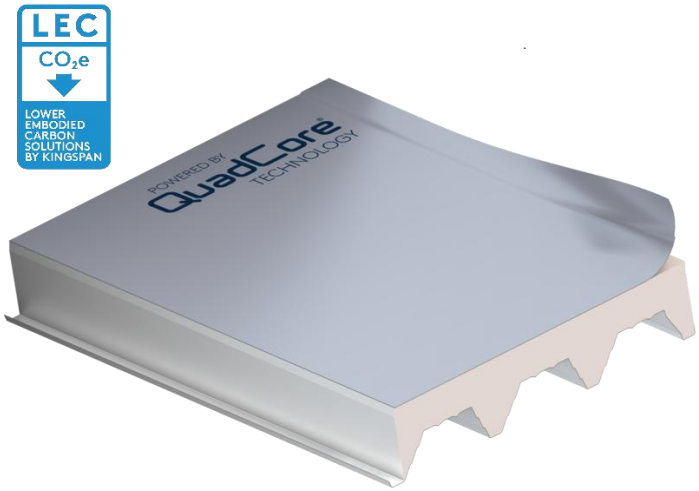


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

KS X-Dek™ XM QuadCore® LEC Roof Panels
Kingspan Sp. z o.o.



EPD HUB, HUB-3931
Publishing date 12 September 2025, last updated on 12 September 2025, valid until 12 March 2027.

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) 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 1.1, 5 Dec 2023
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 González Vázquez, as an authorized verifier acting for EPD Hub Limited

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	KS X-Dek™ XM QuadCore® LEC Roof Panels
Additional labels	KS X-Dek™ XG QuadCore® LEC Roof Panels
Product reference	-
Place(s) of raw material origin	EU
Place of production	Lipsko, Poland
Place(s) of installation and use	EU
Period for data	May 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	13,5%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	54,2

ENVIRONMENTAL DATA SUMMARY

Declared unit	1m2
Declared unit mass	17,34 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,31E+01
GWP-total, A1-A3 ($kgCO_2e$)	3,31E+01
Secondary material, inputs (%)	55,4
Secondary material, outputs (%)	76,2
Total energy use, A1-A3 (kWh)	211
Net freshwater use, A1-A3 (m^3)	4,25

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

X-Dek™ QuadCore® LEC (Lower Embodied Carbon) is a variation of the standard X-Dek™ QuadCore® products. Through close collaboration with our supply chains, these sandwich panels offer a reduction in embodied carbon compared to standard products, helping to lower the overall carbon footprint of buildings. X-Dek™ QuadCore® LEC panels are high-performance insulated panels designed for use on flat and pitched roofs. The insulating core of these panels is made from Kingspan QuadCore® - a proprietary, self-blended rigid insulation foam developed by Kingspan. Based on advanced polyisocyanurate (PIR) technology, QuadCore® is engineered to deliver exceptional thermal performance, high fire resistance and a low global warming potential. The panel design enables installation over large spans, making it suitable for a range of roofing applications.

Two product variants are available: variant X-Dek™ XM LEC, featuring an external layer made of a waterproof PVC membrane, and variant X-Dek™ XG LEC with a fiberglass external layer. The internal facing is constructed from galvanized steel sheet from recycled steel. Both variants are available with insulation core thicknesses of 100 mm and 140 mm. This EPD covers X-Dek™ XM QuadCore® LEC panels, with a 140 mm thick insulation core. For details on other configurations, 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	58	EU
Minerals	-	-
Fossil materials	42	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

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m2
Mass per declared unit	17,34 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	MND	x	MND	MND	MND	MND	MND	MND	MND	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

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.

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

The product is composed of a QuadCore insulation core bound between organic-coated steel sheet from recycled steel and PVC membrane layer. All components are sourced from Europe and shipped to the manufacturing site in Lipsko, Poland. Insulated panels production begins with feeding steel coil for the inner layer into the production line and shaping it into the specified profile. Next, the foam mixture is applied to the bottom liner, and as it expands, it connects with the top liner – a PVC membrane - creating a chemical bond between the two facings. The energy and fuels used in the manufacturing process, including electricity, LPG, diesel and heating oil, are accounted for. The loss of material at manufacturing phase is considered within this EPD. Both scrap steel and foam 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.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

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 (a transportation distance of 20 km).

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.

The reference service life of 50 years is based on data from EPDs for sandwich panels with similar material compositions and manufacturing processes.

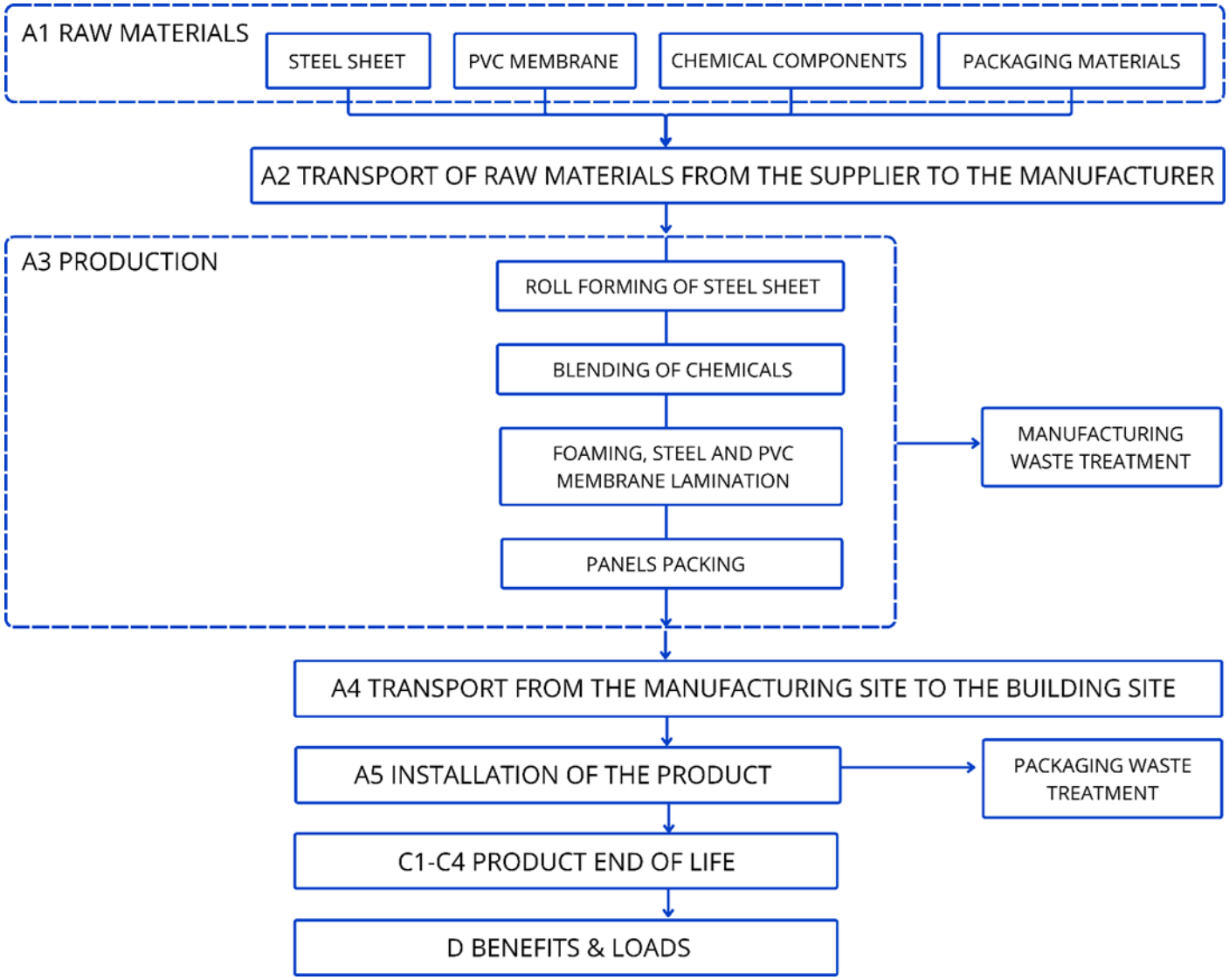
PRODUCT END OF LIFE (C1-C4, D)

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 MWh per square meter of panel removed (based on data from similar assessments). All generated waste is collected and transported to waste treatment facilities, with an assumed transport distance of 20 km by lorry.

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. Regarding the PIR cores, 7.5% are assumed to be recycled, 65.5% incinerated, and the remaining 27% sent to landfill (Plastics Europe).

The analysis considers the avoided production of primary polyethylene, with the associated potential benefits and environmental loads from plastic recycling reported in module D. Additionally, it includes the benefits and environmental impacts associated with the incineration of packaging materials (electricity and heat generation).

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.

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.

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	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	13.5 %

EPD of multiple products, based on a representative product. This EPD covers two product variants: X-Dek™ XM LEC, which features an external layer made of a waterproof PVC membrane, and X-Dek™ XG LEC, which includes a fiberglass external layer. X-Dek™ XM LEC is considered as the representative product for the purposes of this declaration. Both variants serve the same functional purpose and are intended for use in similar applications. They are manufactured using the same production processes and are composed of comparable raw materials. The only material difference between the two variants is the composition of the external layer, which results in a variation in GWP-fossil of 13.5 % for A1-A3 modules and 10% or less for other life cycle modules.

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 v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

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	2,95E+01	2,14E+00	1,55E+00	3,31E+01	MND	2,14E-01	MND	MND	MND	MND	MND	MND	MND	6,23E-02	4,38E-02	9,55E+00	2,36E-02	-8,85E-01
GWP – fossil	kg CO_2e	2,94E+01	2,14E+00	1,55E+00	3,31E+01	MND	2,16E-01	MND	MND	MND	MND	MND	MND	MND	6,22E-02	4,38E-02	9,55E+00	2,36E-02	-8,85E-01
GWP – biogenic	kg CO_2e	6,65E-03	3,73E-04	1,44E-03	8,46E-03	MND	-1,32E-03	MND	MND	MND	MND	MND	MND	MND	3,00E-05	9,23E-06	-1,45E-03	-7,76E-06	-6,15E-05
GWP – LULUC	kg CO_2e	1,37E-02	1,03E-03	6,66E-04	1,54E-02	MND	1,15E-05	MND	MND	MND	MND	MND	MND	MND	7,57E-05	1,64E-05	4,08E-04	5,49E-06	-4,08E-04
Ozone depletion pot.	kg CFC_{-11}e	5,05E-08	3,37E-08	2,60E-08	1,10E-07	MND	7,51E-11	MND	MND	MND	MND	MND	MND	MND	3,16E-09	8,97E-10	1,12E-08	8,53E-10	-1,70E-08
Acidification potential	mol H^+e	6,70E-02	7,26E-03	8,75E-03	8,30E-02	MND	5,33E-05	MND	MND	MND	MND	MND	MND	MND	1,68E-04	9,80E-05	1,24E-02	1,49E-04	-4,09E-03
EP-freshwater[2)]	kg Pe	4,36E-04	1,92E-04	1,11E-03	1,74E-03	MND	1,88E-06	MND	MND	MND	MND	MND	MND	MND	5,99E-06	3,01E-06	1,86E-04	1,18E-06	-6,96E-04
EP-marine	kg Ne	1,63E-02	2,36E-03	1,36E-03	2,00E-02	MND	3,49E-05	MND	MND	MND	MND	MND	MND	MND	4,69E-05	2,49E-05	1,25E-02	6,29E-05	-8,89E-04
EP-terrestrial	mol Ne	1,74E-01	2,56E-02	1,27E-02	2,13E-01	MND	2,14E-04	MND	MND	MND	MND	MND	MND	MND	5,39E-04	2,69E-04	6,09E-02	6,88E-04	-8,54E-03
POCP ("smog")[3)]	kg NMVOCe	6,16E-02	1,06E-02	5,79E-03	7,80E-02	MND	6,01E-05	MND	MND	MND	MND	MND	MND	MND	1,48E-04	1,68E-04	1,49E-02	2,73E-04	-3,86E-03
ADP-minerals & metals[4)]	kg Sbe	4,45E+00	6,20E-06	2,91E-06	4,45E+00	MND	5,86E-08	MND	MND	MND	MND	MND	MND	MND	1,85E-07	1,33E-07	1,62E-05	3,10E-08	-2,48E-06
ADP-fossil resources	MJ	6,31E+02	3,09E+01	3,08E+01	6,93E+02	MND	7,34E-02	MND	MND	MND	MND	MND	MND	MND	1,74E+00	6,41E-01	8,33E+00	5,86E-01	-1,68E+01
Water use[5)]	m^3e depr.	-1,17E+01	1,78E-01	5,58E-01	-1,09E+01	MND	4,60E-03	MND	MND	MND	MND	MND	MND	MND	1,43E-02	3,24E-03	7,11E-01	1,97E-03	-2,49E-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	3,45E-07	2,02E-07	3,69E-08	5,84E-07	MND	1,14E-09	MND	MND	MND	MND	MND	MND	MND	1,19E-09	3,81E-09	2,12E-07	3,73E-09	-6,71E-08
Ionizing radiation[6)]	kBq U235e	5,08E-01	4,79E-02	6,20E-02	6,18E-01	MND	1,73E-04	MND	MND	MND	MND	MND	MND	MND	6,21E-02	8,06E-04	1,58E-02	4,82E-04	-8,40E-02
Ecotoxicity (freshwater)	CTUe	1,49E+02	4,48E+00	4,52E+00	1,58E+02	MND	2,26E-01	MND	MND	MND	MND	MND	MND	MND	8,59E-02	7,97E-02	2,57E+01	3,37E-02	-5,31E+00
Human toxicity, cancer	CTUh	7,88E-09	3,70E-10	2,90E-10	8,54E-09	MND	2,61E-11	MND	MND	MND	MND	MND	MND	MND	1,19E-11	7,26E-12	2,04E-09	3,06E-12	-7,11E-10
Human tox. non-cancer	CTUh	5,34E-07	1,97E-08	1,54E-08	5,69E-07	MND	6,00E-10	MND	MND	MND	MND	MND	MND	MND	3,82E-10	4,08E-10	4,43E-08	8,88E-11	-9,52E-09
SQP[7)]	-	9,34E+01	2,83E+01	4,35E+00	1,26E+02	MND	9,64E-02	MND	MND	MND	MND	MND	MND	MND	8,87E-01	5,44E-01	6,71E+00	1,18E+00	-3,99E+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	2,59E+02	6,42E-01	1,57E+00	2,61E+02	MND	5,36E-03	MND	MND	MND	MND	MND	MND	MND	5,08E-01	1,08E-02	5,85E-01	1,12E-02	-1,02E+00
Renew. PER as material	MJ	1,05E-01	0,00E+00	-3,63E-03	1,01E-01	MND	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-1,01E-01	0,00E+00
Total use of renew. PER	MJ	2,59E+02	6,42E-01	1,56E+00	2,61E+02	MND	5,36E-03	MND	MND	MND	MND	MND	MND	MND	5,08E-01	1,08E-02	5,85E-01	-8,97E-02	-1,02E+00
Non-re. PER as energy	MJ	4,55E+02	3,09E+01	1,07E+01	4,97E+02	MND	-6,23E+00	MND	MND	MND	MND	MND	MND	MND	1,74E+00	6,41E-01	-1,07E+02	-1,06E+02	-1,69E+01
Non-re. PER as material	MJ	1,84E+02	0,00E+00	-1,04E-01	1,84E+02	MND	-6,31E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-9,92E+01	-7,88E+01	-1,56E+01
Total use of non-re. PER	MJ	6,40E+02	3,09E+01	1,06E+01	6,81E+02	MND	-1,25E+01	MND	MND	MND	MND	MND	MND	MND	1,74E+00	6,41E-01	-2,06E+02	-1,85E+02	-3,24E+01
Secondary materials	kg	9,61E+00	1,51E-02	4,01E-03	9,63E+00	MND	3,06E-04	MND	MND	MND	MND	MND	MND	MND	1,98E-04	2,83E-04	5,62E-03	1,40E-04	4,78E-01
Renew. secondary fuels	MJ	4,70E-05	1,66E-04	3,13E-03	3,35E-03	MND	2,49E-06	MND	MND	MND	MND	MND	MND	MND	6,68E-07	3,51E-06	2,30E-04	3,43E-06	5,73E-06
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	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
Use of net fresh water	m^3	4,21E+00	5,18E-03	3,47E-02	4,25E+00	MND	6,22E-05	MND	MND	MND	MND	MND	MND	MND	3,32E-04	9,19E-05	1,46E-02	6,60E-04	-5,08E-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	5,02E-02	5,65E-02	1,28E-01	2,35E-01	MND	2,22E-03	MND	MND	MND	MND	MND	MND	MND	2,17E-03	9,20E-04	1,90E-01	4,68E-04	-1,76E-01
Non-hazardous waste	kg	4,10E+00	1,12E+00	6,98E+00	1,22E+01	MND	8,80E-02	MND	MND	MND	MND	MND	MND	MND	3,46E-02	1,90E-02	4,94E+00	1,12E-02	-8,86E+00
Radioactive waste	kg	7,02E-03	1,20E-05	1,63E-05	7,05E-03	MND	4,37E-08	MND	MND	MND	MND	MND	MND	MND	1,35E-05	2,00E-07	3,92E-06	1,14E-07	-1,73E-05

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	MND	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	1,94E-04	0,00E+00	0,00E+00	1,94E-04	MND	8,88E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	9,87E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	5,33E-04	0,00E+00	0,00E+00	5,33E-04	MND	6,54E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,35E+00	0,00E+00	0,00E+00
Exported energy	MJ	6,91E-02	0,00E+00	0,00E+00	6,91E-02	MND	1,85E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,32E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	2,78E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,25E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	1,57E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,07E+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	2,94E+01	2,14E+00	1,55E+00	3,31E+01	MND	2,16E-01	MND	MND	MND	MND	MND	MND	MND	6,22E-02	4,38E-02	9,55E+00	2,36E-02	-8,85E-01

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

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity used in the manufacturing process is modelled based on a generic datapoint representing the Polish grid electricity mix. The data quality is considered good.
Electricity CO2e / kWh	0,9
District heating data source and quality	There is no district heating; instead, a local kerosene-fired burner boiler is used. The data quality is considered good.
District heating CO2e / kWh	0,25

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m^3	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	0
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	0,154
Direct emissions to ambient air, soil and water / kg	0

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	13,22
Collection process – kg collected with mixed waste	3,98664
Recovery process – kg for re-use	0
Recovery process – kg for recycling	9,86683
Recovery process – kg for energy recovery	3,35385
Disposal (total) – kg for final deposition	17,20733
Scenario assumptions e.g. transportation	It is assumed that waste is collected and transported by lorry to a waste processing facility, covering a distance of 20 km.

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

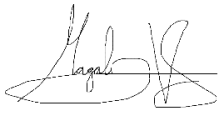
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried 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
12.09.2025



ANNEX I

CORE ENVIRONMENTAL IMPACT INDICATORS BY PRODUCT THICKNESS

Product			KS X-Dek™ XM QuadCore® LEC		KS X-Dek™ XG QuadCore® LEC	
Impact category		Unit	A1-A3	A1-A3	A1-A3	A1-A3
Product Thickness		mm	100	140	100	140
Product Weight		kg/m2	15.82	17.34	14.39	15.91
EN 15804+A2, PEF	GWP – total	kg CO2e	3.02E+01	3.31E+01	2.59E+01	2.87E+01
	GWP – fossil	kg CO2e	3.01E+01	3.31E+01	2.58E+01	2.86E+01
	GWP – biogenic	kg CO2e	6.41E-03	8.46E-03	1.21E-02	1.40E-02
	GWP – LULUC	kg CO2e	1.38E-02	1.54E-02	1.17E-02	1.31E-02
	Ozone depletion pot.	kg CFC-11e	1.67E-07	1.10E-07	2.19E-07	1.68E-07
	Acidification potential	mol H+e	7.85E-02	8.30E-02	7.51E-02	7.94E-02
	EP-freshwater	kg Pe	1.68E-03	1.74E-03	1.64E-03	1.70E-03
	EP-marine	kg Ne	1.87E-02	2.00E-02	1.72E-02	1.84E-02
	EP-terrestrial	mol Ne	1.99E-01	2.13E-01	1.83E-01	1.96E-01
	POCP (“smog”)	kg NMVOCe	7.24E-02	7.80E-02	6.35E-02	6.88E-02
	ADP-minerals & metals	kg Sbe	3.24E+01	4.45E+00	2.95E+01	4.09E+00
	ADP-fossil resources	MJ	5.77E+02	6.93E+02	4.72E+02	5.80E+02

Product			KS X-Dek™ XM QuadCore® LEC		KS X-Dek™ XG QuadCore® LEC	
Impact category		Unit	A-C	A-C	A-C	A-C
Product Thickness		mm	100	140	100	140
Product Weight		kg/m2	15.82	17.34	14.39	15.91
EN 15804+A2, PEF	GWP – total	kg CO2e	3.72E+01	4.30E+01	3.23E+01	3.79E+01
	GWP – fossil	kg CO2e	3.72E+01	4.30E+01	3.23E+01	3.79E+01
	GWP – biogenic	kg CO2e	3.89E-03	5.72E-03	9.62E-03	1.13E-02
	GWP – LULUC	kg CO2e	1.43E-02	1.59E-02	1.22E-02	1.36E-02
	Ozone depletion pot.	kg CFC-11e	1.81E-07	1.26E-07	2.32E-07	1.83E-07
	Acidification potential	mol H+e	8.84E-02	9.59E-02	8.44E-02	9.17E-02
	EP-freshwater	kg Pe	1.87E-03	1.94E-03	1.82E-03	1.89E-03
	EP-marine	kg Ne	2.77E-02	3.27E-02	2.55E-02	3.07E-02
	EP-terrestrial	mol Ne	2.45E-01	2.76E-01	2.26E-01	2.56E-01
	POCP (“smog”)	kg NMVOCe	8.40E-02	9.35E-02	7.43E-02	8.36E-02
	ADP-minerals & metals	kg Sbe	3.24E+01	4.45E+00	2.95E+01	4.09E+00
	ADP-fossil resources	MJ	5.88E+02	7.04E+02	4.81E+02	5.90E+02