ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025, ISO 21930 and EN 15804+A2 for:

Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade

From

KNAUF INSULATION

Program:	The International EPD® System www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-10777
Publication date:	2023-10-23
Validity date:	2028-10-23

EPD®

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Programme-related information and verification

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs following EN 15804+A2 should be compared with those of the same standard. EPDs of construction products may not be comparable if they do not comply with EN 15804+A2. For further information about comparability, see EN 15804+A2 and ISO 14025.

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
EPD registration number:	S-P-10777
Published:	2023-10-23
Valid until:	2028-10-23
EPD owner	Knauf Insulation Sprl Rue de Maestricht 95 4600 Visé (Belgium)
Product Category Rules:	PCR 2019 :14. Construction products (EN 15804+A2) Version 1.2.5 Sub-PCR-005 Thermal insulation products (EN 16783: 2017) Version: 2019-12-20
Product group classification:	UN CPC 37
Reference year for plant data:	Bernburg (2022) and St. Helens (2022)
Geographical application scope:	Europe

CEN standard EN 15804+A2 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14. Construction products (EN 15804+A2) Version 1.2.5 Sub-PCR-005 Thermal insulation products (EN 16783: 2017) Version: 2019-12-20
PCR review was conducted by: The Technical Committee of the International EPD@ System
Independent third-party verification of the declaration and data, according to ISO 14025:2006. ☒ EPD verification by EPD Process Certification* Third-party verification: *Viktor Hakkarainen, Bureau Veritas* (*Certificate number: SE008541-1)* an approved certification body accountable for third-party verification. Third-party verifier is accredited by: *SWEDAC - Sverige AB 1236* *For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see the GPI.
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

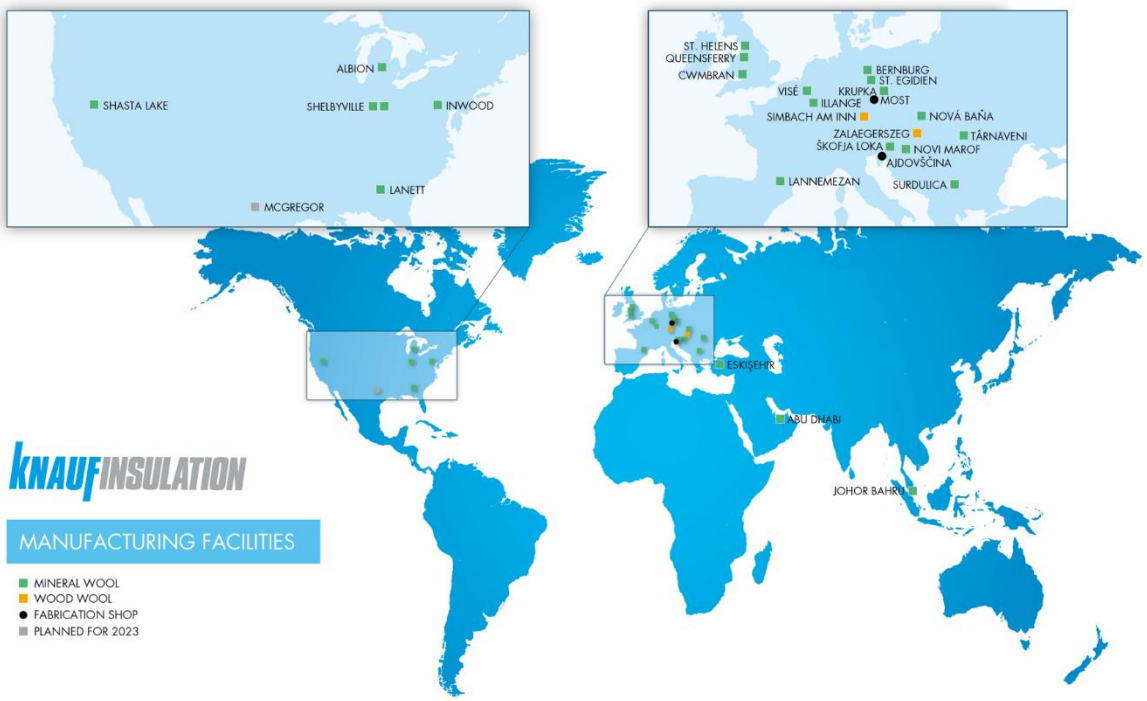
General information

Information about the company

Description of the organisation:
Knauf Insulation is a leading provider of glass and rock mineral wool, as well as wood wool insulation solutions. With more than 40 years of experience in the insulation industry, it is one of the most respected names in insulation worldwide.

As part of the Knauf Group, a €15.4bn turnover family-owned global manufacturer of building materials and construction systems, Knauf Insulation employs more than 6,000 employees and has 28 manufacturing sites in 15 countries, with a turnover of €2.5bn.

Knauf Insulation's mission is to challenge conventional thinking and create innovative insulation solutions that shape the way we live and build in the future, with care for the people who make them, the people who use them and the world we all depend on. Its vision is to lead the change in smarter insulation solutions for a better world.



The Headquarters are located in Visé, in Belgium.

Product-related or management system-related certifications:
All Knauf Insulation sites which are covered by EPD process certification system, including the sites considered for this EPD, are ISO 9001, ISO 14001, ISO 50001 and ISO 45001 certified under the scope "Design, Development and Production of Insulation Materials and Systems".

Knauf Insulation supports the Ten Principles of the United Nations Global Compact on human rights, labor, environment and anti-corruption.

Name and location of production site:
The intended application of this product in the construction industry is within the Nordics. The data utilised for the production stage life cycle assessment is related to production plants located in Bernburg (Germany) and St. Helens (United Kingdom).

Weststraße 1, 06406 Bernburg (Saale), Germany
PO Box 10, Stafford Road, St. Helens, WA10 3NS, Merseyside, UK

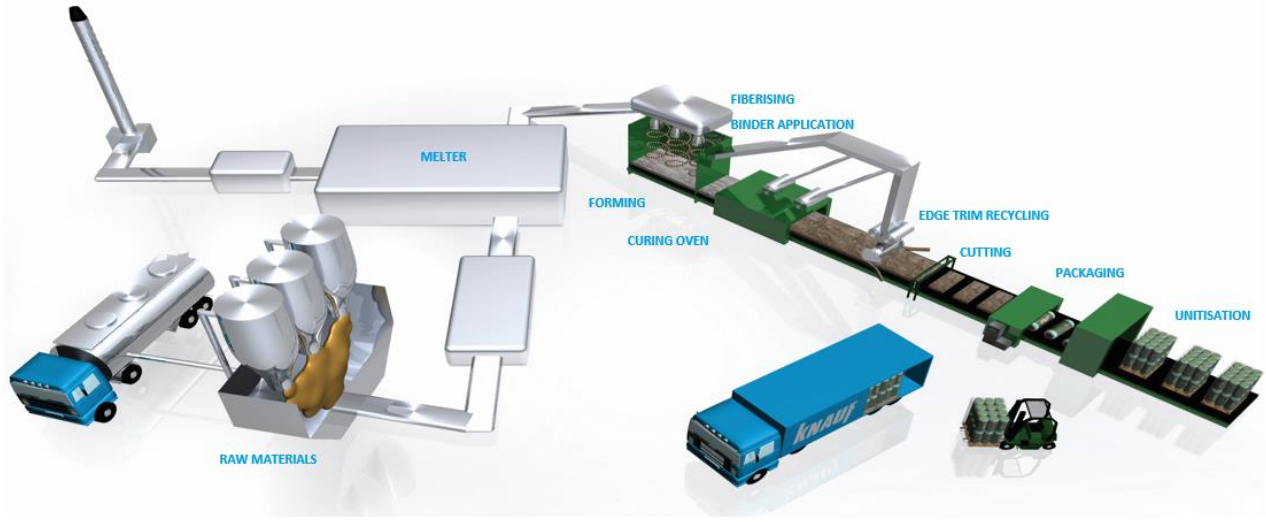
Information about Glass Mineral Wool production

Knauf Insulation glass mineral wool products (GMW) are available in the form of rolls, slabs and blowing wool.

Typically, the density of glass mineral wool falls within the range of 10 to 85 kg/m³, and it comprises a minimum of 92% inert materials. The inert part primarily comprises recycled glass (external cullet), which constitutes up to 80% of the composition. Sand and dolomite are introduced to the mix, and the entire blend is melted together in a furnace.

For slabs and rolls, the residual fraction, which accounts for up to 8%, is composed of bio-based binder components. At Knauf Insulation, the binder used for the glass mineral wool products is the ECOSE® Technology binder. ECOSE® Technology contains no added formaldehyde or phenol. Additionally, this binder is derived from rapidly renewable natural raw materials, specifically plant starch.

Blowing wool insulation is a non-bonded, virgin fibrous insulation material, manufactured as a loose-fill product without the use of binders. In contrast, rolls and slabs of insulation are bonded and cured in an oven.



Product information

Product name: Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade.

Product identification: The declared insulation consists of Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade, unfaced glass mineral wool slabs of 1m^2.

For the placement of the products on the construction market in the European Union/ EFTA (with exception of Switzerland and UK), the Regulation/ (EU) No 305/2011/ applies. The products concerned need Declarations of Performance / DoP G4207JPCPR, G4335JPCPR, G4207LSCPR, G4209LSCPR, taking into consideration the harmonized product standard EN 13162 and the CE-mark.

Product description: The main applications for the products on the EPD are as follows:

- Trestenderplate 37, Träregelskiva 37 - external timber stud wall or roof structures (both at rafter and ceiling level). Could also be used for interior partition walls.
- Stålstenderplate 37, Stålregelskiva 37 - external steel stud structures. Could also be used for interior partition walls.
- Space slab 37 - Thermal and acoustic insulation used in internal partitions and fittings as well as partitions made of gypsum building boards.
- Murisolering 37 - external full-fill masonry cavity walls.
- Formstykker 37 - external wall structures or attics, both at roof level and roof truss level. Can be used for interior walls as well.
- Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade - internal wall and floor applications, where sound absorption and noise reduction properties are required.

Geographical scope: The manufacturing is in Bernburg (Germany) and St. Helens (United Kingdom). Energy-related information is described in the next section. The product is mainly marketed in the Nordics.

Technical Characteristics:

Parameter	Value
Thermal conductivity/ EN 12667	0.037W/(mK) at 10°C
Water vapor diffusion resistance (EN 12086)	1
Thermal Resistance (ISO 8301)	2.70 m^{2}K/W
Reaction to fire (EN 13501-1)	A1
Declared density range/ EN 1602	15 kg/m^3 (+/-10%)

UN CPC code:

37990: Non-metallic mineral products (including mineral wool, expanded mineral materials, worked mica, articles of mica, non-electrical articles of graphite or other carbon and articles of peat).

LCA information

Functional unit / declared unit

The declared unit is 1m² of unfaced glass mineral wool Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade with R-value of 2.70 m²K/W (for a thickness of 100 mm and a declared lambda of 0.037W/mK).

Reference service life: The RSL or durability of Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade is as long as the lifetime of the building equipment in which it is used (at least 50 years).

Time representativeness & Information on Specific Data:

The complete reference year used for the plant production data is 2022. The product considered in this EPD is produced in multiple Knauf Insulation manufacturing sites with equal weight.

The data which is used to carry out the LCA calculations contains more than 90% specific data and less than 10% generic data.

Database(s) and LCA software used:

The LCA model, the data aggregation and environmental impacts are calculated with the software LCA for Experts (GaBi) 10.7 and its content version 2023.2. The impact models used are those indicated in EN 15804:2012+A2:2019.

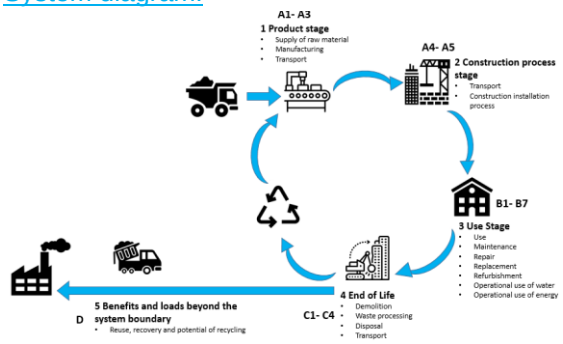
Gas information

Gas input (reference year: 2019) from Germany and United Kingdom is selected for Bernburg (Germany) and St. Helens (United Kingdom).

Electricity information

Plants (countries)	Electricity mixes	Locations (electricity)	Dataset Reference Year	Impact (kg CO_2/kwh)
Bernburg (Germany)	Renewable Energy Certificates	Europe	2019	0.014
St. Helens (United Kingdom)		United Kingdom		0.037

System diagram:



Description of system boundaries:

The system boundary of the EPD follows the modularity approach defined by the EN 15804:2012+A2:2019.

The type of EPD is cradle-to-grave.
A comprehensive list and detailed explanations of each stage within the EPD are available as follows.

The product stage (A1-A3) includes:

- A1 – raw material extraction and processing, processing of secondary material input (e.g., recycling processes),
- A2 – transport to the manufacturer and
- A3 – manufacturing.

This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of-waste state or disposal of final residues during the product stage.

The LCA results are presented in an aggregated format for the product stage, where modules A1, A2, and A3 are consolidated into a single module, denoted as A1-A3.

Product Parameters	Value
Glass mineral wool weight	1.50 kg
Area	1m²
Thickness	100 mm
Volume	0.10 m³
Packaging - PE film	0.04 kg
Packaging - Wooden pallet	0.06 kg

The construction process stage includes:

- A4 - transport to the construction site and
- A5 - installation into the building.

The transport to the building site (A4) and installation (A5) included in this LCA use the following parameters:

Parameter	Value
Average transport distance (truck)	600 km
Type of fuel and vehicle used for transport (truck)	Truck Euro 6 (28 – 32 t / 22 t payload).
Truck capacity utilisation (including 30% of empty returns)	25.55 % of the weight capacity
Loss of materials on site	2%
Packaging - PE film	40% recycled, 60% incinerated
Packaging - Wooden pallet	40% recycled, 60% incinerated

The treatment and the transport of the packaging waste after the installation of the product (A5) has been considered.

The Use stage (B1-B7) includes:

- B1: Use
- B2: Maintenance
- B3: Repair
- B4: Replacement
- B5: Refurbishment
- B6: Operational Energy Use
- B7: Operational Water Use

Once installation is complete, no actions or technical operations are required during the use stages until the end of life. Therefore, the mineral wool has no impact (excluding potential energy savings) on this stage.

The end-of-life stage includes:

- C1 – de-construction, demolition,
- C2 – transport to waste processing,
- C3 – waste processing for reuse, recovery and/or recycling and
- C4 – disposal.

This includes provision of all transport, materials, products and related energy and water use. The common manual dismantling impact of insulation is considered as very small and can be neglected in C1.

Although glass mineral wool products from Knauf Insulation are partly recycled at their end-of-life, an established collection system does not yet exist. Therefore, the assumption chosen in this study, 100% landfill (C4) after the use phase, is the most conservative approach.

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-trailer, Euro 6, 34 - 40t gross weight / 27t payload capacity/ 40 L for 100 km. (if 100 % utilisation).
Truck capacity utilisation	50 % of the weight capacity

Module D includes reuse, recovery and/or recycling potentials. According to EN 15804:2012+A2:2019 any declared benefits and loads from net flows leaving the product system not allocated as co-products and having passed the end-of waste state shall be included in module D. The benefits considered in module D originate from packaging recycling or incineration.

Recycled material

The mineral wool waste generated during the manufacturing process is recycled internally and fed back into the mineral wool production process at multiple stages.

The external cullet input for the production site in Bernburg (2022) and St. Helens (2022) is accounted for in the assessment. The average recycled content for the manufacturing plants and products in consideration has been calculated at 69% in Bernburg (2022) and St. Helens (2022) according to the cullet market availability. The calculation is completed following EN 15804+A2 Use of Resources indicator Secondary Material (SM), taking into account the % of secondary materials from external supply input into the batch against virgin raw materials supply. The external waste considerations are also following the ISO 14021 norm.

Additional information:

All raw materials used in the manufacture of the declared product, the required energy, water consumption and the resulting emissions are considered in the LCA. As a result, recipe components with a share of less than 1% are included. All neglected processes contribute less than 5% to the total mass or less than 5% to the total energy consumption.

For information, the impact of the glass mineral wool plant construction or manufacturing equipment is not taken into account in the life cycle assessment. Allocation criteria with by-products (mineral wool for ceiling tiles) are based on cost.

Materials required for fixing and installation are not included in the scope of this LCA. The impact of any additional construction products or materials not included in this EPD should be accounted for at building level. Regarding installation, this EPD only includes the environmental impacts relating to the product itself, such as material losses and packaging disposal.

Knauf Insulation adopts a conservative approach in its EPDs. The conversion factor used in this EPD involves multiplying the results by 0.67 to obtain Environmental Impact Indicator results for 1 kg. An insulation product should always be characterized by its thickness and R-value. Solely considering the product's weight could potentially lead to misinterpretations.

More information:
www.knaufinsulation.com

Name and contact information of LCA practitioner:
Clara del Val
Knauf Insulation Sprl
Rue de Maestricht 95
4600 Visé
Belgium
Contact : sustainability@knaufinsulation.co

Content Declaration

The product does not contain substances on the "Candidate List of Substances of Very High Concern for Authorisation" under the REACH regulation (if above 0.1% of the mass).

Product components	Weight %	Pre-consumer material, weight - % *(out of total)*	Post- costumer % *(out of total)*	Renewable material, weight- % *(out of total)*
Mineral Materials	20 – 60	0	0	0
Recycled Glass	40 - 80	0-25	75-100	0
Bio - based binder	2 - 15	0	0	0
Additives	< 1	0	0	0
Packaging Materials	Weight, kg/ DU or FU	Weight -% (versus the product)		
Packaging - PE film (0-50% recycled content)	0.04	2.53%		
Packaging - Wooden pallet	0.06	4.27%		
TOTAL	0.10	6.80%		

Declared Modules, geography, share of specific data (in GWP-GHG indicator) & data variation

Life cycle stages as defined in the European standard EN 15978 :2011 and the description of the system boundaries for the reference product LCA (X = included in the LCA, MND = module is not declared)

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe	Europe
Specific data used	> 90 %																
Variation* – products	<10 %																
Variation** – Bernburg	-8.0%																
Variation** – Saint Helens	8.0%																

*Variation regarding the average EPD result in terms of GWP-GHG indicator amongst products covered with this EPD

**Variation regarding the average EPD result in terms of GWP-GHG indicator

Environmental performance

Potential environmental impacts: 1m² of glass mineral wool Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade with a thickness of 100 mm and the R-value of 2.70 m^2K/W.

These results are representative of all the products mentioned in this EPD.

ENVIRONMENTAL IMPACTS										
Parameter	**Unit**	**A1-3*****	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D****
GWP-fossil	kg CO_2 eq.	1.36E+00	1.64E-01	9.30E-02	0.00E+00	0.00E+00	5.81E-03	0.00E+00	2.41E-02	-6.29E-02
GWP-biogenic	kg CO_2 eq.	-2.72E-01	0.00E+00	6.09E-02	0.00E+00	0.00E+00	-2.03E-05	0.00E+00	1.89E-01	4.53E-02
GWP-luluc	kg CO_2 eq.	8.98E-04	1.47E-03	6.72E-05	0.00E+00	0.00E+00	5.23E-05	0.00E+00	1.05E-04	-4.91E-06
GWP-total	kg CO_2 eq.	1.08E+00	1.67E-01	1.54E-01	0.00E+00	0.00E+00	5.84E-03	0.00E+00	2.13E-01	-1.77E-02
ODP	kg CFC 11 eq.	2.10E-12	2.07E-14	6.16E-14	0.00E+00	0.00E+00	7.34E-16	0.00E+00	1.38E-14	-3.05E-13
AP	mol H^+ eq.	1.15E-02	1.78E-04	2.62E-04	0.00E+00	0.00E+00	6.03E-06	0.00E+00	1.79E-04	-1.07E-04
EP-freshwater	kg P eq.	2.16E-05	5.81E-07	4.75E-07	0.00E+00	0.00E+00	2.06E-08	0.00E+00	5.15E-07	8.65E-09
EP-marine	kg N eq.	1.87E-03	5.74E-05	4.58E-05	0.00E+00	0.00E+00	1.89E-06	0.00E+00	4.94E-05	-3.40E-05
EP-terrestrial	mol N eq.	4.22E-02	6.87E-04	9.71E-04	0.00E+00	0.00E+00	2.28E-05	0.00E+00	5.27E-04	-3.75E-04
POCP	kg NMVOC eq.	3.84E-03	1.76E-04	1.00E-04	0.00E+00	0.00E+00	5.85E-06	0.00E+00	1.44E-04	-1.21E-04
ADP-minerals&metals*	kg Sb eq.	4.80E-07	1.05E-08	1.03E-08	0.00E+00	0.00E+00	3.74E-10	0.00E+00	2.50E-09	-3.15E-09
ADP-fossil*	MJ	2.11E+01	2.17E+00	5.45E-01	0.00E+00	0.00E+00	7.69E-02	0.00E+00	3.24E-01	-1.69E+00
WDP	m^3	1.41E-01	1.92E-03	1.56E-02	0.00E+00	0.00E+00	6.82E-05	0.00E+00	1.85E-03	-7.42E-03
Acronyms	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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption									

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

***: [Life Cycle D stage covers benefits and loads beyond the system boundary stage (reuse, recovery and recycling potential) therefore, when summing up results, this stage should be considered separately].*

**** The indicator's results are calculated using a reference product, with equal weighting between plants. A product sourced from a single plant may have a variation of more than 10% from the reference product (concerning A1- A3).*

Potential environmental impact – additional mandatory and voluntary indicators

Indicator	Unit	Tot.A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-GHG [2]	kg CO_2 eq.	1.38E+00	1.66E-01	9.37E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	2.44E-02	-6.42E-02

[2] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Use of resources: 1m² of glass mineral wool Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade with a thickness of 100 mm and the R-value of 2.70 m^2K/W.

These results are representative of all the products mentioned in this EPD.

RESOURCES USE										
Parameter	**Unit**	**A1-3*****	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D***
PERE [MJ]	MJ	1.54E+01	1.58E-01	3.33E-01	0.00E+00	0.00E+00	5.59E-03	0.00E+00	3.78E-02	-7.93E-01
PERM [MJ]	MJ	3.17E+00	0.00E+00	6.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT [MJ]	MJ	1.86E+01	1.58E-01	3.96E-01	0.00E+00	0.00E+00	5.59E-03	0.00E+00	3.78E-02	-7.93E-01
PENRE [MJ]	MJ	1.94E+01	2.17E+00	5.13E-01	0.00E+00	0.00E+00	7.72E-02	0.00E+00	3.24E-01	-1.69E+00
PENRM [MJ]	MJ	1.65E+00	0.00E+00	3.30E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT [MJ]	MJ	2.11E+01	2.17E+00	5.46E-01	0.00E+00	0.00E+00	7.72E-02	0.00E+00	3.24E-01	-1.69E+00
SM	kg	1.04E+00	0.00E+00	2.13E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	5.63E-03	1.73E-04	4.19E-04	0.00E+00	0.00E+00	6.13E-06	0.00E+00	6.17E-05	-2.54E-04
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water									

**: [Life Cycle D stage covers benefits and loads beyond the system boundary stage (reuse, recovery and recycling potential) therefore, when summing up results, this stage should be considered separately].*

**** The indicator's results are calculated using a reference product, with equal weighting between plants. A product sourced from a single plant may have a variation of more than 10% from the reference product (concerning A1- A3).*

Waste production and output flows: 1m² of glass mineral wool Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade with a thickness of 100 mm and the R-value of 2.70 m²K/W.

These results are representative of all the products mentioned in this EPD.

OUTPUT FLOWS AND WASTE CATEGORIES										
Parameter	**Unit**	**A1-3*** **	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D***
Hazardous waste disposed	kg	-5.85E-09	6.73E-12	-1.41E-11	0.00E+00	0.00E+00	2.39E-13	0.00E+00	5.13E-09	-9.16E-11
Non-hazardous waste disposed	kg	5.52E-02	3.31E-04	3.84E-02	0.00E+00	0.00E+00	1.18E-05	0.00E+00	1.50E+00	1.11E-03
Radioactive waste disposed	kg	1.51E-04	4.07E-06	5.15E-06	0.00E+00	0.00E+00	1.44E-07	0.00E+00	4.42E-06	-5.52E-05
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	4.18E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	6.27E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	1.95E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	3.51E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**: [Life Cycle D stage covers benefits and loads beyond the system boundary stage (reuse, recovery and recycling potential) therefore, when summing up results, this stage should be considered separately].*
**** The indicator's results are calculated using a reference product, with equal weighting between plants. A product sourced from a single plant may have a variation of more than 10% from the reference product (concerning A1- A3).*

Additional impact categories and indicators: 1m² of glass mineral wool Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade with a thickness of 100 mm and the R-value of 2.70 m²K/W.

These results are representative of all the products mentioned in this EPD.

ADDITIONAL IMPACT CATEGORIES AND INDICATORS										
Parameter	**Unit**	**A1-3*** **	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D***
PM	Disease Incidence	1.29E-07	1.28E-09	2.87E-09	0.00E+00	0.00E+00	4.44E-11	0.00E+00	2.18E-09	-1.44E-09
IRP	kBq U235 eq.	1.92E-02	6.07E-04	6.93E-04	0.00E+00	0.00E+00	2.15E-05	0.00E+00	4.28E-04	-9.16E-03
ETP- fw	CTUe	3.26E+01	1.55E+00	7.41E-01	0.00E+00	0.00E+00	5.51E-02	0.00E+00	1.96E-01	-5.91E-01
HTP-c	CTUh	9.54E-10	3.15E-11	2.25E-11	0.00E+00	0.00E+00	1.12E-12	0.00E+00	2.48E-11	-1.88E-11
HTP- nc	CTUh	4.69E-08	1.40E-09	1.17E-09	0.00E+00	0.00E+00	4.97E-11	0.00E+00	2.63E-09	-5.21E-10
SQP	dimensionless	6.15E+01	9.05E-01	1.30E+00	0.00E+00	0.00E+00	3.21E-02	0.00E+00	7.61E-02	-4.66E-01
Acronyms	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									

Information on biogenic carbon content

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	**kg C**	3.35E-02
Biogenic carbon content in packaging	**kg C**	3.20E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

**: [Life Cycle D stage covers benefits and loads beyond the system boundary stage (reuse, recovery and recycling potential) therefore, when summing up results, this stage should be considered separately].*

**** The indicator's results are calculated using a reference product, with equal weighting between plants. A product sourced from a single plant may have a variation of more than 10% from the reference product (concerning A1- A3).*

LCA interpretation

ENVIRONMENTAL IMPACTS

All impact categories except the Abiotic Depletion Potential for Non-Fossil Resources (ADP- minerals &metals) and the Depletion Potential of the Stratospheric Ozone layer (ODP) are dominated by the production. This is mainly due to the consumption of energy (electricity and natural gas) during the production of glass mineral wool.

The Global Warming Potential (GWP-total) is clearly dominated by the production, mostly due to energy consumption but significantly reduced through the use of electricity from renewable sources.

The Depletion Potential of the Stratospheric Ozone layer (ODP) is mostly influenced by the manufacturing phase (module A1-A3) and significantly influenced using electricity.

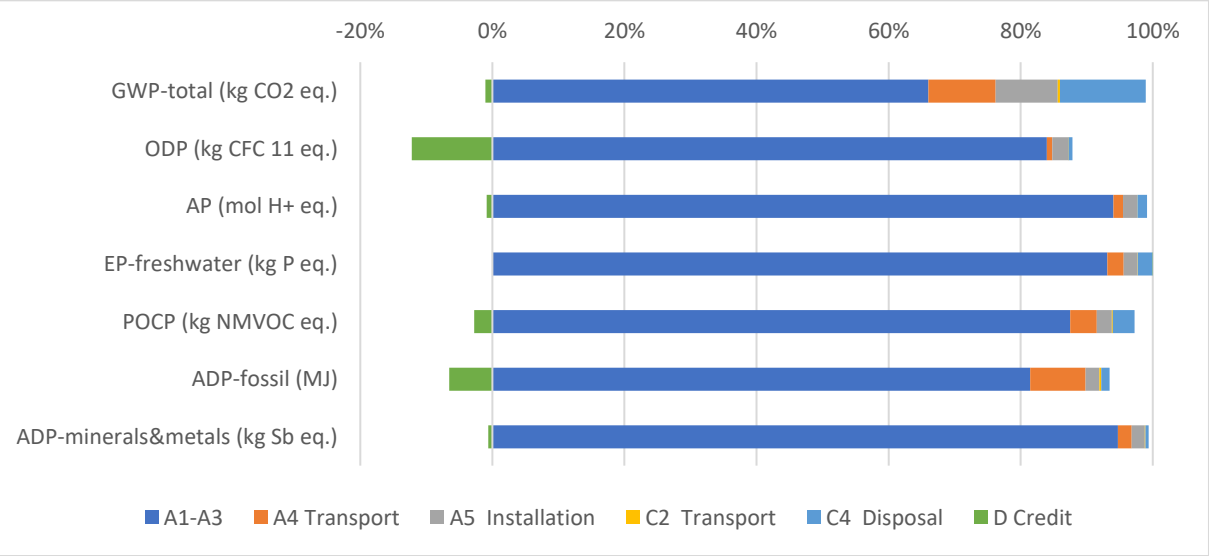
The Acidification Potential (AP) is also dominated by the production due to the process's emissions and the electricity consumption. Most of the impact is by emissions of sulphur dioxide, ammonia and nitrogen oxides.

The Eutrophication Potential (all EP indicators in total) is significantly influenced by production due to emissions from the curing oven, furnace and other unit processes. The glucose for the binder production also has an impact because of crops fertilizers use.

The Formation Potential of Tropospheric Ozone (POCP) is dominated by emissions from the manufacturing processes (including energy use) and raw materials.

The Abiotic Depletion Potential for Non-Fossil Resources (ADP- minerals &metals) is dominated by the raw materials production.

The Abiotic Depletion Potential for Fossil Resources Potential (ADP-fossil) is dominated by energy consumption for the production. The packaging (plastic) and the binder have also a non-negligible impact.



The variation in Global Warming Potential (GWP) results (A1-A3) between the manufacturing sites covered by this EPD and the average results is 8%. Bernburg plant has a lower environmental impact compared to St Helens plant due to variations in energy and raw material consumption.

RESOURCES USE

Total Use of Non-Renewable Primary Energy Resources (PENRT) is dominated by the production of glass mineral wool products (especially due to the energy consumption) and with little influence of raw materials, binder and packaging.

Total Use of Renewable Primary Energy Resources (PERT) is dominated by the binder (bio-based), the production process (electricity from REGOs) and the packaging (wooden pallets).

For the Use of Secondary Material (SM), there is a lot of external cullet used into the batch process (recycled glass from windows, bottles and jars) up to 80% depending on plants.

References

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General Programme Instructions of the International EPD® System. Version 4.0.
Product category rules (PCR): PCR 2019:14 v1.2.5. Construction products (EN 15804:A2) Version 1.0
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Declaration of Performance
www.dopki.com

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EN 15978: 2011
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Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services.

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EN1602: 2013 Thermal insulation products for building applications – Determination of the apparent density.

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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.

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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.

DIN 4102-17
Fire behaviour of building materials and building components - Part 17: Melting point of mineral wool insulating materials - Terms and definitions, requirements and test.

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ISO 8301:1991
Thermal insulation — Determination of steady-state thermal resistance and related properties — Heat flow meter apparatus.

2023_09_15_Trestenderplate 37, Stålstenderplate 37, Träregelskiva 37, Stålregelskiva 37, Space slab 37, Murisolering 37, Formstykker 37, Acoustic Trestenderplate/Stalstenderplate, Acoustic Träregelskiva/Stålregelskiva, Acoustic Traregelplade/Stalregelplade_Bernburg_St. Helens **(I-report)**
I-report is an interactive report created with GaBi based on the scenario. More details on the product characteristics, plant allocation and scenario can be found in the i-report.

BR_GMW_2023 **(Background Report)**
Calculation rules for the Life Cycle Assessment and Requirements and more details about the production on the Background Report.

Contact information:

EPD owner:	Knauf Insulation Rue de Maestricht 95 4600 Visé Belgium www.knaufinsulation.com Contact :
LCA support:	CO_2 Logic Cantersteen 47 1000 Brussels Belgium Sphera Solutions GmbH Hauptstraße 111-113 70771 Leinfelden-Echterdingen Germany
Programme operator:	EPD International AB info@environdec.com
Certification body	Fabriksgatan 13, 41250 Göteborg Sweden

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Ydeevnedeklaration

G4207JPCPR

1. Varetypens unikke identifikationskode:

   Building Roll, DriTherm® Cavity Slab 37, EcoBatt 037, EcoBatt Mur Isol 037, EcoBlanket 037, Glass MW Roll 16kg, Kalzip Plus 37, Rigidal HP/037, Room-in-Roof 37, Masonry Party Wall Slab, Naturoll 037, Multi Pack Ceiling Roll 37, Stålregel 37, Träregel 37, Ultracoustic

2. Tilsigtet anvendelse:

   Varmeisolering til bygninger (ThIB)

3. Fabrikant:

   Knauf Insulation Ltd.
   PO Box 10, Stafford Road, WA10 3NS St.Helens, Merseyside
   UK
   www.knaufinsulation.com - dop@knaufinsulation.com

4. Bemyndiget repræsentant:

   Knauf Insulation AB
   Gardatorget 1
   412 50 Goteborg
   Sweden

5. System eller systemer til vurdering og kontrol af konstansen af ydeevnen:

   AVCP-system 1 for reaktion på brand
   AVCP-system 3 for øvrige karakteristika

6a. Harmoniseret standard:

   EN 13162:2012 + A1:2015

   Notificeret organ/notificerede organer:
   AVCP System 1: (Notificeret certificeringsorgan) 0402 - RISE Research Institutes of Sweden AB - - -

   AVCP System 3: (Notificerede laboratorium) 0402 - RISE Research Institutes of Sweden AB - - - - - - - - -

6b. Europæisk vurderingsdokument: Ikke relevant
   Europæisk teknisk vurdering: Ikke relevant
   Teknisk vurderingsorgan: Ikke relevant
   Notificeret organ/notificerede organer: Ikke relevant

7. Deklareret ydeevne:

   Se næste side

G4207JPCPR Building Roll

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Building Roll	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	100	
	Tykkelsestolerance	T2	
Reaktion på brand	Reaktion på brand	F	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	DriTherm® Cavity Slab 37	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	50 - 150	
	Tykkelsestolerance	T4	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	WS	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	EcoBatt 037	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	30 - 250	
	Tykkelsestolerance	T4	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

G4207JPCPR EcoBatt Mur Isol 037

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	EcoBatt Mur Isol 037	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	125 - 245	
	Tykkelsestolerance	T4	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	WS	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	EcoBlanket 037	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	45 - 250	
	Tykkelsestolerance	T2	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

G4207JPCPR Glass MW Roll 16kg

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Glass MW Roll 16kg	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	60 - 160	
	Tykkelsestolerance	T1	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Kalzip Plus 37	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	80 - 180	
	Tykkelsestolerance	T1	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

G4207JPCPR Masonry Party Wall Slab

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Masonry Party Wall Slab	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	75 - 100	
	Tykkelsestolerance	T4	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	WS	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

G4207JPCPR Multi Pack Ceiling Roll 37

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Multi Pack Ceiling Roll 37	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	50	
	Tykkelsestolerance	T2	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Naturoll 037	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	20 - 220	
	Tykkelsestolerance	T2	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	WS	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	Afr 5	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	Afr 5	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

G4207JPCPR Rigidal HP/037

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Rigidal HP/037	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	140	
	Tykkelsestolerance	T1	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Room-in-Roof 37	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	100 - 200	
	Tykkelsestolerance	T1	
Reaktion på brand	Reaktion på brand	A2	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Stålregel 37	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	45 - 195	
	Tykkelsestolerance	T4	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

G4207JPCPR Träregel 37

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Träregel 37	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	45 - 195	
	Tykkelsestolerance	T4	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	NPD	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	NPD	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

Væsentlige Egenskaber	G4207JPCPR		Harmoniseret teknisk standard
	Ydeevne {f}	Ultracoustic	
Termisk modstand	Termisk ledningsevne (W/mK)	λD 0,037	EN 13162:2012 + A1:2015
	Termisk modstand	Se ydeevnediagram	
	Tykkelsesområde (mm)	45 - 85	
	Tykkelsestolerance	T2	
Reaktion på brand	Reaktion på brand	A1	
Holdbarhed af reaktion ved brand mod varme, vejrlig, ældning / nedbrydning	Holdbarhed Egenskaber	NPD {a}	
Holdbarhed for termisk modstand mod varme, vejrlig, aldring/nedbrydning	Termisk modstand	NPD{b}	
	Termisk ledningsevne	NPD	
	Holdbarhed Egenskaber	NPD {c}	
Trykstyrke	Trykspænding / Trykstyrke	NPD	
	Punktbelastning	NPD	
Trækstyrke / Bøjningsstyrke	Trækstyrke vinkelret på overflader	NPD {d}	
Holdbarhed for trykstyrke i forhold til aldring/nedbrydning	Tryksvind	NPD	
Vandgennemtrængelighed	Korttidsvandabsorption	NPD	
	Langtidsvandabsorption	NPD	
Vanddampdiffusion	Vanddamptransmission / vanddampdiffusionsmodstandsfaktor	NPD	
Støjbelastningen transmissioner indeks (etager)	Dynamisk stivhed	NPD	
	Tykkelse	NPD	
	Kompressionsevne	NPD	
	Luftstrømsmodstandsevne	Afr 5	
Akustisk absorptionsindeks	Lydabsorption	NPD	
Direkte Luftlydisolation indeks	Luftstrømsmodstandsevne	Afr 5	
Afgivelse af farlige substanser til det indendørs miljø	Afgivelse af farlige substanser	NPD {e}	
Kontinuerlig glødende forbrænding	Kontinuerlig glødende forbrænding	NPD {e}	
NPD - Ingen ydeevne fastlagt			

8. Relevant teknisk dokumentation og/eller specifik teknisk dokumentation:

Ikke relevant.
Ydeevnen for den vare, der er anført ovenfor, er i overensstemmelse med den deklarerede ydeevne.

Denne ydeevnedeklaration er udarbejdet i overensstemmelse med forordning (EU) nr. 305/2011 på eneansvar af den fabrikant, der er anført ovenfor.

Varmeledningsevne tabel														
[mm]	20	25	30	35	40	45	50	55	60	65	70	75	80	85
[m²K/W]	0,50	0,65	0,80	0,90	1,05	1,20	1,35	1,45	1,60	1,75	1,85	2,00	2,15	2,25
[mm]	90	95	100	105	110	115	120	125	130	135	140	145	150	155
[m²K/W]	2,40	2,55	2,70	2,80	2,95	3,10	3,20	3,35	3,50	3,60	3,75	3,90	4,05	4,15
[mm]	160	165	170	175	180	185	190	195	200	205	210	215	220	225
[m²K/W]	4,30	4,45	4,55	4,70	4,85	5,00	5,10	5,25	5,40	5,50	5,65	5,80	5,90	6,05
[mm]	230	235	240	245	250									
[m²K/W]	6,20	6,35	6,45	6,60	6,75									

Underskrevet for fabrikanten og på dennes vegne af:

Darren Holt - Fabrikschef
(navn og stilling)

St. Helens - 28-10-21
(sted og dato)

{a} Ingen ændring og reaktion på brand egenskaber til MW Produkter. Branden ydeevne MW ikke forringes med tiden. Euroclass Klassificeringen af produktet er relateret til det organiske indhold, som ikke kan stige med tiden
{b} Varmeledningsevne MW varer ikke ændre sig med tiden, har erfaringerne vist, fiber struktur for at være stabil, og Porøsitet indeholder ingen andre end atmosfærisk luft gasser
{c} For dimensionsstabilitet tykkelse kun
{d} Denne egenskab også omfatter håndtering og installation
{e} Europæiske testmetoder er under udvikling
{f} Gælder også og Gældende for flerlagsmaterialer