

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-KSI-20250271-CBA1-EN
Issue date	15.05.2025
Valid to	14.05.2030

Selthaan® Megaplus
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-KSI-20250271-CBA1-EN

This declaration is based on the product category rules:

Insulating materials made of foam plastics, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

15.05.2025

Valid to

14.05.2030



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



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

Selthaan® Megaplus

Owner of the declaration

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

Declared product / declared unit

Selthaan® Megaplus
1m², 60 mm thickness, R_D = 2,60 m²·K/W

Scope:

The thermal insulation material Selthaan® Megaplus is produced by Kingspan Insulation B.V. at the manufacturing facility in Winterswijk, the Netherlands.

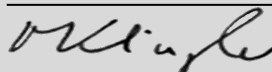
Selthaan® Megaplus is a rigid thermoset cellular insulation material faced on both sides with an aluminum facing.

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*.

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



Matthias Klingler,
(Independent verifier)

Product

Product description/Product definition

Selthaan® Megapplus is a rigid thermoset cellular insulation material faced on both sides with an aluminum facing. The products are available in variable thicknesses from 60 mm up to 120 mm. This EPD is based on a thickness of 60 mm and R_D -value of 2,60 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

Selthaan® Megapplus is designed for the thermal insulation of agricultural and industrial buildings.

Technical Data

Constructional data

Name	Value	Unit
Thermal conductivity according to EN 13165 for dN 60 - 100 mm	0.023	W/(m.K)
Thermal conductivity according to EN 13165 for dN 120 mm	0.024	W/(m.K)
Reaction to fire according to EN 13165	C-s2,d0	
Compressive strength according to EN 13165	CS(10Y)150	
Thickness tolerance according to EN 13165	T2	
Tensile strength according to EN 13165	TR40	

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 dop.kingspan.com.

Base materials/Ancillary materials

The product contains approximately 1,8 kg/m² polyurethane rigid foam and approximately 0,55 kg/m² coated 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: 20.01.2025) 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

Reference service life

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

LCA: Calculation rules

Declared Unit

The declared unit is 1 m² of Selthaan® Megapplus. The mass reference is provided below.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	m ²
Grammage	2.37	kg/m ²
Layer thickness	0.06	m
Conversion factor to 1kg	0.42	

System boundary

Type of EPD according to EN 15804: "cradle to gate with modules C1–C4 and module D".

The following life cycle stages are considered:

Production - Modules A1-A3

The product stage includes:

- A1 - Raw material supply: raw material extraction and processing including recycled content.
- A2 - Transport to manufacturer
- A3 - Manufacturing: manufacturing expenses of the products including packaging materials and electricity consumption (0.85

kg CO₂ eq./kWh).

End-of-Life (EoL) Stage - Modules C1-C4

- C1 - Deconstruction: demolition
- C2 - Transport to waste processing.
- C3 - Waste processing, 100% thermal treatment with energy recovery. The aluminium is recovered from to incineration process for recycling.
- C4 is declared with "0" since the product is sent to energy recovery completely

Benefits and Loads beyond product system boundary - Module D

Loads and benefits beyond the product system boundary from EoL treatment of the declared product under European conditions is declared in module D.

Renewable electricity sources for manufacturing

All electricity used during production comes from renewable sources: by generating energy on-site with solar panels and with procured energy from fully certified renewable sources (following the global Net Zero Energy strategy from Kingspan Group plc.)

Period under review

The input data for raw material in production and the consumption of process energy on the manufacturing facility was measured data during January 1st 2024 to December 31st 2024, i.e. collected over a 12 month period.

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 data from Sphera LCA FE (GaBi) with Sphera data sets CUP 2024.1 is used.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Information on describing the biogenic carbon content at factory gate

Neither the product nor the packaging does contain biogenic carbon.

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

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

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 on expanded polystyrene (EPS) skids. Within Module A3 the following packaging of the final product is included:

- Polyethylene cover and wrap: 0,04 kg/m²
- Expanded Polystyrene skid: 0,01 kg/m²

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 separately waste type	2.37	kg
Collected as mixed construction waste	-	kg
Reuse	-	kg
Recycling	0.55	kg
Energy recovery	1.82	kg
Landfilling	-	kg

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

Waste incineration with energy recuperation is assumed as end-of-life scenario for the foam. Recycling is assumed as end-of-life scenario for the aluminium.

LCA: Results

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	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 Megaplius 60mm

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO ₂ eq	1.02E+01	2E-03	1.2E-02	4.02E+00	0	-5.54E+00
Global Warming Potential fossil fuels (GWP-fossil)	kg CO ₂ eq	1.02E+01	1E-03	1.2E-02	4.02E+00	0	-5.52E+00
Global Warming Potential biogenic (GWP-biogenic)	kg CO ₂ eq	8.84E-04	5.66E-06	2.89E-05	2.28E-04	0	-1.8E-02
Global Warming Potential luluc (GWP-luluc)	kg CO ₂ eq	6.03E-03	2.48E-05	2.04E-04	1.23E-05	0	-7.48E-04
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	3.26E-11	2.17E-16	1.78E-15	3.6E-13	0	-1.6E-11
Acidification potential of land and water (AP)	mol H ⁺ eq	3.55E-02	7.47E-06	1.96E-05	2E-03	0	-2.3E-02
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	2.8E-05	6.3E-09	5.17E-08	8.89E-08	0	-3.51E-06
Eutrophication potential aquatic marine (EP-marine)	kg N eq	8.18E-03	3.59E-06	7.56E-06	1E-03	0	-5E-03
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	8.4E-02	3.98E-05	8.86E-05	1.3E-02	0	-5E-02
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	2.92E-02	1.02E-05	1.94E-05	3E-03	0	-1.4E-02
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	6.48E-06	1.29E-10	1.06E-09	4.03E-09	0	-3.66E-07
Abiotic depletion potential for fossil resources (ADPF)	MJ	2.01E+02	1.9E-02	1.6E-01	1.05E+00	0	-7.26E+01
Water use (WDP)	m ³ world eq deprived	2.84E+00	2.29E-05	1.88E-04	3.96E-01	0	-1.95E+00

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m2 Megaplius 60mm

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	5.01E+01	2E-03	1.4E-02	2.19E-01	0	-3.76E+01
Renewable primary energy resources as material utilization (PERM)	MJ	0	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	5.01E+01	2E-03	1.4E-02	2.19E-01	0	-3.76E+01
Non renewable primary energy as energy carrier (PENRE)	MJ	1.5E+02	1.9E-02	1.6E-01	5.05E+01	0	-7.26E+01
Non renewable primary energy as material utilization (PENRM)	MJ	5.15E+01	0	0	-4.95E+01	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	2.01E+02	1.9E-02	1.6E-01	1.05E+00	0	-7.26E+01
Use of secondary material (SM)	kg	0	0	0	0	0	5.17E-01
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	1.11E-01	1.87E-06	1.53E-05	9E-03	0	-7.3E-02

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2:

1 m2 Megaplius 60mm

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	8.8E-08	7.45E-13	6.11E-12	4.65E-10	0	-1.33E-08
Non hazardous waste disposed (NHWD)	kg	2.29E+00	3.18E-06	2.61E-05	2E-02	0	-1.92E+00
Radioactive waste disposed (RWD)	kg	4.07E-03	3.54E-08	2.91E-07	4.03E-05	0	-4E-03
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	6.9E-02	0	0	5.44E-01	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	6.95E+00	0	0
Exported thermal energy (EET)	MJ	0	0	0	1.24E+01	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:

1 m2 Megaplius 60mm

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	5.64E-07	9E-11	2.14E-10	6.58E-09	0	-4.33E-07
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	5.06E-01	5.14E-06	4.22E-05	6E-03	0	-5.35E-01
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	6.7E+01	1.4E-02	1.18E-01	3.18E-01	0	-1.79E+01
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	7.96E-09	2.91E-13	2.39E-12	2.77E-11	0	-6.03E-09
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	1.02E-07	1.31E-11	1.07E-10	4.15E-10	0	-4.46E-08

Soil quality index (SQP)	SQP	2.89E+01	1E-02	7.8E-02	2.32E-01	0	-6.33E+00
--------------------------	-----	----------	-------	---------	----------	---	-----------

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.

Factors for different thicknesses

The LCA results for the insulation material declared in this EPD refer to a product with a thickness of 60 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. For modules A1-A3, C1-C4 and D the LCA results have to be multiplied with these factors.

Module A1-A3	60 mm	80 mm	100 mm	120 mm
GWP - total	1.00	1.16	1.32	1.48
GWP - fossil	1.00	1.16	1.32	1.48
GWP - biogenic	1.00	1.33	1.66	1.90
GWP - luluc	1.00	1.33	1.67	2.00
ODP	1.00	1.25	1.50	1.75
AP	1.00	1.09	1.21	1.30
EP - freshwater	1.00	1.26	1.53	1.79
EP - marine	1.00	1.13	1.14	1.27
EP - terrestrial	1.00	1.11	1.24	1.35
POCP	1.00	1.17	1.31	1.49
ADPE	1.00	1.32	1.63	1.95
ADPF	1.00	1.23	1.45	1.68
WDP	1.00	1.10	1.19	1.29

Module C1-C4	60 mm	80 mm	100 mm	120 mm
GWP - total	1.00	1.33	1.66	1.99
GWP - fossil	1.00	1.33	1.66	1.99
GWP - biogenic	1.00	1.32	1.64	1.96
GWP - luluc	1.00	1.26	1.52	1.77
ODP	1.00	1.33	1.66	1.99
AP	1.00	1.50	1.99	2.49
EP - freshwater	1.00	1.30	1.60	1.90
EP - marine	1.00	1.99	1.99	2.00
EP - terrestrial	1.00	1.38	1.69	2.00
POCP	1.00	1.33	1.67	2.00
ADPE	1.00	1.31	1.62	1.94
ADPF	1.00	1.32	1.64	1.96
WDP	1.00	1.33	1.66	1.99

Module D	60 mm	80 mm	100 mm	120 mm
GWP - total	1.00	1.09	1.18	1.27
GWP - fossil	1.00	1.09	1.18	1.27
GWP - biogenic	1.00	1.11	1.22	1.33
GWP - luluc	1.00	1.06	1.12	1.18
ODP	1.00	1.28	1.56	1.84
AP	1.00	1.04	1.04	1.09
EP - freshwater	1.00	1.24	1.47	1.71
EP - marine	1.00	1.00	1.00	1.00
EP - terrestrial	1.00	1.04	1.08	1.10
POCP	1.00	1.00	1.00	1.07
ADPE	1.00	1.12	1.24	1.35
ADPF	1.00	1.12	1.24	1.36
WDP	1.00	1.03	1.06	1.08

This EPD was created using a software tool.

References

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.

ISO 14025

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

Further References

IBU 2021

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.1, Berlin: Institut Bauen und Umwelt e.V., 2022
www.ibu-epd.com

LCA-tool

Kingspan Insulation LCA tool, version 2.0 CUP 2024.1. Developed by Sphera Solutions GmbH (formerly Thinkstep GmbH)

PCR, Part A

Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN

15804+A2:2019, v1.4. Institut Bauen und Umwelt e.V., 2024.

PCR, Part B

Requirements on the EPD for Insulating materials made of foam plastics, v10. Institut Bauen und Umwelt e.V., August 2021

Sphera LCA FE (GaBi ts)

Sphera LCA for Experts, LCA FE, software system and databases, Managed LCA content MLC (fka GaBi database), University of Stuttgart and Sphera Solutions GmbH, 2024, CUP Version: 2024.1, MLC dataset documentation under <https://sphera.com/product-sustainability-gabi-data-search/> (2024)

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

EN 13166

EN 13166:2012+A2:2016: Thermal insulation products for buildings. Factory made phenolic foam (PF) products. Specification



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