SENTINEL HOLDING
INSTITUT

SHI PRODUCT PASSPORT

Find products. Certify buildings.

SHI Product Passport No.:

15206-10-1060

MW Wolle 035 plus LM

Product group: Facade insulation - Insulation

KNAUF

Knauf Gips KG
Am Bahnhof 7
97346 Iphofen

Product qualities:

- SHI Product Assessment 2024
- QNG Qualitätssiegel Nachhaltiges Gebäude
- DGNB NEW CONSTRUCTION 2023
- DGNB NEW CONSTRUCTION 2018
- BNB-BN NEUBAU V2015
- EU taxonomy
- BREEAM DE NEUBAU 2018

CERTIFIED SUSTAINABLE PRODUCT
SHI PRODUCT PASSPORT
SENTINEL HOLDING INSTITUT
www.sentinel-holding.eu

Köttner

Helmut Köttner
Scientific Director
Freiburg, 02 February 2026

SENTINEL HOLDING
INSTITUT

Product:
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Contents

The SHI Database is the first and only database for construction products whose comprehensive processes and data accuracy are regularly verified by the independent auditing company SGS-TÜV Saar

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SHI Product Assessment 2024

Since 2008, Sentinel Holding Institut GmbH (SHI) has been establishing a unique standard for products that support healthy indoor air. Experts carry out independent product assessments based on clear and transparent criteria. In addition, the independent testing company SGS regularly audits the processes and data accuracy.

Criteria	Product category	Assessment
SHI Product Assessment	Outdoor product	Not relevant for assessment

Product:
MW Wolle 035 plus LM

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QNG - Qualitätssiegel Nachhaltiges Gebäude

The Qualitätssiegel Nachhaltiges Gebäude (Quality Seal for Sustainable Buildings), developed by the German Federal Ministry for Housing, Urban Development and Building (BMWSB), defines requirements for the ecological, socio-cultural, and economic quality of buildings. The Sentinel Holding Institut evaluates construction products in accordance with QNG requirements for certification and awards the QNG ready label. Compliance with the QNG standard is a prerequisite for eligibility for the KfW funding programme. For certain product groups, the QNG currently has no specific requirements defined. Although classified as not assessment-relevant, these products remain suitable for QNG-certified projects.

Criteria	Pos. / product group	Considered substances	QNG assessment
3.1.3 Schadstoffvermeidung in Baumaterialien	12.3 Insulation materials made of artificial mineral fibres (AMF)	Hazardous substances / emissions	QNG ready
Verification: Technisches Datenblatt vom 06/2024			

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MW Wolle 035 plus LM

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DGNB New Construction 2023

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings. The 2023 version sets high standards for ecological, economic, socio-cultural, and functional aspects throughout the entire life cycle of a building.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 03.05.2024 (3rd edition)			Not relevant for assessment

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 29.05.2025 (4th edition)			Not relevant for assessment

Product:
MW Wolle 035 plus LM

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DGNB New Construction 2018

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact			Not relevant for assessment

Product:
MW Wolle 035 plus LM

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BNB-BN Neubau V2015

The Bewertungssystem Nachhaltiges Bauen (Assessment System for Sustainable Building) is a tool for evaluating public office and administrative buildings, educational facilities, laboratory buildings, and outdoor areas in Germany. The BNB was developed by the former Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and is now overseen by the Federal Ministry for Housing, Urban Development and Building (BMWSB).

Criteria	Pos. / product type	Considered substance group	Quality level
1.1.6 Risiken für die lokale Umwelt	36a Mineral and non-mineral external wall insulations (external wall paints see Position 6, plasters see Position 35)	Biocides / hazardous substances / halogenated blowing agents	Quality level 5
Verification: Blauer Engel zertifiziert (im Systemaufbau)			

Product:
MW Wolle 035 plus LM

SHI Product Passport no.:
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EU taxonomy

The EU Taxonomy classifies economic activities and products according to their environmental impact. At the product level, the EU regulation defines clear requirements for harmful substances, formaldehyde and volatile organic compounds (VOCs). The Sentinel Holding Institut GmbH labels qualified products that meet this standard.

Criteria	Product type	Considered substances	Assessment
DNSH - Pollution prevention and control		Substances according to Annex C	EU taxonomy compliant
Verification: Blauer Engel zertifiziert (im Systemaufbau)			

Product:
MW Wolle 035 plus LM

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BREEAM DE Neubau 2018

BREEAM (Building Research Establishment Environmental Assessment Methodology) is a UK-based building assessment system that evaluates the sustainability of new constructions, refurbishments, and conversions. Developed by the Building Research Establishment (BRE), the system aims to assess and improve the environmental, economic, and social performance of buildings.

Criteria	Product category	Considered substances	Quality level
Hea 02 Indoor Air Quality			Not relevant for assessment

Product:
MW Wolle 035 plus LM

SHI Product Passport no.:
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Product labels

In the construction industry, high-quality materials are crucial for a building's indoor air quality and sustainability. Product labels and certificates offer guidance to meet these requirements. However, the evaluation criteria of these labels vary, and it is important to carefully assess them to ensure products align with the specific needs of a construction project.

The *Blue Angel* ("Blauer Engel") ecolabel, awarded by the German Federal Environment Agency, is one of the oldest and most widely used ecolabels in Germany. It exists in several variants for many different product groups. Since the test criteria, such as threshold values, differ between these variants, it is important to consider each one individually when assessing indoor air quality.

The International EPD® System is a globally recognised programme for the creation and publication of Environmental Product Declarations (EPDs). It enables companies to transparently present the environmental impacts of their products, based on international standards such as ISO 14025 and EN 15804 for construction products. The system provides a standardised method for assessing the environmental performance of products throughout their entire life cycle and promotes sustainable business practices and ecological transparency across various industries.

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Legal notices

(*) These criteria apply to the construction project as a whole. While individual products can positively contribute to the overall building score through proper planning, the evaluation is always conducted at the building level. The information was provided entirely by the manufacturer.

Find our criteria here: https://www.sentinel-holding.eu/de/Themenwelten/Pr%C3%BCfkriterien%20f%C3%BCr%20Produkte

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SGS

SGS TÜV SAAR

Publisher

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Putz- und Fassadensysteme

P3602_DSP.de

Produkt-Datenblatt 06/2024

MW Wolle 035 plus LM

Beidseitig beschichtete Mineralwolle-Fassadendämmplatte

Produktbeschreibung

Im Gewicht reduzierte, nichtbrennbare Fassadendämmplatte aus Steinwolle mit beidseitig aufgebrachter Haftbeschichtung für die Anwendung bei WARM-WAND Plus im Massivbau, WARM-WAND Keramik/Naturstein und Systemaufdopplungen. Entspricht auch den Anforderungen an WAP-zh nach DIN 4108-10.

Lagerung

Trocken, vor Dauerfeuchte schützen.

Qualität

In Übereinstimmung mit EN 13162 unterliegt das Produkt einer Erstprüfung sowie der ständigen werkseigenen Produktionskontrolle und trägt das RAL Gütezeichen.

Eigenschaften und Mehrwert

- Mineralwolle gemäß EN 13162
- Brandverhalten Klasse A1 nichtbrennbar nach EN 13501-1
- Bemessungswert der Wärmeleitfähigkeit $\lambda = 0{,}035$ W/(m·K)
- Zugfestigkeit senkrecht zur Plattenebene ≥ 7,5 kPa
- Wärme- und schalldämmend
- Wasserabweisend
- Diffusionsoffen
- Beidseitig vorbeschichtete Oberfläche
- Dimensions- und formstabil
- Alterungsbeständig

RAL GÜTEZEICHEN Erzeugnisse aus MINERALWOLLE

www.ral-guetezeichen.de

Anwendungsbereich

Dämmplatte als WAP-zh nach DIN 4108-10 und als Putzträgerplatte für das Wärmedämmverbund-System gemäß Allgemeiner bauaufsichtlicher Zulassung / Allgemeiner Bauartgenehmigung:

- Z-33.43-82 WARM-WAND Plus im Massivbau
- Z-33.49-981 WARM-WAND Plus Aufdopplungssystem im Massivbau
- Z-33.46-424 WARM-WAND Keramik im Massivbau
- Z-33.46-1703 WARM-WAND Naturstein im Massivbau

Die maximale Dämmstoffstärke beträgt 300 mm.

Mit guten Wärmedämm- und Schallschutzeigenschaften, speziell für den Einsatz bei nichtbrennbaren Fassaden, wie z. B. bei Hochhäusern. Die Platte kann ebenfalls zur Dämmung von Keller-, Tiefgaragen- und Hallendecken und -wänden ohne optische Anforderungen verwendet werden.

Hinweis	Die Verwendung der MW Wolle 035 plus LM als Brandriegel ist nicht zugelassen.

Ausführung

Untergrund und Vorbehandlung

Untergrund	Vorbehandlung
Nicht tragfähige Beschichtungen	Vollständig entfernen
Putzhohlstellen	Vollständig entfernen und mit geeignetem Putz verschließen, Standzeiten beachten
Beton, Anstriche, Altputze	Mit Wasserhochdruck staubfrei reinigen und vollständig trocknen lassen
Kreidende oder sandende Oberflächen	Mit Grundol verfestigen

Hinweis	Die Prüfungen der Untergrundbeschaffenheit und der baulichen Voraussetzungen erfolgen in Eigenverantwortung des Auftragnehmers.

Vorarbeiten

Schmutzempfindliche Bauteile vor Beginn der Arbeiten entsprechend dem Merkblatt „Abklebe- und Abdeckarbeiten für Maler- und Stuckateurarbeiten“ des Bundesverbandes Ausbau und Fassade schützen. Wetterseitige Arbeitsflächen vor Niederschlag und direkter Sonneneinstrahlung schützen.

Untergrundvorbehandlung gemäß Tabelle „Untergrund und Vorbehandlung“.

Alle Untergründe müssen tragfähig, trocken, eben, fett- und staubfrei sowie frei von haftmindernden Rückständen sein. Vorhandene Beschichtungen auf Tragfähigkeit und Verträglichkeit mit dem Klebemörtel prüfen. Voranstriche/Grundierungen vor Weiterarbeit mindestens 12 Stunden trocknen lassen.

Aufsteigende Feuchtigkeit ist mit entsprechenden Maßnahmen zu verhindern. Unebenheiten im Untergrund bis maximal 20 mm können mit Klebemörtel ausgeglichen werden. Größere Unebenheiten können durch eine geeignete Putzlage oder durch eine Abstufung der Dämmplattendicke ausgeglichen werden.

Verarbeitung

Durch die Haftbeschichtung an der Oberfläche wird eine optimale Putzhaftung gewährleistet. Die Haftbeschichtung ist für den händischen oder maschinellen Kleberauftrag geeignet und trägt zu einer wesentlichen Reduzierung des Montageaufwandes während der Verlegung bei.

Verklebung auf Untergrund im Massivbau

MW Wolle 035 plus LM wird mit zugelassenen Klebe- und Armiermörteln, z. B. SM300, SM700 Pro, Lustro oder Duo-Kleber, auf dem vorbehandelten Untergrund von unten nach oben im Verband fluchtgerecht, planeben und passgenau angebracht. Kreuzfugen sind durch einen Stoßversatz von ≥ 100 mm zu vermeiden. Eindringen von Klebemörtel in die Dämmplattenstöße vermeiden. Offene Plattenfugen bis 5 mm Breite können mit schwerentflammbarem Füllschaum B1, Plattenfugen > 5 mm oder Fehlstellen müssen mit Mineralwolle-Dämmstoff ausgefüllt werden. Auf eine Eckverzahnung kann verzichtet werden.

Achtung	Produktseite mit beschichtungsfreien Streifen = Klebeseite Eindringen von Klebemörtel in die Dämmplattenstöße vermeiden.

Vollflächiger Klebeauftrag

Eine vollflächige Verklebung durch Auftragen des Klebers auf die Platte (händisch) oder auf die Wand (maschinell) und anschließendes Verziehen mit einer Zahntraufel ist zugelassen.

Teilflächiger Klebeauftrag

Eine teilflächige Verklebung durch händisches Auftragen des Klebers auf die Platte ist zugelassen. Dabei umlaufend am Dämmplattenrand einen ca. 50 m breiten Streifen und plattenmittig 3 handtellergroße Kleberbatzen oder -streifen auf die geriffelte/gekennzeichnete Plattenseite aufbringen. Nach dem Anpressen der Dämmplatten beträgt der Anteil der Klebefläche mit dem Untergrund ≥ 40 %.

Eine maschinelle Verklebung durch Auftragen des Klebers auf die Wand ist zugelassen. Die Klebewülste ca. 50 mm breit und in Wulstmitte ≥ 10 mm dick im Abstand von ≤ 100 mm auf den Untergrund aufspritzen. Dabei die Klebeverbindungsfläche von ≥ 50 % einhalten.

Bei WARM-WAND Keramik und WARM-WAND Naturstein ist eine Klebeverbindungsfläche von ≥ 60 % einzuhalten.

Montage an Deckenunterseiten

Anwendung im Massivbau nach Z-33.43-82 an Deckenunterseiten aus Beton mit oder ohne Putz mit Dübelung durch das Armierungsgewebe mit Schraubdübel STR U 2G möglich. Die Verklebung der Dämmplatten für die Deckenuntersicht kann vollflächig und teilflächig erfolgen. Die Verklebung mit SM300 ist nicht freigegeben. Eine zweilagige Verlegung für die Deckenunterseite ist nicht zulässig. Es dürfen Mineralwolle-Dämmstoffe von 80 – 200 mm verwendet werden.

Hinweis	Eine Verklebung mit Klebeschaum ist für keine Mineralwolle-Platte zugelassen.

Verdübelung
Zusätzlich zur Verklebung müssen MW Wolle 035 plus LM Dämmplatten generell gedübelt werden. Vor der Verdübelung muss der Klebemörtel ausreichend erhärtet sein. Die oberflächenbündige Dübelmontage kann mit oder ohne Zusatzteller, durch oder unter dem Gewebe, erfolgen. Durch Verwendung des Schraubdübels STR U 2G kann die Montage versenkt, mit dem Dübelteller VT 2G auch vertieft erfolgen.

Hinweis	Weitere technische Informationen und Angaben zur Verarbeitung und Verdübelung gemäß WE112.de WARM-WAND Plus im Massivbau, WE101e.de WARM-WAND Keramik/Naturstein im Massivbau sowie, P323-E01.de WARM-WAND Plus – Aufdopplung im Massivbau und Technische Blätter der jeweiligen Systemkomponenten beachten.

Hinweise	Spritzwasserbereich bis 300 mm über Geländeoberkante mit Sockeldämmplatte ausführen. Anschlüsse an andere Bauteile mit geeigneten Anschlussprofilen oder Fugendichtbändern schlagregendicht ausführen.

Verarbeitungstemperatur/-klima
Verarbeitung nicht unter +5 °C und über +30 °C. Die Abbindezeit des Klebemörtels ist zu berücksichtigen. Der Untergrund muss frostfrei sein. Die Dämmplatten während der Verarbeitung und Lagerung vor Feuchte schützen. Innenputz- und Estricharbeiten sollten abgeschlossen und die Bauteile soweit trocken sein, dass eine übermäßige Feuchtigkeitsanreicherung nicht mehr gegeben ist.

Technische Daten

Bezeichnung	Norm	Einheit	MW Wolle 035 plus LM
Brandverhalten	EN 13501-1	Klasse	A1
Bezeichnungsschlüssel	–	–	MW-EN 13162-T5-DS(70,-)-DS(70,90)-CS(10)15-TR7,5 WS-WL(P)-MU1
Schmelzpunkt	DIN 4102-17	°C	1000
Glimmverhalten	DIN EN 16733	–	Keine Neigung zum kontinuierlichen Schwelen
Rohdichte	–	kg/m³	ca. 85
Nennwert der Wärmeleitfähigkeit λ_D	EN 13162	W/(m·K)	0,034
Bemessungswert der Wärmeleitfähigkeit λ_B	DIN 4108-4	W/(m·K)	0,035
Zugfestigkeit senkrecht zur Plattenebene σ_{mt}	EN 1607	kPa	≥ 7,5
Scherfestigkeit	EN 12090	kPa	≥ 10
Druckspannung bei 10 % Kompression σ_{10}	EN 826	kPa	≥ 15
Wasserdampfdiffusionswiderstandszahl μ	EN 12086	–	1
Längenbezogener Strömungswiderstand r	EN 29053	kPa·s/m²	≥ 40
Dynamische Steifigkeit s‘	DIN EN 29052-1	MN/m³	60 mm ≤ 11 80 – 100 mm ≤ 9 120 mm ≤ 7 140 – 160 mm ≤ 6 180 mm ≤ 5 200 mm ≤ 4

Die technischen Daten wurden nach den jeweils gültigen Prüfnormen ermittelt. Abweichungen davon sind unter Baustellenbedingungen möglich.

P3602_DSP.de MW Wolle 035 plus LM

Beidseitig beschichtete Mineralwolle-Fassadendämmplatte

Lieferprogramm

Bezeichnung	Dicke	Breite	Länge	Verpackungseinheit		Artikelnummer	EAN
	mm	mm	mm	m^2/Paket	m^2/Palette		
MW Wolle 035 plus LM	60	400	1200	1,92	19,20	00746810	4003950141331
	80			1,44	14,40	00746815	4003950141355
	100			0,96	11,52	00746816	4003950141379
	120			0,96	9,60	00746843	4003950141393
	140			0,96	7,68	00746818	4003950141416
	160			0,96	5,76	00746819	4003950141430
	180			0,96	5,76	00746822	4003950141454
	200			0,96	5,76	00746844	4003950141478
	220			0,48	4,80	00818775	4003950145346
	240			0,48	4,80	00818778	4003950145360
	260			0,48	3,84	00818780	4003950145384
	280			0,48	3,84	00818782	4003950145407
	300			0,48	3,84	00818792	4003950145421

MW Wolle 035 plus LM entspricht folgendem ausgelieferten Produkt:
Knauf Insulation FKD Light C2

Sicherheitsdatenblatt beachten!
Sicherheitsdatenblätter und CE-Kennzeichnung siehe
pd.knauf.de

Videos für Knauf Systeme und Produkte sind unter folgendem Link zu finden:
youtube.com/knauf

Ausschreibungstexte für alle Knauf Systeme und Produkte mit Exportfunktionen für Word, PDF und GAEB
ausschreibungscenter.com

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Konstruktive, statische und bauphysikalische Eigenschaften von Knauf Systemen können nur gewährleistet werden, wenn ausschließlich Knauf Systemkomponenten oder von Knauf empfohlene Produkte verwendet werden.

valid until
24.11.2029

EPD-IES-0005976

Thermal insulation products

Declared Products

› *MW Wolle 035 plus LM / FDK Light C2*

www.knauf.com

Build on us.

KNAUF INSULATION

ENVIRONMENTAL PRODUCT DECLARATION

FKD LIGHT C2

In accordance with: ISO 14025, ISO 21930, EN15804+A2:2019/AC:2021

Program:	The International EPD® System www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0005976
Publication date:	2024-11-24
Validity date:	2029-11-24

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.

Knauf Insulation EPDs are EPD of multiple products, based on a representative product.

Please note that any ancillary materials used for the installation of the product are excluded from the LCA calculations.

Build on us.

EPD®

ECO PLATFORM EPD VERIFIED

Programme-related information and verification

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 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:	EPD-IES-0005976
Published:	2024-11-24
Valid until:	2029-11-24
EPD owner	Knauf Insulation Sprl Rue de Maestricht 95 4600 Visé (Belgium)
Product Category Rules:	PCR 2019:14. Construction products (EN 15804+A2) Version 1.3.3 Sub-PCR-005 Thermal insulation products (EN 16783: 2024) Version: 2024-05-03
Product group classification:	UN CPC 37
Reference year for plant data:	2022 (Sankt Egidien), 2023 (Illange)
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 1.3.3 Sub-PCR-005 Thermal insulation products (EN 16783: 2024) Version: 2024-05-03
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: SE008541-3)* 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

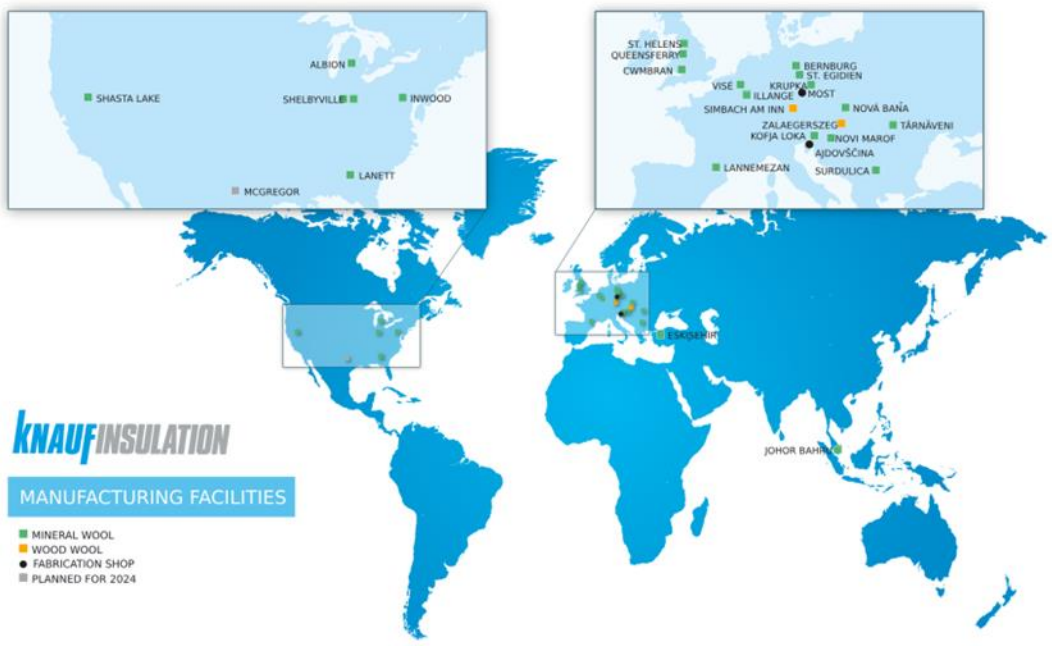
General information

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 Europe. The data used for the production stage life cycle assessment is related to production plant(s) located in Sankt Egidien (Germany) and Illange (France).

Bahnhofstraße 25, 09356 Sankt Egidien, Germany,
Mégazone d'Illange-Bertrange, D654 MoslParc, 57970 Illange, France,

Information about Rock Mineral Wool production

The rock mineral wool (RMW) products for building construction are available in the form of slabs, boards, lamellas and rolls. RMW slabs are used as a thermal, acoustical and fire insulation product.

In general, the density for rock mineral wool products range goes from 20 to 200 kg/m³. In terms of composition, the inorganic part (92-98%) is composed of volcanic rocks, typically basalt, and some dolomite and with an increasing proportion of recycled material like slags from steel industry or in the form of briquettes, a mix of stone wool scrap, other secondary materials and cement.

The remaining fraction is the thermo set resin binder.

Product information

Product name: FKD LIGHT C2

Product identification: The declared insulation FKD LIGHT C2 is a rock mineral wool, double side coated and unfaced of 1m^2 (considered for this EPD).

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 R4238MPCPR, R4296MPCPR taking into consideration the harmonized product standard EN 13162 and the CE-marking.

Product description: The main application for FKD LIGHT C2 is in external thermal insulation composite systems (ETICS).

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).

Geographical scope: The product is manufactured in Sankt Egidien (Germany). Illange (France) Energy-related information is described in the next section. Regarding the market area, the product is mainly marketed in Europe.

Energy:
Residual electricity mix (reference year 2022) and gas inputs (reference year 2020) are taken from Germany and Illange. 0.847kg and 0.159 kg of CO2 is released for 1 kWh of electricity consumption from Germany and Illange.

Technical Characteristics:

Parameter	Value
Thermal conductivity/ EN 12667	0.034 W/(mK) at 10°C
Water vapor diffusion resistance (EN 12086)	1
Thermal Resistance (ISO 8301)	4.10 m^{2}K/W
Declared density range/ EN 1602	85 kg/m^3 (+/-10%)
Melting point of fibers DIN 4102-17	≥ 1000°C

LCA information

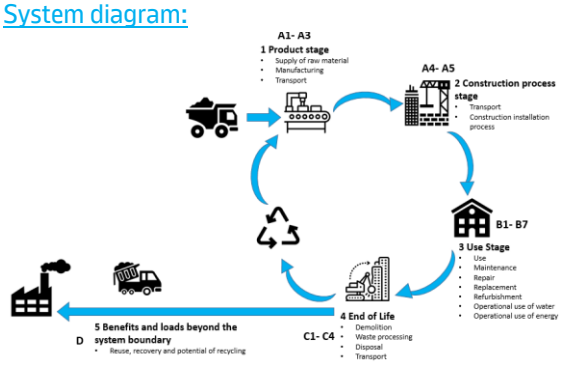
Functional unit / declared unit
The declared unit is 1m^2 of unfaced, double side coated rock mineral wool FKD LIGHT C2 with R-value of 4.10 m^{2}K/W (for a thickness of 140 mm and a declared lambda of 0.034 W/mK).

Reference service life: The RSL or durability of FKD LIGHT C2 is as long as the lifetime of the building equipment in which it is used (at least 60 years).

Time representativeness & Information on Specific Data:
The complete reference year used for the plant(s) production data is 2022 (Sankt-Egidien) and 2023 (Illange). The product group/s considered in this EPD is produced in multiple Knauf Insulation manufacturing sides with the equal weight.
The data which are used to carry out the LCA calculations contains >60% specific data and less than 40% generic data. Data quality information used in this EPD is compliant with EN 15941.

Database(s) and LCA software used:
The LCA model, the data aggregation and environmental impacts are calculated with the software LCA for Experts (GaBi) 10.8 and its content version 2024.1. The impact models used are those indicated in EN 15804:2012+A2:2019.

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.

For a comprehensive assessment, it is strongly recommended to consider the results from all the modules. Relying exclusively on Modules A1-A3 may lead to incomplete conclusions.
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
Rock mineral wool weight (without coating weight)	11.90 kg
Area	1m²
Thickness	140 mm
Volume	0.14 m³
Coating weight	0.28 kg
Packaging - PE film	0.15 kg
Packaging - Wooden pallet	3.1 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	600 km
Type of fuel and vehicle consumption or type of vehicle used for transport.	Truck Euro 6 (28 – 32 t / 22 t payload).
Truck capacity utilisation (including 30% of empty returns)	20% 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 % utilization).
Truck capacity utilization	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.

Benefits considered in module D originate from packaging recycling or incineration.

Recycled material

The mineral wool scrap generated during the manufacturing process is recycled internally and fed back into the mineral wool production process at multiple stages.
Recycled content average for the considered plant(s) for this product was calculated at 10% in 2022 in Sankt Egidien and in 2023 in Illange. The calculation is taking into account the % of secondary materials from external supply input into the batch against virgin raw materials supply. The external waste considerations considerations and the calculation methodology applied are also in accordance with the ISO 14021 standard.

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.

Conversion to mass and specific thicknesses

The results of this EPD apply to a thickness of 140 mm, with an R-value of 4.10 m²K/W. Multiplication factors for thicknesses ranging from 60 mm to 300 mm are provided to calculate the environmental performance for each thickness.

Since this product is coated, it is not possible to make a direct linear scale between different thicknesses. The amount of coating does not change with thickness, so the impact of the coating is always the same (0.38 kg $CO_{2,eq}/m^2$).

To adjust the results for the GWP-total indicator, the impact of the coating must first be subtracted from the GWP-total value in this EPD. The impact must then be multiplied by the appropriate conversion factor, which is calculated by dividing the thickness of the new product by 140 (mm), as the results scale linearly. Finally, the impact of the coating must be added.

Product thickness (mm)	Thickness Conversion factor
60	0.43
80	0.57
100	0.71
120	0.86
140	1.00
160	1.14
180	1.29
200	1.43
220	1.57
240	1.71
260	1.86
280	2.00
300	2.14

The conversion factor used in this EPD involves multiplying the results by 0.08 to obtain Environmental Impact Indicator results for 1 kg. Please note, an insulation product should always be defined by both its thickness and R-value. Focusing only on the product's weight could result in 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.com

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 %	Post-consumer recycled material % *(out of total)*	Biogenic material % *(out of total)*	Biogenic material, kg C/product *(out of total)*
Basalt	55 - 60	0	0	0
Dolomite - Limestone	15 - 20	0	0	0
Recovered metallurgical slags	5 - 20	0	0	0
Thermo set resin binder	2 - 5	0	0	0
Additives	< 1	0	0	0

Packaging Materials	Weight, kg/ DU or FU	Weight -% (versus the product)	Biogenic material, kg C/product *(out of total)*
Packaging - PE film	0.15	1.26%	0
Packaging - Wooden pallet	3.1	26.05%	1.55
TOTAL	3.25	27.31%	1.55

Note: This content declaration table applies to all product thicknesses covered in this EPD.

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

Life cycle stages 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
Share of specific data	> 60%																
Variation* – products	<10 %																
Variation** – Sankt Egidien	-2.4%																
Variation** – Illange	2.4%																

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

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

According to PCR 2019:14 v1.3.3 infrastructure should be outside of the system boundary. However, infrastructure impacts could have been considered in some GaBi background datasets.

Environmental performance

Potential environmental impacts: 1m² of rock mineral wool FKD LIGHT C2 with a thickness of 140 mm and the R-value of 4.10 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.	2.01E+01	2.08E+00	8.10E-01	0.00E+00	0.00E+00	5.00E-02	0.00E+00	1.81E-01	-1.27E+00
GWP-biogenic	kg CO_2 eq.	-4.84E+00	1.60E-03	5.17E+00	0.00E+00	0.00E+00	3.84E-05	0.00E+00	-2.35E-02	0.00E+00
GWP-luluc	kg CO_2 eq.	2.60E-02	3.32E-02	1.89E-03	0.00E+00	0.00E+00	8.01E-04	0.00E+00	5.41E-04	-2.87E-04
GWP-total	kg CO_2 eq.	1.53E+01	2.11E+00	5.98E+00	0.00E+00	0.00E+00	5.09E-02	0.00E+00	1.58E-01	-1.27E+00
ODP	kg CFC 11 eq.	3.35E-11	2.91E-13	1.91E-12	0.00E+00	0.00E+00	7.02E-15	0.00E+00	7.15E-16	-9.63E-12
AP	mol H^+ eq.	7.73E-02	2.42E-03	2.29E-03	0.00E+00	0.00E+00	5.55E-05	0.00E+00	1.31E-03	-2.21E-03
EP-freshwater	kg P eq.	1.92E-05	8.45E-06	9.78E-07	0.00E+00	0.00E+00	2.03E-07	0.00E+00	3.09E-07	-1.82E-06
EP-marine	kg N eq.	1.11E-02	8.53E-04	4.41E-04	0.00E+00	0.00E+00	1.91E-05	0.00E+00	3.41E-04	-7.93E-04
EP-terrestrial	mol N eq.	1.22E-01	1.01E-02	5.42E-03	0.00E+00	0.00E+00	2.27E-04	0.00E+00	3.74E-03	-8.60E-03
POCP	kg NMVOC eq.	3.63E-02	2.73E-03	1.34E-03	0.00E+00	0.00E+00	6.18E-05	0.00E+00	1.03E-03	-2.34E-03
ADP-minerals&metals*	kg Sb eq.	2.61E-06	1.72E-07	7.05E-08	0.00E+00	0.00E+00	4.15E-09	0.00E+00	1.74E-08	-1.01E-07
ADP-fossil*	MJ	2.73E+02	2.61E+01	8.19E+00	0.00E+00	0.00E+00	6.28E-01	0.00E+00	2.44E+00	-2.41E+01
WDP*	m^3 world eq.	7.33E-01	3.06E-02	3.93E-01	0.00E+00	0.00E+00	7.38E-04	0.00E+00	1.98E-02	-1.34E-01
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 2: 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, if this is a single plant, it means 100% for that plant.*

Potential environmental impact – additional mandatory and voluntary indicators

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

Indicator	Unit	Tot.A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-GHG [2]	kg CO_2 eq.	2.00E+01	2.12E+00	8.13E-01	0.00E+00	0.00E+00	5.11E-02	0.00E+00	1.84E-01	-1.30E+00

[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.

Use of resources: 1m² of rock mineral wool FKD LIGHT C2 with a thickness of 140 mm and the R-value of 4.10 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 [3]	MJ	2.74E+01	2.24E+00	-3.35E+01	0.00E+00	0.00E+00	5.41E-02	0.00E+00	3.29E-01	0.00E+00
PERM [3]	MJ	4.70E+01	0.00E+00	9.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT [3]	MJ	7.44E+01	2.24E+00	-3.25E+01	0.00E+00	0.00E+00	5.41E-02	0.00E+00	3.29E-01	0.00E+00
PENRE [3]	MJ	2.56E+02	2.61E+01	2.81E+02	0.00E+00	0.00E+00	6.28E-01	0.00E+00	2.44E+00	0.00E+00
PENRM [3]	MJ	1.75E+01	0.00E+00	3.49E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT [3]	MJ	2.73E+02	2.61E+01	2.81E+02	0.00E+00	0.00E+00	6.28E-01	0.00E+00	2.44E+00	0.00E+00
SM	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
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	5.00E-02	2.50E-03	1.02E-02	0.00E+00	0.00E+00	6.02E-05	0.00E+00	6.03E-04	-5.33E-03
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 re-sources; 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, if this is a single plant, it means 100% for that plant.*

[3] From International EPD PCR 1.3.3. for Construction Products, the option B, mentioned in Annex 3, was used for the calculation if the primary energy use indicators.

Waste production and output flows: 1m² of rock mineral wool FKD LIGHT C2 with a thickness of 140 mm and the R-value of 4.10 m^2K/W.

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

WASTE PRODUCTION AND OUTPUT FLOWS										
Parameter	**Unit**	**A1-3*****	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D***
Hazardous waste disposed	kg	3.75E-08	9.98E-10	2.61E-09	0.00E+00	0.00E+00	2.40E-11	0.00E+00	2.59E-10	-5.96E-09
Non-hazardous waste disposed	kg	1.71E+00	4.25E-03	4.29E-01	0.00E+00	0.00E+00	1.02E-04	0.00E+00	1.22E+01	-4.44E-03
Radioactive waste disposed	kg	6.94E-03	4.75E-05	3.09E-04	0.00E+00	0.00E+00	1.14E-06	0.00E+00	2.56E-05	-1.42E-03
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	1.35E+00	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	0.00E+00	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	4.78E+00	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	8.60E+00	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, if this is a single plant, it means 100% for that plant.*

Additional impact categories and indicators: 1m² of rock mineral wool FKD LIGHT C2 with a thickness of 140 mm and the R-value of 4.10 m^2K/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	1.19E-06	2.47E-08	2.96E-08	0.00E+00	0.00E+00	5.83E-10	0.00E+00	1.63E-08	-4.60E-08
IRP*	kBq U235 eq.	3.03E-01	6.88E-03	3.37E-02	0.00E+00	0.00E+00	1.66E-04	0.00E+00	2.69E-03	-2.34E-01
ETP-fw**	CTUe	9.13E+01	1.93E+01	3.24E+00	0.00E+00	0.00E+00	4.66E-01	0.00E+00	1.39E+00	-5.54E+00
HTP-c**	CTUh	1.30E-08	3.91E-10	3.29E-10	0.00E+00	0.00E+00	9.41E-12	0.00E+00	2.05E-10	-3.06E-10
HTP-nc**	CTUh	1.29E-06	1.75E-08	2.92E-08	0.00E+00	0.00E+00	4.22E-10	0.00E+00	2.18E-08	-7.14E-09
SQP**	dimensionless	7.43E+02	1.28E+01	1.60E+01	0.00E+00	0.00E+00	3.09E-01	0.00E+00	4.93E-01	-3.28E+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									

** Disclaimer 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.*

*** Disclaimer 2: 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, if this is a single plant, it means 100% for that plant.*

Information on biogenic carbon content

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	**kg C**	**kg CO_2 eq.**
Biogenic carbon content in product	0.00E+00	0.00E+00
Biogenic carbon content in packaging	1.55E+00	5.68E+00

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

LCA interpretation

ENVIRONMENTAL IMPACTS

All impact categories, except the Abiotic Depletion Potential Element and the Ozone Depletion Potential, are dominated by the manufacturing processes. This can be explained by the huge impact of the energy use (electricity, natural gas and coke) for rock mineral wool production.

The Global Warming Potential (GWP-total) is dominated by the manufacturing in the cupola, mostly due to CO_2 emissions from raw materials and energy consumption.

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

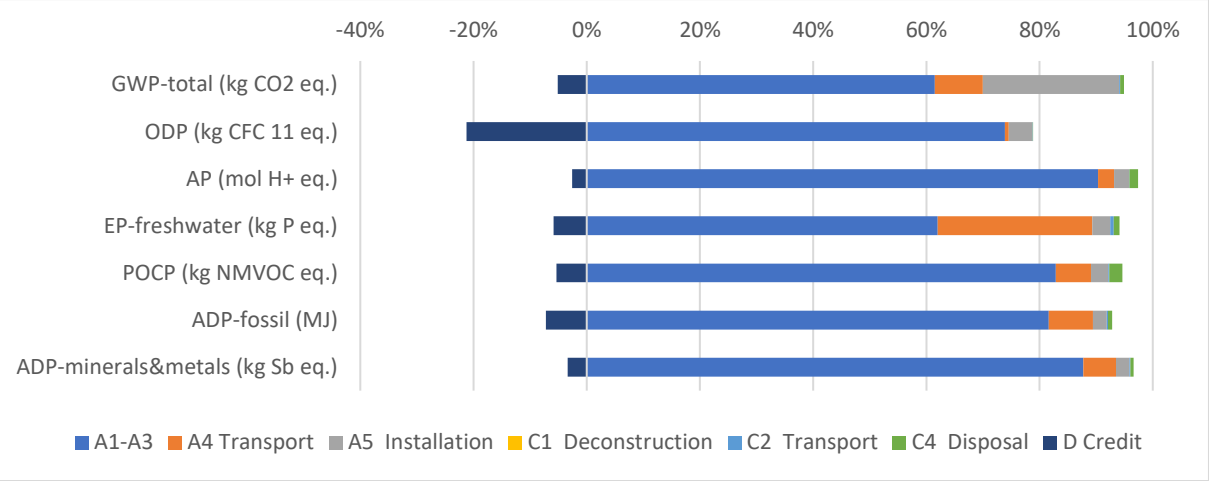
The Acidification Potential (AP) is also dominated by the manufacturing due to the emissions related to the processes and the energy consumption.

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

The Formation Potential of Tropospheric Ozone (POCP) is particularly dominated by the manufacturing (emissions in the cupola furnace and other unit processes).

The Abiotic Depletion Potential for Non-Fossil Resources (ADP- minerals &metals) impact mainly comes from the manufacturing of the product.

The Abiotic Depletion Potential for Fossil Resources Potential (ADP-fossil) is dominated by the use of coke as energy carrier. Next to the coke, we have also the impact of natural gas and upstream the electricity energy mix.



The variation in Global Warming Potential (GWP) results (A1-A3) between the manufacturing sites covered by this EPD and the average results is 2.4%. Sankt Egidien plant has a lower environmental impact compared to Illange 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 manufacturing of rock mineral wool products (especially due to the energy carrier, coke).

Total Use of Renewable Primary Energy Resources (PERT) is dominated by the manufacturing, mostly due to electricity consumption and packaging.

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EN 15978: 2011 Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method.

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

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2024_11_12 FKD Light C2 - SE,ILL **(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_RMW_2022 **(Background Report)**
Calculation rules for the Life Cycle Assessment and Requirements and more details about the production on the Background Report.

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