Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804+A2:2022

For products: Flexible conduit SUPER MONOFLEX ICE

Manufacturer: KOPOS KOLÍN a.s.

Program: National environmental labeling program

Program Operator: Ministry of the Environment of the Czech Republic

Product Category Rules: EN 15804+A2:2022

EPD registration number: EPD-Sk02-25-08

EPD for a product group, based on the worst values of the impact category indicator results

Valid from: 2025-08-15

General information

Program: National environmental labeling program

Program Operator: Ministry of the Environment of the Czech Republic

Manufacturer: KOPOS KOLÍN a.s., Havlíčkova 432, Kolín 28002, Kolín IV, Czech Republic

EPD registration number: EPD-Sk02-25-08

Declared unit: 1 kg flexible conduit SUPER MONOFLEX ICE

Product Category Rules: EN 15804+A2:2022

Owner of the EPD: KOPOS KOLÍN a.s.

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Created by: Bc. Ivana Fiedlerová

Valid from: 2025-08-15

Validity: 5 years

Expiration date: 2030-08-14

The EPD owner has the sole ownership and responsibility for the EPD.

EPDs within a category are not necessarily comparable. For two EPDs to be comparable, they must be based on the same product category principle, cover products with the same functions, technical characteristics and use – the same declared unit must be used. They must have equivalent system boundaries, data quality requirements, data collection methods and allocation procedures.

Flexible conduit SUPER MONOFLEX ICE

Company information

KOPOS KOLÍN a.s. is one of the traditional manufacturers of electrical installation materials in the Czech Republic, where it has been operating on the market for many years. We successfully continue the tradition of manufacturing wiring storage material in Kolín, which was started in 1926. Since 1962, the technical development of the plant has also dealt with the technology of processing plastic materials in connection with applications for wiring storage material. Thanks to modern technology, continuous product development is possible. In 2023, the construction of a PV plant was started, which was successfully completed in 2024.

Increasing market demands in the Czech Republic and abroad led the company to expand in Europe in 1997 and then overseas. Now KOPOS KOLÍN a.s. is part of the holding structure of KOPOS HOLDING, a.s.

The company has been ISO 9001 certified since 1997. In 2001, it was awarded the Safe Enterprise certificate and ISO 14001 certificate. In 2018, the company obtained ISO 50001 certification. All these certifications are verified and the certificates are renewed.

Product information

SUPER MONOFLEX ICE are flexible electrical conduits with medium mechanical resistance.

They are suitable for installation on the surface, in plaster or under plaster, in hollow walls, partitions, ceilings and wooden buildings.

Technical information

The flexible conduits are available in several diameters and in dark grey colour.

In the product type number, the diameter is indicated by the last 2 digits. The first letter after the underscore indicates the colour, as follows: L = dark grey. The next two numbers indicate the length.

Tab. 1 – technical information about products

Type number	Outside diameter [mm]	Length [m]	Weight [kg/m]
1216EICE_L50	16	50	0,056
1220ICE_L50	20	50	0,072
1225ICE_L50	25	50	0,098
1232ICE_L25	32	25	0,132
1240ICE_L25	40	25	0,201
1250ICE_L25	50	25	0,230

Products are made in compliance with ČSN EN IEC 61386-22 ed. 2 2021 + A11:22, ČSN EN 61386-1 ed. 2:09+A1 2020

Temperature resistance of flexible pipes: -25 °C to +60 °C

Mechanical resistance: 750 N/5 cm

Fire reaction class of underlying material: A1 – F

Tab. 2 – Information on composition

Product	Material	% of representation	Biogenic carbon
SUPER MONOFLEX ICE	Primary PVC	80–85 %	1,10E-02
	Additives	15–20 %	

The products do not contain SVHC (Substances of very high concern) in excess of 0,1 % w/w according to the List of SVHC available at the date of issue of the EPD.

Tab. 3 – Information on packaging

Packaging	% of representation	Biogenic carbon
PE packaging	3	5,78E-03

LCA: Calculation rules

Declare unit

1 kg of SUPER MONOFLEX ICE pipe was used as the declared unit. Since the impacts of each pipe do not meet the 10% rule, the worst impacts in each category were used.

Reference service life

If products SUPER MONOFLEX ICE are installed correctly, they can have a service life more than 30 years.

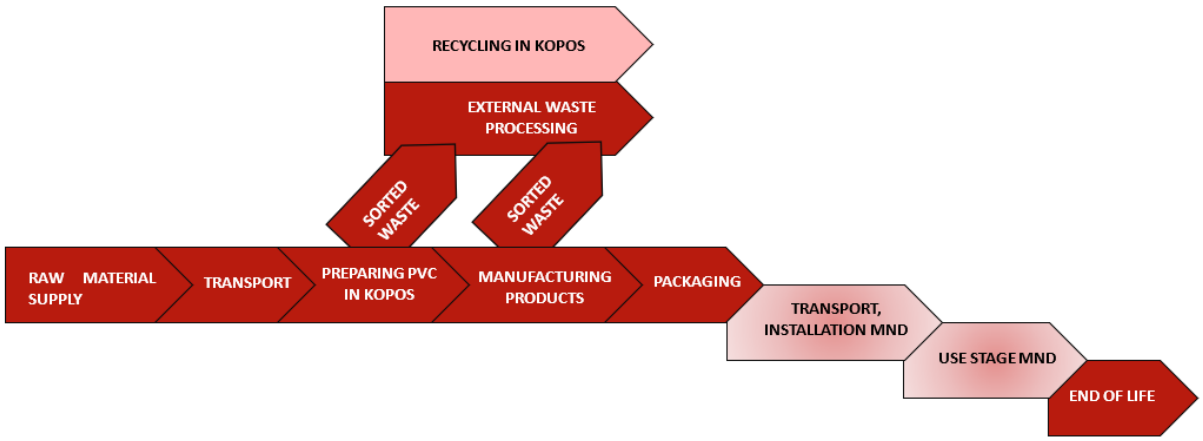
Product system and system boundaries

This EPD is a cradle-to-gate type with modules C1 – C4 and module D.

Tab. 4 – Declared modules

	Product stage			Construction processess stage		Use stage							**End of life stage**				**Supplementary information beyond construction works life cycle**
	Raw material supply	**Transport**	**Manufacturing**	Transport	Construction – installation porcesses	USe	Maintenuance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	**Deconstruction, demolition**	**Transport**	**Waste processing**	**Disposal**	**Reuse, recovery, recycling potential**
Module	**A1**	**A2**	**A3**	A4	A5	B1	B2	B3	B4	B5	B6	B7	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	**X**	**X**	**X**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**X**	**X**	**X**	**X**	**X**
Geography	**RER**	**RER**	**CZ**										**RER**	**RER AT**	**RER AT**	**RER AT**	**RER AT**
Variation - products	**25 %**												**-**	**-**	**-**	**-**	**-**
Variation - sites	**0 %**												**-**	**-**	**-**	**-**	**-**
Share of specific data	**75 %**												**-**	**-**	**-**	**-**	**-**

ND – not declarated



Picture No. 1 – Light parts indicate undeclared modules and processes outside the system boundaries

Raw material and its transport, A1 + A2

Granular polymers and additives such as paints and minerals are purchased for production. All these raw materials are sourced from the European market. In addition, packaging materials are purchased, in particular PE foil. The transport of raw materials varies depending on the quantity and the supplier.

Manufacturing A3

Products SUPER MONOFLEX ICE included in this EPD are made in KOPOS KOLÍN a.s., in Kolín, in the Czech Republic.

The production consists of the preparation of the material on the PVC mixing plant and its transport to the production line where the material is soaked and melted. The melt is extruded through a mould to obtain the desired shape and diameter. The product is further cooled with water to fix its profile. Next, the product is marked with an imprint and packaged in the desired length.

Waste treatment

At least 75% of the waste generated during production is recycled directly in the KOPOS KOLÍN a.s. production plant (grinding, regranulation, reuse).

Transport and installation, A4 – A5, ND

The products are transported worldwide, usually via a warehouse, which then handles distribution to customers. No additional waste is generated during installation in the time of construction, nor is there any significant environmental impact. These modules were not included in the LCA.

Use stage, module B, ND

SUPER MONOFLEX ICE are long-life products. However, due to the declared systém boundaries, durability was not taken into account.

No maintenance is required during the use phase and a complete replacement is assumed as a repair. This phase was not included in the LCA.

End of life stage, module C

Dismantling may occur in the event of reconstruction or demolition of the building. If we consider the most common use, then this is the use under plaster. In this case, the original plaster has to be removed, which involves human labour and creates waste.

Transport to the waste disposal facility was assumed to be 100 km.

A model of 25% recycling, 45% incineration and 30% landfilling was used for waste treatment, based on the report The circular economy for plastic A European Overview published by Plastic Europe AISBL in 2022.

Module D

The product is recyclable. The use of this property is modeled in module D as a possible benefit against the used model of 25% recycling, 45% incineration and 30% landfilling.

Preconditions and measures taken

Administrative processes were not included in the analysis. In addition, processes related to the production of production equipment. The packaging included is based on the smallest sales unit.

Exclusion rules

Flows smaller than 0.001 % were excluded from the model.

Data sources

As this is a new product, the data from the recipes and technical documentation of these products, available in the D365FO information system, was used as the initial source of information. In addition, information on the supply of raw material inputs is for the year 2023 and also from the Ecoinvent database, version 3.11.

Data quality

Geographical representativeness – data was used as known from suppliers and customers. For processing in the Czech Republic, data from the Czech Republic was used (e.g. Czech country energy mix) and for suppliers from Europe, European data was used (e.g. supplied materials). Everything is based on information that is known to us. Geographical representativeness is marked in Tab. 3 – Declared modules.

Temporal representativeness – the supply data used is for 2023. If there is a major change in 2024 that is permanent, these changes are included (PV installation).

Technological representativeness – information on the technology used has been taken from production data.

Allocation

The production of SUPER MONOFLEX ICE generates waste, which is largely processed in KOPOS KOLÍN a.s. and reused in further production. All inputs that come with the material (i.e. packaging) are allocated to SUPER MONOFLEX ICE and the subsequent recyclate remains unencumbered by these inputs.

The GWP of electricity used in phase A3 includes the electricity needed to prepare the material in the mixing plant and the electricity needed to manufacture the final product.

If it is possible to manufacture a product on several machines, the average energy consumption is used. If an input is supplied by multiple suppliers, the values used for that input are the average of all those suppliers.

Variability of products

The products differ in diameter (and therefore in weight). Their impacts do not meet the 10% rule (according to ISO 21930:2018), so the worst values in each impact category are used as the results presented.

LCA: Results

Tab. 5 – Impact category

Impact category	Unit	A1-A3	C1	C2	C3	C4	D
Acidification	mol H+ eq	9,21E-03	0,00E+00	4,64E-05	1,58E-04	1,62E-05	1,46E-04
Climate change	kg CO2 eq	3,17E+00	0,00E+00	1,10E-02	2,89E-01	8,81E-02	4,88E-02
Climate change – Biogenic	kg CO2 eq	8,56E-02	0,00E+00	3,80E-06	1,88E-01	8,27E-02	5,96E-05
Climate change – Fossil	kg CO2 eq	3,08E+00	0,00E+00	1,10E-02	1,01E-01	5,46E-03	4,87E-02
Climate change – Land use and LU change	kg CO2 eq	3,21E-04	0,00E+00	5,04E-06	2,11E-05	1,31E-06	2,06E-05
Eutrophication, marine	kg N eq	2,24E-03	0,00E+00	1,66E-05	1,56E-04	1,09E-04	5,81E-05
Eutrophication, freshwater	kg P eq	3,11E-04	0,00E+00	1,19E-06	2,00E-05	8,63E-06	6,11E-06
Eutrophication, terrestrial	mol N eq	2,11E-02	0,00E+00	1,81E-04	6,43E-04	4,86E-05	5,78E-04
Ozone depletion	kg CFC11 eq	1,12E-06	0,00E+00	5,78E-12	3,43E-11	1,17E-12	1,38E-11
Photochemical ozone formation	kg NMVOC eq	7,43E-03	0,00E+00	6,61E-05	2,19E-04	3,82E-05	2,09E-04
Ionising radiation *	kBq U-235 eq	4,07E-01	0,00E+00	1,37E-04	5,93E-04	4,55E-05	6,07E-04
Resource use, fossils **	MJ	7,16E+01	0,00E+00	1,93E-02	4,14E-02	4,09E-03	4,46E-02
Resource use, minerals and metals **	kg Sb eq	2,11E-06	0,00E+00	3,07E-08	5,11E-08	2,92E-09	6,73E-08
Ecotoxicity, freshwater **	CTUe	6,15E+01	0,00E+00	5,14E-02	2,69E+00	2,27E+00	3,51E-01
Human toxicity, cancer **	CTUh	8,93E-10	0,00E+00	1,79E-12	4,11E-11	2,04E-12	1,03E-11
Human toxicity, non-cancer **	CTUh	4,61E-08	0,00E+00	1,01E-10	1,35E-09	3,26E-10	4,17E-10
Land use **	Pt	4,17E+00	0,00E+00	1,57E-01	3,92E-01	7,01E-02	4,57E-01
Water use **	m3 depriv.	1,05E+01	0,00E+00	8,23E-04	-3,62E-02	-1,95E-02	-2,21E-02

*** disclaimer 1:** 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.

**** disclaimer 2:** The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Tab. 6 – GWP used energy in module A3

Global warming potential of used energy in module A3	Unit	A3
Climate change	kg CO2 eq/kWh	6,43E-01

Tab. 7 – Composition of electricity

Energy	Unit	A1 – A3	C1	C2	C3	C4	D
Renewable	MJ	3,98E+00	0,00E+00	2,20E-03	1,08E-01	7,01E-04	1,97E-01
Fossil	MJ	5,64E+01	0,00E+00	2,96E-02	5,62E-02	6,03E-03	6,10E-02
Nuclear	MJ	7,47E+00	0,00E+00	2,16E-03	9,90E-03	7,12E-04	1,01E-02
Other	MJ	4,06E-04	0,00E+00	7,62E-06	9,94E-05	3,71E-06	8,44E-05

Tab. 8 – Other environmental information

Waste	Unit	A1 – A3	C1	C2	C3	C4	D
Harazdous	kg	5,27E-01	0,00E+00	1,05E-06	2,28E-06	2,23E-07	2,60E-06
Non-hazardous	kg	1,22E-01	0,00E+00	1,33E-02	6,06E-01	1,20E-01	4,84E-01
Radioactive	kg	6,65E-05	0,00E+00	3,35E-08	1,49E-07	1,10E-08	1,52E-07

Tab. 9 – Parametres describing resource use

Resource use	Unit	A1 – A3	C1	C2	C3	C4	D
PERE	MJ	4,02E+00	0,00E+00	1,70E-03	1,06E-01	5,57E-04	1,96E-01
PERM	MJ	1,29E+00	0,00E+00	5,02E-04	1,68E-03	1,45E-04	1,53E-03
PERT	MJ	5,32E+00	0,00E+00	2,20E-03	1,08E-01	7,01E-04	1,97E-01
PENRE	MJ	8,48E+01	0,00E+00	3,18E-02	6,61E-02	6,74E-03	7,12E-02
PENRM	MJ	5,07E-04	0,00E+00	7,62E-06	9,94E-05	3,71E-06	8,44E-05
PENRT	MJ	8,48E+01	0,00E+00	3,18E-02	6,62E-02	6,74E-03	7,12E-02
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,05E+01	0,00E+00	8,23E-04	-3,62E-02	-1,95E-02	-2,21E-02

PERE – Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM – Use of renewable primary energy resources used as raw materials; PERT – Total use of renewable primary energy resources; PENRE – Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM – Use od non renewable primary energy resources used as raw materials; PENRT – Total use of non renewable primary energy resources; SM – Use of secondary material; RSF – Use of renewable secondary fuels; NRSF – Use of non renewable secondary fuels; FW – Net use of fresh water

LCA: Interpretation

From the above mentioned results of the environmental impacts, it can be seen that the most significant of the environmental impact of the assessed modules is in the production module, in phases A1-A3. Specifically, it is the use of fossil resources, where the most significant part makes PVC, which is used for production.

The LCIA results are relative and do not predict the ultimate impacts of each category, threshold exceedances, safety margins or risks.

Sources

Report The circular economy for plastic A European Overview , Plastic Europe AISBL, 2022

Ecoinvent, version 3.11

SimaPro LCA Package, Pré Consultants, the Netherlands, www.pre-sustainability.com, version 3

ČSN EN 15804+A2:2022 Sustainability of construction works – Environmental product declarations – Core rules for the product category

ČSN ISO 21930:2018 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services

Catalogues, product documentation

EPD Verification

Independent verification of declarations and data in accordance with ISO 14025:2006			
Standard ČSN EN 15804+A2 developed by CEN serves as baseline PCR*.			
☐	Internal	☒	External
		Verifier:	
		prof. Ing. Vladimír Kočí, PhD, MBA www.lca.cz Approved individual verifier of The International EPD® System	
*PCR – Product Category Rules			