONAL LCA INFORMATION

CUT-OFF CRITERIA

According to the PCR, flows can be omitted (cut off) from the LCA up to a maximum of 1% of the total mass of material inputs or 1% of the total energy content of fuels and energy carriers; energy inputs at one site which represented <0.5% of total energy use in a previous LCA were omitted from the LCA underpinning this EPD.

DATA SOURCES AND DATA QUALITY

The collected data covered all raw materials, consumables and packaging materials; associated transport to the manufacturing site; process energy and water use; direct production wastes; emissions to air and water.

ALLOCATION

In the background data, the ecoinvent default allocation is applied to all processes except those in which secondary materials are used, where the "cut-off" allocation is applied. This ensures that secondary materials are free of upstream burdens that arise prior to their reaching the "end of waste" state; this is in accordance with the PCR and also Section 6.3.4.2 of EN 15804.

Following ISO 14044, the overall process is subdivided as far as possible, so that flows dedicated to a particular product type are fully assigned to that product type and the need for allocation is minimised.

ASSUMPTIONS AND ESTIMATES

Inputs to and outputs from the system are accounted for over a 100-year time period; long-term emissions are therefore omitted from the impact assessment part of the LCA.

The "primary energy used as material" indicators (PERM; PENRM) are calculated using - as characterisation factors - published values for constituent materials which can yield energy on combustion, where available, and from published calorific values where PEM values are not available. Calculations of PE(N)RM are based on a feedstock energy content of 47MJ/kg for plastic packaging film, 16MJ/kg for wood and 14MJ/kg for the biopolymer.

"Primary energy as fuel" indicators (PENRE, PERE) are calculated as the total primary energy demand minus primary energy used as material.

The secondary material indicator counts recycled glass in the product only.

TIME REPRESENTATIVENESS

Data used for this LCA were collected following guidance in ISO 14044:2006 and cover the 12-month period January 1 - December 31 2018.

DATABASE(S) AND LCA SOFTWARE USED

The LCA model, the data aggregation and environmental impacts were calculated in openLCA. Background data were taken from the ecoinvent v 3.4 database.

Environmental performance indicators

This EPD contains environmental information about the specified products, in the form of quantitative indicator values for a number of parameters, which encompass calculated environmental impact potentials, resource and energy use, and waste generation.

GLASS MINERAL WOOL INSULATION, Λ 0.040 – 0.046 W/MK, DENSITY 9 KG/M^3

Environmental indicator results for the A1 - A3 modules on an aggregated basis and the A4, A5, C2 & C4 modules are shown in the following tables for the declared unit of 1m^2 at 100mm thickness (0.1m^3)

ENVIRONMENTAL IMPACT POTENTIALS

INDICATOR	UNIT	TOTAL A1-A3	A4	A5	C2	C4
GLOBAL WARMING POTENTIAL (GWP)	KG CO_2 EQ.	9.42E-01	1.52E-02	2.98E-02	9.46E-03	4.82E-03
STRATOSPHERIC OZONE LAYER DEPLETION POTENTIAL (ODP)	KG CFC 11 EQ.	1.92E-07	2.73E-09	3.90E-09	1.71E-09	1.59E-09
ACIDIFICATION POTENTIAL (AP)	KG SO_2 EQ.	4.01E-03	3.74E-05	8.31E-05	3.57E-05	3.55E-05
EUTROPHICATION POTENTIAL (EP)	KG PO_4^{3-} EQ.	9.50E-04	4.77E-06	2.11E-05	6.28E-06	6.11E-06
FORMATION POTENTIAL OF TROPOSPHERIC OZONE (POCP)	KG C_2H_4 EQ.	1.40E-04	2.36E-06	2.93E-06	1.58E-06	1.75E-06
ABIOTIC RESOURCES DEPLETION POTENTIAL – ELEMENTS (ADPE)	KG SB EQ.	4.78E-05	1.46E-07	9.53E-07	1.23E-07	1.61E-08
ABIOTIC RESOURCES DEPLETION POTENTIAL – FOSSIL RESOURCES (ADPF)	MJ	1.56E+01	2.30E-01	3.10E-01	1.42E-01	1.36E-01

RESOURCE USE

INDICATOR		UNIT	TOTAL A1-A3	A4	A5	C2	C4
PRIMARY ENERGY RESOURCES – RENEWABLE (PERE)	USE AS ENERGY CARRIER	MJ, NET CALORIFIC VALUE	6.32E-01	2.77E-03	3.08E-02	2.17E-03	3.51E-03
	USED AS RAW MATERIALS	MJ, NET CALORIFIC VALUE	8.13E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ, NET CALORIFIC VALUE	1.45E+00	2.77E-03	3.08E-02	2.17E-03	3.51E-03
PRIMARY ENERGY RESOURCES – NON-RENEWABLE (PENRE)	USE AS ENERGY CARRIER	MJ, NET CALORIFIC VALUE	1.95E+01	2.33E-01	3.92E-01	1.46E-01	1.38E-01
	USED AS RAW MATERIALS	MJ, NET CALORIFIC VALUE	1.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ, NET CALORIFIC VALUE	1.96E+01	2.33E-01	3.92E-01	1.46E-01	1.38E-01
SECONDARY MATERIAL (SM)		KG	6.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RENEWABLE SECONDARY FUELS (RSF)		MJ, NET CALORIFIC VALUE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NON-RENEWABLE SECONDARY FUELS (NRSF)		MJ, NET CALORIFIC VALUE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NET USE OF FRESH WATER (FW)		M^3	8.07E-03	4.24E-05	2.97E-04	2.84E-05	1.53E-04

WASTE PRODUCTION

INDICATOR	UNIT	TOTAL A1-A3	A4	A5	C2	C4
HAZARDOUS WASTE DISPOSED (HW)	KG	1.70E-04	3.33E-06	3.44E-06	3.96E-06	8.14E-06
NON-HAZARDOUS WASTE DISPOSED (NHW)	KG	1.30E-01	2.78E-02	2.96E-02	5.55E-03	9.01E-01
RADIOACTIVE WASTE DISPOSED (RW)	KG	1.00E-04	2.00E-06	2.07E-06	9.79E-07	9.05E-07

OTHER OUTPUT FLOWS

INDICATOR	UNIT	TOTAL A1-A3	A4	A5	C2	C4
COMPONENTS FOR REUSE (CR)	KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MATERIAL FOR RECYCLING (MR)	KG	4.73E-05	1.29E-07	8.20E-07	7.70E-08	9.47E-08
MATERIALS FOR ENERGY RECOVERY (MER)	KG	2.08E-11	5.50E-15	7.81E-11	4.22E-15	4.05E-15
EXPORTED ENERGY (EE)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

GLASS MINERAL WOOL INSULATION, Λ 0.040 – 0.046 W/MK, DENSITY 11 KG/M^3

Environmental indicator results for the A1 - A3 modules on an aggregated basis and the A4, A5, C2 & C4 modules are shown in the following tables for the declared unit of 1m^2 at 100mm thickness (0.1m^3)

ENVIRONMENTAL IMPACT POTENTIALS

INDICATOR	UNIT	TOTAL A1-A3	A4	A5	C2	C4
GLOBAL WARMING POTENTIAL (GWP)	KG CO_2 EQ.	1.15E+00	1.86E-02	3.65E-02	1.16E-02	5.89E-03
STRATOSPHERIC OZONE LAYER DEPLETION POTENTIAL (ODP)	KG CFC 11 EQ.	2.34E-07	3.34E-09	4.76E-09	2.09E-09	1.95E-09
ACIDIFICATION POTENTIAL (AP)	KG SO_2 EQ.	4.90E-03	4.57E-05	1.02E-04	4.36E-05	4.34E-05
EUTROPHICATION POTENTIAL (EP)	KG PO_4^{3-} EQ.	1.16E-03	5.83E-06	2.58E-05	7.67E-06	7.47E-06
FORMATION POTENTIAL OF TROPOSPHERIC OZONE (POCP)	KG C_2H_4 EQ.	1.80E-04	2.89E-06	3.58E-06	1.93E-06	2.14E-06
ABIOTIC RESOURCES DEPLETION POTENTIAL – ELEMENTS (ADPE)	KG SB EQ.	5.84E-05	1.79E-07	1.17E-06	1.50E-07	1.97E-08
ABIOTIC RESOURCES DEPLETION POTENTIAL – FOSSIL RESOURCES (ADPF)	MJ	1.91E+01	2.81E-01	3.79E-01	1.74E-01	1.67E-01

RESOURCE USE

INDICATOR		UNIT	TOTAL A1-A3	A4	A5	C2	C4
PRIMARY ENERGY RESOURCES – RENEWABLE (PERE)	USE AS ENERGY CARRIER	MJ, NET CALORIFIC VALUE	7.73E-01	3.39E-03	3.76E-02	2.65E-03	4.29E-03
	USED AS RAW MATERIALS	MJ, NET CALORIFIC VALUE	9.94E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ, NET CALORIFIC VALUE	1.77E+00	3.39E-03	3.76E-02	2.65E-03	4.29E-03
PRIMARY ENERGY RESOURCES – NON-RENEWABLE (PENRE)	USE AS ENERGY CARRIER	MJ, NET CALORIFIC VALUE	2.38E+01	2.85E-01	4.79E-01	1.78E-01	1.69E-01
	USED AS RAW MATERIALS	MJ, NET CALORIFIC VALUE	2.11E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ, NET CALORIFIC VALUE	2.40E+01	2.85E-01	4.79E-01	1.78E-01	1.69E-01
SECONDARY MATERIAL (SM)		KG	7.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RENEWABLE SECONDARY FUELS (RSF)		MJ, NET CALORIFIC VALUE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NON-RENEWABLE SECONDARY FUELS (NRSF)		MJ, NET CALORIFIC VALUE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NET USE OF FRESH WATER (FW)		M^3	9.86E-03	5.19E-05	3.63E-04	3.47E-05	1.87E-04

WASTE PRODUCTION

INDICATOR	UNIT	TOTAL A1-A3	A4	A5	C2	C4
HAZARDOUS WASTE DISPOSED (HW)	KG	2.10E-04	4.07E-06	4.20E-06	4.84E-06	9.94E-06
NON-HAZARDOUS WASTE DISPOSED (NHW)	KG	1.59E-01	3.39E-02	3.62E-02	6.79E-03	1.10E+00
RADIOACTIVE WASTE DISPOSED (RW)	KG	1.30E-04	2.44E-06	2.53E-06	1.20E-06	1.11E-06

OTHER OUTPUT FLOWS

INDICATOR	UNIT	TOTAL A1-A3	A4	A5	C2	C4
COMPONENTS FOR REUSE (CR)	KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MATERIAL FOR RECYCLING (MR)	KG	5.78E-05	1.58E-07	1.00E-06	9.41E-08	1.16E-07
MATERIALS FOR ENERGY RECOVERY (MER)	KG	2.54E-11	6.73E-15	9.55E-11	5.16E-15	4.94E-15
EXPORTED ENERGY (EE)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

LCA interpretation

Modules A1 - A3 are the most significant across the whole life cycle. Knauf Insulation's own processes make the largest contribution to the indicator totals for almost all environmental impact categories, through energy use and emissions from the glass-making process. Production of the basic raw materials for the bio-based binder make a significant contribution to the eutrophication indicator.

Waste indicators, and the indicator values obtained for ODP and water use should be used with caution; all are subject to uncertainties in data or method which limit the scope for their use for comparison with other products or with other EPD produced using background data from different sources.

References

General Programme Instructions Version 2.5 - The International EPD® System - EPD International AB

ISO 14025
EN ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804
EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

EN 1602
EN 1602: 2013 Thermal insulating products for building applications - Determination of the apparent density

EN 12667
EN 12667: 2001 Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance

BS EN 13162
EN 13162:2012 Thermal insulation products for buildings - Factory made mineral wool (MW) products - Specification

EN 13501-1
EN 13501-1: 2009 Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests

BS EN 29767
BS EN ISO 29767:2019: Thermal insulating products for building applications. Determination of short-term water absorption by partial immersion

LCA of Glass Mineral Wool Insulation with Ecose® (2019) - Report For Knauf Insulation Northern Europe - EuGeos Limited

Product Category Rules PCR 2012:01. Construction products and construction services. Version 2.3 - The International EPD® System - EPD International AB

Sub-PCR-I Thermal insulation products (EN 16783). Version 2018-11-22

Contact information

EPD owner:	Knauf Insulation (Northern Europe) PO Box 10 Stafford Road St. Helens Merseyside WA10 3NS UK Tel: 01744 766 766 Customer Service Email: technical.uk@knaufinsulation.com http://www.knaufinsulation.co.uk/
LCA support:	EuGeos Limited - UK Tel: +44 (0)1625 434423 Email: lca@eugeos.co.uk www.eugeos.co.uk
Programme operator:	EPD International AB info@environdec.com

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