ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	Knauf Ceiling Solutions GmbH & Co. KG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-KNA-20230240-IBA1-EN
Issue date	15.08.2023
Valid to	14.08.2028

TOPIQ Efficient pro Hygena

Knauf Ceiling Solutions GmbH & Co. KG

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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1. General Information

Knauf Ceiling Solutions GmbH & Co. KG

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-KNA-20230240-IBA1-EN

This declaration is based on the product category rules:

Mineral panels, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

15.08.2023

Valid to

14.08.2028

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

TOPIQ Efficient pro Hygena

Owner of the declaration

Knauf Ceiling Solutions GmbH & Co. KG
Elsenthal 15
94481 Grafenau
Germany

Declared product / declared unit

1 m² TOPIQ Efficient pro Hygena panels with a surface weight of 3.19 kg/m².

Scope:

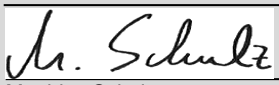
This document refers to 1 m² TOPIQ Efficient pro Hygena panels with a surface weight of 3.19 kg/m², manufactured at the production facility in Grafenau, Germany.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally



Matthias Schulz,
(Independent verifier)

2. Product

2.1 Product description/Product definition

The ceiling tiles consist of mineral wool (rock wool) and a phenolic binder. The soft mineral tiles meet the requirements of *EN 13964*.

The TOPIQ Efficient pro Hygena soft mineral tiles are available in different formats.

For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) *Regulation (EU) No. 305/2011* (CPR) applies. The product needs a declaration of performance taking into consideration *EN 13964:2014*, *suspended ceiling requirements and test methods* and the CE-marking. For the application and use the respective national provisions apply.

2.2 Application

Soft mineral tiles are typically used as lay-in for suspended ceiling constructions. They are primarily used as optical cladding, but also for sound absorption and sound insulation, for fire resistance and against fire spreading as well as for hygiene requirements.

2.3 Technical Data

Soft Mineral boards are regulated by *EN 13964* and have corresponding labelling and declaration of performance. The following data provide an overview of results:

Construction data (according to DIN 18177)

Name	Value	Unit
Thermal conductivity	0.04	W/(mK)
Sound absorption coefficient acc. ISO 354 and ISO 11654	1	%
Airborne sound reduction acc. ISO 10848 and EN 717-1	15	dB
Gross density (of the raw board)	140	kg/m^3
Formaldehyde emissions acc. EN 717-1	13	$µg/m^3$

Additional technical data are not relevant for this product.

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN 13964:2014*, *suspended ceiling requirements and test methods* (not part of CE-marking).

2.4 Delivery status

The EPD refers to tiles with a thickness of 20 mm which can have variable length and width dimensions.

2.5 Base materials/Ancillary materials

Mineral tile composition:

Name	Value	Unit
Basalt	48-53	%
Dolomite - Limestone	13-18	%
Recovered metallurgical slags	26	%
Thermo set resin binder	2-4	%
Additives	< 1	%
Fleece	6	%
Glue application rate	2	%
Biocide	0.0005	%
Finish	5	%

The recycled content is at least 28 %.

This product/article/at least one partial article contains substances listed in the *ECHA-candidate list* (date: 25.06.2020) exceeding 0.1 percentage by mass: No

This product/article/at least one partial article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the *candidate list*, exceeding 0.1 percentage by mass: No

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) *Ordinance on Biocide Products* No. 528/2012): No

2.6 Manufacture

The raw boards for the TOPIQ soft mineral tiles are sourced from Knauf Insulation from the plant in Nová Baňa (Slovakia), see *International EPD System EPD 2022*.

In the Grafenau plant, the panels are laminated with a glass fleece, cut to size and the edges are machined. The TOPIQ tiles are painted with dispersion paint.

The Grafenau factory is certified according to *ISO 9001, ISO 14001, ISO 45001* and *ISO 50001*.

2.7 Environment and health during manufacturing

The manufacturer complies with the special German and European regulations for the production of mineral slabs:

- The manufacturing plant is certified according to *ISO 9001, ISO 14001, ISO 45001* and *ISO 50001*.
- The production has a closed water cycle.
- Production generates virtually no waste, all resulting blanks, dust and rejects are reused.
- Exclusive use of mineral fibres according to *Regulation (EU) No.1272/2008* Note Q.
- Prohibition of the production and use of biopersistent fibres (*Ordinance on Hazardous Substances*, Annexe II, No. 5).
- Prohibition of placing biopersistent fibres on the market (*Chemicals Prohibition Ordinance*, No.23 of the Annexe to §1).
- Not subject to declaration according to *REACH*.

2.8 Product processing/Installation

There are no recognised systemic hazards associated with the installation of ceiling tiles. It is recommended that materials are handled in a manner that minimises dust generation. Workers should wear appropriate personal protective equipment. Equipment such as gloves, goggles and dust masks are recommended to minimise exposure to dust and prevent skin irritation.

2.9 Packaging

The panels are packaged in cardboard boxes and sealed with transparent polyethylene film. These packages lie on chemically untreated wooden pallets. The pallets are wrapped with polyethylene stretch film. Foil, paper and wood can be recycled in the usual ways.

2.10 Condition of use

When handled properly, the mechanical and structural-physical properties of the soft mineral tile remain intact throughout its entire service life.

2.11 Environment and health during use

When properly installed, no dust/particles are released during the use phase. For the substance groups formaldehyde, volatile organic compounds (VOCs) and total volatile organic compounds (TVOCs), the limits according to *DIN 18177* are complied with.

2.12 Reference service life

The service life of the soft mineral tiles is up to 50 years, depending on the area of use, exposure and state of maintenance. Within the framework of the conditions of use, no ageing effects are to be expected apart from visual discolouration caused by air circulation.

2.13 Extraordinary effects

Fire

The declared products are classified in the fire reaction class A1 according to *EN 13501-1*. This means that they are "non-combustible" according to the German building authority designation (and also many other European countries).

Fire Reaction

Name	Value
Building material class	A1
Smoke gas development	-
Burning droplets	-

Water

Prolonged contact with water, can lead to a loss of structure, and if the soluble components are discharged into the sewage treatment plant, they are biodegradable, increasing the chemical oxygen demand (COD) and biological oxygen demand (BOD).

Mechanical destruction

The soft mineral tiles can be broken by hand and also damaged superficially, which can result in minor dust formation.

2.14 Re-use phase

If the panels are removed properly, they can be reinstalled. In case of minor damage, the slabs can be reused as cut-to-size tiles. Mineral tiles can be returned to the manufacturing process if they are of the correct type and have sufficient material quality; they can be recycled up to 100 %.

2.15 Disposal

The waste code number of production residues for mineral tiles according to the *AVV*, *German List of Wastes Ordinance* is 10 11 03, the waste code number for construction site waste (offcuts) is 17 06 04. If the tiles are not recycled as described in 2.14., they are disposed of in a landfill.

2.16 Further information

Further information at www.knaufceilingsolutions.com
DoPs at https://downloads.knaufceilingsolutions.com

3. LCA: Calculation rules

3.1 Declared Unit

This EPD refers to a declared unit of 1 m² TOPIQ Efficient pro Hygena panels with a surface weight of 3.19 kg/m² and a thickness of 20 mm.

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Grammage	3.19	kg/m^2
Layer thickness	0.02	m

The panels are produced at the Knauf Ceiling Solutions production site in Grafenau, Germany under the brand name TOPIQ.
Various types of panels are produced at the site. A differentiation between the product groups was made based on the recipe of the products.

3.2 System boundary

The life cycle assessment of TOPIQ panels includes a cradle-to-gate analysis of the products' environmental impacts with modules (A1–A3, +C, +D). Subsequent life cycle phases are part of the analysis:

Module A1–A3 | Production stage

The production stage includes the upstream burdens of raw material supply, their transports and the manufacturing processes of the panels at the plant of Knauf Ceiling Solutions located in Grafenau (Germany). Stone wool panels are coated on site. Main raw material inputs, therefore, refer to stone wool panels, fleece and adhesive. The production site is supplied with electricity from the German power grid and thermal energy from natural gas. Also, the packaging of the products is considered.

Module C1 | Deconstruction and demolition

Disassembly of the product is done either manually or using smaller tools. The referring energy demand is considered to be negligible.

Modul C2 | Transport to disposal

The transport to the disposal of the material is estimated declaring a 50 km radius to the landfill. In reality, this scenario may vary depending on the actual location of deconstruction and referring waste treatment.

Module C3 | Waste processing

The declared scenario assumes landfilling of the product. Referring environmental impacts are accounted for in module C4.

Module C4 | Disposal

Module C4 refers to the emissions from the disposal of the stone wool panels. The chosen scenario, therefore, includes the environmental burdens of landfilling of the product.

Module D | Benefits and loads beyond the system boundary

The declared scenario assumes landfilling of the product. Referring environmental impacts are accounted for in module C4. There are no benefits and loads in module D.

3.3 Estimates and assumptions

Assumptions and approximations are applied in case of a lack of representative data. All assumptions and approximations are documented precisely and represent a best-guess representation of reality. In case of uncertainty, a conservative approach is chosen.

3.4 Cut-off criteria

The LCA model covers all available input and output flows, which can be represented based on robust data. Data gaps are filled with conservative assumptions from average data (when available) or with generic data and are documented accordingly. Only data with a contribution lower than 1 % were

cut off. Thus, no data were neglected, of which a substantial impact is to be expected. All relevant data were collected comprehensively. Cut-off material and energy flows were chosen carefully based on their expected quantitative contribution as well as potential environmental impacts. Thus, it can be assumed that the sum of all neglected input flows does not account for more than 5 % of the total material, water and energy flows.

3.5 Background data

This study uses generic background data for the evaluation of upstream environmental impacts from *GaBi* databases (*GaBi* 10; 2022.2).

3.6 Data quality

Data collection is based on product-specific questionnaires. It follows an iterative process of clarifying questions via e-mail, telephone calls or in personal/web meetings. Intensive discussions between Knauf Ceiling Solutions and Daxner & Merl result in an accurate mapping of product-related material and energy flows. This leads to a high quality of foreground data collected. Data collection relies on a consistent process according to *ISO 14044*.

The technological, geographical and time-related representativeness of the database was kept in mind when selecting background data. Whenever specific data were missing, either generic datasets or representative average data were used instead. The implemented *GaBi* background datasets refer to the latest versions available (not more than ten years old) and are carefully chosen. n-butyl acrylate represents an exception to this rule tracing back to the reference year of 2012. Due to a lack of other, more actual data and its minor influence on the results, this dataset was deemed as a suitable approximation for this assessment.

3.7 Period under review

Foreground data were collected in the 2022 production year, and the data are based on the volumes produced on an annual basis.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Germany

3.9 Allocation

All information for the allocation of given material and energy flows is based on the Enterprise Resource Planning (ERP)-systems of the production site. Product-specific application rates of finish, adhesive, biocide and glass fleece were provided by the manufacturer. Furthermore, product-specific input rates for electric and thermal energy as well as the material efficiency during production were provided by Knauf Ceiling Solutions.

3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. The *GaBi* background database was used to calculate the LCA (*GaBi* 10; 2022.2).

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The declared product does not contain any biogenic carbon.

Information on the description of the biogenic carbon content at the factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.08	kg C

The carbon stored in the packaging was taken into account as "CO_2-neutral". Thus the storage effect of the carbon bound in the packaging is not included in the calculation but is considered as emitted immediately.

Assembly (A5)

The End-of-Life of the product packaging is not declared in module A5.

Name	Value	Unit
Packaging (cardboard)	0.047	kg/m²
Packaging (pallets)	0.127	kg/m²
Packaging (polyethylene-film)	0.0142	kg/m²

End-of-Life (C1–C4)

Name	Value	Unit
Collected separately	3.19	kg
Landfilling	3.19	kg

5. LCA: Results

The following table contains the LCA results for a declared unit of 1 m² TOPIQ Efficient pro Hygena panels with a surface weight of 3.19 kg/m² and a thickness of 20 mm.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² TOPIQ Efficient pro Hygena panels (3.19 kg/m²)

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 eq	4.59E+00	0	9.67E-03	0	4.63E-02	0
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	5.01E+00	0	9.61E-03	0	4.76E-02	0
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	-4.28E-01	0	0	0	-1.41E-03	0
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	2.27E-03	0	6.46E-05	0	8.8E-05	0
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	1.29E-11	0	9.41E-16	0	1.12E-13	0
Acidification potential of land and water (AP)	mol H^+ eq	4.17E-02	0	3.2E-05	0	3.38E-04	0
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	6.74E-06	0	3.42E-08	0	8.08E-08	0
Eutrophication potential aquatic marine (EP-marine)	kg N eq	3.24E-03	0	1.46E-05	0	8.64E-05	0
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	3.57E-02	0	1.64E-04	0	9.49E-04	0
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	1.13E-02	0	2.88E-05	0	2.62E-04	0
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	6.83E-07	0	9.66E-10	0	4.88E-09	0
Abiotic depletion potential for fossil resources (ADPF)	MJ	7.49E+01	0	1.26E-01	0	6.24E-01	0
Water use (WDP)	m^3 world eq deprived	2.63E-01	0	1.07E-04	0	5.22E-03	0

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² TOPIQ Efficient pro Hygena panels (3.19 kg/m²)

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	6.85E+00	0	8.72E-03	0	9.36E-02	0
Renewable primary energy resources as material utilization (PERM)	MJ	6.06E+00	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	1.29E+01	0	8.72E-03	0	9.36E-02	0
Non renewable primary energy as energy carrier (PENRE)	MJ	7.17E+01	0	1.26E-01	0	6.25E-01	0
Non renewable primary energy as material utilization (PENRM)	MJ	3.33E+00	0	0	0	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	7.5E+01	0	1.26E-01	0	6.25E-01	0
Use of secondary material (SM)	kg	9.85E-01	0	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m^3	1.46E-02	0	1.01E-05	0	1.59E-04	0

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m² TOPIQ Efficient pro Hygena panels (3.19 kg/m²)

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	9.44E-07	0	6.68E-13	0	3.21E-11	0
Non hazardous waste disposed (NHWD)	kg	8.43E-01	0	2.06E-05	0	3.2E+00	0
Radioactive waste disposed (RWD)	kg	3.19E-03	0	2.34E-07	0	6.94E-06	0
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	0	0	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m² TOPIQ Efficient pro Hygena panels (3.19 kg/m²)

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease	3.45E-07	0	1.83E-10	0	4.16E-09	0

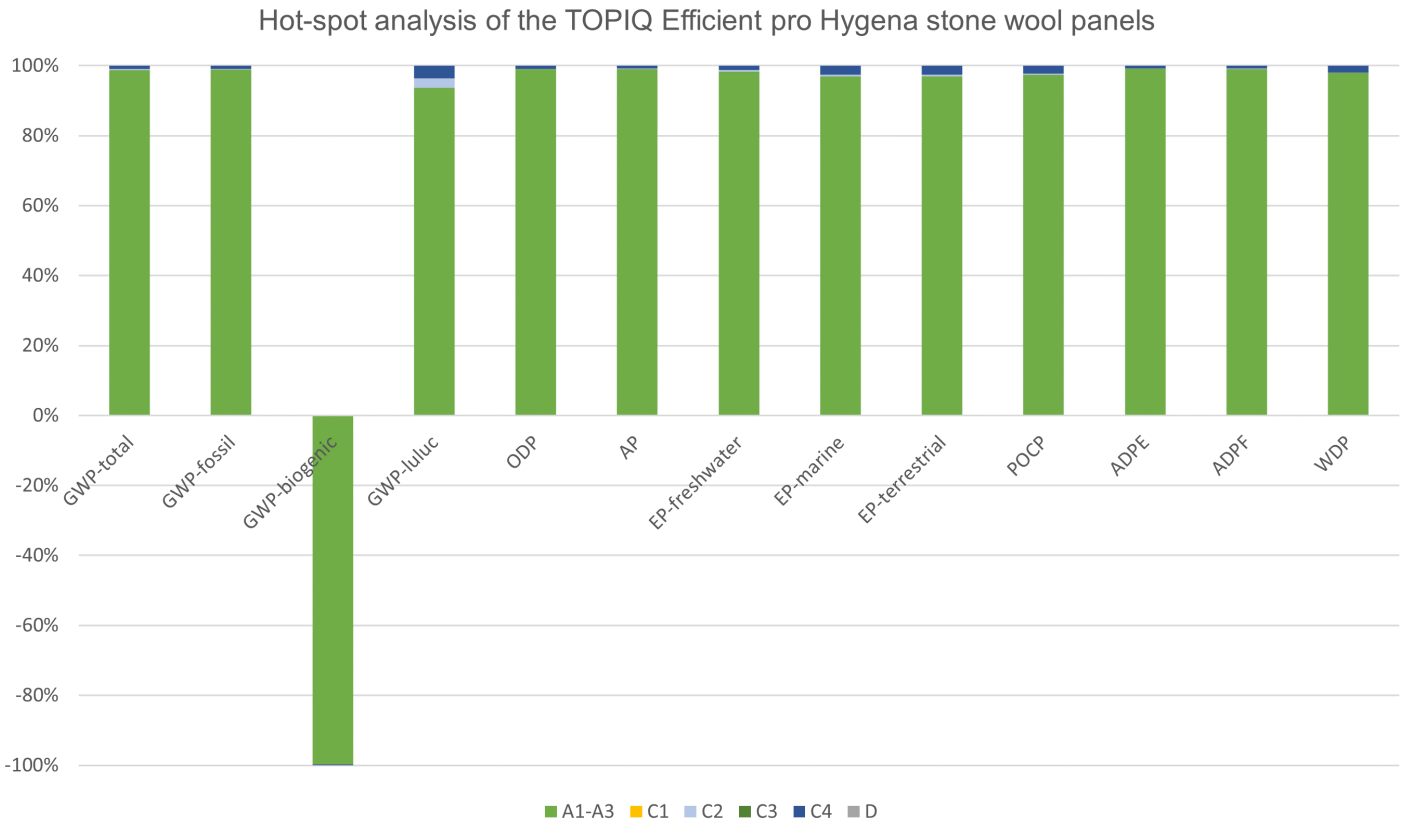
	incidence						
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	2.44E-01	0	3.54E-05	0	7.7E-04	0
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	2.22E+01	0	8.92E-02	0	3.5E-01	0
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	1.01E-09	0	1.84E-12	0	5.34E-11	0
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	3.95E-08	0	1.13E-10	0	5.91E-09	0
Soil quality index (SQP)	SQP	1.22E+02	0	5.33E-02	0	1.3E-01	0

Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'. 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 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

6. LCA: Interpretation

The following interpretation contains a summary of the LCA results referenced to a declared unit of 1 m² TOPIQ Efficient pro Hygena panels.



The comparison of the product's life cycle phases shows a clear dominance of the production phase (modules A1–A3) in all environmental impact categories. The potential environmental impacts from transport to disposal (module C2) and the End-of-Life of the products due to landfilling (module C4) have a minor contribution.

The environmental effects in the production phase are mainly dominated by the supply chain of the purchased rock mineral wool boards in all categories considered. As the representation of the upstream footprint of the raw board is based on a product-specific EPD, a high quality of the results is to be expected. Furthermore, the supply chain of purchased energy carriers, especially electricity, has an influence on the potential climate change (GWP), as well as depletion of fossil resources (ADPF).

The emissions of biogenic greenhouse gases (GWP-biogenic) originate from the packaging of the rock mineral wool raw boards that is included in the used EPD results as well as the packaging of the TOPIQ panels. Greenhouse-gas emissions from land use change (GWP luluc) result apart from the upstream supply chain of rock mineral wool boards, from transport as well as packaging. When it comes to the eutrophication potential of freshwater (EP-freshwater), also packaging has a dominant role. Abiotic depletion potential for non-fossil resources (ADPE) is also influenced by the top coat as well as the adhesive system.

7. Requisite evidence

7.1 Radioactivity
Measurements of radioactivity did not reveal any evidence of artificial radioactivity outside the natural background radiation.
Measuring point: *TÜV Süd Industrie Service*
Test Number: G 7141 002
Testing Date: 14.12.2016 **7.2 Biopersistence**
The mineral wool used for the production of the panels is biosoluble and, according to *EU Regulation 1272/2008/EC*, is to be assessed as free of suspected cancer. The "*RAL Mineral Wool Quality Seal*" monitors and guarantees the quality of the wool used.
The production and use of non-exempt fibres is prohibited by the *Ordinance on Hazardous Substances* and the *Chemicals Prohibition Ordinance*.
7.3 VOC emissions
Measuring point: *Eurofins Product Testing A/S*
Test report: VOC emission test report Indoor Air Comfort GOLD (10.11.2022)
Number: 392-2022-00122903_A_EN
Testing period: 15.09.2022-13.10.2022
Test basis: *ISO 16000-6*

AgBB Overview (28 days)

Name	Value	Unit
TVOC (C6 - C16)	< 5	µg/m3
Sum SVOC (C16 - C22)	< 5	µg/m3
R (dimensionless)	0.13	-
VOC without NIK	< 5	µg/m3
Carcinogenic substances	< 1	µg/m3

AgBB Overview (3 days)

Name	Value	Unit
TVOC (C6 - C16)	25	µg/m³
Sum SVOC (C16 - C22)	< 5	µg/m³
R (dimensionless)	0.43	-
VOC without NIK	< 5	µg/m³
Carcinogenic Substances	< 1	µg/m³

8. References

Standards

DIN 18177
DIN 18177:2020-12, Wet-felt factory-produced mineral panels.

EN 13501-1
DIN EN 13501-1:2019, Classification of construction products and building elements according to their reaction to fire, Part 1: Classification with the results of tests on the reaction to fire of construction products.

EN 13964
DIN EN 13964:2014, Suspended ceilings - Requirements and test methods.

EN 15804
DIN EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.

EN 16487
DIN EN 16487:2015-02, Acoustics - Test specifications for suspended ceilings - Sound absorption.

ISO 354
DIN EN ISO 354:2003-12, Acoustics - Measurement of sound absorption in reverberant rooms.

ISO 717-1
DIN EN ISO 717-1:2013-06, Acoustics - Assessment of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation.

ISO 9001
DIN EN ISO 9001:2015-11, Quality management systems - Requirements.

ISO 10848
DIN EN ISO 10848:2006-08, Acoustics - Measurement of airborne and impact sound transmission between adjacent rooms in test stands.

ISO 11654
DIN EN ISO 11654:1997-07, Acoustics - Sound absorbers for use in buildings - Evaluation of sound absorption.

ISO 14001
DIN EN ISO 14001:2015-11, Environmental management systems - Requirements with guidance for use.

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

ISO 14044
DIN EN ISO 14044:2006-10, Environmental management – Life cycle assessment – Requirements and guidelines.

ISO 16000-6
ISO 16000-6:2011-12, Indoor air contaminants - Part 6: Determination of VOCs in indoor air and test chambers, sampling on Tenax TA®, thermal desorption and gas chromatography with MS/FID.

ISO 45001
DIN ISO 45001:2018-06, Occupational health and safety management systems - Requirements withguidance for use.

ISO 50001
DIN EN ISO 50001:2011-12, Energy management systems - Requirements with guidance for use.

Further References

AgBB
Ausschuss zur gesundheitlichen Bewertung von Bauprodukte (AgBB) (Committee for health-related evaluation of building products): Vorgehensweise bei der gesundheitlichen Bewertung der Emissionen von flüchtigen organischen Verbindungen (VOC und SVOC) aus Bauprodukten.

AVV, German List of Wastes Ordinance
Regulation on the European Waste List.

Chemicals Prohibition Ordinance
Chemicals Prohibition Ordinance (Germandesignation: Chemikalien-Verbotsverordnung – ChemVerbotsV) of 20

January 2017 (Federal LawGazette I p. 94; 2018 I p. 1389), last amended by Article 300 of the Ordinance of 19 June 2020 (Federal Law Gazette I p. 1328).

ECHA-candidate list
List of substances of very high concern (SVHC) for authorisation (ECHA Candidate List), 25.06.2020, published under Article 59(10) of REACH. Helsinki: European Chemicals Agency.

Eurofins Product Testing A/S
Test report: VOC emission test report Indoor Air Comfort GOLD (10.11.2022), Number: 392-2022-00122903_A_EN.

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TÜV Süd Industrie Service
TÜV Strahlenmesslabor. IS-ETS1-MUC/er.

Publisher

Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Programme holder

Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Author of the Life Cycle Assessment

Daxner & Merl GmbH
Lindengasse 39/8
1070 Wien
Austria

+43 676 849477826
office@daxner-merl.com
www.daxner-merl.com

Owner of the Declaration

Knauf Ceiling Solutions GmbH & Co. KG
Elsenthal 15
94481 Grafenau
Germany

0049 8552 422 0
info@knaufamf.com
www.knaufceilingsolutions.com