



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EPD HUB, HUB-7193

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KEA 325 A2

Katko Oy

MANUFACTURER AND SITE

Manufacturer	Katko Oy
Address	Ruosilantie 2, 00390, Helsinki, FI
Contact details	customerservice@katko.com
Website	www.katko.com
Place of production	Helsinki, Finland
Place(s) of raw material origin	EU, Asia
Place(s) of installation and use	Worldwide
Period for data	Calendar year 2024



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	Electrical product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, B6, and modules C1-C4, D
EPD author	Anssi Lehtimäki, Noel Bothas, Katko Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Vera Durão, as an authorised verifier acting for EPD Hub Limited

PRODUCT SPECIFICATION

Product name	KEA 325 A2
Product number / reference	44208
GTIN (Global Trade Item Number)	6419410442081
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	38,6

This EPD is intended for business-to-business and/or business-to-consumer communication. 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. 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 DESCRIPTION

A2 aluminium enclosed isolating switch with 3 poles and 25 amperes. Material is self-extinguishing and the isolator has an IP rating IP66. Suitable for demanding industrial environments and ordinary buildings. Applicable for interior and exterior use. Tested according to IEC 60947-3. Enclosure made of recycled Nordic aluminium. The results of this EPD are for the declared product and it also covers the KEA A2-A4 range in Appendix A including IEC EX and ATEX certified safety switches.

ABOUT THE MANUFACTURER

KATKO is a Finnish family-owned company in the electrical industry with nearly 80 years of experience in designing, manufacturing, and delivering high-quality switches and installation solutions. The company is a pioneer in high-quality electrical switches and installation products. A strong commitment to sustainability and installer-friendly solutions distinguishes KATKO in the industry. With an extensive network of distribution partners and manufacturing facilities in Finland and Poland, KATKO ensures the availability of its solutions in more than 70 countries worldwide.

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit
Declared unit mass, kg	1,032
Mass of packaging, kg	0,044
Functional unit	Turn off all or part of an installation by separating the installation or part of the installation of all electrical energy or earth, for safety reasons with a rated voltage 415-690 V, and rated current 25 (AC-23A at 415 V) ensuring isolation characterised by a rated voltage 800 during the reference service life of the product of 20 years.
Reference service life (years)	20
Assigned lifetime (hours)	-
GWP-total, A1-A3 (kg CO₂e)	4,05
GWP-fossil, A1-A3 (kg CO₂e)	4,11
Secondary material, inputs (%)	79,3
Secondary material, outputs (%)	60
Total energy use, A1-A3 (kWh)	16,9
Net freshwater use, A1-A3 (m ³)	1,05E-01

LIFE CYCLE ASSESSMENT

SYSTEM BOUNDARY

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

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

Not declared = ND.

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. 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

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 materials	No allocation
Ancillary materials	Physical Properties
Manufacturing energy and waste	Physical Properties

PRODUCT & MANUFACTURING SITES GROUPING

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

The results presented in this EPD are for the declared product and cover also the products of the KEA A2-A4 range in Appendix A for which A1-A3 GWP results are presented. The variations in environmental impacts come from the size of the enclosure, poles and amperes of the switch, and additional components like cable glands and auxiliary contacts.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	84	EU, Asia
Minerals	0	-
Fossil materials	16	EU
Bio-based materials	0	-
Electronic parts	0	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kgC	0
Biogenic carbon content in packaging, kgC	0,018

SUBSTANCES, REACH - VERY HIGH CONCERN

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

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA Electronics EPD Generator v2.2.9. The LCA and EPD have been prepared according to the reference standards, EN 50693, and ISO 14040/14044. Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases were used 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'.

PRODUCT LIFE CYCLE

MANUFACTURING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production. The material losses occurring during the manufacturing processes are treated as per the waste handling practices in the factory, while scenario assumptions are made in the absence of exact data. The study also considers the fuels used by machines 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 made of metals and plastics. All components are transported to the production facility, where the main manufacturing processes are associated with assembly of different parts and components. The finished product is packaged with cardboard as packaging material before being sent to customers.

Co-product allocation is neglected as revenue of co-product is very low. Hence, the waste undergoes a conservative waste treatment as per the default end-of-life values of EN 50693.

A1 distances are calculated using a map service. Production losses are calculated based on the difference between the gross and net weight of the material/part. A3 distance is the distance from our factory to the recycling site.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation distances from manufacturing sites to customer locations are based on sales volume-based weighted averages. In the absence of exact data, conservative assumptions are made (A4). Environmental impacts from installation include waste packaging materials (A5). The impacts of energy consumption and the used ancillary materials during installation are considered negligible.

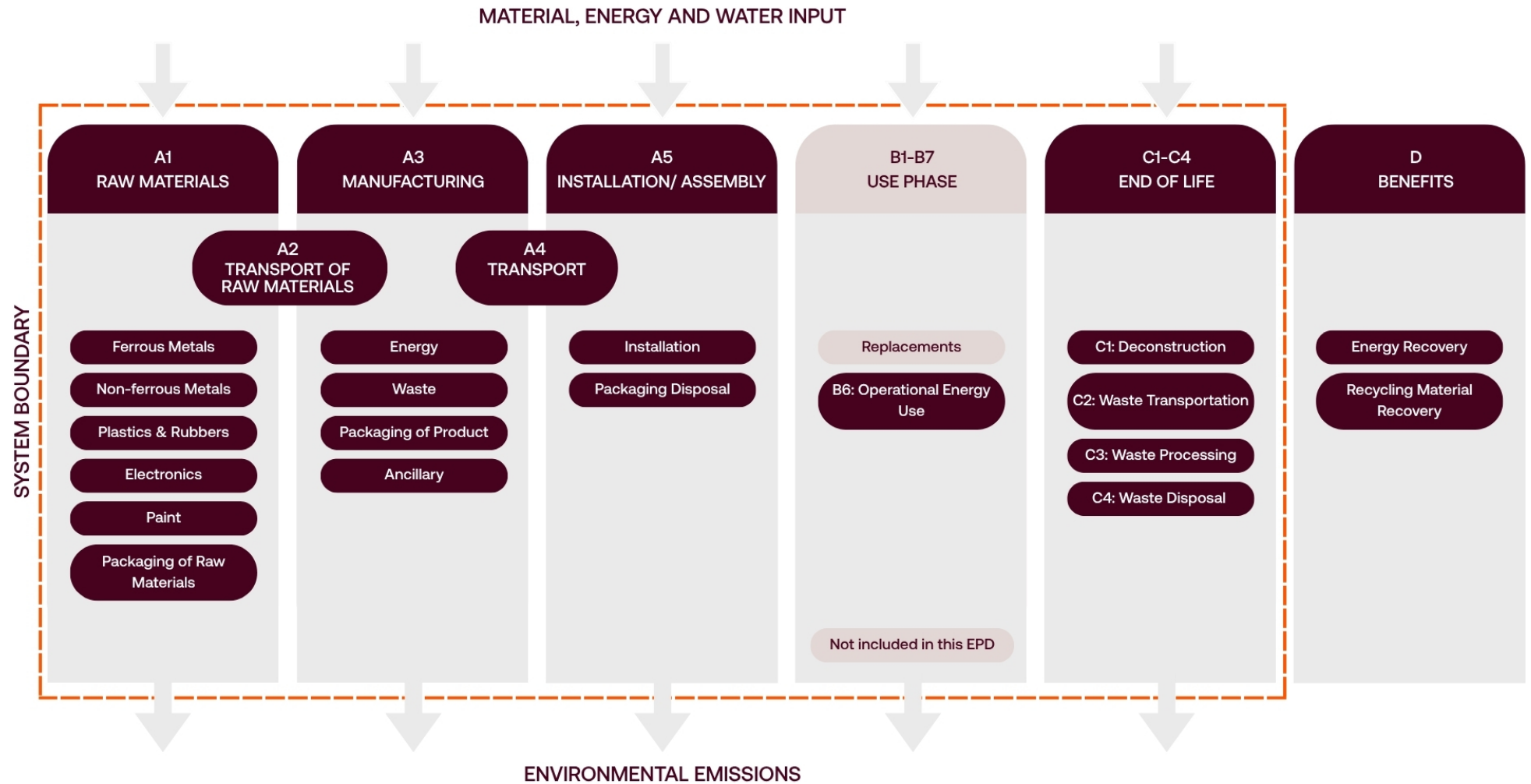
PRODUCT USE AND MAINTENANCE (B1-B7)

During the use phase the switch dissipates some electricity due to power losses. The energy use is calculated based on a load rate of 50%, use rate of 30 %, and a reference service life of 20 years. The reference service life is theoretical and should not be thought as an average or a minimum of the product's life. Electricity mix is European market mix. Scenario based on PEP PSR-0005-ed3.1-EN-2023.

PRODUCT END OF LIFE (C1-C4, D)

Consumption of energy and natural resources in demolition process is assumed to be negligible. It is assumed that the waste is collected separately and transported to the waste treatment centre. The transport distance is 150 km while the transportation method is assumed to be lorry (C2). According to EN 50693:2019, the sequence of treatment operations occurring to the product shall include depollution, fractions separation and preparation (dismantling, crushing, shredding, sorting), recycling, other material recovery, energy recovery and disposal. In this study, the default values from table G.4 of EN 50693 is used for treating materials in different waste treatment methods. Due to the material and energy recovery potential of parts in the lighting system, the end-of-life product is converted into recycled raw materials, while the energy recovered from incineration displaces electricity and heat production (D). The benefits and loads of incineration and recycling are included in Module D.

LIFE CYCLE FLOW DIAGRAM



ENVIRONMENTAL IMPACT DATA, RESULTS PER DECLARED UNIT

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 ₂ e	2,55E+00	1,25E-01	1,37E+00	4,05E+00	2,70E-01	6,31E-02	ND	ND	ND	ND	ND	7,69E+00	ND	0,00E+00	3,02E-02	2,21E-01	1,12E-01	7,31E-01
GWP – fossil	kg CO ₂ e	2,54E+00	1,25E-01	1,44E+00	4,11E+00	2,70E-01	2,43E-03	ND	ND	ND	ND	ND	7,65E+00	ND	0,00E+00	3,02E-02	2,21E-01	1,12E-01	7,32E-01
GWP – biogenic	kg CO ₂ e	4,80E-03	2,48E-05	-6,57E-02	-6,09E-02	4,35E-05	6,07E-02	ND	ND	ND	ND	ND	1,73E-02	ND	0,00E+00	6,60E-06	-6,53E-05	-1,83E-05	-5,07E-04
GWP – LULUC	kg CO ₂ e	2,01E-03	4,48E-05	2,38E-03	4,44E-03	1,40E-04	1,28E-06	ND	ND	ND	ND	ND	2,38E-02	ND	0,00E+00	1,34E-05	2,14E-05	1,01E-05	-5,03E-04
Ozone depletion pot.	kg CFC ₁₁ e	3,68E-08	2,44E-09	1,92E-08	5,84E-08	4,06E-09	2,59E-11	ND	ND	ND	ND	ND	1,33E-07	ND	0,00E+00	4,23E-10	2,56E-10	1,53E-10	1,66E-09
Acidification potential	mol H ⁺ e	2,69E-02	4,29E-04	4,38E-03	3,17E-02	7,09E-03	9,40E-06	ND	ND	ND	ND	ND	3,90E-02	ND	0,00E+00	1,01E-04	2,27E-04	6,47E-05	4,81E-03
EP-freshwater ²⁾	kg Pe	1,63E-03	8,28E-06	5,27E-04	2,17E-03	9,61E-06	3,63E-07	ND	ND	ND	ND	ND	6,83E-03	ND	0,00E+00	2,35E-06	9,75E-06	1,56E-06	1,79E-04
EP-marine	kg Ne	2,94E-03	1,41E-04	1,04E-03	4,12E-03	1,77E-03	8,62E-06	ND	ND	ND	ND	ND	6,77E-03	ND	0,00E+00	3,26E-05	6,65E-05	1,19E-04	9,44E-04
EP-terrestrial	mol Ne	5,24E-02	1,53E-03	1,03E-02	6,43E-02	1,97E-02	2,98E-05	ND	ND	ND	ND	ND	5,88E-02	ND	0,00E+00	3,55E-04	6,76E-04	2,87E-04	8,55E-03
POCP (“smog”) ³⁾	kg NMVOCe	9,80E-03	6,35E-04	3,09E-03	1,35E-02	5,39E-03	1,20E-05	ND	ND	ND	ND	ND	1,95E-02	ND	0,00E+00	1,40E-04	1,90E-04	8,31E-05	2,60E-03
ADP-minerals & metals ⁴⁾	kg Sbe	2,05E-04	4,04E-07	1,58E-06	2,07E-04	3,38E-07	1,31E-08	ND	ND	ND	ND	ND	1,71E-05	ND	0,00E+00	9,93E-08	1,01E-06	2,49E-08	-8,66E-05
ADP-fossil resources	MJ	3,81E+01	1,75E+00	2,21E+01	6,19E+01	3,37E+00	2,65E-02	ND	ND	ND	ND	ND	1,81E+02	ND	0,00E+00	4,24E-01	2,38E-01	1,25E-01	6,56E+00
Water use ⁵⁾	m ³ e depr.	1,32E+00	8,54E-03	1,87E-01	1,51E+00	1,04E-02	5,85E-04	ND	ND	ND	ND	ND	4,69E+00	ND	0,00E+00	1,97E-03	1,66E-02	8,30E-03	-1,91E-02

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	2,01E-07	9,75E-09	1,82E-08	2,29E-07	9,58E-09	1,55E-10	ND	ND	ND	ND	ND	1,36E-07	ND	0,00E+00	2,40E-09	2,75E-09	9,42E-10	2,60E-08
Ionizing radiation ⁶⁾	kBq U235e	2,28E-01	2,18E-03	3,65E-01	5,95E-01	1,89E-03	1,02E-04	ND	ND	ND	ND	ND	5,06E+00	ND	0,00E+00	3,43E-04	7,85E-04	1,89E-04	2,06E-02
Ecotoxicity (freshwater)	CTUe	5,13E+01	2,30E-01	3,13E+00	5,47E+01	2,74E-01	1,86E-01	ND	ND	ND	ND	ND	1,91E+01	ND	0,00E+00	6,71E-02	5,16E-01	1,77E+01	-4,04E+00
Human toxicity, cancer	CTUh	2,96E-09	2,13E-11	2,10E-10	3,20E-09	5,60E-11	1,23E-12	ND	ND	ND	ND	ND	1,59E-09	ND	0,00E+00	5,14E-12	3,09E-11	1,40E-11	-3,99E-10
Human tox. non-cancer	CTUh	1,49E-07	1,09E-09	1,14E-08	1,62E-07	9,95E-10	6,67E-11	ND	ND	ND	ND	ND	6,84E-08	ND	0,00E+00	2,65E-10	1,47E-09	8,94E-10	-6,48E-08
SQP ⁷⁾	-	1,03E+01	1,04E+00	7,22E+00	1,86E+01	4,96E-01	1,78E-02	ND	ND	ND	ND	ND	3,08E+01	ND	0,00E+00	2,53E-01	3,87E-01	1,57E-01	-1,26E+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 the 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	3,03E+00	2,98E-02	1,19E+00	4,26E+00	3,01E-02	-7,15E-01	ND	ND	ND	ND	ND	4,23E+01	ND	0,00E+00	5,81E-03	3,25E-02	3,27E-03	-5,96E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	5,65E-01	5,65E-01	0,00E+00	-5,65E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	3,03E+00	2,98E-02	1,76E+00	4,82E+00	3,01E-02	-1,28E+00	ND	ND	ND	ND	ND	4,23E+01	ND	0,00E+00	5,81E-03	3,25E-02	3,27E-03	-5,96E-01
Non-re. PER as energy	MJ	3,26E+01	1,75E+00	2,20E+01	5,64E+01	3,37E+00	2,65E-02	ND	ND	ND	ND	ND	1,81E+02	ND	0,00E+00	4,24E-01	-2,89E+00	-2,99E+00	6,57E+00
Non-re. PER as material	MJ	5,18E+00	0,00E+00	1,85E-03	5,18E+00	0,00E+00	-1,85E-03	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-2,59E+00	-2,58E+00	0,00E+00
Total use of non-re. PER	MJ	3,78E+01	1,75E+00	2,20E+01	6,16E+01	3,37E+00	2,47E-02	ND	ND	ND	ND	ND	1,81E+02	ND	0,00E+00	4,24E-01	-5,48E+00	-5,58E+00	6,57E+00
Secondary materials	kg	8,19E-01	0,00E+00	0,00E+00	8,19E-01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renew. secondary fuels	MJ	1,92E-04	1,00E-05	4,11E-03	4,31E-03	5,65E-06	2,15E-07	ND	ND	ND	ND	ND	7,99E-05	ND	0,00E+00	2,43E-06	1,16E-05	1,97E-06	-4,72E-05
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	7,83E-02	2,34E-04	2,66E-02	1,05E-01	2,59E-04	-3,92E-06	ND	ND	ND	ND	ND	1,50E-01	ND	0,00E+00	5,62E-05	3,17E-04	-3,79E-04	-3,33E-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	3,69E-01	2,53E-03	1,46E-01	5,18E-01	4,50E-03	2,01E-04	ND	ND	ND	ND	ND	4,13E-01	ND	0,00E+00	7,39E-04	5,07E-03	7,42E-03	1,45E-01
Non-hazardous waste	kg	7,15E+00	5,29E-02	2,63E+00	9,83E+00	6,58E-02	2,83E-02	ND	ND	ND	ND	ND	3,36E+01	ND	0,00E+00	1,39E-02	1,39E-01	1,02E+00	7,82E-01
Radioactive waste	kg	5,08E-05	5,42E-07	8,47E-05	1,36E-04	4,63E-07	2,58E-08	ND	ND	ND	ND	ND	1,30E-03	ND	0,00E+00	8,41E-08	1,94E-07	4,67E-08	4,59E-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 reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	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	2,38E-02	2,38E-02	0,00E+00	3,62E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	6,19E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	1,03E-02	1,03E-02	0,00E+00	2,03E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	9,78E-01	0,00E+00	0,00E+00
Exported energy: Electricity	MJ	0,00E+00	0,00E+00	4,32E-03	4,32E-03	0,00E+00	8,56E-03	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,12E-01	0,00E+00	0,00E+00
Exported energy: Heat	MJ	0,00E+00	0,00E+00	5,94E-03	5,94E-03	0,00E+00	1,07E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	5,66E-01	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	2,53E+00	1,24E-01	1,43E+00	4,09E+00	2,69E-01	8,06E-03	ND	ND	ND	ND	ND	7,66E+00	ND	0,00E+00	3,01E-02	2,21E-01	1,12E-01	7,26E-01
Ozone depletion Pot.	kg CFC ₁₁ e	4,52E-08	1,94E-09	1,59E-08	6,30E-08	3,22E-09	2,11E-11	ND	ND	ND	ND	ND	1,09E-07	ND	0,00E+00	3,38E-10	2,17E-10	1,26E-10	1,74E-09
Acidification	kg SO ₂ e	2,13E-02	3,28E-04	3,53E-03	2,52E-02	5,66E-03	7,24E-06	ND	ND	ND	ND	ND	3,31E-02	ND	0,00E+00	7,72E-05	1,78E-04	4,69E-05	4,07E-03
Eutrophication	kg PO ₄ ³ e	4,79E-03	7,83E-05	6,31E-04	5,50E-03	6,32E-04	6,59E-06	ND	ND	ND	ND	ND	4,50E-03	ND	0,00E+00	1,88E-05	3,24E-05	2,37E-05	3,38E-04
POCP ("smog")	kg C ₂ H ₄ e	1,20E-03	2,96E-05	2,26E-04	1,46E-03	2,84E-04	1,91E-06	ND	ND	ND	ND	ND	1,86E-03	ND	0,00E+00	6,91E-06	1,08E-05	4,26E-06	2,93E-04
ADP-elements	kg Sbe	2,03E-04	3,95E-07	1,57E-06	2,05E-04	3,33E-07	1,28E-08	ND	ND	ND	ND	ND	1,69E-05	ND	0,00E+00	9,69E-08	9,99E-07	2,16E-08	-8,67E-05
ADP-fossil	MJ	3,22E+01	1,71E+00	1,65E+01	5,03E+01	3,34E+00	2,48E-02	ND	ND	ND	ND	ND	9,18E+01	ND	0,00E+00	4,19E-01	2,26E-01	1,22E-01	6,21E+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 ₂ e	2,55E+00	1,25E-01	1,44E+00	4,11E+00	2,70E-01	2,43E-03	ND	ND	ND	ND	ND	7,68E+00	ND	0,00E+00	3,02E-02	2,21E-01	1,12E-01	7,32E-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 characterization factor for biogenic CO₂ is set to zero.

SCENARIO DOCUMENTATION DATA SOURCES

Manufacturing energy scenario documentation – A3 (Energy data source)

1. Energy supply, electricity transformation and distribution, distribution of medium, Electricity, medium voltage, residual mix, Finland, ecoinvent 3.10.1, 0.66 kgCO₂e/kWh

Transport scenario documentation - A4

1. Market for transport, freight, lorry 16-32 metric ton, EURO5, 157.0 km
2. Market for transport, freight, sea, container ship, 21573.0 km

Installation scenario documentation - A5 (Energy data source)

Installation scenario documentation - A5 (Waste materials data source)

1. Corrugated board box production, 0.0441 kg

TRANSPORT SCENARIO DOCUMENTATION - A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50 %
Bulk density of transported products / kg/m ³	414
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1

INSTALLATION SCENARIO DOCUMENTATION - A5

Scenario parameter	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
Direct emissions to ambient air, soil and water / kg	0

END OF LIFE SCENARIO DOCUMENTATION

Scenario information	Value
Collection process – kg collected separately	1,032
Collection process – kg collected with mixed construction waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0,62
Recovery process – kg for energy recovery	0
Disposal (total) – kg for final deposition	0,33
Scenario assumptions e.g. transportation	Lorry, 16-32 metric ton, EURO5; 150 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.



Program assistant: Xinyuan Zhang



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: Hai Ha Nguyen

Tool verification validity: 28 March 2025 - 27 March 2028

APPENDIX A: REFERENCE TABLES

The results in these tables are in GWP total in accordance with EN 15804+A2, EF 3.1.

Product name	Description	GWP total (kg CO2e)
		Manufacturing
		A1 - A3 Cradle-to-gate
A2 ENCLOSURE, GWP-total values applicable to LON and YR versions		
KEA 116 A2 KEA 125 A2 KEA 140 A2	1-pole enclosed isolator with 16-40 A	3,80E+00
KEA 216 A2 KEA 225 A2 KEA 240 A2	2-pole enclosed isolator with 16-40 A	3,80E+00
KEA 316 A2 KEA 325 A2 KEA 340 A2	3-pole enclosed isolator with 16-40 A	4,05E+00
KEA 316NO A2 KEA 325NO A2 KEA 340NO A2	3-pole enclosed isolator with 16-40 A and an auxiliary contact	4,28E+00
KEA 416 A2 KEA 425 A2 KEA 440 A2	4-pole enclosed isolator with 16-40 A	4,14E+00
KEA 416 1NO A2 KEA 425 1NO A2 KEA 440 1NO A2	4-pole enclosed isolator with 16-40 A and an auxiliary contact	4,58E+00
A4 ENCLOSURE, GWP-total values applicable to LON (3-4 poles) and YR (3-8 poles) versions		
KEA 363 A4 KEA 380 A4	3-pole enclosed isolator with 63-80 A	8,17E+00
KEA 3100 A4 KEA 3125 A4 KEA 3160 A4	3-pole enclosed isolator with 100-160 A	9,91E+00
KEA 463 A4 KEA 480 A4	4-pole enclosed isolator with 63-80 A	8,19E+00
KEA 4100 A4 KEA 4125 A4 KEA 4160 A4	4-pole enclosed isolator with 100-160 A	1,05E+01
KEA 616 A4 KEA 625 A4 KEA 640 A4	6-pole enclosed isolator with 16-40 A	9,40E+00
KEA 663 A4 KEA 680 A4	6-pole enclosed isolator with 63-80 A	9,52E+00
KEA 816 A4 KEA 825 A4 KEA 840 A4	8-pole enclosed isolator with 16-40 A	9,85E+00
KEA 863 A4 KEA 880 A4	8-pole enclosed isolator with 63-80 A	9,94E+00
EMC PROTECTED ENCLOSURE, GWP-total values applicable to YR and FI versions		
KEA 316 A2EMC 2XM25MEMC KST16M KEA 325 A2EMC 2XM25MEMC KST16M KEA 340 A2EMC 2XM25MEMX KST16M	A2 enclosed 3-pole EMC protected isolator with 16-40 A	5,48E+00
KEA 363 A4EMC 2XM40MEMC KST16M KEA 380 A4EMC 2XM40MEMC KST16M	A4 enclosed 3-pole EMC protected isolator with 63-80 A	1,05E+01
KEA 3100 A4EMC 2XM40MEMC KST16M KEA 3125 A4EMC 2XM40MEMC KST16M KEA 3160 A4EMC 2XM40MEMC KST16M	A4 enclosed 3-pole EMC protected isolator with 100-125 A	1,21E+01

Product name	Description	GWP total (kg CO2e)
		Manufacturing
		A1 - A3 Cradle-to-gate
IECEX CERTIFIED ALUMINIUM ENCLOSED ISOLATORS		
GWP total values applicable to ATEX versions with the same cable glands*		
KEA 316 A2EX IECEX 2XM25MEX KST16MEX KEA 325 A2EX IECEX 2XM25MEX KST16MEX KEA 340 A2EX IECEX 2XM25MEX KST16MEX	A2 eclosed 3-pole IECEX isolator with 16-40 A	5,15E+00
KEA 316NO A2EX IECEX 2XM25MEX M16MEX KEA 325NO A2EX IECEX 2XM25MEX M16MEX KEA 340NO A2EX IECEX 2XM25MEX M16MEX	A2 enclosed 3-pole IECEX isolator with 16-40 A and an auxiliary contact	5,63E+00
KEA 316NO 1NC A2EX IECEX 2XM25MEX M16MEX KEA 325NO 1NC A2EX IECEX 2XM25MEX M16MEX KEA 340NO 1NC A2EX IECEX 2XM25MEX M16MEX	A2 enclosed 3-pole IECEX isolator with 16-40 A and two auxiliary contacts	5,92E+00
KEA 363 A4EX IECEX 2XM40MEX KST16MEX KEA 380 A4EX IECEX 2XM40MEX KST16MEX	A4 enclosed 3-pole IECEX isolator with 63-80 A	1,10E+01
KEA 363 1V A4EX IECEX 2XM40MEX M16MEX KEA 380 1V A4EX IECEX 2XM40MEX M16MEX	A4 enclosed 3-pole IECEX isolator with 63-80 A and an auxiliary contact	1,14E+01
KEA 3100 A4EX IECEX 2XM40MEX KST16MEX KEA 3125 A4EX IECEX 2XM40MEX KST16MEX KEA 3160 A4EX IECEX 2XM40MEX KST16MEX	A4 enclosed 3-pole IECEX isolator with 100-160 A	1,28E+01
KEA 3100 1V A4EX IECEX 2XM40MEX M16MEX KEA 3125 1V A4EX IECEX 2XM40MEX M16MEX KEA 3160 1V A4EX IECEX 2XM40MEX M16MEX	A4 enclosed 3-pole IECEX isolator with 100-160 A and an auxiliary contact	1,31E+01
KEA 416 A2EX IECEX 2XM25MEX KST16MEX KEA 425 A2EX IECEX 2XM25MEX KST16MEX KEA 440 A2EX IECEX 2XM25MEX KST16MEX	A2 enclosed 4-pole IECEX isolator with 16-40 A	5,28E+00
KEA 463 A4EX IECEX 2XM40MEX KST16MEX KEA 480 A4EX IECEX 2XM40MEX KST16MEX	A4 enclosed 4-pole IECEX isolator with 63-80 A	1,11E+01
KEA 4100 A4EX IECEX 2XM40MEX KST16MEX KEA 4125 A4EX IECEX 2XM40MEX KST16MEX KEA 4160 A4EX IECEX 2XM40MEX KST16MEX	A4 enclosed 4-pole IECEX isolator with 100-160 A	1,35E+01
KEA 616 A2EX IECEX 4XM25MEX KST16MEX KEA 625 A2EX IECEX 4XM25MEX KST16MEX KEA 640 A2EX IECEX 4XM25MEX KST16MEX	A2 enclosed 6-pole IECEX isolator with 16-40 A	1,13E+01
KEA 663 A4EX IECEX 4XM40MEX KST16MEX KEA 680 A4EX IECEX 4XM40MEX KST16MEX	A4 enclosed 6-pole IECEX isolator with 63-80 A	1,51E+01
KEA 816 A2EX IECEX 4XM25MEX KST16MEX KEA 825 A2EX IECEX 4XM25MEX KST16MEX KEA 840 A2EX IECEX 4XM25MEX KST16MEX	A2 enclosed 8-pole IECEX isolator with 16-40 A	1,14E+01
KEA 863 A4EX IECEX 4XM40MEX KST16MEX KEA 880 A4EX IECEX 4XM40MEX KST16MEX	A4 enclosed 8-pole IECEX isolator with 63-80 A	1,55E+01

*e.g. GWP total (A1-A3) for 'KEA 316 A2EX IECEX 2XM25MEX KST16MEX' is equal to that of 'KEA 316 A2EX 2XM25MEX KST16MEX'

Product name	Description	GWP total (kg CO2e)	
		Manufacturing	
		A1 - A3 Cradle-to-gate	
ATEX CERTIFIED ALUMINIUM ENCLOSED ISOLATORS			
KEA 316 A2EX 2XM25PEX KST16MEX KEA 325 A2EX 2XM25PEX KST16MEX KEA 340 A2EX 2XM25PEX KST16MEX	A2 enclosed 3-pole ATEX isolator with 16-40 A	4,66E+00	
KEA 363 A4EX 2XM40PEX KST16MEX KEA 380 A4EX 2XM40PEX KST16MEX	A4 enclosed 3-pole ATEX isolator with 63-80 A	9,36E+00	
KEA 3100 A4EX 2XM40PEX KST16MEX KEA 3125 A4EX 2XM40PEX KST16MEX KEA 3160 A4EX 2XM40PEX KST16MEX	A4 enclosed 3-pole ATEX isolator with 100-160 A	1,11E+01	
KEA 416 A2EX 2XM25PEX KST16MEX KEA 3425 A2EX 2XM25PEX KST16MEX KEA 440 A2EX 2XM25PEX KST16MEX	A2 enclosed 3-pole ATEX isolator with 16-40 A	4,01E+00	
KEA 463 A4EX 2XM40PEX KST16MEX KEA 480 A4EX 2XM40PEX KST16MEX	A4 enclosed 4-pole ATEX isolator with 63-80 A	9,48E+00	
KEA 4100 A4EX 2XM40PEX KST16MEX KEA 4125 A4EX 2XM40PEX KST16MEX KEA 4160 A4EX 2XM40PEX KST16MEX	A4 enclosed 4-pole ATEX isolator with 100-160 A	1,19E+01	
KEA 616 A4EX 4XM25PEX KST16MEX KEA 625 A4EX 4XM25PEX KST16MEX KEA 640 A4EX 4XM25PEX KST16MEX	A4 enclosed 6-pole ATEX isolator with 16-40 A	1,03E+01	
KEA 663 A4EX 4XM40PEX KST16MEX KEA 680 A4EX 4XM40PEX KST16MEX	A4 enclosed 6-pole ATEX isolator with 63-80 A	1,20E+01	
KEA 816 A4EX 4XM25PEX KST16MEX KEA 825 A4EX 4XM25PEX KST16MEX KEA 840 A4EX 4XM25PEX KST16MEX	A4 enclosed 8-pole ATEX isolator with 16-40 A	1,04E+01	
KEA 863 A4EX 4XM40PEX KST16MEX KEA 880 A4EX 4XM40PEX KST16MEX	A4 enclosed 8-pole ATEX isolator with 63-80 A	1,24E+01	
UL/cUL LISTED ALUMINIUM ENCLOSED SAFETY ISOLATORS			
ISF 316UL A2 ISF 330UL A2 ISF 340UL A2	ISF 316UL YR A2 ISF 330UL YR A2 ISF 340UL YR A2	A2 enclosed 3-pole isolator with 16-40 A	4,05E+00
KEA 360UL A4 KEA 380CUL A4	KEA 360 UL YR A4 KEA 380CUL YR A4	A4 enclosed 3-pole isolator with 60-80 A	8,17E+00
ISF 316NOUL A2 ISF 330NOUL A2 ISF 340NOUL A2	ISF 316NOUL YR A2 ISF 330NOUL YR A2 ISF 340NOUL YR A2	A2 enclosed 3-pole isolator with 16-40 A and an auxiliary contact	4,28E+00
ISF 416UL A2 ISF 430UL A2 ISF 440UL A2	ISF 416UL YR A2 ISF 430UL YR A2 ISF 440UL YR A2	A2 enclosed 4-pole isolator with 16-40 A	4,14E+00
KEA 460UL A4 KEA 480CUL A4	KEA 460 UL YR A4 KEA 480CUL YR A4	A4 enclosed 4-pole isolator with 60-80 A	8,19E+00
KEA 660UL A4 KEA 680CUL A4	KEA 660 UL YR A4 KEA 680CUL YR A4	A4 enclosed 6-pole isolator with 60-80 A	9,52E+00