Environmental Product Declaration

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

For products: Flexible doublecoat corrugated pipe KOPOFLEX® and KOPODUR® group Sk01-B

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-Sk01-B-26-02

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

Valid from: 2026-02-13

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-Sk01-B-26-02

Declared unit: 1 kg corrugated pipe KOPOFLEX® and KOPODUR®

Product Category Rules: EN 15804+A2:2022

Owner of the EPD: KOPOS KOLÍN a.s.

Contact: Bc. Ivana Fiedlerová, e-mail: ekolog@kopos.cz

Created by: Bc. Ivana Fiedlerová

Valid from: 2026-02-13

Expiration date: 2031-02-12

Validity: 5 years

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

EPDs within a single 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 uses—the same declared or functional unit must be used. They must have equivalent system boundaries, objectives, and scope; data quality requirements and criteria for the inclusion of inputs and outputs; data collection methods; calculation procedures; impact categories; and allocation procedures. Instructions regarding content and format for compiling the data required to develop the declaration and validity at the time of comparison must also be equivalent.

Flexible doublecoat corrugated pipe KOPOFLEX® and KOPODUR®

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. The first declaration of conformity was issued for the KOPOFLEX® and KOPODUR® verification series on 01.12.1997.

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

KOPOFLEX® are halogen-free flexible doublecoat corrugated protectors designed for mechanical protection of all types of power and telecommunication lines placed in the ground. A string is inserted in each coil and a coupling is fitted at one end. In the case of mechanical compaction of the layers above the protector, care must be taken to ensure that the permissible load values of the protector are not exceeded.

KOPODUR® are halogen-free rigid doublecoat corrugated protectors designed for mechanical protection of all types of power and telecommunication lines placed in the ground. The protector is supplied in the form of a rod with a coupling on one end. The joint is sealed against the ingress of dust and sand. In the case of mechanical compaction of the layers above the protector, care must be taken to ensure that the permissible load values of the protector are not exceeded.

Technical information

KOPOFLEX® (KF) and KOPODUR® (KD) products are available in several diameters, colours and lengths. In the product type number, the diameter is indicated by the last 3 digits. The second letter from the end indicates the colour, as follows: B = red, C = blue, F = black, E = yellow, A = orange, D = green. The last letter indicates the length, as follows: A = 50 m, B = 25 m.

Tab. 1 – technical information about products

Type number	Configuration (colour & length)	Outside diameter [mm]	Weight [kg/m]
KF 09040	AA, BA, BB, CA, CB, DA, EA, UVFA	40	0,106
KF 09063	CA, JAA, JAASL, JAATS, JDA, JEA, JVA	63	0,220
KF 09075	BA, CA, EA, PLCA, UVFA	75	0,310
KF 09090	AA, BA, BAP, CA, PLCA, UVFA	90	0,380
KF 09110	BA, BAP, BB, CA, CB, JAA, JAASL, JAATS, JDA, JEA, JVA, UVFA	110	0,475
KF 09125	BA, BB, CA, CB, UVFA	125	0,580
KF 09160	BA, BB, CB, UVFA	160	0,890
KF 09200	BB, UVFB	200	1,200
KD 09075	BC	75	0,330
KD 09090	BC	90	0,410
KD 09160	FC	160	0,909

Products are made in compliance with ČSN EN 50626-1:2024.

Installation temperature: -25 to +90 °C

Operating temperature: -55 to +90 °C

Mechanical resistance: 450 N/20 cm.

Fire reaction class of underlying material: A1.

Tab. 2 – Information on composition

Product	Material	% of representation
KOPOFLEX®	Virgin PE	20 – 95 %
	Recycled PE	0 – 80 %
	Colour additives	5 %
	Minerals	0 – 20 %
KOPODUR®	Virgin PE	0 – 70 %
	Recycled PE	25 – 100 %
	Colour additives	5 %
	Minerals	0 – 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
PP packaging	4,00E-02	5,36E-02
Wooden packaging	8,00E-02	5,32E-02
Metal packaging	8,00E-03	3,24E-04

LCA: Calculation rules

Declare unit

1 kg of KOPOFLEX® and KOPODUR® products was used as the declared unit. Since the impacts of individual products do not meet the 10% rule, the worst impacts in each category were used.

Reference service life

If products KOPOFLEX® and KOPODUR® are installed correctly under the surface, they can have a service life more than 30 years.

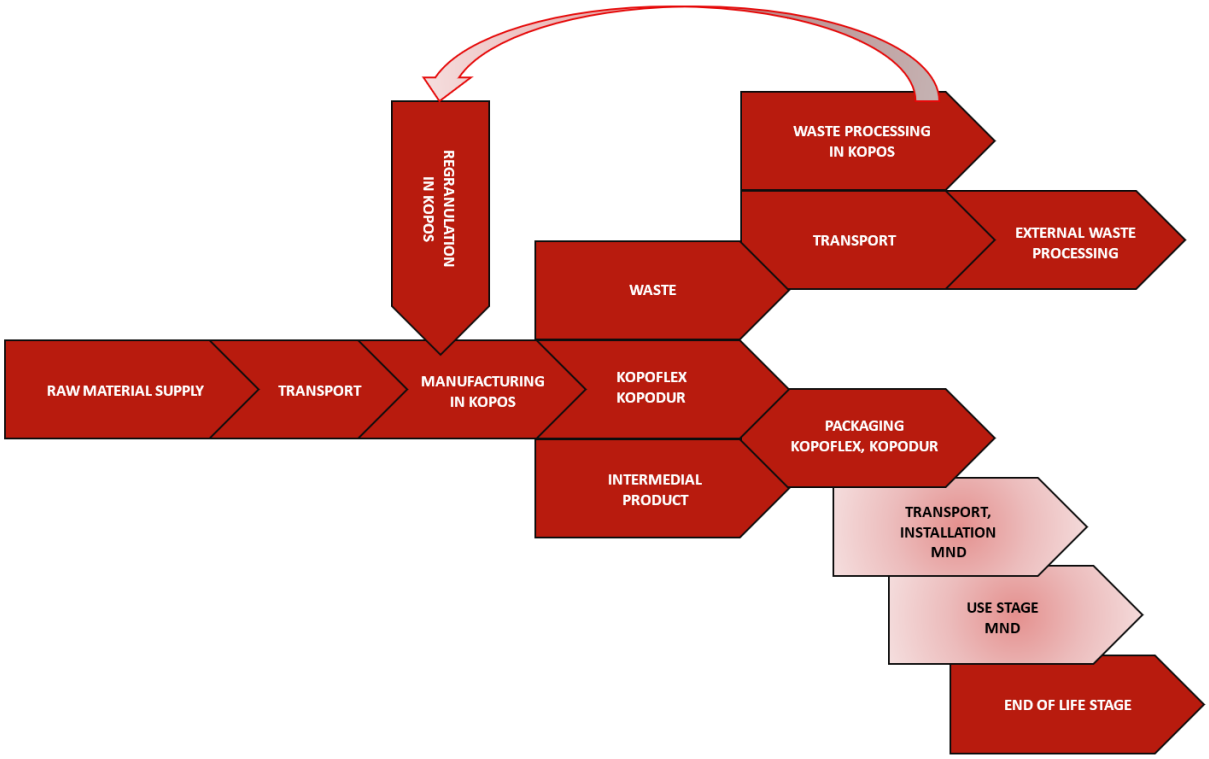
Product system and system boundaries

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 ROW**	**RER**	**CZ**										**RER**	**RER**	**RER**	**RER**	**RER**
Variation - products	**38 %**												-	-	-	-	-
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. In addition, packaging materials are purchased, in particular PE foil and wooden packaging. The transport of raw materials varies depending on the quantity and the supplier.

Manufacturing A3

Products KOPOFLEX® a KOPODUR® included in this EPD are made in KOPOS KOLÍN a.s., in Kolín, in the Czech Republic.

The production consists of transporting the material through a weighbridge to a line where the material is melted and combined with additives such as paints. The melt is extruded through a mould where it takes 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 packed in the desired length either in loose coils, pallet coils or wooden packaging. When packing, a coupling or plug is added to the product depending on the specific type. Some of these integral accessories are also produced by KOPOS KOLÍN a.s.

Waste treatment

15% of the waste generated during production is recycled by the business partner, 85% of the waste generated is processed 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. An excavation is then required for installation. Human labour was assumed for the model. These modules were not included in the LCA.

Use stage, module B, ND

KOPOFLEX® and KOPODUR® products are long-life products. However, due to the declared limits of the system, 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

Again, excavation is required for dismantling, so human labour has been assumed, which does not affect module C1.

Transport to the waste disposal facility was assumed to be 200 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 were not included.

Exclusion rules

Stickers, printed materials, and the waste generated by this activity were excluded from the model, as their volume and impact are entirely negligible when compared to other inputs, accounting for less than 1% in total.

Data sources

The production data available from the D365FO information system was used as the initial source of information from the year 2025, with additional information calculated from this. In addition, information from suppliers and also from the Ecoinvent database, version 3.11, was used.

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), for suppliers from Europe, European data was used (e.g. supplied materials), and if processing occurs worldwide, then data for the whole world was used (e.g. end of life waste disposal). Everything is based on information that is known to us. Geographical representativeness is marked in Tab. 3 – Declared modules.

Temporal representativeness – The production and purchase order data used are for the year 2025. The energy mix in the Ecoinvent database corresponds to the average for the year 2023.

Technological representativeness – information on the technology used has been taken from production data. Technologies not under the control of the manufacturer and we do not know further information from supplier (e.g. electricity consumption) were selected based on similarity.

Allocation

The packaging from the input materials was allocated between the finished product and the regranulate in a ratio of ¾ to the finished product and ¼ to the regranulate.

The GWP of electricity used in phase A3 includes the electricity needed to manufacture the final product and to manufacture the semi-finished products that are part of the final product.

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

Variability of products

The products differ in diameter (and therefore weight), colour (which may be influenced by different suppliers), length, recyclate content and packaging.

Their impacts do not meet the 10% rule (according to ČSN ISO 21930:2018), therefore the worst values in each impact category are used as the presented results.

LCA: Results

Tab. 5 – Impact categories

Impact category	Unit	A1-A3	C1	C2	C3	C4	D
Acidification	mol H+ eq	1,07E-02	0,00E+00	4,64E-05	8,02E-04	4,97E-05	1,05E-03
Climate change	kg CO2 eq	3,75E+00	0,00E+00	1,10E-02	8,65E-01	2,30E-01	6,94E-01
GWP – GHG	kg CO2 eq	3,74E+00	0,00E+00	1,10E-02	1,95E-01	2,29E-02	3,17E-02
Climate change - Biogenic	kg CO2 eq	1,14E-02	0,00E+00	3,80E-06	7,11E-01	2,07E-01	6,39E-01
Climate change - Fossil	kg CO2 eq	3,74E+00	0,00E+00	1,10E-02	1,95E-01	2,29E-02	5,44E-02
Climate change - Land use and LU change	kg CO2 eq	2,02E-03	0,00E+00	5,04E-06	3,55E-05	3,60E-06	4,53E-05
Eutrophication, marine	kg N eq	2,34E-03	0,00E+00	1,66E-05	5,09E-04	2,74E-04	4,86E-04
Eutrophication, freshwater	kg P eq	6,83E-04	0,00E+00	1,19E-06	2,98E-05	2,17E-05	1,21E-05
Eutrophication, terrestrial	mol N eq	2,42E-02	0,00E+00	1,81E-04	4,04E-03	1,46E-04	5,39E-03
Ozone depletion	kg CFC11 eq	1,33E-08	0,00E+00	5,78E-12	5,68E-11	4,87E-12	2,92E-11
Photochemical ozone formation	kg NMVOC eq	1,88E-02	0,00E+00	6,61E-05	1,05E-03	1,15E-04	1,33E-03
Ionising radiation *	kBq U-235 eq	1,23E+00	0,00E+00	1,37E-04	1,96E-03	1,39E-04	2,65E-03
Resource use, fossils **	MJ	2,28E+01	0,00E+00	1,93E-02	1,41E-01	1,14E-02	1,87E-01
Resource use, minerals and metals **	kg Sb eq	1,99E-05	0,00E+00	3,07E-08	1,12E-07	8,28E-09	1,62E-07
Ecotoxicity, freshwater **	CTUe	1,97E+01	0,00E+00	5,14E-02	5,18E+00	5,69E+00	5,67E-01
Human toxicity, cancer **	CTUh	9,65E-10	0,00E+00	1,79E-12	9,01E-11	5,38E-12	6,25E-11
Human toxicity, non-cancer **	CTUh	2,24E-08	0,00E+00	1,01E-10	3,15E-09	8,25E-10	2,36E-09
Land use **	Pt	4,12E+01	0,00E+00	1,57E-01	2,02E-01	1,80E-01	2,35E-01
Water use **	m3 depriv.	6,24E+00	0,00E+00	8,23E-04	-1,57E-02	-4,87E-02	5,89E-03

*** 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 (GWP) of used energy in phase A3	Unit	A3
Climate change	kg CO2 eq	1,25E+00
GWP – GHG	kg CO2 eq	1,13E+00

Tab. 7 – Composition of electricity

Energy	Unit	A1 – A3	C1	C2	C3	C4	D
Renewable	MJ	9,22E+00	0,00E+00	2,20E-03	3,07E-02	2,06E-03	2,30E-01
Fossil	MJ	2,10E+01	0,00E+00	2,96E-02	1,99E-01	1,66E-02	2,63E-01
Nuclear	MJ	1,03E+01	0,00E+00	2,16E-03	3,12E-02	2,17E-03	4,24E-02
Other	MJ	1,29E-03	0,00E+00	7,62E-06	3,78E-05	9,55E-06	1,67E-05

Tab. 8 – Other environmental information

Waste	Unit	A1 – A3	C1	C2	C3	C4	D
Harazdous	kg	2,19E-03	0,00E+00	1,05E-06	3,21E-06	1,26E-06	1,96E-06
Non-hazardous	kg	1,73E-01	0,00E+00	1,33E-02	2,20E-01	3,01E-01	1,85E-02
Radioactive	kg	1,38E-04	0,00E+00	3,35E-08	4,79E-07	3,36E-08	6,48E-07

Tab. 9 – Parametres describing resource use

Resource use	Unit	A1 – A3	C1	C2	C3	C4	D
PERE	MJ	2,26E+00	0,00E+00	1,70E-03	2,68E-02	1,65E-03	2,26E-01
PERM	MJ	6,96E+00	0,00E+00	5,02E-04	3,89E-03	4,04E-04	4,73E-03
PERT	MJ	9,22E+00	0,00E+00	2,20E-03	3,07E-02	2,06E-03	2,30E-01
PENRE	MJ	3,12E+01	0,00E+00	3,18E-02	2,30E-01	1,87E-02	3,05E-01
PENRM	MJ	1,29E-03	0,00E+00	7,62E-06	3,78E-05	9,55E-06	1,67E-05
PENRT	MJ	3,12E+01	0,00E+00	3,18E-02	2,30E-01	1,87E-02	3,05E-01
SM	kg	3,11E-01	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	6,24E+00	0,00E+00	8,23E-04	-1,57E-02	-4,87E-02	5,89E-03

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.

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			