Recticel Insulation Powerdeck, Powerwall, Powerroof, Powerline, Powerline C and Lumix

1 m2 thermal insulation with an Rd-value of 3,6 m2K/W, a thickness of 80 mm and an RSL of 60 years

Issued 22.04.2021
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Valid until 22.04.2026

Third party verified
Conform to EN 15804+A2, ISO 14025and NBN/DTD B08-001 and EN 16783

Modules declared Cradle to gate with options					
A123	A4	A5	B2 B4 B6	C	D
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[B-EPD n° 21-0036-004_01_00_EN]

FEEL GOOD INSIDE

OWNER OF THIS ENVIRONMENTAL PRODUCT DECLARATION
Recticel Insulation

EPD PROGRAM OPERATOR
Federal Public Service of Health, Food Chain Safety and Environment
www.b-epd.be

The intended use of this EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings. This EPD is only valid when registered on www.b-epd.be. The FPS Public Health cannot be held responsible for the information provided by the owner of the EPD.

Product Description

Product name

Recticel PU insulation with aluminium facer: Powerdeck, Powerwall, Powerroof, Powerline, Powerline C and Lumix.

Images of the product and its installation

Product description and intended use

PU insulation board with aluminium facer

The product for which the LCA results are declared in this EPD is representative for a product group containing different types of PU insulation boards with aluminium facers. The results presented in this EPD are valid for an 80 mm insulation board and an aluminium facer of 50 µm. However, as described in the section 'Application unit', results can be recalculated to other thicknesses. The EPD covers a product group with a thickness of PU core between 20 mm and 200 mm. The composition and weight of the aluminium facer also changes depending on the specific product. The variability within the product group has been investigated using the guidelines of the B-PCR. The variability assessment revealed that the results present in this EPD are valid for insulation boards with commercial names: Powerdeck, Powerwall, Powerroof, Powerline, Powerline C and Lumix.

This is a specific EPD from a single company, Recticel insulation

The different products can be used for roof, interior wall and exterior wall insulation.

- Pitched roof: Powerroof, Powerline, Powerline C, Lumix
- Flat roof: Powerdeck, Powerline, Powerline C, Lumix
- Exterior wall: Powerwall
- Interior wall: Powerline, Powerline C
- Interior ceiling: Powerline, Powerline C, Lumix

Reference flow / Declared unit

1 m2 thermal insulation with an Rd-value of 3,6 m2K/W, a thickness of 80 mm and an RSL of 60 years.

Packaging is included.

The weight per reference flow is 2,688 kg.
The density of the product (only PUR core) is 30,1 kg / m^3.

Installation

Materials for fixation and installation are not included. For installing the product following scenario's are possible: mechanical fixation with minimum 4 screws, fixation using approx. 125 g/m2 glue or no fixation (i.e. loose).This may lead to the need of additional products and materials for which the impact is not included in this EPD and which shall be taken into account at building level. More detailed information on these scenarios can be found in the chapter "Additional technical information for scenario development at building".

Composition and content

Components	Composition / content / ingredients	Quantity
Product	*-PU core* *-Aluminium facer*	*2,408 kg* *0,28 kg*

Fixation materials	*Not included in the EPD ('as produced')*	
Jointing materials	*Not included in the EPD ('as produced')*	
Treatments	*NA*	
Packaging	*- board* *- PE-film* *- PS blocks* *- PU blocks*	*8,38E-04 kg* *3,66E-02 kg* *1,55E-02 kg* *3,33E-03 kg*

The product does not contain materials listed in the "Candidate list of Substances of Very High Concern for authorization".above a limit of 0,1% (W/W)

REFERENCE SERVICE LIFE

The reference service life is estimated at 60 years.

In general insulation materials are not replaced during the life span of a building. In the MMG project (Servaes et al., 2013) of the Flemish Waste Agency, a building life span of 60 years has been applied. The fact that insulation materials are in general not replaced during the life span of the building is considered as the most plausible scenario and thus a life span of 60 years is assumed as reference service life

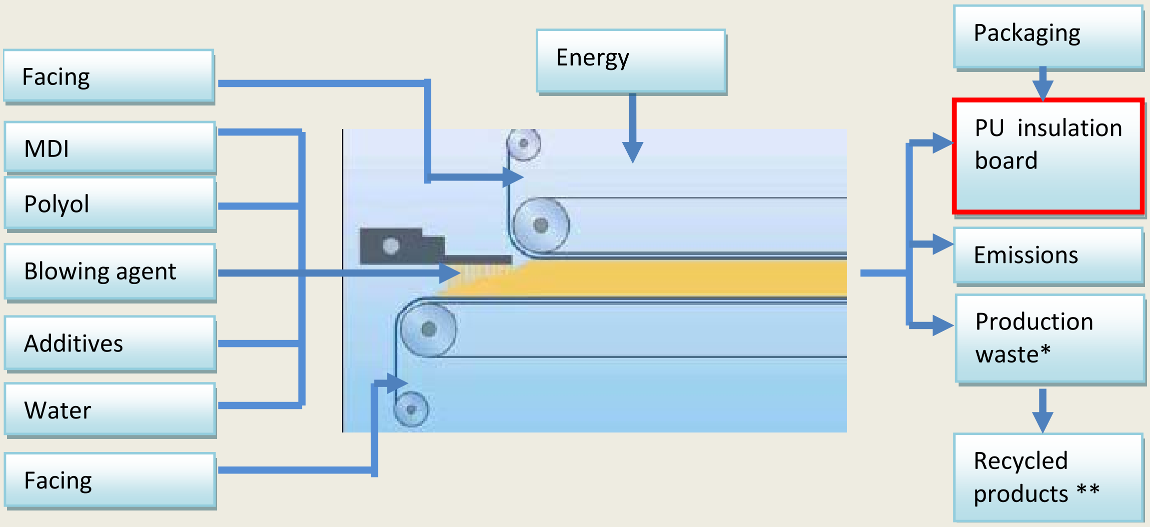
The conditions under which this RSL is valid are as following: natural aging conditions

DESCRIPTION OF GEOGRAPHICAL REPRESENTATIVITY

The EPD is representative for the Belgian market.
The composed datasets for this life cycle assessment are representative and relevant for Recticel PU insulation with aluminium facer produced by Recticel Insulation. The data describing the direct inputs and outputs of the foreground processes are representative for Recticel Insulation production in Belgium, Wevelgem.

DESCRIPTION OF THE PRODUCTION PROCESS AND TECHNOLOGY

PU is formed in a reaction between two components, polyol and isocyanate (MDI). Additives include water and catalysts. A blowing agent and flame retardant are added during the production process.



TECHNICAL DATA / PHYSICAL CHARACTERISTICS

Technical property	Value	Unit	Comment
Thickness (total)	80	mm	
Thickness facer	0,05	mm	
Density of panel (PU core)	30,1	kg/m3	
Lambda value	0,022-0,024	W/m.K	

RD- value	3,6	K.m2/W	

More technical properties can be found in the Declaration of Performance (DoP) of the product. DoP's of the products of Recticel are available at https://www.recticelinsulation.com/

LCA STUDY

DATE OF LCA STUDY

April 2021

SOFTWARE

For the calculation of the LCA results, the software program SimaPro 9.1.1.1 (PRé Consultants, 2021) has been used.

INFORMATION ON ALLOCATION

Allocation of the inputs and outputs (emissions and waste) to primary and secondary PU has been done based on physical properties, the m2 of primary PU and secondary PU produced. Also the material inputs necessary to produce scrap and cutting losses are allocated to primary and secondary PU using physical properties (m2 of primary and secondary PU produced).

INFORMATION ON CUT OFF

The following processes are considered below cut-off:

- Possible additional energy required to apply glue during the production of the aluminium facer.
- Possible energy recovery from facers in module D.
- End of life treatment of the cutting losses from facers at the production facility.
- Losses during transport are considered to be below cut-off because breakage during transport only rarely occurs.

The total of neglected input flows per module is less than 5% of energy usage and mass as prescribed by EN15804+A2.

INFORMATION ON EXCLUDED PROCESSES

Following processes were excluded for the inventory:

- Benefits and loads of recycling, incineration and reuse of packaging waste from raw materials in module D
- Environmental impacts caused by the personnel of the production plants are not included in the LCA, e.g. waste from the cafeteria and sanitary installations, accidental pollution caused by human mistakes, or environmental effects caused by commuter traffic. Heating or cooling of the plants in order to ensure a comfortable indoor climate for the personnel could not be distinguished during the data collection and is therefore included.

INFORMATION ON BIOGENIC CARBON MODELLING

The insulation boards are packed using paper board, which contains biogenic carbon. The product itself does not contain biogenic carbon.

For EN 15804+A2 include following table:

	Biogenic carbon content (kg C / FU)
Biogenic carbon content in product (at the gate)	0
Biogenic carbon content in accompanying packaging (at the gate)	3,72E-04

INFORMATION ON CARBON OFFSETTING

Carbon offsetting is not allowed in the EN 15804 and hence not taken into account in the calculations.

ADDITIONAL OR DEVIATING CHARACTERISATION FACTORS

The characterization factors from EC-JRC were applied. No additional or deviating characterisation factors were used. }

DESCRIPTION OF THE VARIABILITY

The products within the product group are selected based on the type of facer used. All considered insulation boards have an aluminium facer. The composition and weight of the core can vary within the product group. Also the composition and weight of the aluminium facer can vary within the product group.

The declared unit used in this EPD is a 1 m² thermal insulation board with an RD value of 3,6 m2K/W. The results presented in this EPD can be recalculated to other thicknesses and RD values. The range of RD values for which this EPD is valid is 0,8 – 9,05 m²K/W.

The results presented in this EPD are the results for an insulation board of which the PU core has a thickness of 80 mm and with a lambda value of 0,022 – 0,024 W/m.K. This product has been composed based on a weighted average of all insulation boards produced at Recticel Wevelgem.

The variability within the product group has been investigated following the guidelines given in the BE-PCR. The variability within the product group is low and the EPD is valid for insulation boards with commercial names: Powerdeck, Powerwall, Powerroof, Powerline, Powerline C and Lumix.

DATA

SPECIFICITY

The data used for the LCA are specific for this product which is manufactured by a single manufacturer in a single production site.

PERIOD OF DATA COLLECTION

Manufacturer specific data have been collected for the year 2016.

INFORMATION ON DATA COLLECTION

Company specific data for the production stage have been collected by Recticel Insulation and were provided to VITO.
The LCI data for the production stage have been checked by the EPD verifier (Vinçotte). VITO uses publicly available generic data for all background processes such as the production of electricity, transportation by means of a specific truck…

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DATABASE USED FOR BACKGROUND DATA

The LCI sources used in this study are the Ecoinvent v3.6 database (Wernet et al., 2016).

ENERGY MIX

The Belgian electricity mix (consumption mix + import) and Belgian PV electricity has been used to model electricity use, the used records are the Ecoinvent records ‘Electricity, low voltage {BE}| market for | Cut-off, U’, ‘Electricity, low voltage {BE}| electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted | Cut-off, U and ‘Electricity, low voltage {BE}| electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted | Cut-off, U (Wernet et al., 2016).

PRODUCTION SITES

Production factory located in Wevelgem, Belgium.

SYSTEM BOUNDARIES

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Construction installation stage	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
☒	☒	☒	☒	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	☒	☒	☒	☒	☒

X = included in the EPD
MND = module not declared

Recticel does not use secondary material.

During the production processes primary PU, secondary PU, scrap and cutting losses are generated. The environmental impact of the production process has been allocated to primary and secondary PU based on physical properties (i.e. amount of m2).

In the default end-of-life scenario as described by the B-PCR 95% incineration is incinerated and 5% is landfilled. The benefits from exported energy due to incineration have been declared in module D.

POTENTIAL ENVIRONMENTAL IMPACTS PER REFERENCE FLOW

PU core (without aluminium facer)

	Production			Construction process stage		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
GWP total (kg CO2 equiv/FU)	5,77E+00	1,06E-01	9,18E-01	1,65E-01	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	5,12E-02	0,00E+00	5,69E+00	-1,21E+00	1,27E+01
GWP fossil (kg CO2 equiv/FU)	5,76E+00	1,06E-01	9,16E-01	1,65E-01	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	5,12E-02	0,00E+00	5,69E+00	-1,21E+00	1,27E+01
GWP biogenic (kg CO2 equiv/FU)	6,31E-04	4,33E-05	1,65E-03	2,71E-05	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,09E-05	0,00E+00	3,02E-04	-2,04E-03	2,68E-03
GWP luluc (kg CO2 equiv/FU)	2,52E-03	3,08E-05	7,98E-04	1,41E-05	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,79E-05	0,00E+00	1,29E-04	-1,19E-03	3,51E-03
ODP (kg CFC 11 equiv/FU)	5,86E-08	2,48E-08	7,48E-08	3,76E-08	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,16E-08	0,00E+00	6,35E-08	-2,11E-07	2,71E-07
AP (mol H+ equiv/FU)	1,51E-02	4,43E-04	3,67E-03	5,85E-04	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,09E-04	0,00E+00	5,34E-03	-1,58E-03	2,53E-02
EP - freshwater (kg P-equiv/FU)	4,76E-05	8,05E-07	2,86E-05	4,02E-07	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	4,02E-07	0,00E+00	5,05E-06	-1,15E-05	8,29E-05
EP - marine (kg N-equiv/FU)	3,60E-03	1,33E-04	6,05E-04	1,83E-04	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	6,20E-05	0,00E+00	2,91E-03	-4,22E-04	7,49E-03
EP - terrestrial (mol N-equiv/FU)	3,79E-02	1,48E-03	7,63E-03	2,02E-03	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	6,86E-04	0,00E+00	2,75E-02	-4,93E-03	7,72E-02
POCP (kg Ethene equiv/FU)	1,30E-02	4,74E-04	7,81E-03	5,73E-04	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,10E-04	0,00E+00	6,38E-03	-1,42E-03	2,84E-02

ADP Elements (kg Sb equiv/FU)	9,64E-07	1,29E-07	1,07E-05	5,01E-08	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	9,97E-08	0,00E+00	3,91E-07	-1,79E-07	1,24E-05
ADP fossil fuels (MJ/FU)	1,51E+02	1,64E+00	1,58E+01	2,35E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	7,72E-01	0,00E+00	2,49E+00	-3,15E+01	1,74E+02
WDP (m^3 water eq deprived /FU)	2,03E+00	5,33E-03	2,54E-01	1,63E-03	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,15E-03	0,00E+00	9,95E-02	-1,96E-01	2,39E+00

Aluminium facer

	Production			Construction process stage		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
GWP total (kg CO2 equiv/FU)	2,31E+00	1,35E-02	0,00E+00	1,92E-02	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	5,96E-03	0,00E+00	9,14E-03	0,00E+00	2,36E+00
GWP fossil (kg CO2 equiv/FU)	2,29E+00	1,34E-02	0,00E+00	1,92E-02	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	5,95E-03	0,00E+00	9,11E-03	0,00E+00	2,34E+00
GWP biogenic (kg CO2 equiv/FU)	7,00E-03	5,52E-06	0,00E+00	3,15E-06	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,43E-06	0,00E+00	3,13E-05	0,00E+00	7,04E-03
GWP luluc (kg CO2 equiv/FU)	6,28E-03	3,92E-06	0,00E+00	1,64E-06	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,08E-06	0,00E+00	2,17E-06	0,00E+00	6,29E-03
ODP (kg CFC 11 equiv/FU)	1,14E-07	3,16E-09	0,00E+00	4,37E-09	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,35E-09	0,00E+00	2,06E-09	0,00E+00	1,25E-07
AP (kg SO2 equiv/FU)	1,38E-02	5,65E-05	0,00E+00	6,80E-05	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,43E-05	0,00E+00	7,85E-05	0,00E+00	1,41E-02
EP - freshwater (kg (PO4)3- equiv/FU)	9,42E-05	1,03E-07	0,00E+00	4,68E-08	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	4,67E-08	0,00E+00	8,90E-08	0,00E+00	9,45E-05
EP - marine (kg (PO4)3- equiv/FU)	2,23E-03	1,70E-05	0,00E+00	2,13E-05	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	7,21E-06	0,00E+00	3,15E-05	0,00E+00	2,30E-03
EP - terrestrial (kg (PO4)3- equiv/FU)	2,53E-02	1,88E-04	0,00E+00	2,35E-04	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	7,98E-05	0,00E+00	3,47E-04	0,00E+00	2,61E-02
POCP (kg Ethene equiv/FU)	7,81E-03	6,04E-05	0,00E+00	6,66E-05	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,44E-05	0,00E+00	9,87E-05	0,00E+00	8,06E-03

ADP Elements (kg Sb equiv/FU)	2,13E-05	1,64E-08	0,00E+00	5,82E-09	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,16E-08	0,00E+00	8,50E-09	0,00E+00	2,13E-05
ADP fossil fuels (MJ/FU)	2,54E+01	2,09E-01	0,00E+00	2,73E-01	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	8,97E-02	0,00E+00	1,50E-01	0,00E+00	2,61E+01
WDP (m^3 water eq deprived /FU)	5,15E-01	6,79E-04	0,00E+00	1,90E-04	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,50E-04	0,00E+00	-2,33E-03	0,00E+00	5,14E-01

GWP total = total Global Warming Potential (Climate Change); GWP-luluc = Global Warming Potential (Climate Change) land use and land use change; ODP = Ozone Depletion Potential; AP = Acidification Potential for Soil and Water; EP = Eutrophication Potential; POCP = Photochemical Ozone Creation; ADPE = Abiotic Depletion Potential – Elements; ADPF = Abiotic Depletion Potential – Fossil Fuels; WDP = water use (Water (user) deprivation potential, deprivation-weighted water consumption)

Resource use

PU core (without aluminium facer)

	Production			Construction process		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
PERE (MJ/FU, net calorific value)	4,46E+00	2,03E-02	1,61E+00	1,04E-02	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,07E-02	0,00E+00	1,36E-01	-1,69E+00	6,25E+00
PERM (MJ/FU, net calorific value)	0,00E+00	0,00E+00	1,18E-02	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,18E-02
PERT (MJ/FU, net calorific value)	4,46E+00	2,03E-02	1,62E+00	1,04E-02	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,07E-02	0,00E+00	1,36E-01	-1,69E+00	6,26E+00
PENRE (MJ/FU, net calorific value)	6,66E+01	1,65E+00	1,81E+01	2,31E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	7,77E-01	0,00E+00	7,42E+01	-3,39E+01	1,64E+02
PENRM (MJ/FU, net calorific value)	7,81E+01	0,00E+00	-7,53E-01	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	-7,13E+01	0,00E+00	6,01E+00
PENRT (MJ/FU, net calorific value)	1,45E+02	1,65E+00	1,74E+01	2,31E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	7,77E-01	0,00E+00	2,85E+00	-3,39E+01	1,70E+02
SM (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,29E-02	0,00E+00
RSF (MJ/FU, net calorific value)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

NRSF (MJ/FU, net calorific value)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW (m³ water eq/FU)	2,73E+00	1,76E-04	7,17E-03	6,20E-05	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	7,64E-05	0,00E+00	3,54E-03	-5,97E-03	2,74E+00

Aluminium facer

	Production			Construction process		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
PERE (MJ/FU, net calorific value)	2,97E+00	2,58E-03	0,00E+00	1,21E-03	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,24E-03	0,00E+00	2,89E-03	0,00E+00	2,98E+00
PERM (MJ/FU, net calorific value)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT (MJ/FU, net calorific value)	2,97E+00	2,58E-03	0,00E+00	1,21E-03	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,24E-03	0,00E+00	2,89E-03	0,00E+00	2,98E+00
PENRE (MJ/FU, net calorific value)	2,48E+01	2,10E-01	0,00E+00	2,69E-01	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	9,03E-02	0,00E+00	8,40E+00	0,00E+00	3,38E+01
PENRM (MJ/FU, net calorific value)	8,68E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	-8,25E+00	0,00E+00	4,34E-01
PENRT (MJ/FU, net calorific value)	3,35E+01	2,10E-01	0,00E+00	2,69E-01	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	9,03E-02	0,00E+00	1,53E-01	0,00E+00	3,42E+01
SM (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

RSF (MJ/FU, net calorific value)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF (MJ/FU, net calorific value)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW (m³ water eq/FU)	1,77E-02	2,24E-05	0,00E+00	7,21E-06	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	8,89E-06	0,00E+00	-4,55E-05	0,00E+00	1,77E-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 = Net use of fresh water

Waste categories & output flows

PU core (without aluminium facer)

	Production			Construction process stage		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
Hazardous waste disposed (kg/FU)	2,48E-06	3,98E-06	2,52E-05	6,26E-06	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,02E-06	0,00E+00	6,87E-06	-2,22E-05	4,68E-05
Non-hazardous waste disposed (kg/FU)	1,70E-02	1,43E-01	1,50E-01	3,46E-02	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	3,69E-02	0,00E+00	2,12E-01	-3,62E-02	5,94E-01
Radioactive waste disposed (kg/FU)	5,90E-06	1,12E-05	7,89E-05	1,67E-05	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	5,26E-06	0,00E+00	1,04E-05	-1,99E-04	1,28E-04
Components for re-use (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,29E-02	0,00E+00
Materials for energy recovery (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy (MJ/FU)	0,00E+00	0,00E+00	9,03E-01	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	2,10E+01	-2,34E+01	2,20E+01

Aluminium facer

	Production			Construction process stage		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
Hazardous waste disposed (kg/FU)	2,12E-03	5,07E-07	0,00E+00	7,27E-07	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,35E-07	0,00E+00	3,46E-07	0,00E+00	2,12E-03
Non-hazardous waste disposed (kg/FU)	4,48E-01	1,82E-02	0,00E+00	4,03E-03	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	4,29E-03	0,00E+00	2,40E-01	0,00E+00	7,14E-01
Radioactive waste disposed (kg/FU)	6,37E-05	1,43E-06	0,00E+00	1,94E-06	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	6,12E-07	0,00E+00	9,68E-07	0,00E+00	6,86E-05
Components for re-use (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy (MJ/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	2,47E+00	-2,60E+00	2,47E+00

IMPACT CATEGORIES ADDITIONAL TO EN 15804

PU core (without aluminium facer)

	Production			Construction process		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
PM (disease incidence)	1,25E-07	9,53E-09	2,52E-08	4,99E-09	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	3,56E-09	0,00E+00	3,22E-08	-6,22E-09	2,01E-07
IRHH (kg U235 eq/FU)	1,99E+00	7,17E-03	9,14E-02	1,03E-02	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	3,37E-03	0,00E+00	9,08E-03	-2,31E-01	2,11E+00
ETF (CTUe/FU)	4,91E+01	1,31E+00	2,07E+01	1,34E+0 0	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	6,18E-01	0,00E+00	2,02E+01	-6,59E+00	9,33E+01
HTCE (CTUh/FU)	1,33E-09	3,22E-11	7,98E-10	2,15E-11	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	1,74E-11	0,00E+00	1,13E-09	-1,42E-10	3,33E-09
HTnCE (CTUh/FU)	4,13E-08	1,49E-09	1,96E-08	9,05E-10	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	6,74E-10	0,00E+00	1,23E-08	-2,99E-09	7,64E-08
Land Use Related impacts (dimensionless)	8,39E-01	1,88E+00	6,05E+00	6,85E-01	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	5,32E-01	0,00E+00	6,30E-01	-5,02E+00	1,06E+01

Aluminium facer

	Production			Construction process		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
PM (disease incidence)	3,12E-07	1,21E-09	0,00E+00	5,80E-10	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	4,14E-10	0,00E+00	2,22E-09	0,00E+00	3,16E-07
IRHH (kg U235 eq/FU)	6,90E-02	9,14E-04	0,00E+00	1,20E-03	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	3,92E-04	0,00E+00	6,54E-04	0,00E+00	7,22E-02
ETF (CTUe/FU)	6,19E+01	1,66E-01	0,00E+00	1,56E-01	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	7,18E-02	0,00E+00	1,01E+01	0,00E+00	7,23E+01
HTCE (CTUh/FU)	4,07E-09	4,10E-12	0,00E+00	2,50E-12	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	2,02E-12	0,00E+00	7,87E-12	0,00E+00	4,08E-09
HTnCE (CTUh/FU)	5,22E-08	1,89E-10	0,00E+00	1,05E-10	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	7,83E-11	0,00E+00	1,91E-10	0,00E+00	5,27E-08
Land Use Related impacts (dimensionless)	7,54E+00	2,39E-01	0,00E+00	7,97E-02	MND	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	6,19E-02	0,00E+00	1,24E-01	0,00E+00	8,04E+00

HTCE = Human Toxicity – cancer effects; HTnCE = Human Toxicity – non cancer effects; ETF = Ecotoxicity – freshwater; (potential comparative toxic unit)
PM = Particulate Matter (Potential incidence of disease due to PM emissions);
IRHH = Ionizing Radiation – human health effects (Potential Human exposure efficiency relative to U235);

Environmental impact categories explained

	Global Warming Potential	*The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.* *It is split up in 4:* *- Global Warming Potential total (GWP-total) which is the sum of GWP-fossil, GWP-biogenic and GWP-luluc* *- Global Warming Potential fossil fuels (GWP-fossil) : The global warming potential related to greenhouse gas (GHG) emissions to any media originating from the oxidation and/or reduction of fossil fuels by means of their transformation or degradation (e.g. combustion, digestion, landfilling, etc).* *- Global Warming Potential biogenic (GWP-biogenic) : The global warming potential related to carbon emissions to air (CO2, CO and CH4) originating from the oxidation and/or reduction of aboveground biomass by means of its transformation or degradation (e.g. combustion, digestion, composting, landfilling) and CO2 uptake from the atmosphere through photosynthesis during biomass growth – i.e. corresponding to the carbon content of products, biofuels or above ground plant residues such as litter and dead wood.*[1] *- Global Warming Potential land use and land use change (GWP-luluc): The global warming potential related to carbon uptakes and emissions (CO2, CO and CH4) originating from carbon stock changes caused by land use change and land use. This sub-category includes biogenic carbon exchanges from deforestation, road construction or other soil activities (including soil carbon emissions).*
	Ozone Depletion	*Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbonsor halons), Which break down when they reach the stratosphere and then catalytically destroy ozone molecules.*
	Acidification potential	*Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production, heating and transport.*
	Eutrophication potential	*The potential to cause over-fertilization of water and soil, which can result in increased growth of biomass and following adverse effects.* *It is split up in 3:* - *Eutrophication potential – freshwater: The potential to cause over-fertilization of freshwater, which can result in increased growth of biomass and following adverse effects.* - *Eutrophication potential – marine: The potential to cause over-fertilization of marine water, which can result in increased growth of biomass and following adverse effects.* - *Eutrophication potential – terrestrial: The potential to cause over-fertilization of soil, which can result in increased growth of biomass and following adverse effects.*
	Photochemical ozone creation	*Chemical reactions brought about by the light energy of the sun creating photochemical smog. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.*
	Abiotic depletion potential for non-fossil ressources	*Consumption of non-renewable resources, thereby lowering their availability for future generations. Expressed in comparison to Antimonium (Sb).* *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.*
	Abiotic depletion potential for fossil ressources	*Measure for the depletion of fossil fuels such as oil, natural gas, and coal. The stock of the fossil fuels is formed by the total amount of fossil fuels, expressed in Megajoules (MJ).* *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.*
	Ecotoxicity for aquatic fresh water	*The impacts of chemical substances on ecosystems (freshwater).* *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.*
	Human toxicity (carcinogenic effects)	*The impacts of chemical substances on human health via three parts of the environment: air, soil and water.*

[1] Carbon exchanges from native forests shall be modelled under GWP - luluc (including connected soil emissions, derived products or residues), while their CO2 uptake is excluded.

		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.
	Human toxicity (non-carcinogenic effects)	*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.*
	Particulate matter	*Accounts for the adverse health effects on human health caused by emissions of Particulate Matter (PM) and its precursors (NOx, SOx, NH3)*
	Resource depletion (water)	*Accounts for water use related to local scarcity of water as freshwater is a scarce resource in some regions, while in others it is not.* *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.*
	Ionizing radiation - human health effects	*This impact category deals mainly with the eventual impact on human health of low dose ionizing radiation 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.*
	Land use related impacts	*The indicator is the "soil quality index" which is the result of an aggregation of following four aspects:* - *Biotic production* - *Erosion resistance* - *Mechanical filtration* - *Groundwater* *The aggregation is done based on a JRC model. The four aspects are quantified through the LANCA model for land use.* *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.*

DETAILS OF THE UNDERLYING SCENARIOS USED TO CALCULATE THE IMPACTS

A1 – RAW MATERIAL SUPPLY

This module takes into account the extraction and processing of all raw materials and energy which occur upstream to the studied manufacturing process.

A2 – TRANSPORT TO THE MANUFACTURER

The raw materials are transported to the manufacturing site

A3 – MANUFACTURING

This module takes into account the production process.

A4 – TRANSPORT TO THE BUILDING SITE

Fuel type and consumption of vehicle or vehicle type used for transport	Truck 16-32 ton 0,260 l diesel / km	Truck >32 ton 0,208 l diesel / km	Truck 7,5-16 ton 0,186 l diesel / km
Distance	km	100 km	35 km
Capacity utilisation (including empty returns)	50%	50%	50%
Bulk density of transported products	Ecoinvent	Ecoinvent	Ecoinvent
Volume capacity utilisation factor	Ecoinvent	Ecoinvent	Ecoinvent

Specific transport scenarios from Recticel have been used. Recticel delivers 60% directly to the construction site and 40% to a supplier. In both cases a >32 ton EURO 5 lorry is used. The average load of a truck is between 65 m3 and 70 m3. This means that one truck can deliver 2,1 ton of insulation materials. This effective load has been taken into account in the calculations by modifying the Ecoinvent datarecord ‘Transport, freight, lorry >32 metric ton, EURO5 {RER}| transport, freight, lorry >32 metric ton, EURO5 | Cut-off, U’. Trucks return empty to Recticel.

For the transport form the supplier to the construction site, the scenarios defined in the B-PCR for ‘Insulation products’ have been used. 85% is transported with a 16-32 ton EURO 5 truck from supplier to construction site over a distance of 35 km and 15% is transported with a 7,5-16 ton EURO 5 lorry from supplier to construction site over a distance of 35 km. Default load factors from Ecoinvent datasets have been used:

There is no information available in the volume/weight (effective) transported per truck. Therefore the ecoinvent tkm approach was used for this transport step. Results of the volume limited transport from Wevelgem to Brussels achieved with the approach described above are around 50% higher compared to results obtained with the tkm approach. Therefore, as best available proxy, it has been decided to multiply the operation part of the transport step with the 16-32 ton truck and 7.5-16 ton truck with 2.

C: END OF LIFE

The default scenario for synthetic insulation materials in the NBN/DTD B08-001 states 5% of the waste treatment consists of landfilling, the other 95% consists of incineration and/or energetic valorisation.

For the aluminium facer the scenario has been used.

C1: It is assumed that no impacts are related to the demolition of the product.
C2: The default scenario for synthetic insulation materials from NBN/DTD B08-001 describes that the end-of-life waste is transported to a sorting facility over a distance of 30 km. Afterwards, 95% is transported to an incineration plant over a distance of 100 km and 5% is transported to a landfill over a distance of 50 km.
C3: No recycling/reuse
C4: 95% incineration and 5% landfill

Module C2 – Transport to waste processing					
Type of vehicle (truck/boat/etc.)	Fuel consumption (litres/km)	Distance (km)	Capacity utilisation (%)	Density of products (kg/m^3)	Assumptions
Truck 16-32 ton	0,256 l diesel/km	30	50%	Ecoinvent scenario	Ecoinvent scenario
Truck 16-32 ton	0,256 l diesel/km	50	50%	Ecoinvent scenario	Ecoinvent scenario
Truck 16-32 ton	0,256 l diesel/km	100	50%	Ecoinvent scenario	Ecoinvent scenario

End-of-life modules – C3 and C4		
Parameter	Unit	Value
Wastes collected separately	kg	2,69
Wastes collected as mixed construction waste	kg	0
Waste for re-use	kg	0
Waste for recycling	kg	0
Waste for energy recovery	kg	2,55
Waste for final disposal	kg	0,13

D – BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES

In module D, following waste streams are considered after their end-of-waste: the PUR insulation and aluminium facer (of which 95% is incinerated) and the packaging waste of the finished product.

Quantitative description of the loads beyond the system boundaries	No loads
Quantitative description of the benefits beyond the system boundaries	Avoided production of 14 MJ of heat using natural gas
	Avoided production of 7 MJ of Belgian electricity mix

ADDITIONAL INFORMATION ON RELEASE OF DANGEROUS SUBSTANCES TO INDOOR AIR, SOIL AND WATER DURING THE USE STAGE

INDOOR AIR

No measurements available

SOIL AND WATER

Not applicable (not in contact with soil or water)

DEMONSTRATION OF VERIFICATION

This EPD is an update of the original Recticel EPD [B-EPD n° 21-0036-004_00_00_EN] by including the Lumix product. This addition has not yet been verified by a third party

ADDITIONAL TECHNICAL INFORMATION FOR SCENARIO DEVELOPMENT

Type of installation	Applications	Parts of the installation	quantity	Description
Mechanical fixation	**Roof, wall**	**Processes necessary for the installation of the product**	*/*	*NA*
		Fixation materials	*Min 4 p*	*Screws*
		Jointing materials	*/*	*NA*
		Treatments	*/*	*NA*
		Material losses	*5%*	*The quantity of material lost due to cutting it in the right shape*
		Packaging	*8,38E-04 kg* *3,66E-02 kg* *1,55E-02 kg* *3,33E-03 kg*	*Packaging waste* *- board* *- PE-film* *- PS blocks* *- PU blocks*
Fixation using glue	**Roof**	**Processes necessary for the installation of the product**	*/*	*NA*
		Fixation materials	*Approx. 125 g/m2*	*Glue*
		Jointing materials	*/*	*NA*
		Treatments	*/*	*NA*
		Material losses	*5%*	*The quantity of material lost due to cutting it in the right shape*
		Packaging	*8,38E-04 kg* *3,66E-02 kg* *1,55E-02 kg* *3,33E-03 kg*	*Packaging waste* *- board* *- PE-film* *- PS blocks* *- PU blocks*
No fixation (i.e. loose)	**Roof, floor**	**Processes necessary for the installation of the product**	*/*	*NA*
		Fixation materials	*0*	*No fixation*
		Jointing materials	*/*	*NA*
		Treatments	*/*	*NA*
		Material losses	*5%*	*The quantity of material lost due to cutting it in the right shape*
		Packaging	*8,38E-04 kg* *3,66E-02 kg* *1,55E-02 kg* *3,33E-03 kg*	*Packaging waste* *- board* *- PE-film* *- PS blocks* *- PU blocks*

APPLICATION UNIT

This paragraph gives information on the PU insulation board and how the reference flow and table with impacts relate to their use in different applications. The table below gives an overview of the ratio to the declared unit of 1 m^2 for different applications.

The results presented in this EPD can be recalculated to other thicknesses and RD values using the following equation:

*LCA results new thickness = (LCA result PU core 80 mm * new thickness (mm) / 80 mm) + LCA result facer*

Core (Recticel PU insulation with aluminium facer// part 01 of 02 : core)	**Facer** (Recticel PU insulation with aluminium facer// part 01 of 02 : facer)	**Application**	**Thickness range**	**Ratio to the declared unit of 1 m^2 (based on standard thickness)**
Powerdeck – thickness 80 mm - λ 0,022-0,024 W/m.K	Powerdeck – thickness 0,05 mm - λ 0,022-0,024 W/m.K	Flat Roofs	*20-200 mm*	1
Powerwall – thickness 80 mm - λ 0,022-0,024 W/m.K	Powerwall – thickness 0,05 mm - λ 0,022-0,024 W/m.K	Exterior walls	*20-200 mm*	1
Powerroof – thickness 80 mm - λ 0,022-0,024 W/m.K	Powerroof – thickness 0,05 mm - λ 0,022-0,024 W/m.K	Pitched Roofs	*20-200 mm*	1
Powerline – thickness 80 mm - λ 0,022-0,024 W/m.K	Powerline – thickness 0,05 mm - λ 0,022-0,024 W/m.K	Roofs Interior (ceilings & walls)	*20-200 mm*	1
Powerline C – thickness 80 mm - λ 0,022-0,024 W/m.K	Powerline C – thickness 0,05 mm - λ 0,022-0,024 W/m.K	Roofs Interior (ceilings & walls)	*20-200 mm*	1
Lumix – thickness 80 mm - λ 0,022-0,024 W/m.K	Lumix – thickness 0,05 mm - λ 0,022-0,024 W/m.K	Roofs, interior (ceilings & walls)	*20-200 mm*	1

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Klik of tik om tekst in te voeren.

General information

Owner of the EPD, Responsible for the data, LCA and information	**Recticel Insulation** **Zuidstraat 15** **8560 Wevelgem** **Belgium** Tel : insert telephone number; *For more information you can contact Frederick Gheysen, gheysen.frederick@recticel.com*
EPD program Program operator Publisher of this EPD	**B-EPD** **FPS Health** Galileelaan 5/2 1210 Brussel Belgium www.environmentalproductdeclarations.eu
Contact programma operator	epd@environment.belgium.be
Based on following PCR documents	EN 15804+A2:2019 NBN/DTD B 08-001 and its complement Insert others
PCR review conducted by	Federal Public Service of Health and Environment & PCR Review committee
Author(s) of the LCA and EPD	Arthur De Jaegher, Karolien Peeters epd@vito.be, info@enperas.com
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Verification	External independent verification of the declaration and data according to EN ISO 14025 and relevant PCR documents
Name of the third party verifier Date of verification	Evert Vermaut (Vinçotte) 14.10.2022
www.b-epd.be	**www.environmentalproductdeclarations.eu**

Comparing EPDs is not possible unless they are conform to the same PCR and taking into account the building context. The program operator cannot be held responsible for the information supplied by the owner of the EPD nor LCA practitioner.

FEEL GOOD INSIDE — RECTICEL insulation

LCA practitioner

Building calculator of the regiona authorities

www.totem-building.be

Federal Public Service of Health, Food Chain Safety and Environment

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