ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the Declaration	Mineralka Austria GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-MIA-20250727-IBI1-EN
Issue date	12/05/2026
Valid to	11/05/2031

THERMAX fire protection and thermal insulation boards

Mineralka Austria GmbH

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

www.ibu-epd.com | https://epd-online.com



1. General Information

Mineralka Austria GmbH

Programme holder

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

Declaration number

EPD-MIA-20250727-IBI1-EN

This declaration is based on the product category rules:

Mineral insulating materials, 01/08/2021
(PCR checked and approved by the SVR)

Issue date

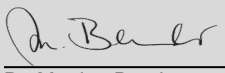
12/05/2026

Valid to

11/05/2031



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



Dr. Martina Bender
(Managing Director Institut Bauen und Umwelt e.V.)

THERMAX fire protection and thermal insulation boards

Owner of the declaration

Mineralka Austria GmbH
Nordlandstraße 1
3300 Amstetten
Austria

Declared product / declared unit

THERMAX board [covering the types THERMAX WD/ THERMAX SL/ THERMAX A;SN] / 1 kg

Scope:

The LCA is based on production data of THERMAX board of the year 2023 at the production site Amstetten, Austria. This EPD is representing an average product.
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

Mr Stephen Forson ,
(Independent verifier)

2. Product

2.1 Product description/Product definition

THERMAX is a non-combustible and fire resisting Vermiculite board of low weight and harmless to health.

THERMAX WD

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 15501:2015, "Thermal insulation products for building equipment and industrial installations - Factory made expanded perlite (EP) and exfoliated vermiculite" and the CE-marking.
For the application and use the respective national provisions apply.

THERMAX SL

For the placing of the product on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the Regulation (EU) No. 305/2011 (CPR) applies. The product needs a declaration of performance taking into consideration ETA no. 11/0083:2018-06-28, "THERMAX SL fire protective products" and the CE-marking.
For the application and use the respective national provisions apply.

THERMAX A;SN

For the use and application of the product the respective national provisions at the place of use apply, in Germany for example the building codes of the federal states and the corresponding national specifications.

2.2 Application

THERMAX fire protection boards systems are suitable for the manufacture of components for structural fire protection in all areas of building construction, interior construction, shipbuilding and industry.

THERMAX thermal insulation boards are suitable for tiled and basic stoves, fire-places and for the construction and cladding of fireplaces and industrial uses.

THERMAX boards are particularly easy and clean to process.

2.3 Technical Data

THERMAX WD Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to EN 15501:2015, "Thermal insulation products for building equipment and industrial installations - Factory made expanded perlite (EP) and exfoliated vermiculite".

The type of range covers gross densities within 380-780 kg/m³ and thicknesses within 20-70 mm. The given technical data represent the values (or calculated average) for the type THERMAX WD550 (SN550) acc. to DoP WD550 (en), 2024-10-01.

- Gross density: 550 kg/m³ (+/- 10%)
- Thickness: d_D= 20 - 60 mm
- Thermal conductivity: 200°C = 0,27 (λ_D [W/(m·K)]) | 800°C = 0,35 (λD [W/(m·K)])
- Durability of thermal resistance: max. service temperature ST(+)900
- Durability of reaction to fire: Durability characteristics A1

Technical data

THERMAX SL

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to ETA no. 11/0083:2018-06-28, "THERMAX SL fire protective products".

The type of range covers gross densities within 475 - 675 kg/m³ and thicknesses within 20-60 mm. The given technical data represent the values (or calculated average) for the type THERMAX SL (520 kg/m³) 45 mm thick.

Name	Value	Unit
Thermal conductivity acc. to ETA 11/0083	0.145	W/(mK)
Gross density acc. to EN1602	520	kg/m^3
Compressive strength acc. to EN826	1.35	N/mm^2
Tensile strength (parallel) acc. to ETA 11/0083	0,48	MPa
Tensile strength (perpendicular) acc. to ETA 11/0083	0,25	MPa
Flexural strength acc. to EN12089, Var.B	1,3	MPa

The shown values are always dependent on the particular density and provide minimum or average values of the production. All technical data are guidance values and do not reflect a statistical evaluation or guaranteed value.

THERMAX A; SN

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision (no CE-marking).

The type of range covers gross densities within 580 - 980 kg/m³ and thicknesses within 8-40 mm. The given technical data represent the values (or calculated average) for the type THERMAX SN850.

- Gross density: 850 kg/m³ (+/- 10%)
- Bending strength: 6.0 MPa
- Tensile strength: 0.5 N/mm^2
- Delamination strength: 0.7 N/mm²

The shown values are always dependent on the particular density and provide minimum or average values of the production. All technical data are guidance values and do not reflect a statistical evaluation or guaranteed value.

2.4 Delivery status

THERMAX fire protective boards cover the following standard sizes and thicknesses (other options on request):

- THERMAX WD: 1900 x 1200 mm or 2440 x 1220 mm, in thicknesses: 30, 40, 50, 60, 70 mm
- THERMAX SL: 1900 x 1200 mm or 2500 x 1200 mm, in standard thicknesses: 35, 45, 50, 55 mm
- THERMAX A; SN: 2440 x 1220 mm or 2500 x 1250 mm or 2800 x 1250 mm, in thicknesses: 8, 10, 12, 16, 19, 22, 25, 30 mm

2.5 Base materials/Ancillary materials

The material contents declare 100 weight percent of the products and are declared in the List:

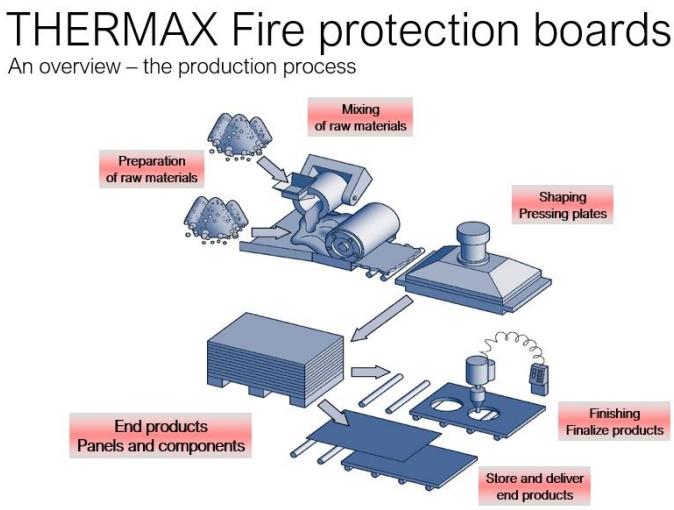
- Vermiculite 65-85 %
- Inorganic binder 15-35 %
- Crushed material 0-10 %

- Additives 0-7 %

None of the contents of the product is included in the "Candidate List of Substances of Very High Concern for Authorisation".

2.6 Manufacture

The boards are made from Vermiculite, a natural mineral. Raw Vermiculite is exfoliated by a high-temperature heat treatment in the production process and expands to a lightweight aggregate, which is blended with inorganic binders and pressed to form boards.
In some cases, further additives are used to promote certain properties.



The institutionalized QM-system is an essential part of the production process of the entire production. Mineralka Austria GmbH is certified according to ISO 9001.

2.7 Environment and health during manufacturing

Mineralka Austria GmbH is committed to providing a clean, healthy, and safe working environment for all individuals employed by or working on behalf of the company. This commitment extends across all levels of the organization and reflects our core corporate values. Our manufacturing facility fully complies with Austrian environmental regulations as well as health and safety standards. Beyond mere compliance, we actively strive for continuous improvement in these areas. Through regular employee training, preventive safety measures, and the use of modern technologies, we work to minimize environmental impact and ensure the long-term health, well-being, and safety of everyone involved in our operations.

2.8 Product processing/Installation

For processing THERMAX boards, any woodworking tool can be used to shape and cut the boards easily.
The low formation of dust from THERMAX boards during processing and machining is another, health aspect advantage, which is particularly appreciated by installers.
The dust formation during processing is low, the allowed limit values and safety regulations shall be respected and followed.
Waste originating from Vermiculite boards can be disposed of as normal construction waste.

2.9 Packaging

Products are stacked on wooden pallets and cardboard edges. It is wrapped with stretch foil and fixed by strapping tape. Part of the wooden pallets can be returned by the customer and reused several times.
The straps and cardboard are recyclable.

2.10 Condition of use

Boards have to be protected from wet conditions, and should be stored in closed and dry areas, where humidity should not exceed 80 %, and the temperature should not be lower than 0°C.
Based on climatic conditions, THERMAX products are determined for internal use (Type Z2 acc. to ETA 11/0083).

2.11 Environment and health during use

According to the latest scientific and technical knowledge, the product does not present any identifiable risk to human health or the environment when used as specified.

2.12 Reference service life

The reference service life of the THERMAX SL boards has been estimated to be at least 25 years, acc. to ETA 11/0083, provided that the installed product is subject to appropriate use and maintenance as specified in the ETA.
The reference service life of the THERMAX WD boards is estimated to be at least 10 years for industrial and stove applications. This preference is based on track record experiences with durability.

The reference service life cannot be considered as a guarantee, but is to be regarded only as a means for the specifiers to choose the appropriate criteria for the fire protective or thermal insulation board in relation to the expected economically reasonable working life of the works.

2.13 Extraordinary effects

Fire

The THERMAX boards have a reaction to fire classification A1 (non-combustible) acc. to EN 13501-1.

Fire protection

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

Water

The material does not produce any hazardous chemicals or emissions while in contact with water.

Mechanical destruction

In order to prevent any reduction of fire performance following unforeseeable mechanical destruction, all damage of the components needs to be repaired using specified THERMAX products. Besides the need for repair, the destruction will not have any significant environmental impact.

2.14 Re-use phase

Several possibilities exist for the boards after the end-of-life of the application in which they were used.
If the boards are removed non-destructively by releasing the screws, the undamaged product can be re-used in accordance with the original purpose. If not contaminated with other building construction material, the boards can also be recycled by the manufacturer.
For this EPD, a conservative worst-case scenario was chosen at the end-of-life stage and the product was 100% disposed of in a landfill.

2.15 Disposal

Within the production process, all of the generated waste could immediately be re-used within the process. When after end-of-life re-using or recycling the boards as described in the previous paragraph is not practical, the boards can be disposed to landfill without pretreatment thanks to the mineral and

inorganic composition ingredients.
The waste code in accordance with the European List of Waste (LoW) is 17 09 04 'mixed construction and demolition wastes [...]', applicable to raw vermiculite boards.

2.16 Further information

Further information is available on the following site:
www.thermax.eu

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is 1 kg of THERMAX board.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	kg
Gross density	520	kg/m^3

Since the declared unit is 1 kg of THERMAX board, changes in thickness and density within the product range do not influence the impacts per declared unit. The types are to be distinguished by the thickness and density combination. The indication of +/- 10 % is related to the density (this can vary from the declared average density up or down of 10 %: meaning the declared density of 520 kg/m³ is acceptable in a variance from 468 – 572 kg/m³).
However, the total impacts will increase or decrease in line with the material consumption and therefore with the selected combination of board thickness and density.

3.2 System boundary

Type of the EPD: Cradle to gate with options. Modules declared A1-A3, modules C1-C4 and module D, the additional models are A4 & A5:
A1: raw material extraction and processing, processing of secondary material input (e.g. recycling processes).
A2: transport to the manufacturer.
A3: manufacturing; including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state.
A4: transport to the construction site
A5: installation in the building, including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the construction process stage.
C1-C4, End of life of a product.

In A4 Transport of the product to the company's location. Includes transport by truck. The transport represents a scenario from Austria to the average European costumer. For transport by truck 268 km has been taken (based on average).

In A5 (installation): hand tools are used for installation and their energy consumption is negligible, so only the processing (incineration with yield less than 60 %) of packaging is considered in phase A5

For phases B1, B2, B3, B4, B5, B6, B7, there are no or negligible impacts on the environment, hence the models are not declared.

In C1 (de-assembly): hand tools are used for de-assembly and their energy consumption is negligible, so it is assessed as having 0 impacts.

In C2 100 km were taken for the transport of the product after use to the processing/depot (EU) transport by lorry.

In C3 for the recovery of the product after use, 0 % of the product is assumed to be recycled, therefore the associated impacts are set to 0.

In "C4" an EU landfill was used for the disposal of the 100 % of the product after use.

In "Module D", the potential for reuse, recycling (electrical ballast) was presented. There is no mass of the product after use, which goes to C3, the impact from the D module was calculated to be 0.

For electricity consumption, "production" mix for Austria, retrieved from: https://www.aib-net.org/facts/european-residual-mix/2023 was taken as the electricity source. Austria has had a full disclosure system in place since 2017 and hence the residual mix is zero.

-

3.3 Estimates and assumptions

The LCA study has the following limitations:
Limitations on the use of input data within the My professional DB database of LCA for experts
Constraints in the transport scenario (truck), gross vehicle load12 -14 t, average load 9.3 t EURO 0-6 mix engine.
Constraints in the transport scenario (ship), avg. Load 508 kg/m3), cap utilization 0,7 DWT 52.134 t.
Use of mass allocation for production inputs

The following assumptions were used in the life cycle analysis:

- Feedstock energy of biogenic (paper and wood) materials is 19 MJ/kg
- Feedstock energy of (PET bands and PE foil) materials is 34 MJ/kg
- Density and size (from a kg point of view) have no impact on energy use
- Due to the low weight/impact, and the lack of processes in the LCA database, the following inputs are omitted from the study:
  - addition to binder for unfaced boards
  - spray on some unfaced boards
- 100 % of the product is landfilled (inert material)

3.4 Cut-off criteria

In the LCA, all utilised raw material, thermal energy and electric power were considered using Ecoinvent database. No cut-off criteria were used in this study.
Production of capital equipment, facilities and infrastructure required for the manufacture are outside the scope of the study and thus were not included.

3.5 Background data

For electricity consumption, "production" mix for Austria, retrieved from: https://www.aib-net.org/facts/european-residual-mix/2023 was taken as the electricity source. Austria has had a full disclosure system in place since 2017 and hence the residual mix is zero.
All background data is taken from the My Professional database and Ecoinvent database used in the LCA for expert LCA software version: 10.7.0.183.

3.6 Data quality

The data used in this LCA study was obtained from Mineralka Austria GmbH. The data was obtained via an excel questionnaire as well as during online meetings. An excel file with all BOM data, energy and water data and waste data was sent to LCA practitioner by Mineralka Austria GmbH. The data were gathered for production in 2023. Primary data were collected for energy consumption (electricity and natural gas) and transportation. For all the rest of the data (input materials, waste processing), processes from LCA for Experts were used. Since this study relies on primary data gathered directly from the manufacturing location, a high level of data quality can be assumed.

3.7 Period under review

The data used in this LCA study were obtained from Mineralka Austria GmbH. The data is for the year 2023.

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: EU-27 Member States

3.9 Allocation

The following allocations are presented:

- Allocation of energy, auxiliary and operating materials used for individual products in a factory: All THERMAX boards have a quite similar structure and constitution, the biggest difference is in size and in density. The electricity and thermal energy consumption were calculated based on total mass allocation. Meaning that the total consumption of electricity and thermal energy (separately) was divided by the total amount of kg of Thermax boards produced. In that way, the normalized unit is in kWh/kg, which is the same unit as the declared unit.
- No Allocation of co-production processes.
- No allocation in the use of recycled and/or secondary raw materials.
- No allocation for loads and benefits beyond the system boundary from recycling or energy recovery of packaging materials and production waste.
- No allocation for loads and benefits beyond the system boundary from recycling or energy recovery from the end of life of the product.

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.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.0159	kg C

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

Transport to the building site (A4)

For the transport from the factory gate to the building site, an average distance of 268 km was assumed. This distance can be assumed to be representative for deliveries within Austria. For transport to other countries, the impacts can be easily calculated by multiplying the impacts in module A4 with the transport distance to the specific location and dividing by 268.

Name	Value	Unit
Litres of fuel	2.7	l/100km
Transport distance	268	km
Capacity utilisation (including empty runs)	61	%
Gross density of products transported	520	kg/m^3

Installation into the building (A5)

Only waste treatment of packaging is considered in this module.
Disposal of packaging:
PE film 5,00E-04 kg/kg
Cardboard 1,20E-03 kg/kg
Wood 3,59E-02 kg/kg

End of life (C1 - C4)

This study followed a conservative approach. Despite the fact that reusing or recycling the boards after their end-of-life is feasible, the scenario considered assumes 100 % landfill disposal.

Name	Value	Unit
Landfilling	1	kg

Re-use, recovery and/or recycling potentials (D), relevant scenario information

Although the reuse and recycling of THERMAX boards is possible, it is not yet a widely practiced approach. Therefore, this study did not consider any potential benefits from recycling or reusing the boards.

5. LCA: Results

Electricity used on site: Production mix AT, source LCA for Experts & AIB, GWPT = 9,57E-02 [kg CO_2 eq/kWh, actual consumption of electricity on site is 0,756 MJ/kg].

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = 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	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg Thermax insulation board

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	7.51E-01	2.82E-02	5.86E-02	0	1.01E-02	0	8.32E-02	0
GWP-fossil	kg CO_2 eq	8.08E-01	2.79E-02	1.06E-04	0	9.99E-03	0	8.32E-02	0
GWP-biogenic	kg CO_2 eq	-5.85E-02	0	5.85E-02	0	0	0	0	0
GWP-luluc	kg CO_2 eq	1.55E-03	2.87E-04	2.48E-08	0	1.03E-04	0	-8.24E-06	0
ODP	kg CFC11 eq	1.81E-03	4.62E-15	2.88E-16	0	1.66E-15	0	-4.57E-13	0
AP	mol H^+ eq	1.21E-02	5.54E-05	4.32E-07	0	1.99E-05	0	2.08E-04	0
EP-freshwater	kg P eq	1.66E-05	7.51E-08	7.38E-11	0	2.69E-08	0	2E-05	0
EP-marine	kg N eq	2.93E-03	2.4E-05	1.26E-07	0	8.6E-06	0	2.15E-04	0
EP-terrestrial	mol N eq	3.24E-02	2.57E-04	1.82E-06	0	9.22E-05	0	8.09E-04	0
POCP	kg NMVOC eq	8.56E-03	5E-05	3.47E-07	0	1.79E-05	0	5.08E-04	0
ADPE	kg Sb eq	2.85E-05	1.85E-09	3.06E-12	0	6.64E-10	0	-2.91E-09	0
ADPF	MJ	1.07E+01	3.57E-01	6.34E-04	0	1.28E-01	0	2.29E-01	0
WDP	m^3 world eq deprived	7.51E-02	1.27E-04	2.88E-04	0	4.57E-05	0	-2.7E-03	0

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg Thermax insulation board

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.61E+00	2.69E-02	1.8E-04	0	9.64E-03	0	-2.61E-01	0
PERM	MJ	8.6E+00	0	-8.6E+00	0	0	0	0	0
PERT	MJ	1.12E+01	2.69E-02	-8.6E+00	0	9.64E-03	0	0	0
PENRE	MJ	1.07E+01	3.57E-01	6.34E-04	0	1.28E-01	0	2.29E-01	0
PENRM	MJ	1.65E-02	0	-1.65E-02	0	0	0	0	0
PENRT	MJ	1.07E+01	3.57E-01	-1.59E-02	0	1.28E-01	0	0	0
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2.54E-03	1.33E-05	6.78E-06	0	4.77E-06	0	-1.63E-04	0

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 kg Thermax insulation board

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	4.56E-03	1.43E-11	3.73E-13	0	5.13E-12	0	-5.37E-10	0
NHWD	kg	7.61E-01	4.99E-05	5.08E-05	0	1.79E-05	0	1E+00	0
RWD	kg	1.1E-04	6.74E-07	3.42E-08	0	2.41E-07	0	-7E-06	0
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0

MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	9.92E-02	0	0	0	0	0
EET	MJ	0	0	3.52E-01	0	0	0	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg Thermax insulation board

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1.53E-07	4.51E-10	2.88E-12	0	1.61E-10	0	2.19E-09	0
IR	kBq U235 eq	2.4E-02	9.68E-05	5.43E-06	0	3.47E-05	0	-1.17E-02	0
ETP-fw	CTUe	4.73E+00	4.64E-01	2.73E-04	0	1.66E-01	0	8.91E-01	0
HTP-c	CTUh	1.34E-09	6.26E-12	2.74E-14	0	2.24E-12	0	1.2E-11	0
HTP-nc	CTUh	4.5E-09	3.5E-10	1.43E-12	0	1.25E-10	0	1.11E-09	0
SQP	SQP	2.24E+01	1.58E-01	2.02E-04	0	5.65E-02	0	-1.28E-01	0

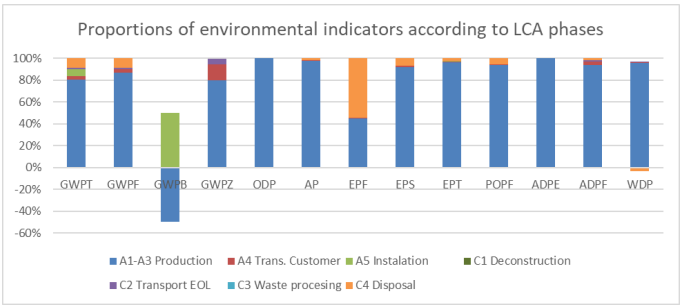
PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, 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 as there is limited experience with the indicator.

6. LCA: Interpretation

The highest impact for GWPT is coming from the upstream transport of raw materials (35 % from total value A1-C4), the second highest contribution comes from the use of Thermal energy from natural gas (26 % from total value A1-C4). The third highest impact is from the Vermiculite raw material production itself (18 % from total value A1-C4), followed by the landfilling of product (9 % from total value A1-C4), processing of packaging waste (6 % from total value A1-C4) and transport to customer (3 % from total value A1-C4). The rest contributes 3% of total value for A1-C4.



From a LCA stage perspective, the highest contributor is stage A1-A3 (81 % from total value A1-C4), followed by disposal (9 % from total value A1-C4) and installation (6 % from total value A1-C4). The rest contribute less than 4 %.

7. Requisite evidence

Radioactivity measurements
Radioactivity measurements on THERMAX boards confirmed that it did not contain other gamma emitters than those originating from the natural radiation sources. The radioactivity levels do not exceed the activity concentration indices as specified by the Article 3 (Radiation Protection 112 document) for building products.
With an ACI value of 0,377, the THERMAX board fulfils the official guideline value of ACI < 1 and is therefore harmless from the point of view of radiation exposure.
Date: 10. Juni 2024
Measuring agency: IBR Rosenheim
Protocol: Expert Report No. 3024-1440

VOC emissions
Based on the measurement results and the comparison of measures according to the AgBB schema as well as the approval principles of the DIBt, exposure to emissions of volatile organic compounds due to the tested fire protection boards is not expected.
Using the boards in the interior rooms of buildings is therefore harmless to health in regards to VOC emissions.

AgBB overview of results (28 days [µg/m³])

Name	Value	Unit
TVOC (C6 - C16)	0.000055	µg/m³
Sum SVOC (C16 - C22)	5E-06	µg/m³
R (dimensionless)	0.00065	-
VOC without NIK	5E-06	µg/m³
Carcinogenic Substances	1E-06	µg/m³

8. References

IBU - Institut Bauen und Umwelt
Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021
www.ibu-epd.com

STANDARDS

EN 13501-1
EN 13501-1: 2018 "Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests"

EN 15501
EN 15501: 2015 "Thermal insulation proudcts for building equipment and industrial installations - Factory made expanded perlite (EP) and exfoliated vermiculite (EV)"

EN 15804
EN 15804: 2012+A2:2020 "Sustainability of construction works - Environmental product declarations - Basic rules for the product category of construction products"

ISO 9001
EN ISO 9001:2015 "Quality management systems - Requirements"

ISO 14025
ISO 14025:2011 "Environmental labels and declarations – Type III environmental declarations – Principles and procedures."

ISO 14040
ISO 14040:2006 "Environmental management - Life cycle assessment - Principles and framework"

ISO 14044
ISO 14044:2006 "Environmental management - Life cycle assessment - Requirements and guidelines"

CEN/TR 15941
CEN/TR 15941:2010-03 "Sustainability of construction works — Environmental Product Declarations — Methodology for selection and use of generic data"; German version CEN/TR 15941:2010.

CPR
Regulation (EU) No. 305/2011 of the European parliament and of the council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

PCR, Part A
Product Category Rules for Building-Related Products and Services Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report, version 1.4. (15.4.2024)

PCR, Part B
PCR Guidance-Texts for Building-Related Products and Services From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU) Part B: Requirements on the EPD for Mineral insulating materials, version 11. (1.8.2024)

EN319
EN 319:1993 "Particleboards and fibreboards - Determination of tensile strength perpendicular to the plane of the board"

EN826
EN 826:2013 "Thermal insulating products for building applications - Determination of compression behaviour"

EN1602
EN 1602:2013 "Thermal insulating products for building applications - Determination of the apparent density"

EN12089
EN 12089:2013 "Thermal insulating products for building applications - Determination of bending behaviour"

FURTHER REFERENCES

AgBB
The Committee for Health-realted Evaluation of BUlding Products, AgBB (Ausschuss für die gesundheitliche Bewertung von Bauprodukten)

Ecoinvent database 3.9.1.

ETA 11/0083
ETA 11/0083: 2018 "THERMAX SL fire protective products – European Technical Assessment"

European List of Waste (LoW)
Commission Decision 2000/532/EC (and amendments, notably by 2014/955/EU) establishes the European List of Waste (LoW) or European Waste Catalogue (EWC), providing a harmonized, six-digit coding system for classifying waste, including identifying hazardous waste (marked with an asterisk).

Software/ database
LCA for experts LCA software (Sphera - LCA FE) version: 10.7.0.183 https://sphera.com/life-cycle-assessment-lca-software/

My professional database EN database version: 2024.2
https://sphera.com/life-cycle-assessment-lca-database/

AIB
Association of Issuing Bodies (AIB) (2023): European residual mix 2023 – country profile Austria, electricity production mix.
https://www.aib-net.org/facts/european-residual-mix/2023df

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

Greenium
Volavlje 26a
1000 Ljubljana
Slovenia

031577680
jaka.jelenc.ext@bureauveritas.com

Owner of the Declaration

Mineralka Austria GmbH
Nordlandstraße 1
3300 Amstetten
Austria

+43 7472 68566 11
d.korizek@at.tp-group.com
www.thermax.eu