

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Kingspan wall and ceiling sandwich panels with mineral wool core type K-Roc® X

Kingspan Kereskedelmi Kft



EPD HUB, HUB-1785

Publishing date 6 September 2024, last updated on 6 September 2024, valid until 6 September 2029.

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GENERAL INFORMATION

MANUFACTURER

Manufacturer	Kingspan Kereskedelmi Kft
Address	Újhartyán, Horka dűlő 1, 2367, Hungary
Contact details	info@kingspan.hu
Website	www.kingspan.hu

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 und ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Artur Krzywulski, Kingspan CEME
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

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	Kingspan wall and ceiling sandwich panels with mineral wool core type K-Roc® X
Additional labels	KS RB K-Roc® X Wall Panel, KS RH K-Roc® X Wall Panel, KS RB K-roc® (MSX), KS RH K-roc® (MSX), KS1000 RB-X, KS1150 RB-X, KS1000 RH-X , Hoesch® isorock HB Mineral Wool Wall Panel, Hoesch® isorock vario HV Mineral Wool Wall Panel, K-Roc EVO, K-Roc EVO Reveal 20, K-Roc EVO Reveal 50
Product reference	-
Place of production	Felsőlajos, Fő u. 36, 6055, Hungary
Period for data	01.01.2023 - 31.12-2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1m2
Declared unit mass	19,8 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	4,69E+01
GWP-total, A1-A3 ($kgCO_2e$)	4,69E+01
Secondary material, inputs (%)	18.2
Secondary material, outputs (%)	41.1
Total energy use, A1-A3 (kWh)	189
Net freshwater use, A1-A3 (m^3)	0,53

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Kingspan Kereskedelmi Kft. has been on the market since 1998 - and is a subsidiary of Kingspan Group, a global leader in manufacturing building products.

The Hungarian business is located in Ujhartyan, and in Felsolajos. Kingspan Kft. 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. The manufacturing plant in Felsolajos produces insulated sandwich panels with mineral wool insulation core. The products are dedicated for external and internal wall applications, and as well as ceiling elements. The panels produced in Hungary are mainly delivered to the south-east countries of Europe. More information about the manufacturer can be found at https://www.kingspan.hu/ .

PRODUCT DESCRIPTION

Kingspan wall and ceiling sandwich panels KS RB K-Roc® X and KS RH K-Roc® X are steel-faced sandwich panels with a core of stone(mineral) wool type MSX with declared density of 100kg/m3. The facings of Kingspan mineral wool sandwich panels are made from galvanised and coated carbon steel sheets according to EN 10346. The thickness of steel sheets is defined by project specific requirements and varies between 0.4mm and 0.7mm. The panels are manufactured and certified according to European standard EN 14509:2013. These sandwich panels are used as external and internal wall elements and ceilings, in industrial, commercial, residential and office buildings, hospitals, chill stores, clean rooms and in the food industry. The panels with MSX mineral wool insulation core are available in thicknesses starting from 60mm up to 200mm. The products are also available in various modular widths.

The current EPD evaluation focuses on panels with mineral wool core MSX thickness 100mm.

Further information can be found at www.kingspan.hu .

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	52,6	EU
Minerals	44,9	EU
Fossil materials	2,6	EU
Bio-based materials	0	-

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

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m2
Mass per declared unit	19,8 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		
×	×	×	×	×	MND	MND	MND	MND	MND	MND	MND	×	×	×	×	×		
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

Modules not declared = MND. Modules not relevant = MNR

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.

Sandwich panel faces are made of hot-dip galvanised and colour-coated steel sheets. Steel used in panels faces comes from European manufacturers and is manufactured and delivered according to relevant EU standards (EN 10346 and EN 10169). The most popular steel quality used in Kingspan sandwich panels is S280GD+Z275, there are other types possible depending on end use application. The steel sheets are coated with organic coatings according to EN 10169. The type, thickness and colour of organic coating depends on final application environment and customer requirements.

The Kingspan sandwich panels KS RB and KS RH are produced with mineral wool (stone wool) with average density of 100 kg/m3. Mineral wool insulation core in non-combustible and makes that whole panels reaction to fire rating (acc. to EN 13501-1) is A2 class. Also, the fire resistance performance of whole panels achieves the ratings which contribute significantly the passive fire safety protection of buildings. The steel faces and mineral wool core are bonded together by means of two component polyurethane glue.

Kingspan sandwich panels covered by this environmental product declaration are manufactured in Felsőlajos in Hungary. The production of sandwich panels is carried out on continuous production line as presented on the scheme below. All raw materials are transported to the manufacturing plant by road transport and short distance sea ferry. The panels leaving manufacturing line are stacked on EPS blocks (for forklift transport), covered with protective EPS sheets and distance blocks to protect edges of bundle, and finally wrapped with stretch foil.

Manufacturing waste from panels production - steel scrap and mineral wool dust - are sorted and collected separately. Steel scrap in 95% goes to recycling, remaining 5% goes for landfill. The mineral wool waste goes for landfill.

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.

Panels are transported to the construction site by means of road transport. The transportation distance is assumed to be an average of 400km. The insulated panels are made to order, specific to the building's requirements. Installation guides are available to assist the contractor with correct installation of the product and any ancillaries. The installation scenario assumes steel fixings with an average weight consumption of 0.045kg/DU, and accessories made of steel coated sheets with an average consumption ratio of 0.45kg/DU. A conservative estimate of power necessary for installation works assumes electricity for a power tool (0.37kWh/DU) and diesel (10.53MJ/DU) for a site handling. Installation losses are estimated at 2% and, as well as packaging, are included as installation waste.
The steel scrap out of installation goes in 95% for recycling, and in 5% goes o landfill (rates based on World Steel Association data), Mineral wool waste goes to landfill, and the plastic packaging waste (mix of PE and EPS) goes for municipal incineration.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

At the end-of-life panels are separated to steel elements (panel faces, fasteners and steel flashings) and insulation core (mineral wool). The scenario for steel is that 95% is being recycled, where the other 5% goes for landfill (according to World Steel Association, 2020). The mineral wool insulation core goes 100% to landfill.

For removal of the panels, a conservative estimate of electricity for a power tool (0,37kWh/DU) and diesel (3,81MJ/DU) for a crane has been made.
In Module D, the net benefit of recycling steel, waste treatment of packaging materials is included as avoided material production (from recycling) and electricity and heat production (from incineration).

ADDITIONAL INFORMATION

Kingspan Panels with mineral wool core MSX (KS RB K-Roc® X Wall Panel and KS RH K-Roc® X Wall Panel) are manufactured according to legally defined measures in the occupational health and safety regulations, which apply to the complete manufacturing process for sandwich panels. In collaboration with the external advisors, voluntary "health and safety" audits are carried out at regular intervals. The results of these inspections correspond to the official workplace guidelines.

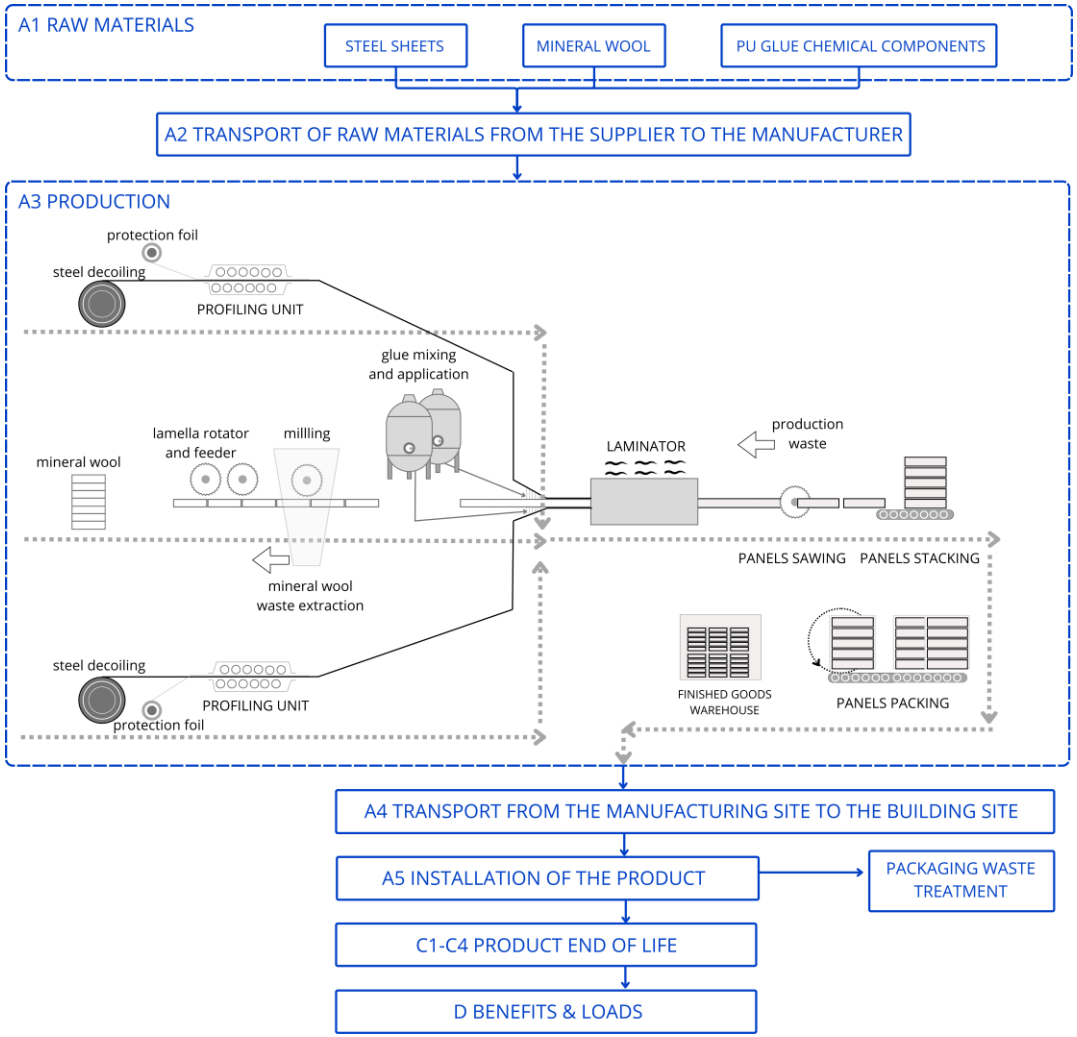
The panels are not harmful and do not emit any hazardous substances during their service life.

The Kingspan Kereskedelmi Kft. plant in Felsolajos is certified to ISO 9001, ISO 14001, ISO 37301, ISO 45001, and ISO 50001 management standards.

During the analysed period of production, the content of recycled material, in key raw materials (steel and MW), based on mass balance method, was:

- For steel sheets - 20.4%
- For mineral wool – 23.2%.

MANUFACTURING PROCESS



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.

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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	- %

This EPD is product and factory specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

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	4,08E+01	3,84E+00	2,23E+00	4,69E+01	1,55E+00	4,36E+00	MND	MND	MND	MND	MND	MND	MND	4,54E-01	5,52E-01	2,81E-01	6,53E-02	-1,23E+01
GWP – fossil	kg CO_2e	4,08E+01	3,84E+00	2,23E+00	4,69E+01	1,55E+00	4,36E+00	MND	MND	MND	MND	MND	MND	MND	4,54E-01	5,52E-01	2,81E-01	6,53E-02	-1,23E+01
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	2,76E-03	2,76E-03	0,00E+00	-2,76E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,09E-03
GWP – LULUC	kg CO_2e	1,67E-02	1,53E-03	1,26E-03	1,95E-02	6,10E-04	1,80E-03	MND	MND	MND	MND	MND	MND	MND	3,78E-04	2,17E-04	3,68E-04	6,16E-05	8,06E-04
Ozone depletion pot.	kg CFC-$_{11}$e	5,53E-07	8,90E-07	1,71E-07	1,61E-06	3,60E-07	2,70E-07	MND	MND	MND	MND	MND	MND	MND	7,28E-08	1,28E-07	3,48E-08	2,64E-08	-4,44E-07
Acidification potential	mol H^+e	3,74E+01	1,14E-02	9,75E-03	3,75E+01	6,31E-03	7,66E-01	MND	MND	MND	MND	MND	MND	MND	4,02E-03	2,24E-03	3,57E-03	6,14E-04	-4,00E-02
EP-freshwater[2)]	kg Pe	6,38E-03	2,75E-05	1,39E-04	6,55E-03	1,09E-05	1,55E-04	MND	MND	MND	MND	MND	MND	MND	1,68E-05	3,89E-06	1,51E-05	6,84E-07	-5,23E-04
EP-marine	kg Ne	3,23E-02	2,41E-03	1,85E-03	3,66E-02	1,88E-03	6,56E-03	MND	MND	MND	MND	MND	MND	MND	1,52E-03	6,69E-04	7,54E-04	2,13E-04	-9,33E-03
EP-terrestrial	mol Ne	3,33E-01	2,67E-02	2,06E-02	3,81E-01	2,08E-02	7,13E-02	MND	MND	MND	MND	MND	MND	MND	1,67E-02	7,37E-03	8,72E-03	2,34E-03	-1,10E-01
POCP ("smog")[3)]	kg NMVOCe	9,59E-02	9,92E-03	7,20E-03	1,13E-01	6,36E-03	1,98E-02	MND	MND	MND	MND	MND	MND	MND	4,58E-03	2,26E-03	2,40E-03	6,80E-04	-6,78E-02
ADP-minerals & metals4)	kg Sbe	1,75E+02	1,38E-05	6,97E-06	1,75E+02	5,51E-06	3,50E+00	MND	MND	MND	MND	MND	MND	MND	1,52E-06	1,97E-06	3,79E-05	1,50E-07	-1,86E-06
ADP-fossil resources	MJ	3,18E+02	5,72E+01	5,15E+01	4,27E+02	2,31E+01	4,36E+01	MND	MND	MND	MND	MND	MND	MND	7,25E+00	8,19E+00	3,81E+00	1,79E+00	-9,89E+01
Water use[5)]	m^3e depr.	4,45E+00	2,67E-01	1,08E+00	5,80E+00	1,07E-01	2,74E-01	MND	MND	MND	MND	MND	MND	MND	9,45E-02	3,80E-02	7,39E-02	5,68E-03	-1,93E+00

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, PEF

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	5,39E-07	3,13E-07	8,17E-08	9,34E-07	1,34E-07	3,02E-07	MND	MND	MND	MND	MND	MND	MND	8,78E-08	4,76E-08	4,66E-08	1,24E-08	-6,75E-07
Ionizing radiation[6]	kBq U235e	1,08E+00	2,99E-01	7,33E-01	2,11E+00	1,21E-01	1,94E-01	MND	MND	MND	MND	MND	MND	MND	1,03E-01	4,29E-02	4,25E-02	8,10E-03	7,83E-01
Ecotoxicity (freshwater)	CTUe	2,48E+02	4,78E+01	2,02E+01	3,16E+02	1,91E+01	1,99E+01	MND	MND	MND	MND	MND	MND	MND	4,61E+00	6,80E+00	1,72E+01	1,17E+00	-3,95E+02
Human toxicity, cancer	CTUh	8,00E-08	1,46E-09	6,72E-10	8,21E-08	5,93E-10	2,11E-09	MND	MND	MND	MND	MND	MND	MND	1,65E-10	2,11E-10	5,28E-10	2,92E-11	1,68E-07
Human tox. non-cancer	CTUh	6,93E-08	4,68E-08	1,93E-08	1,35E-07	1,94E-08	1,40E-08	MND	MND	MND	MND	MND	MND	MND	4,09E-09	6,90E-09	2,36E-08	7,64E-10	-2,44E-07
SQP[7]	-	1,65E+02	4,10E+01	6,36E+00	2,12E+02	1,62E+01	7,33E+00	MND	MND	MND	MND	MND	MND	MND	1,10E+00	5,72E+00	7,66E+00	3,83E+00	-1,98E+01

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	5,14E+01	8,27E-01	3,27E+00	5,54E+01	3,31E-01	3,71E+00	MND	MND	MND	MND	MND	MND	MND	6,47E-01	1,18E-01	6,75E-01	1,55E-02	3,63E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,70E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,62E-01	-8,51E-03	0,00E+00
Total use of renew. PER	MJ	5,14E+01	8,27E-01	3,27E+00	5,54E+01	3,31E-01	3,88E+00	MND	MND	MND	MND	MND	MND	MND	6,47E-01	1,18E-01	5,14E-01	7,04E-03	3,63E+00
Non-re. PER as energy	MJ	5,26E+02	5,72E+01	4,07E+01	6,24E+02	2,31E+01	4,76E+01	MND	MND	MND	MND	MND	MND	MND	7,25E+00	8,19E+00	3,81E+00	1,79E+00	-9,90E+01
Non-re. PER as material	MJ	1,54E+01	0,00E+00	1,06E+01	2,60E+01	0,00E+00	-1,15E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-4,60E-14	-1,45E+01	0,00E+00
Total use of non-re. PER	MJ	5,42E+02	5,72E+01	5,13E+01	6,50E+02	2,31E+01	3,60E+01	MND	MND	MND	MND	MND	MND	MND	7,25E+00	8,19E+00	3,81E+00	-1,27E+01	-9,90E+01
Secondary materials	kg	3,61E+00	1,94E-02	4,75E-03	3,63E+00	7,73E-03	1,25E-01	MND	MND	MND	MND	MND	MND	MND	1,93E-03	2,76E-03	4,24E-03	3,76E-04	9,18E+00
Renew. secondary fuels	MJ	2,12E-05	2,13E-04	7,41E-03	7,64E-03	8,52E-05	1,81E-04	MND	MND	MND	MND	MND	MND	MND	7,87E-06	3,04E-05	2,20E-04	9,83E-06	4,27E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	9,54E-03	9,54E-03	0,00E+00	1,91E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	4,90E-01	7,28E-03	2,78E-02	5,25E-01	2,90E-03	1,65E-02	MND	MND	MND	MND	MND	MND	MND	2,90E-03	1,03E-03	2,23E-03	1,96E-03	-6,98E-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	3,74E-02	6,52E-02	8,07E-02	1,83E-01	2,59E-02	6,47E-02	MND	MND	MND	MND	MND	MND	MND	1,68E-02	9,22E-03	2,59E-02	0,00E+00	6,46E-01
Non-hazardous waste	kg	2,21E+00	1,16E+00	6,83E+00	1,02E+01	4,60E-01	1,66E+00	MND	MND	MND	MND	MND	MND	MND	7,57E-01	1,64E-01	8,26E-01	1,24E+01	-1,88E+01
Radioactive waste	kg	2,13E-03	3,93E-04	1,88E-04	2,71E-03	1,59E-04	5,79E-04	MND	MND	MND	MND	MND	MND	MND	5,17E-05	5,64E-05	2,23E-05	0,00E+00	1,35E-04

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	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,00E-02	0,00E+00	8,09E-01	8,39E-01	0,00E+00	2,82E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,28E+01	0,00E+00	0,00E+00
Materials for energy rec	kg	1,84E-03	0,00E+00	5,10E-03	6,94E-03	0,00E+00	2,81E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,28E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online.
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

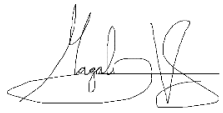
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
06.09.2024



VERIFIED ISO 14025

ANNEX I

SCALLING TABLES

Table No. 1 –								
Product Thickness [mm]		**60**	**80**	**100**	**120**	**150**	**175**	**200**
Product Weight [kg/m2]		15,72	17,85	19,79	21,86	25,16	27,29	29,75
Impact category		**A1-A3**	**A1-A3**	**A1-A3**	**A1-A3**	**A1-A3**	**A1-A3**	**A1-A3**
EN 15804+A2, PEF	GWP – total	0,909	0,955	1,00	1,046	1,115	1,170	1,227
	GWP – fossil	0,909	0,955	1,00	1,046	1,115	1,170	1,227
	GWP – biogenic	0,797	0,902	1,00	1,105	1,272	1,380	1,507
	GWP – LULUC	0,836	0,918	1,00	1,082	1,210	1,313	1,415
	Ozone depletion pot,	0,764	0,882	1,00	1,124	1,304	1,447	1,596
	Acidification potential	0,601	0,801	1,00	1,199	1,499	1,748	1,998
	EP-freshwater	0,615	0,808	1,00	1,191	1,479	1,725	1,954
	EP-marine	0,850	0,926	1,00	1,074	1,186	1,279	1,372
	EP-terrestrial	0,853	0,927	1,00	1,071	1,184	1,273	1,362
	POCP (“smog”)	0,845	0,920	1,00	1,080	1,195	1,292	1,389
	ADP-minerals & metals	0,600	0,800	1,00	1,200	1,500	1,750	2,000
	ADP-fossil resources	0,952	0,977	1,00	1,024	1,061	1,088	1,117
	Water use	0,940	0,971	1,00	1,031	1,079	1,112	1,148

Table No. 2 –								
Product Thickness [mm]		**60**	**80**	**100**	**120**	**150**	**175**	**200**
Product Weight [kg/m2]		15,72	17,85	19,79	21,86	25,16	27,29	29,75
Impact category		**A1-A5+C1-C4+D**	**A1-A5+C1-C4+D**	**A1-A5+C1-C4+D**	**A1-A5+C1-C4+D**	**A1-A5+C1-C4+D**	**A1-A5+C1-C4+D**	**A1-A5+C1-C4+D**
EN 15804+A2, PEF	GWP – total	0,910	0,955	1,00	1,045	1,114	1,168	1,224
	GWP – fossil	0,910	0,955	1,00	1,045	1,114	1,168	1,224
	GWP – biogenic	1,000	1,000	1,00	1,000	1,000	1,000	1,000
	GWP – LULUC	0,850	0,926	1,00	1,075	1,190	1,281	1,374
	Ozone depletion pot,	0,808	0,905	1,00	1,096	1,241	1,359	1,478
	Acidification potential	0,601	0,801	1,00	1,199	1,498	1,747	1,997
	EP-freshwater	0,620	0,810	1,00	1,190	1,476	1,713	1,951
	EP-marine	0,874	0,937	1,00	1,063	1,158	1,236	1,314
	EP-terrestrial	0,877	0,939	1,00	1,061	1,154	1,230	1,306
	POCP (“smog”)	0,869	0,935	1,00	1,065	1,165	1,245	1,327
	ADP-minerals & metals	0,600	0,800	1,00	1,200	1,500	1,750	2,000
	ADP-fossil resources	0,949	0,975	1,00	1,026	1,065	1,095	1,127
	Water use	0,939	0,971	1,00	1,031	1,079	1,112	1,149