

ENVIRONMENTAL-PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

| | |
|--------------------------|--------------------------------------|
| Owner of the Declaration | Kingspan Insulation B.V. |
| Publisher | Institut Bauen und Umwelt e.V. (IBU) |
| Programme holder | Institut Bauen und Umwelt e.V. (IBU) |
| Declaration number | EPD-KIN-20230012-CBD2-EN |
| Issue date | 07.02.2023 |
| Valid to | 06.02.2028 |

Therma™ TW55
Kingspan Insulation B.V.

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



General Information

Kingspan Insulation B.V.

Programme holder

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

Declaration number

EPD-KIN-20230012-CBD2-EN

This declaration is based on the product category rules:

Insulating materials made of foam plastics, 08.03.2023
(PCR checked and approved by the SVR)

Issue date

07.02.2023

Valid to

06.02.2028



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



Dr. Alexander Röder
(Managing Director Institut Bauen und Umwelt e.V.)

Therma™ TW55

Owner of the declaration

Kingspan Insulation B.V.
Lingewei 8
4004LL Tiel
Netherlands

Declared product / declared unit

Therma™ TW55
1m², 120mm thickness, R_D = 5,45 m².K/W

Scope:

The insulation material Therma™ TW55 is produced by Kingspan Insulation at the manufacturing facilities in Winterswijk (the Netherlands) and Kankaanpää (Finland). This EPD is based on weighted averages which have been determined on the basis of the single values originating from the different Kingspan Insulation factories. Therma™ TW55 is an insulation board with a rigid thermoset polyisocyanurate (PIR) fibre-free insulation core, faced on both sides with a low emissivity composite foil. Therma™ TW55 Framing Board is used as thermal insulation for timber framing systems.

In order to enable the user of the EPD to calculate the LCA results for different thicknesses, the EPD contains the respective calculation rules. 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 bezeichnet*.

Verification

| | |
|--|------------|
| The standard EN 15804 serves as the core PCR | |
| Independent verification of the declaration and data according to ISO 14025:2011 | |
| <input type="checkbox"/> | internally |
| <input checked="" type="checkbox"/> | externally |



Vito D'Incognito,
(Independent verifier)

Product

Product description/Product definition

Therma™ TW55 is an insulation board with a rigid thermoset polyisocyanurate (PIR) fibre-free insulation core, faced on both sides with a low emissivity composite foil. The product is available in variable thicknesses from 20 mm up to 200 mm. This EPD is based on a thickness of 120 mm and R_D -value of 5,45 m²-K/W. 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 13165 - Thermal insulation products for buildings - Factory made polyurethane foam (PU) products - Specification and the CE-marking. For the application and use the respective national provisions apply.

Application

Therma™ TW55 Framing Board is used as thermal insulation for timber framing systems.

Technical Data

The technical specifications of the products within the scope of the EPD shall be listed, including the reference to the test methods/test standards for each specification.

For products with CE marking, the technical specifications must be specified in accordance with information in the declaration of performance. The properties relevant to the product should be specified in the table below. If no information is given for properties, an explanation must be given in the background report to the EPD as to why the property is not relevant to the product.

Constructional data

| Name | Value | Unit |
|--|----------------------|--------|
| Thermal conductivity according to EN 13165 | 0.022 | W(m.K) |
| Reaction to fire according to EN 13165 | E | |
| Compressive strength according to EN 13165 | CS(10\Y) 100/120/150 | |
| Thickness tolerance according to EN 13165 | T2-T3 | |

LCA: Calculation rules

Declared Unit

The declared unit (1 m²) and conversion factors are listed in the table below.

Declared unit

| Name | Value | Unit |
|-----------------|-------|-------------------|
| Declared unit | 1 | m ² |
| Gross density | 30 | kg/m ³ |
| Grammage | 3.6 | kg/m ² |
| Layer thickness | 0.12 | m |

This EPD is based on a weighted average of the annual production volume of three factories producing the products Therma™ TW55.

The scope of this EPD is the thermal insulation products Therma™ TW55 as produced by Kingspan Insulation at the manufacturing facilities in Winterswijk (the Netherlands) and

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to EN 13165 - Thermal insulation products for buildings - Factory made rigid polyurethane foam (PU) products - Specification
The declaration of performance of the product can be found at www.kingspan.com.

Base materials/Ancillary materials

The product contains approximately 3,3 kg/m² polyurethane rigid foam and 0,3 kg/m² multi-layer aluminium facings. The main materials of the polyurethane foam are MDI (between 57-62 %), polyol (between 27-32 %) and a blowing agent (between 5-6 %). Due to the closed-cell structure (conform EN 13165), the blowing agent remains in the foam. Water, flame retardants and additives are added (between 4-8 %).

In the current REACH regulations, polyurethane foam insulation products are considered "articles" and are exempt from the requirements of Articles 57 and 59(1) of REACH Regulation (EC) No 1907/2006. These products are not classified as "hazardous products" according to any current legislation, and can hence be declared as follows:

- This article contains substances listed in *the candidate list* (date: 31.08.2022) exceeding 0.1 percentage by mass: no.
- This 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) *Biocidal Products Regulation No. 528/2012 (BPR)*: no.

Environment and health during use

Reference service life

The reference service life is not to be declared in this EPD as it does not cover the use stage.

Kankaanpää (Finland). The environmental impacts have been calculated per plant over the calendar year 2021. Based on the one-year production volume of Therma™ TW55 per plant, the individual environmental impacts are weighted.

The EPD is studied for a common product thickness of 120 mm. Multiplication factors are included to calculate impacts for other product thicknesses within the range of 20 to 200 mm.

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA values must be made, e.g. concerning variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by actual production.

System boundary

The type of EPD according to *EN 15804* is: cradle to gate with options, modules C1–C4, and module D (A1–A3, C, D and additional modules: A4, A5).

The product stage is a mandatory information module and it covers:

- 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, 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 construction process stage includes:

- A4 transport to the building 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.

The end-of-life stage is a mandatory information module and it covers:

- C1 de-construction, demolition;
- C2 transport to waste processing;
- C3 waste processing for reuse, recovery and/or recycling;
- C4 disposal (not applicable for this EPD) including provision and all transport, provision of all materials, products and related energy and water use.

Environmental burden of the incineration (R1 > 60 %) of the product at the end-of-life stage are assigned to the product system (C3); resulting potential credits for thermal and electrical energy

| | Module A1 - A3 | | | | | Modules A4/A5/C1/C2/C3 | | | | | Module D | | | | |
|------------------|----------------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| | 20mm | 100mm | 120mm | 140mm | 200mm | 20mm | 100mm | 120mm | 140mm | 200mm | 20mm | 100mm | 120mm | 140mm | 200mm |
| GWP - total | 0.24 | 0.83 | 1.00 | 1.17 | 1.68 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.23 | 0.83 | 1.00 | 1.18 | 1.68 |
| GWP - fossil | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.23 | 0.83 | 1.00 | 1.18 | 1.68 |
| GWP - biogenic | 0.82 | 0.96 | 1.00 | 1.04 | 1.16 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.21 | 0.82 | 1.00 | 1.18 | 1.70 |
| GWP - luluc | 0.24 | 0.83 | 1.00 | 1.17 | 1.68 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.26 | 0.84 | 1.00 | 1.17 | 1.66 |
| ODP | 0.30 | 0.86 | 1.00 | 1.15 | 1.58 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.19 | 0.82 | 1.00 | 1.19 | 1.72 |
| AP | 0.27 | 0.84 | 1.00 | 1.16 | 1.65 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.34 | 0.86 | 1.00 | 1.15 | 1.58 |
| EP - freshwater | 0.27 | 0.84 | 1.00 | 1.16 | 1.65 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.20 | 0.82 | 1.00 | 1.19 | 1.71 |
| EP - marine | 0.26 | 0.84 | 1.00 | 1.16 | 1.66 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.26 | 0.84 | 1.00 | 1.17 | 1.65 |
| EP - terrestrial | 0.26 | 0.84 | 1.00 | 1.16 | 1.66 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.26 | 0.84 | 1.00 | 1.17 | 1.65 |
| POCP | 0.24 | 0.83 | 1.00 | 1.17 | 1.66 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.27 | 0.84 | 1.00 | 1.17 | 1.65 |
| ADPF | 0.20 | 0.82 | 1.00 | 1.18 | 1.72 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.20 | 0.82 | 1.00 | 1.18 | 1.70 |
| ADPE | 0.23 | 0.83 | 1.00 | 1.17 | 1.68 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.22 | 0.83 | 1.00 | 1.18 | 1.69 |
| WDP | 0.23 | 0.83 | 1.00 | 1.17 | 1.69 | 0.25 | 0.83 | 1.00 | 1.17 | 1.67 | 0.25 | 0.83 | 1.00 | 1.17 | 1.66 |

from energy substitution are declared in module D.

Geographic Representativeness

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

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.

Background database

Background data from GaBi ts Version 10 is used with GaBi data sets CUP2022.1.

Factors for different thicknesses

The LCA results for the insulation material declared in this EPD refer to a product with a thickness of 120 mm. To enable the user of the EPD to calculate the results for different thicknesses the factors in the following table can be used for the calculation. The LCA results in chapter 5 have to be multiplied by these factors.

The scaling factors are applicable for the complete product, where the multi-layer aluminium facings are for all product thicknesses equal and the foam inputs are scaling upwards and downwards with other product thicknesses.

LCA: Scenarios and additional technical information

Characteristic product properties Information on biogenic carbon

The total mass of biogenic carbon containing materials is less than 5 % of the total mass of the product and accompanying packaging.

Technical information

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment.

Manufacturing (A3)

A polyethylene packaging foil is used. The products are transported either on expanded polystyrene (EPS) skids or

on wooden pallets.

Within Module A3 the following packaging of the final product is included:

- Polyethylene cover and wrap: 0,044 kg/m²
- Expanded Polystyrene skid: 0,008 kg/m²
- Wooden pallet: 0,040 kg/m²

Transport to the building site (A4)

| Name | Value | Unit |
|---------------------------------------|--------|-------------------|
| Litres of fuel | 0.0103 | l/100km |
| Transport distance | 100 | km |
| Gross density of products transported | 30 | kg/m ³ |

Installation into the building (A5)

| Name | Value | Unit |
|---|-------|------|
| Output substances following waste treatment on site | 0.092 | kg |

The recycling of the packaging is considered in A5.

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies for the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list on service life by BNB is declared.

End of life (C1-C4)

The assumptions for C1 are: diesel driven excavator (100 kW; 0.2 litre fuel per ton excavated material). The assumptions for C2 are: Truck Euro 6, diesel driven, 26-28 t gross weight, assumed distance 50 km

| Name | Value | Unit |
|--|-------|------|
| Collected as mixed construction waste | 3.6 | kg |
| Energy recovery | 3.575 | kg |
| Recycling (aluminium content of the multi-layer aluminium facings) | 0.025 | kg |

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Waste incineration with energy recuperation is assumed as an end-of-life scenario

LCA: Results

In Table 1 "Description of the system boundary", all declared modules shall be indicated with an "X"; all modules that are not declared shall be indicated with "MND" (As default the modules B3, B4, B5 are marked as MNR – module not relevant). In the following tables, columns can be deleted for modules that are not declared. Indicator values should be declared with three valid digits (eventually using exponential form (e.g. 1,23E-5 = 0,0000123)). A uniform format should be used for all values of one indicator.

If several modules are not declared and therefore have been deleted from the table, the abbreviations for the indicators can be replaced by the complete names, while the readability and clear arrangement should be maintained; the legends can then be deleted. If due to relevant data gaps, an indicator cannot be declared in a robust way, then the abbreviation "IND" (indicator not declared) should be used for this indicator.

- 0 - calculated value is 0
- 0 - value falls under the cut-off
- 0 - assumption which exclude any flows (e.g. exported electricity A1-A3)
- IND – in cases where the inventory does not support the methodological approach or the calculation of the specific indicator IND shall be used.

If no reference service life is declared (see chapter 2.13 "Reference Service Life"), the LCA results of the modules B1-B2 and B6-B7 shall refer to a period of one year. This shall then be indicated as an explanatory text below the tables. In addition, the formula for the quantification of such B-modules over the total life cycle shall be provided.

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 | 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: 1m2 120mm Therma™ TW55

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|----------------|-----------------------------------|-----------|-----------|----------|----------|-----------|----------|----|-----------|
| GWP-total | kg CO ₂ -Äq. | 1.05E+01 | 3.03E-02 | 2.69E-01 | 2.31E-03 | 1.52E-02 | 7.79E+00 | 0 | -3.23E+00 |
| GWP-fossil | kg CO ₂ -Äq. | 1.07E+01 | 3.02E-02 | 2.68E-01 | 2.31E-03 | 1.51E-02 | 7.63E+00 | 0 | -3.22E+00 |
| GWP-biogenic | kg CO ₂ -Äq. | -2.34E-01 | -4.17E-05 | 1.47E-05 | 3.09E-06 | -2.09E-05 | 1.66E-01 | 0 | -1.6E-02 |
| GWP-luluc | kg CO ₂ -Äq. | 6.79E-03 | 1.68E-04 | 3.18E-06 | 2.85E-08 | 8.42E-05 | 1.43E-05 | 0 | -3.67E-04 |
| ODP | kg CFC11-Äq. | 2.73E-11 | 1.81E-15 | 4.78E-14 | 1.42E-16 | 9.04E-16 | 5.77E-13 | 0 | -2.07E-11 |
| AP | mol H ⁺ -Äq. | 2.23E-02 | 3.11E-05 | 3.35E-05 | 1.07E-05 | 1.56E-05 | 4.55E-03 | 0 | -4.94E-03 |
| EP-freshwater | kg PO ₄ -Äq. | 4.8E-05 | 9.01E-08 | 1.21E-08 | 4.65E-10 | 4.51E-08 | 1.56E-07 | 0 | -4.25E-06 |
| EP-marine | kg N-Äq. | 5.76E-03 | 1.02E-05 | 8.97E-06 | 5.1E-06 | 5.09E-06 | 2.2E-03 | 0 | -1.19E-03 |
| EP-terrestrial | mol N-Äq. | 5.95E-02 | 1.21E-04 | 1.52E-04 | 5.59E-05 | 6.06E-05 | 2.53E-02 | 0 | -1.28E-02 |
| POCP | kg NMVOC-Äq. | 2.85E-02 | 2.74E-05 | 2.59E-05 | 1.45E-05 | 1.37E-05 | 5.64E-03 | 0 | -3.38E-03 |
| ADPE | kg Sb-Äq. | 1.1E-05 | 2.52E-09 | 1.17E-09 | 9.44E-11 | 1.26E-09 | 1.58E-08 | 0 | -4.71E-07 |
| ADPF | MJ | 2.74E+02 | 4.03E-01 | 9.91E-02 | 3.12E-02 | 2.02E-01 | 2.02E+00 | 0 | -5.39E+01 |
| WDP | m ³ world-Äq. deprived | 1.59E+00 | 2.71E-04 | 2.55E-02 | 4.29E-06 | 1.35E-04 | 7.72E-01 | 0 | -3.53E-01 |

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: 1m2 120mm Therma™ TW55

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|-----------|----------|----------|-----------|----|-----------|
| PERE | MJ | 2.77E+01 | 2.29E-02 | 2.54E-02 | 1.18E-04 | 1.15E-02 | 3.54E-01 | 0 | -1.53E+01 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 2.77E+01 | 2.29E-02 | 2.54E-02 | 1.18E-04 | 1.15E-02 | 3.54E-01 | 0 | -1.53E+01 |
| PENRE | MJ | 1.57E+02 | 4.04E-01 | 4.55E+00 | 3.13E-02 | 2.02E-01 | 1.15E+02 | 0 | -5.39E+01 |
| PENRM | MJ | 1.17E+02 | 0 | -4.45E+00 | 0 | 0 | -1.13E+02 | 0 | 0 |

| | | | | | | | | | |
|-------|----------------|----------|----------|----------|----------|----------|----------|---|-----------|
| PENRT | MJ | 2.74E+02 | 4.04E-01 | 9.92E-02 | 3.13E-02 | 2.02E-01 | 2.02E+00 | 0 | -5.39E+01 |
| 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 | 7.35E-02 | 2.59E-05 | 6.05E-04 | 1.78E-07 | 1.3E-05 | 1.82E-02 | 0 | -1.65E-02 |

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: 1m2 120mm Therma™ TW55

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|----------|----------|----------|----------|----|-----------|
| HWD | kg | 1.13E-07 | 1.94E-12 | 8.26E-12 | 1.03E-13 | 9.68E-13 | 2.76E-10 | 0 | -6.67E-09 |
| NHWD | kg | 2.84E-01 | 5.8E-05 | 2.41E-02 | 2.93E-06 | 2.9E-05 | 4.37E-02 | 0 | -8.06E-02 |
| RWD | kg | 3.21E-03 | 4.98E-07 | 4.12E-06 | 3.43E-08 | 2.49E-07 | 8.4E-05 | 0 | -4.21E-03 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 2.54E-02 | 0 | 0 |
| MER | kg | 0 | 0 | 1.07E-01 | 0 | 0 | 3.46E+00 | 0 | 0 |
| EEE | MJ | 0 | 0 | 4.87E-01 | 0 | 0 | 1.32E+01 | 0 | 0 |
| EET | MJ | 0 | 0 | 8.72E-01 | 0 | 0 | 2.36E+01 | 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: 1m2 120mm Therma™ TW55

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|-------------------|----------|----------|----------|----------|----------|----------|----|-----------|
| PM | Disease incidence | 1.87E-07 | 1.8E-10 | 4.08E-10 | 1.21E-10 | 8.98E-11 | 1.27E-08 | 0 | -4.3E-08 |
| IR | kBq U235-Äq. | 3.79E-01 | 7.3E-05 | 5.66E-04 | 4.99E-06 | 3.65E-05 | 1.35E-02 | 0 | -7.2E-01 |
| ETP-fw | CTUe | 1.12E+02 | 2.8E-01 | 7.09E-02 | 2.17E-02 | 1.4E-01 | 6.96E-01 | 0 | -1.22E+01 |
| HTP-c | CTUh | 7.1E-09 | 5.65E-12 | 3.98E-12 | 4.02E-13 | 2.82E-12 | 5.21E-11 | 0 | -6.33E-10 |
| HTP-nc | CTUh | 6.03E-07 | 2.93E-10 | 4.03E-10 | 2.03E-11 | 1.47E-10 | 1.9E-09 | 0 | -2.23E-08 |
| SQP | SQP | 6.57E+01 | 1.39E-01 | 2.53E-02 | 8.61E-05 | 6.94E-02 | 4.26E-01 | 0 | -9.29E+00 |

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 to 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.

References

Biocidal Products Regulation No. 528/2012 (BPR)

Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products

CPR

Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised condition for the marketing of construction products and repealing Council Directive 89/106/EC

ISO 14025

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

EN 13165

EN 13165:2012+A2:2016: Thermal insulation products for buildings. Factory made polyurethane foam (PU) products. Specification

EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

GaBi ts

thinkstep AG: Leinfelden-Echterdingen GaBi Software-System and Database for Life Cycle Engineering 1992-2019

IBU 2021

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

LCA-tool

Kingspan LCA tool, version 1.1. IBU-KSI-202001-LT1-EN.
Developed by Sphera Solutions GmbH (formely Thinkstep GmbH)

PCR Version 1.7, Part A

Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Building-Related Products and services, Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019
November 2021

PCR 2017, Part B

Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part B: Requirements on the EPD for insulating materials made of foam plastics. January 2019

REACH

Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
<https://echa.europa.eu/candidate-list-table>;

Candidate list

<https://echa.europa.eu/candidate-list-table>; accessed 31.08.2022, 233 substances listed.
The literature referred to in the Environmental Product Declaration must be listed in full. Standards already fully quoted in the EPD do not need to be listed here again.
The current version of PCR Part A and PCR Part B of the PCR document on which they are based must be referenced.



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

Kingspan Insulation B.V.
Lingewei 8
4004LL Tiel
Netherlands

+31 (0) 543 543 210
info@kingspaninsulation.nl
www.kingspan.com



Owner of the Declaration

Kingspan Insulation B.V.
Lingewei 8
4004LL Tiel
Netherlands

+31 (0) 543 543 210
info@kingspaninsulation.nl
www.kingspan.com