

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Sandwich panels with mineral wool core type K-Roc® C LEC
Kingspan Sp. z o.o.



EPD HUB, HUB-1723

Published on 04.04.2026, last updated on 02.07.2026, valid until 04.10.2027

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Kingspan Sp. z o.o.
Address	Przemyslowa 20, 27-300 Lipsko, Poland
Contact details	info@kingspan.pl
Website	www.kingspan.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Design phase EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A5, and modules C1-C4, D
EPD author	Marta Kubinska, Kingspan CEME
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Sandwich panels with mineral wool core type K-Roc® C LEC
Additional labels	KS RF K-Roc® C LEC KS RH K-Roc® C LEC Matrix K-Roc® MX LEC Matrix K-Roc® BMMATRIX LEC Matrix K-Roc® Lite ML LEC Karrier KT K-Roc® LEC Karrier KS K-Roc® LEC Hoesch® isorock vario HH C LEC
Product reference	-
Place(s) of raw material origin	EU
Place of production	Lipsko, Poland
Place(s) of installation and use	EU
Period for data	April 2025
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	90,6

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m2
Declared unit mass	23,27 kg
Mass of packaging	0,197 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	18,1
GWP-total, A1-A3 ($kgCO_2e$)	18
Secondary material, inputs (%)	52
Secondary material, outputs (%)	38,7
Total energy use, A1-A3 (kWh)	162
Net freshwater use, A1-A3 (m^3)	0,47

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Kingspan Sp. z o.o. has been on the market since 2003, with its headquarters located in Lipsko. Kingspan exports products to almost 50 countries across five continents. The company specializes in the production of construction materials, including sandwich panels with both MW and PIR insulation cores, modular cold rooms, and cold store doors. Moreover, Kingspan also offers a wide variety of ancillary products that supplement the building envelope.

PRODUCT DESCRIPTION

Sandwich panels with mineral wool core type K-Roc® C LEC (Lower Embodied Carbon) represent a lower carbon alternative to standard products. Developed through close collaboration across our supply chain, these panels offer a reduction in embodied carbon compared to standard products, contributing to a lower carbon footprint of buildings. The panels consist of a mineral wool insulating core with a density of 85 kg/m³ placed between two organic-coated steel sheets from recycled steel.

Sandwich panels are designed for structural purposes and used in the construction of walls and roofs, as well as for creating technological casings for industrial and air-conditioning systems. They provide high thermal and acoustic insulation, enhancing both energy efficiency and noise reduction. They can be installed either vertically or horizontally, with options for through or secret fixing.

Sandwich panels with mineral wool core type K-Roc® C LEC are available in thicknesses ranging from 80 to 240 mm, and in various modular widths. This EPD covers panels with a 150 mm thick mineral wool core. For details on other available thicknesses, refer to the table provided in the annex.

Further information can be found at: www.kingspan.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	40,7	EU
Minerals	57,0	EU
Fossil materials	2,3	EU
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,01

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m2
Mass per declared unit	23,27 kg
Functional unit	-
Reference service life	50 years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	ND	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.

Sandwich panels are manufactured through a continuous process that bonds the mineral wool insulation core to external metal facings. All components are sourced from Europe and shipped to the manufacturing site in Lipsko, Poland. Insulated panels production begins with feeding steel coils for the inner and outer layers into the production line. These sheets are then shaped into the specified profile. The mineral wool core is cut, placed between two steel sheets and bonded with polyurethane glue. The energy and fuels used in the manufacturing process, including electricity, LPG and heating oil, are accounted for. The environmental profile of energy sources is modelled for average Polish conditions. The loss of material at manufacturing phase is considered within this EPD. Both scrap steel and mineral wool waste are collected and sent to landfill (a distance of 20 km).

The finished product is stored at the manufacturing site before being shipped to the customer. It is transported in bundles, placed on EPS pads with shielding foils on the sides and top. The whole package is wrapped in stretch plastic foil.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

This EDP does not cover the transport phase (A4). Air, soil, and water impacts during the transport phase have not been studied. Transport from production plant to the construction site, as well as resources needed for installation of the product have not been considered.

It is assumed that polyethylene packaging waste is collected and sent to a recycling company, polystyrene waste is incinerated and wood waste is landfilled (a transportation distance of 20 km).

PRODUCT USE AND MAINTENANCE (B1-B7)

The reference service life of 50 years is based on data from Eurima, the European Insulation Manufacturers Association.
Air, soil, and water impacts during the use phase have not been studied.

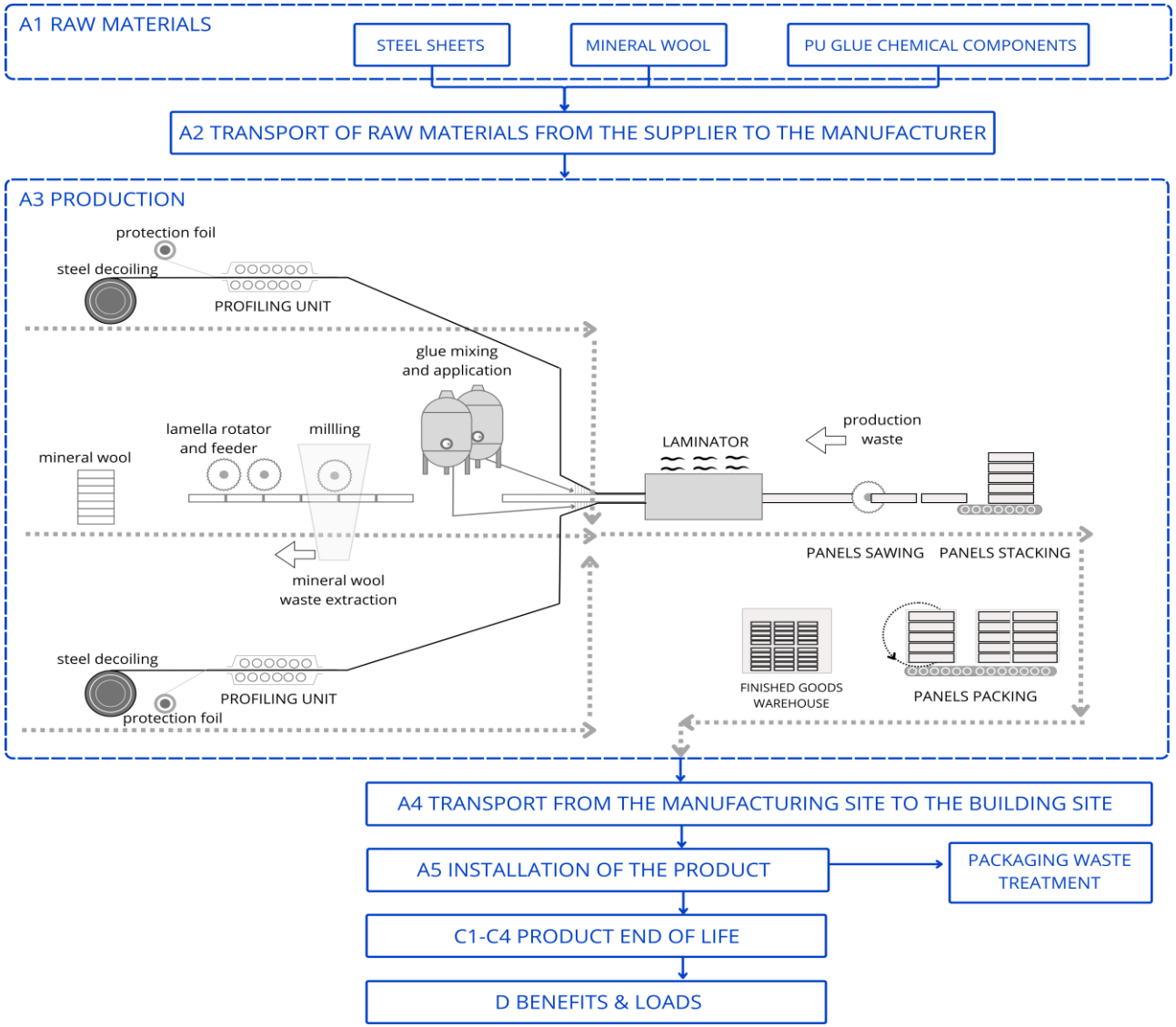
PRODUCT END OF LIFE (C1-C4, D)

At the end of the product's life cycle, it is assumed that the panels are dismantled using electric tools, with an energy consumption of 0.89 MJ per square meter of panel removed, based on data from similar assessments (C1). Steel facings and mineral wool core are separated. All generated waste is collected and transported to waste treatment facilities located within the country of installation, with an assumed transport distance of 20 km by lorry (C2).

For steel components, approximately 95% is assumed to be recycled (C3), while the remaining 5% is sent to landfill for final disposal (C4). The recycling rates for steel are based on data from the World Steel Association (2024). All mineral wool is assumed to be landfilled. The selected end of life scenario is currently in use and represents one of the most likely and commonly applied approaches for similar products across the EU territory.

Module D considers the avoided production of primary steel and polyethylene, with associated potential benefits and loads from recycling reported accordingly. Additional benefits and impacts related to the incineration of packaging materials (electricity and heat recovery) are also included.

SYSTEM DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1. Negative GWP-biogenic values in module A1 are associated with specific materials used in the model that include bio-based components. The selected datapoints represent the best available data in terms of quality and relevance.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	-

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

EN 14509:2013 - Self-supporting double skin metal faced insulating panels - Factory made products - Specifications
Eurima, The Durability of Mineral Wool Products, 2016: https://www.eurima.org/uploads/files/modules/articles/1584115855_MWI%20Eurima_Position_Paper_Durability_MW_Nov_2016.pdf
World Steel Association, Guidance on methodologies for modelling reuse and remanufacture in LCA Studies, 2024: https://worldsteel.org/wp-content/uploads/Guidance-on-methodologies-for-modelling-reuse-and-remanufacture-in-LCA-Studies.pdf

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	1,50E+01	1,49E+00	1,55E+00	1,80E+01	ND	3,44E-01	ND	ND	ND	ND	ND	ND	ND	2,60E-01	5,01E-02	2,00E-01	9,69E-02	-1,09E+00
GWP – fossil	kg CO_2e	1,50E+01	1,49E+00	1,58E+00	1,81E+01	ND	3,15E-01	ND	ND	ND	ND	ND	ND	ND	2,61E-01	5,01E-02	2,02E-01	9,69E-02	-1,09E+00
GWP – biogenic	kg CO_2e	-3,73E-02	2,01E-04	-3,10E-02	-6,81E-02	ND	2,86E-02	ND	ND	ND	ND	ND	ND	ND	-4,51E-04	1,13E-05	-2,92E-03	-1,15E-04	2,46E-04
GWP – LULUC	kg CO_2e	5,38E-03	5,77E-04	3,68E-04	6,32E-03	ND	9,25E-06	ND	ND	ND	ND	ND	ND	ND	1,75E-05	2,24E-05	2,50E-04	6,26E-05	-2,07E-04
Ozone depletion pot.	kg CFC-$_{11}$e	8,49E-10	3,09E-08	2,32E-08	5,49E-08	ND	7,73E-11	ND	ND	ND	ND	ND	ND	ND	2,27E-09	7,40E-10	2,69E-09	2,54E-09	-1,29E-08
Acidification potential	mol H^+e	4,75E-02	3,49E-03	8,44E-03	5,94E-02	ND	6,62E-05	ND	ND	ND	ND	ND	ND	ND	1,70E-03	1,71E-04	2,42E-03	7,32E-04	-5,07E-03
EP-freshwater[2)]	kg Pe	5,11E-05	1,04E-04	3,90E-04	5,45E-04	ND	2,24E-06	ND	ND	ND	ND	ND	ND	ND	8,62E-05	3,90E-06	1,35E-04	1,47E-05	-6,66E-04
EP-marine	kg Ne	9,78E-03	9,14E-04	1,21E-03	1,19E-02	ND	4,46E-05	ND	ND	ND	ND	ND	ND	ND	2,13E-04	5,61E-05	5,37E-04	2,60E-04	-9,37E-04
EP-terrestrial	mol Ne	1,38E-01	9,89E-03	1,25E-02	1,61E-01	ND	2,91E-04	ND	ND	ND	ND	ND	ND	ND	2,18E-03	6,11E-04	6,06E-03	2,85E-03	-9,94E-03
POCP ("smog")[3)]	kg NMVOCe	3,05E-02	6,04E-03	5,09E-03	4,16E-02	ND	7,94E-05	ND	ND	ND	ND	ND	ND	ND	6,29E-04	2,52E-04	1,80E-03	1,01E-03	-3,91E-03
ADP-minerals & metals[4)]	kg Sbe	2,39E-01	4,32E-06	1,94E-06	2,39E-01	ND	5,74E-08	ND	ND	ND	ND	ND	ND	ND	1,62E-07	1,40E-07	1,43E-05	8,83E-07	-7,93E-06
ADP-fossil resources	MJ	2,10E+02	2,22E+01	2,70E+01	2,60E+02	ND	7,64E-02	ND	ND	ND	ND	ND	ND	ND	2,83E+00	7,27E-01	2,73E+00	2,26E+00	-1,45E+01
Water use[5)]	m^3e depr.	4,09E-01	1,14E-01	5,00E-01	1,02E+00	ND	6,29E-03	ND	ND	ND	ND	ND	ND	ND	1,91E-02	3,59E-03	5,33E-02	9,56E-02	-2,22E-01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,33E-06	1,42E-07	3,55E-08	1,51E-06	ND	3,08E-09	ND	ND	ND	ND	ND	ND	ND	2,56E-09	5,02E-09	3,31E-08	1,56E-08	-6,48E-08
Ionizing radiation[6)]	kBq U235e	1,21E-01	2,69E-02	3,22E-02	1,80E-01	ND	2,10E-04	ND	ND	ND	ND	ND	ND	ND	1,73E-03	6,33E-04	2,35E-02	2,50E-03	1,36E-02
Ecotoxicity (freshwater)	CTUe	2,28E+01	2,65E+00	2,83E+01	5,38E+01	ND	1,60E+00	ND	ND	ND	ND	ND	ND	ND	5,28E+00	1,03E-01	1,34E+01	2,12E+00	-4,04E+01
Human toxicity, cancer	CTUh	2,27E-08	2,48E-10	1,65E-10	2,31E-08	ND	3,93E-11	ND	ND	ND	ND	ND	ND	ND	2,06E-11	8,27E-12	1,79E-10	2,51E-11	-1,65E-10
Human tox. non-cancer	CTUh	1,42E-06	1,43E-08	7,60E-09	1,44E-06	ND	8,56E-10	ND	ND	ND	ND	ND	ND	ND	1,47E-09	4,71E-10	1,23E-08	9,99E-10	-7,40E-09
SQP[7)]	-	2,23E+02	2,17E+01	3,25E+00	2,47E+02	ND	1,03E-01	ND	ND	ND	ND	ND	ND	ND	5,10E-01	7,32E-01	5,24E+00	4,43E+00	-3,53E+00

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	3,64E+02	3,64E-01	9,89E-01	3,65E+02	ND	-2,46E-01	ND	ND	ND	ND	ND	ND	ND	1,40E-01	9,96E-03	5,01E-01	4,61E-02	-9,13E-01
Renew. PER as material	MJ	1,69E+01	0,00E+00	-5,81E-03	1,69E+01	ND	-4,60E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-1,65E+01	0,00E+00
Total use of renew. PER	MJ	3,81E+02	3,64E-01	9,83E-01	3,82E+02	ND	-7,06E-01	ND	ND	ND	ND	ND	ND	ND	1,40E-01	9,96E-03	5,01E-01	-1,64E+01	-9,13E-01
Non-re. PER as energy	MJ	1,79E+02	2,22E+01	1,87E+01	2,20E+02	ND	-7,18E+00	ND	ND	ND	ND	ND	ND	ND	2,83E+00	7,27E-01	2,73E+00	2,26E+00	-1,45E+01
Non-re. PER as material	MJ	3,22E+01	0,00E+00	6,36E+00	3,85E+01	ND	-7,25E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-3,13E+01	-3,54E+00
Total use of non-re. PER	MJ	2,11E+02	2,22E+01	2,51E+01	2,58E+02	ND	-1,44E+01	ND	ND	ND	ND	ND	ND	ND	2,83E+00	7,27E-01	2,73E+00	-2,90E+01	-1,81E+01
Secondary materials	kg	1,21E+01	9,67E-03	2,95E-03	1,21E+01	ND	2,99E-04	ND	ND	ND	ND	ND	ND	ND	2,48E-04	3,09E-04	3,33E-03	7,01E-04	4,48E-01
Renew. secondary fuels	MJ	7,50E-05	1,22E-04	2,96E-03	3,15E-03	ND	2,47E-06	ND	ND	ND	ND	ND	ND	ND	1,12E-06	3,93E-06	1,55E-04	1,92E-05	-6,12E-05
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	4,50E-01	3,26E-03	1,35E-02	4,67E-01	ND	7,79E-05	ND	ND	ND	ND	ND	ND	ND	4,54E-04	1,07E-04	1,22E-03	2,25E-03	-4,07E-03

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	9,05E-04	3,22E-02	1,63E-01	1,96E-01	ND	2,85E-03	ND	ND	ND	ND	ND	ND	ND	4,02E-02	1,23E-03	1,80E-02	3,36E-03	-2,43E-01
Non-hazardous waste	kg	2,55E+00	6,48E-01	3,40E+00	6,60E+00	ND	1,39E-01	ND	ND	ND	ND	ND	ND	ND	4,32E-01	2,28E-02	7,10E-01	9,30E-02	-5,13E+00
Radioactive waste	kg	6,04E-03	6,65E-06	8,29E-06	6,05E-03	ND	5,26E-08	ND	ND	ND	ND	ND	ND	ND	4,28E-07	1,55E-07	6,01E-06	6,25E-07	3,60E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	8,32E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	9,01E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	9,60E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	3,69E-03	0,00E+00	0,00E+00	3,69E-03	ND	2,71E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	4,08E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	2,30E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	1,50E+01	1,49E+00	1,58E+00	1,81E+01	ND	3,15E-01	ND	ND	ND	ND	ND	ND	ND	2,61E-01	5,01E-02	2,03E-01	9,70E-02	-1,09E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Market for kerosene, Poland, Ecoinvent, 0.88 kgCO2e/kg
2. Market for liquefied petroleum gas, Poland, Ecoinvent, 1.09 kgCO2e/kg
3. Electricity, medium voltage, residual mix, Poland, Ecoinvent, 1.05 kgCO2e/kWh

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Waste materials: type and mass (kg)	Packaging materials: plastic wrapping film 0.083 kg, EPS 0.096 kg, OSB boards 0.018 kg.
Waste materials: output routes	All waste is assumed to be collected and sent to a waste processing company on a distance of 20 km. Polyethylene 0.083 kg recycling, EPS 0.096 kg incineration, OSB boards 0.018 kg landfill.

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	9,01
Collection process: Mixed waste (kg)	14,3
Recovery: re-use (kg)	0
Recovery: recycling (kg)	9,01
Recovery: energy recovery (kg)	0
Disposal (kg)	14,3
Scenario assumptions e.g. transportation (mode, km) & other	Transport means are assumed to be trucks. European fuel average is applied. Mineral wool - landfill; steel - recycling and landfill (transportation distance 20 km).

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
04.04.2026



VERIFIED ISO 14025

ANNEX I

CORE ENVIRONMENTAL IMPACT INDICATORS BY PRODUCT THICKNESS

TABLE 1

Impact category		Unit	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3
Product Thickness		mm	80	100	120	140	150	160	175	200	220	240
Product Weight		kg/m2	17.08	18.85	20.62	22.39	23.27	24.16	25.48	27.69	29.46	31.23
EN 15804+A2, PEF	GWP – total	kg CO2e	1.58E+01	1.64E+01	1.70E+01	1.77E+01	1.80E+01	1.83E+01	1.88E+01	1.96E+01	2.03E+01	2.09E+01
	GWP – fossil	kg CO2e	1.58E+01	1.64E+01	1.71E+01	1.77E+01	1.81E+01	1.84E+01	1.89E+01	1.97E+01	2.03E+01	2.10E+01
	GWP – biogenic	kg CO2e	-5.98E-02	-6.15E-02	-6.48E-02	-6.64E-02	-6.81E-02	-6.82E-02	-7.09E-02	-7.38E-02	-7.67E-02	-7.94E-02
	GWP – LULUC	kg CO2e	5.63E-03	5.82E-03	6.02E-03	6.22E-03	6.32E-03	6.41E-03	6.57E-03	6.82E-03	7.02E-03	7.23E-03
	Ozone depletion pot.	kg CFC-11e	4.59E-08	4.82E-08	5.10E-08	5.33E-08	5.49E-08	5.58E-08	5.81E-08	6.15E-08	6.43E-08	6.72E-08
	Acidification potential	mol H+e	5.16E-02	5.38E-02	5.60E-02	5.82E-02	5.94E-02	6.05E-02	6.22E-02	6.50E-02	6.73E-02	6.96E-02
	EP-freshwater	kg Pe	5.01E-04	5.12E-04	5.26E-04	5.37E-04	5.45E-04	5.49E-04	5.61E-04	5.78E-04	5.92E-04	6.06E-04
	EP-marine	kg Ne	1.06E-02	1.10E-02	1.13E-02	1.17E-02	1.19E-02	1.21E-02	1.24E-02	1.28E-02	1.32E-02	1.36E-02
	EP-terrestrial	mol Ne	1.31E-01	1.40E-01	1.48E-01	1.56E-01	1.61E-01	1.65E-01	1.71E-01	1.82E-01	1.90E-01	1.99E-01
	POCP (“smog”)	kg NMVOCe	3.73E-02	3.85E-02	3.97E-02	4.09E-02	4.16E-02	4.22E-02	4.32E-02	4.47E-02	4.60E-02	4.73E-02
	ADP-minerals & metals	kg Sbe	1.75E-01	1.91E-01	2.11E-01	2.25E-01	2.39E-01	2.42E-01	2.64E-01	2.87E-01	3.09E-01	3.32E-01
	ADP-fossil resources	MJ	2.33E+02	2.40E+02	2.48E+02	2.55E+02	2.60E+02	2.63E+02	2.69E+02	2.79E+02	2.87E+02	2.95E+02
	Water use	m3e depr.	8.25E-01	8.75E-01	9.35E-01	9.85E-01	1.02E+00	1.04E+00	1.09E+00	1.17E+00	1.23E+00	1.30E+00

TABLE 2

Impact category		Unit	A-C	A-C	A-C	A-C	A-C	A-C	A-C	A-C	A-C	A-C
Product Thickness		**mm**	**80**	**100**	**120**	**140**	**150**	**160**	**175**	**200**	**220**	**240**
Product Weight		**kg/m2**	17.08	18.85	20.62	22.39	23.27	24.16	25.48	27.69	29.46	31.23
EN 15804+A2, PEF	GWP – total	kg CO2e	1.66E+01	1.72E+01	1.79E+01	1.86E+01	1.89E+01	1.93E+01	1.98E+01	2.06E+01	2.14E+01	2.21E+01
	GWP – fossil	kg CO2e	1.66E+01	1.73E+01	1.80E+01	1.86E+01	1.90E+01	1.93E+01	1.98E+01	2.07E+01	2.14E+01	2.21E+01
	GWP – biogenic	kg CO2e	-4.26E-02	-4.27E-02	-4.29E-02	-4.29E-02	-4.30E-02	-4.30E-02	-4.32E-02	-4.32E-02	-4.34E-02	-4.35E-02
	GWP – LULUC	kg CO2e	5.96E-03	6.16E-03	6.37E-03	6.58E-03	6.68E-03	6.78E-03	6.94E-03	7.20E-03	7.41E-03	7.63E-03
	Ozone depletion pot.	kg CFC-11e	5.29E-08	5.56E-08	5.88E-08	6.14E-08	6.32E-08	6.43E-08	6.69E-08	7.07E-08	7.39E-08	7.72E-08
	Acidification potential	mol H+e	5.64E-02	5.86E-02	6.09E-02	6.32E-02	6.45E-02	6.56E-02	6.74E-02	7.03E-02	7.27E-02	7.51E-02
	EP-freshwater	kg Pe	7.38E-04	7.50E-04	7.66E-04	7.78E-04	7.87E-04	7.92E-04	8.05E-04	8.24E-04	8.39E-04	8.55E-04
	EP-marine	kg Ne	1.16E-02	1.20E-02	1.24E-02	1.28E-02	1.30E-02	1.32E-02	1.36E-02	1.40E-02	1.44E-02	1.49E-02
	EP-terrestrial	mol Ne	1.42E-01	1.51E-01	1.59E-01	1.68E-01	1.73E-01	1.77E-01	1.83E-01	1.95E-01	2.03E-01	2.13E-01
	POCP (“smog”)	kg NMVOCe	4.06E-02	4.19E-02	4.33E-02	4.46E-02	4.54E-02	4.60E-02	4.72E-02	4.88E-02	5.03E-02	5.17E-02
	ADP-minerals & metals	kg Sbe	1.75E-01	1.91E-01	2.11E-01	2.25E-01	2.39E-01	2.42E-01	2.64E-01	2.87E-01	3.09E-01	3.32E-01
	ADP-fossil resources	MJ	2.40E+02	2.48E+02	2.56E+02	2.64E+02	2.68E+02	2.72E+02	2.78E+02	2.88E+02	2.97E+02	3.05E+02
	Water use	m3e depr.	9.59E-01	1.02E+00	1.09E+00	1.16E+00	1.20E+00	1.22E+00	1.28E+00	1.38E+00	1.45E+00	1.53E+00