April 2017

DGNB CORE 14

PRODUCT DATA FOR CERTIFICATION

GLASS MINERAL WOOL ECOSE

DGNB (Deutche Gesellschaft für Nachhaltiges Bauen) is a voluntary standard that focus on the integrated evaluation of economic and environmental aspects as well as user comfort.

The DGNB assessment system covers all of the six key aspects of sustainable building: environmental, economic, socio-cultural and functional aspects, technology, processes and site. The DGNB system comprises a variety of certification schemes for different building uses. All international applications of the DGNB system for buildings are based on the core criteria catalogue, currently referred to as “CORE 14”. These core criteria are used in combination with scheme sheets which provide detailed information for the relevant scheme in question.

KNAUF INSULATION products can put you on the right track to get the highest results for DGNB certification.

DGNB Criteria Group	Assessment criteria and definition	Knauf Insulation Products contribution	Contributes towards
ENV 10	**Impact on global and local environment**		
ENV 1.1.	**Life Cycle Impact Assessment** The objective of the assessment is to quantify and document the environmental performance of the building and compare the results against a defined benchmark. The scope includes the environmental impacts of production, use and end-of-life phases. The building LCA is based on the Life Cycle Energy Modelling (LCEM). 5 out of maximum 10 points are awarded if the proposed building’s environmental impact is equal to that of the reference building. More points will be awarded if the impacts are less than the reference building. The preference should be given to product-specific EPD where the LCA fulfil EN 15804 requirements.	The Environmental Products Declarations (EPDs) [1] are published and 3rd party verified against EN 15804 through German IBU program operator. Results of the different LCA indicators are directly available. Because of the high recycled content and the bio-based binder, Global Warming Potential is for example particularly low in comparison to other mineral wool products.	**7.9%**

[1] http://www.knaufinsulation.com/en/product-sustainability

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ENV 1.2.	**Local Environmental Impact** This criterion is focusing on the VOCs content of the product (rather than the VOCs release of the product) whereas criterion SOC 1.2. includes a quantitative evaluation of indoor emissions of volatile substances. Some high risk material and product groups are individually checked and evaluated : halocarbons and partially halocarbons refrigerants and propellants; heavy metals; materials which fall under Biocidal Product Directive; hazardous material according to CLP regulation; organic solvents and plasticisers.	Mineral wool products are free of halocarbon propellants. Knauf Insulation products do not contain any SVHC (Substances of Very High Concern) and are REACH compliant. ECOSE is a bio-based binder with no-added phenol-formaldehyde.	**3.4%**
ENV20	**Resource Consumption and waste generation**		
ENV2.1	**Life cycle impact assessment – primary energy** The criterion evaluates the complete primary energy requirement of a building. Here particular value is placed on the reduction of the overall consumption of primary energy and the maximization of the use of renewable energies. Three indicators are calculated : Non-renewable primary energy demand (PEnren), Total primary energy demand (PEtot) and Proportion of renewable primary energy.	The Environmental Products Declarations (EPDs) are published and 3rd party verified against EN 15804 through German IBU program operator. Results of the embodied energy is available. Because of the high recycled content and the bio-based binder, embodied energy is quite low in comparison to other mineral wool products.	**5.6%**

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DGNB Criteria Group	Assessment criteria and definition	Knauf Insulation Products contribution	Contributes towards
ECO10	**Life Cycle Costs**		
ECO1.1	**Life Cycle Cost** The aim is to reduce the building's total life cycle costs (LCC) to a minimum. The objective is to facilitate a comparison between different buildings with the same use. Costs incurred throughout the building's entire life cycle are covered within the scheme: construction, occupancy costs and dismantling and disposal costs.	Knauf Insulation solutions help to reduce the occupancy costs by lowering energy consumption and to limit maintenance costs. As due to durability of mineral wool, there is no need for replacement within the considered time period of 50 years.	**9.6%**
ECO 20	**Financial Performance**		
ECO2.1	**Flexibility and adaptability** The ease with which a building can be adapted to changing requirements helps raise user satisfaction; it can prolong the building's service life and lower costs through its life cycle. The space efficiency and adaptability is evaluated on the basis of a checklist including the structure as one of the indicator. In the structure, internal and partition walls have a major role.	The mineral wool that is utilized for partition wall can be re-used as the wool is flexible and the panels do not break.	**9,6 %**
SOC 10	**Health, comfort and user-friendliness**		
SOC1.1	**Thermal comfort** Thermal comfort makes an important contribution to an efficient and performance-enhancing working and living environment. This is evaluated through a chechlist of qualitative and quantitative indicators (operative temperature/heating period, relative humidity/heating period, etc.).	The insulating properties of Knauf Insulation solutions (low thermal conductivity) and the technical information provided for construction are contributing to the increase of thermal comfort.	**4,3 %**

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DGNB Criteria Group	Assessment criteria and definition	Knauf Insulation Products contribution	Contributes towards
SOC1.2	**Indoor air quality** The aim of the criterion is to ensure that indoor air is of sufficient quality not to adversely affect users' health and well-being. The buildings must be with TVOC concentration lower than 3000 µg/m³ and a formaldehyde concentration lower than 120 µg/m³.	Glass Mineral Wool ECOSE products help to meet the requirements as the binder is bio-based and without added formaldehyde, certified Blue Angel[2] and Eurofins Gold[3] for Indoor Air Comfort, see annexe 1	**2,6 %**
SOC1.3	**Acoustic comfort** The objective of the criterion is to achieve room acoustic conditions which are appropriate for the intended use and which guarantee a sufficient level of user comfort.	Knauf Insulation products provide excellent sound absorption properties, they can influence significantly the reverberation time behaviour of a room.	**0,9 %**
TEC 10	**Quality of technical implementation**		
TEC1.2	**Sound insulation** Evaluating the quality of sound insulation of building with the certificate or building components certificates required in the call for tenders. Inspection to determine compliance with the requirements specified in DIN 4109. The following indicators are considered: airborne sound insulation against other residential areas, footfall sound insulation, airborne sound insulation against external noise, insulation from sound from building services.	Knauf Insulation solutions are available to meet the highest noise reduction challenges; all sound protection levels can be met.	**4,1 %**

[2] https://www.blauer-engel.de/en/s/knauf
[3] www.product-testing.eurofins.com

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DGNB Criteria Group	Assessment criteria and definition	Knauf Insulation Products contribution	Contributes towards
TEC1.3	**Building envelope quality** The objective of this criterion is to reduce space heating demand, achieve a high level of thermal comfort, and to prevent damages to the building fabric. The following indicators are included in the evaluation: Thermal transmittance coefficient U, Thermal bridges, air permeability class, amount of condensation, air exchange, solar heat protection.	Knauf Insulation solutions are available to meet requested thermal transmittance coefficients of external building components. Technical guidance are available to avoid thermal bridge and condensation and to reach adequate air permeability class.	**4,1%**
TEC 1.6.	**Deconstruction and disassembly** The ease of dismantling and recycling of the building structure is evaluated on the basis of a checklist including the following indicators: ease of disassembly, scope of disassembly and recycling and disposal plan.	Knauf Insulation glass mineral wool solutions are generally easily disassembled (filler material), the scope of disassembly is easy and if the sorting has been done appropriately the mineral wool can be recycled (ceiling tiles, bricks…).	**4,1%**
PRO 10	**Quality of planning**		
PRO 1.4.	**Sustainability aspects in tender phase** It has to be checked whether sustainability aspects are integrated into the tender and if the selection of companies commissioned is based on sustainability aspects (equality, conservation of climate and resources, adherence to human rights…)	Knauf Insulation has an integrated certifificate QHSEE : ISO 9001/ ISO 14001/ OHSAS 18001 / ISO 50001 (see annexe 2). We publish yearly a CSR report and we are monitoring our responsible supply chain.	**1%**

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Annexe 1: SOC 1.2 : Indoor Air Quality

Here below the Eurofins Indoor Air Comfort Gold Certificate:

eurofins

Certificate

Indoor Air Comfort Gold

INDOOR AIR COMFORT eurofins GOLD CERTIFIED PRODUCT

Knauf Insulation unfaced Glass Mineral Wool products with ECOSE• Technology
Product

Knauf Insulation GmbH, Am Bahnhof 7, 97346 Iphofen, Germany
Manufacturer

The product has undergone a successful testing and evaluation program as specified for Eurofins Indoor Air Comfort Gold certification, version 5.3a (2015). This includes a chamber test of emissions and aldehydes and a surveillance of the manufacturing site according to DIN 18200.

The successful evaluation means compliance with the recent limits of legal regulations on low emitting products in Belgium, France (class A+) and Germany (AgBB), and several ecolabels:

- ✓ No carcinogenic substances were detectable above their limit values, including 4 CMR substances regulated in France.
- ✓ Formaldehyde was below the limit value of 10 µg/m³ and Acetaldehyde below of 200 µg/m³.
- ✓ Sum of VOC (TVOC) was below the limit values of 1.000 µg/m³ after 3 days and 100 µg/m³ after 28 days. The product was classified A+ according to French VOC regulation.
- ✓ Sum of SVOC after 28 days was below the limit value of 30 µg/m³.
- ✓ The R values were below the limit value of 1 for both German NIK and Belgian LCI lists after 28 days. The sum of VOC without German LCI value was below 100 µg/m³.
- ✓ Quality management system and factory production control program at the production site are capable to ensure a continuous production of very low emitting products.
- ✓ Therefore the product qualifies for the Indoor Air Comfort Gold label.

Certificate No.: IACG-323-01-25-2016
Date: 17 January 2016
Validity of certificate: 17 January 2021, with annual surveillance and retesting

Eurofins Certification Body VOC
Am Neuländer Gewerbepark 4
21079 Hamburg, Germany
Phone: +49 40 492 94 6815

IAC-Certification@eurofins.com
www.indoor-air-comfort.com

Head of the Certification Body

Sampling, testing and evaluation were performed according to the standards CEN/TS 165165, ISO 16000-3, ISO 16000-6, ISO 16000-9, ISO 16000-11, EN 13419 each in the latest versions.

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Annexe 2: Knauf Insulation Group QHSEE certificates

Knauf Insulation is certified for all its production plants and corporate sites throughout the world following the below standards:

- Quality Management : ISO 9001: 2015
- Health and Safety Management: OHSAS 18001 : 2007
- Environment Management: ISO 14001: 2015
- Energy Management: ISO 50001: 2011

BUREAU VERITAS Certification

KNAUF INSULATION SPRL

Rue de Maastricht 95, 4600 Visé, Belgium

This is a multi-site certificate. Additional site details are listed in the appendix to this certificate.

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System standards detailed below.

ISO 14001:2015

Scope of certification

Design, Development and Production of Insulation Materials and Systems.

Certification cycle start date: **23 December 2016**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **22 December 2019**

Original certification date: **23 December 2019**

Certificate no.: **BE010259** Version: **1** Revision date: **15 December 2016**

Signed on behalf of BVCH SAS - UK Branch

Certification body address: 66 Prescot Street, London, E1 8HG, United Kingdom
Local Office: Mechelsesteenweg 128-136 – B-2018 – Antwerp , Belgium

Further clarifications regarding the scope of this certificate and the applicability of the Management System requirements may be obtained by consulting the organization.
To check this certificate validity, please call +32 (0)3 247 94 00.

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BUREAU VERITAS Certification

KNAUF INSULATION SPRL

Rue de Maastricht 95, 4600 Visé, Belgium

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ISO 9001:2015

Scope of certification

Design, Development and Production of Insulation Materials and Systems.

Certification cycle start date: **23 December 2016**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **22 December 2019**

Original certification date: **23 December 2010**

Certificate no.: **BE010228** Version: **1** Revision date: **15 December 2016**

Signed on behalf of BVCH SAS - UK Branch

Certification body address: 66 Prescot Street, London, E1 8HG, United Kingdom
Local Office: Mechelsesteenweg 128-136 – B-2018 – Antwerp , Belgium

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BUREAU VERITAS
Certification

KNAUF INSULATION SPRL

Rue de Maastricht 95, 4600 Visé, Belgium

This is a multi-site certificate. Additional site details are listed in the appendix to this certificate.

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System standards detailed below.

OHSAS 18001:2007

Scope of certification

Design, Development and Production of Insulation Materials and Systems.

Certification cycle start date: **23 December 2016**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **22 December 2019**

Original certification date: **23 December 2010**

Certificate no.: **BE010260** Version: **1** Revision date: **15 December 2016**

Signed on behalf of BVCH SAS - UK Branch

Certification body address: 66 Prescot Street, London, E1 8HG, United Kingdom
Local Office: Mechelsesteenweg 128-136 – B-2018 – Antwerp, Belgium

UKAS MANAGEMENT SYSTEMS 008

Further clarifications regarding the scope of this certificate and the applicability of the Management System requirements may be obtained by consulting the organization.
To check this certificate validity, please call +32 (0)3 247 94 00.

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BUREAU VERITAS
Certification

Certificate

awarded to

KNAUF INSULATION

Rue de Maastricht 95
4600 Visé, Belgium - Germany

Bureau Veritas Certification certifies that the Management System of the above organisation has been assessed and found to be in accordance with the requirements of the standards detailed below.

Standard

DIN EN ISO 50001:2011

Sector A

Scope of supply

Design, Development and Production of Insulation Materials and Systems

Original approval date: 17.12.2013
Date of the audit: 08.12.2016 Date of next recertification: 08.12.2019

Date of certification: 16.12.2016 Valid until: 16.12.2019

To check this certificate validity you may contact Bureau Veritas Certification. Further clarifications regarding the scope of this certificate and the applicability of the Management System requirements may be obtained by consulting the organization.

DAkkS

Date: 16.12.2016
Certificate N°: BEL-140008/EnMS-rev01

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Bureau Veritas Certification Germany GmbH
Veritaskai 1, 21079 Hamburg