Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Fire Curtains and Active Smoke Barriers

from

AVAPS s.r.o.

AVAPS

Programme:	"National Environmental Labeling Program" - Czech Republic (NPEZ)
Programme operator:	Ministry of the Environment of the Czech Republic
EPD type:	EPD of a single product from a manufacturer/service provider - representative product
EPD registration number:	**7260001**
Publication date:	2026-02-06
Valid until:	2031-02-05
	An EPD should provide current information and may be updated if conditions change.

General information

Programme information

Programme:	"National Environmental Labeling Program" - Czech Republic (NPEZ)
Address:	Ministry of the Environment of the Czech Republic Department of Voluntary Instruments 100 10 Praha 10, Vršovická 1442/65
Website:	www.mzp.cz, www.cenia.cz
E-mail:	info@mzp.cz

Accountabilities for PCR, LCA and independent, third-party verification	
Product Category Rules (PCR)	
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR): *EN 15804:2012+A2:2019/AC:2021*	
Life Cycle Assessment (LCA)	
LCA accountability:	*Technický a zkušební ústav stavební Praha, s.p., pobočka Plzeň, Zahradní 15, 326 00 Plzeň*
Third-party verification	
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No	

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: AVAPS s.r.o.

U Obalovny 488, 250 67 Klecany, CZ
IČO: 25650939
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Description of the organisation:

AVAPS s.r.o. is a Czech family-owned company based in Klecany, specializing since 1998 in the development, production and installation of modern fire protection systems. Over more than twenty-five years of its existence, it has established a strong market position and has become one of the leaders in the field of fire curtains and smoke barriers. Its philosophy is founded on an emphasis on quality, technological innovation and maximum safety.
The AVAPS portfolio includes a wide range of products designed to ensure fire safety in buildings. It primarily offers textile fire curtains (FIBREroll) with various fire resistance ratings. It also supplies smoke barriers (SMOKEbarrier) in both active and static versions. An integral part of its offer is comprehensive servicing and maintenance, ensuring the long-term functionality and reliability of its systems.
AVAPS exports its products to numerous European countries, including Croatia, Hungary, Austria, Portugal, Slovakia, Slovenia, Spain, the Netherlands, Estonia and others. It is also active in international markets and has a commercial representation in Slovakia.

Product-related or management system-related certifications:
AVAPS holds the ČSN EN ISO 9001 certification, which confirms its commitment to responsible quality management.

Name and location of production site(s):
AVAPS s.r.o.
U Obalovny 488, 250 67 Klecany, CZ

Product information

Product name: Fire Curtains and Active Smoke Barriers

Product identification:

- Textile Fire Curtain (Fabric rolling shutter) – types FIBREroll, FIBREroll Easy, FIBREroll H2O, FIBREroll S, FIBREroll H, FIBREroll EW, FIBREroll EI+, SMOKEroll, etc
- Active Textile Smoke Barrier – SMOKEbarrier AT

Product description:

Textile Fire Curtains are used as active fire protection elements in buildings where it is necessary to prevent the spread of fire and smoke between individual fire compartments without disrupting the normal operation of the facility. Thanks to their flexible design and discreet installation, they are ideal for applications with high demands on functionality, space efficiency or aesthetics. They are based on a special fire-resistant fabric reinforced with stainless-steel wires, with a surface coating and an aluminium reflective layer (foil) to enhance fire resistance. Fire detection can be provided either by the building's fire alarm system (FAS) or by local detection using heat and smoke sensors.
Fire shutters are assessed and certified according to **EN 16034** *Pedestrian doorsets, industrial, commercial, garage doors and openable windows - Product standard, performance characteristics - Fire resisting and/or smoke control characteristics* in conjunction with **EN 13241+A2** *Industrial, commercial and garage doors and gates - Product standard, performance characteristic.*

Main areas of application of fire shutters:

- Ensuring fire resistance of openings in fire-separating structures (e.g. walls, partitions)
- Limiting the spread of smoke in the event of fire
- For public buildings, industrial production facilities, multi-storey car parks, halls, warehouses, etc.
- In combination with other door systems, for industrial conveyor systems, lift shafts, serving hatches, etc.

Smoke barriers are a key element of fire protection, the main task of which is to limit the spread of smoke in the event of a fire, thereby improving the conditions for the evacuation of people and the intervention of firefighters. While the fire can be localized, smoke often spreads much faster and can be fatal even before the fire itself. The basis is a special, fire-resistant fabric with a surface coating. Smoke barriers are certified according to **EN 12101-1** Smoke and heat control systems - Part 1: Specification for smoke barriers.

Main areas of application:

- • ensuring the limitation of the spread of smoke in the event of a fire
- • for public buildings, industrial production facilities, mass garages, halls, warehouses, etc.
- • in combination with other door technology, for industrial conveyor systems, elevator shafts, dispensing windows, etc.

UN CPC code:

42120 Doors, windows and their frames and thresholds for doors, of iron, steel or aluminium

Geographical scope:

The generic data used from the Ecoinvent database are used with validity for the Czech Republic (e.g. energy inputs) and in the event that data for the Czech Republic are not available, data valid for the EU or according to the location of the supplier are used. Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - medium.

Product packaging:

The products are delivered in accordance with the standards specified in the product description. The majority of products are transported individually by truck, the individual parts are suitably fixed and secured against damage caused by transport.

Environment and health during use

During the entire production process, no special health protection measures beyond the legally specified industrial protection measures for production employees are necessary. Due to the areas of use of the product, no environmental impacts and emissions to water, air or soil are expected.

LCA information

Functional unit / declared unit:

The declared unit is 1 m² of the average manufactured product – Fire Curtains and Active Smoke Barriers.

Designation	Unit	Value
Declared unit	m²	1
Conversion factor to 1 kg	kg	0,06969
Representative details:	10,26 m²; 147,22774 kg	

Reference service life:
The reference lifetime is not declared.
Time representativeness:
For specific data, the manufacturer's data for the **year 2024** is used. For generic data, data from the Ecoinvent database version 3.11 is used. Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - very good.
Database(s) and LCA software used:
SimaPro Craft calculation software, version 10.2, Ecoinvent database version 3.11.
GWP-GHG from electricity production: 0.526 kg CO2 eq/kWh (CZ residual mix).

Description of system boundaries:

"Cradle to gate with options, modules C1–C4, module D and with optional modules"

The production phase includes the following modules:

- **A1 - extraction and processing of raw materials** and production of packaging from input raw materials
- **A2 - transport of input raw materials** from the supplier to the manufacturer, waste removal
- **A3 - production of products**, production of auxiliary materials and semi-finished products, energy consumption, including waste processing until reaching a state where it ceases to be waste or after removal of the last material residues during the production phase.

The construction phase includes the following modules:

- **A4 - transport to the construction site**. Transport is carried out by a truck with a load capacity of 16-32 t (EURO 6). The declared unit of product (1 m2 = 14.35 kg) is considered to be transported over a distance of 1 km.
- **A5 - installation into the building** including the delivery of all materials, products and energy, waste treatment until it ceases to be waste or after the last material residues have been removed during the construction phase. The intake of biogenic carbon as biogenic CO2 in the packaging in module A1-A3 is balanced here by the same amount of biogenic CO2 emissions. If this module is declared, the disposal of the packaging is also addressed within it. The transport by car of 7.5-16 t (EURO 6) over a distance of 25 km is considered here – 0.0702 kg of paper/cardboard and 0.1559 kg of LDPE. The costs of processing for recycling are also included.

The end-of-life phase includes modules:

- **C1,** deconstruction, demolition; product from the building, including its dismantling or demolition, including the initial sorting of materials at the construction site. Decomposition and/or dismantling of the product is part of the demolition of the entire building. In this case, it is assumed that the impact on the environment is very small and can be neglected.
- **C2,** transport to the waste processing site; transport of the discarded product as part of waste processing, e.g. to a recycling site, and transport of waste, e.g. to a final disposal site. Transport from the dismantled building is carried out by a truck with a load capacity of 7.5 - 16

t (EURO 6) to an inert material landfill as a demolition of a mixed building or to a recycling center, the estimated transport distance according to calculations is 25 km.

- **C3,** waste treatment for reuse, recovery and/or recycling; e.g. collection of waste fractions from deconstruction, and treatment of waste from material streams intended for reuse (0%), recycling (steel 100%, 13.249 kg). The burdens from the necessary treatment for recycling are included.
- **C4,** waste disposal including its pre-processing and management of the disposal site. 1,100 kg of dismantled product is disposed of as mixed construction rubble in an inert material landfill, without taking into account the energy recovery of landfill gas from (minor) organic components.

Benefits and costs beyond the product system boundary are presented in module D.
Module D includes:

- **D,** potential for reuse, recovery and/or recycling, expressed in net impacts or benefits. In the module D scenario, the saving of primary raw material inputs (excluding transport and energy) in another product system (13.249 kg of steel) is taken into account.

Production:
The production of the products takes place in several stages, with an emphasis on workmanship quality, precision and optimisation for efficient installation at the customer's site. The metal components required for the construction of the products are either purchased as ready-made semi-finished parts or further processed directly in the production hall. This includes technological operations such as cutting, bending, drilling and other modifications to ensure precise dimensional and functional parameters.
The fabrics required for fire curtains and smoke barriers are supplied in rolls and then cut to the required dimensions. They are subsequently sewn and further processed into final shapes corresponding to the specific technical specifications of each order.
Individual components – metal, textile, fasteners, etc. – are assembled into pre-defined units. The finished products are then packed and logistically optimised for transport, taking into account both their protection during shipment and easy handling. They are subsequently dispatched to the site designated for installation.

More information:
Information module **A5** from the construction phase is partially included in the LCA - only with regard to the disposal of the final product packaging.
Information modules from the use phase **B1 to B7** are also not declared, as these types of products, assuming correct use, do not require maintenance, repair or replacement during the normal life time in the use phase. They also do not require energy or water consumption during the use phase.
For the study, all operational data related to the consumption of main and auxiliary materials for the production of the product, energy data, diesel consumption and the distribution of annual waste production and emissions according to plant records were taken. In terms of produced waste, only those wastes that are clearly related to production activities were included in the analysis.
The processes required for the installation of production equipment and the construction of infrastructure were not included in the analysis. Also, administrative processes are not included – inputs and outputs are balanced per production phase.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results)::

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction 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	x	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	GLO	GLO, EU	EU, CZ	EU	EU								EU	EU	EU	EU	GLO, EU
Specific data used	> 90 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	< 10 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0 %					-	-	-	-	-	-	-	-	-	-	-	-

The data used to calculate the EPD conforms to the following principles:

Technological point of view: Data corresponding to the current production of individual types of partial products of the plant and corresponding to the current state of the technologies used are used.

Based on the evaluation according to EN 15804+A2, Annex E, tab. E.1 the generic data used meet the quality level - very good.

The aspect of completeness and completeness: Most of the input data is based on consumption balances, which are precisely recorded in the manufacturer's information system. The reliability of the source of specific data is determined by the uniformity of the collection methodology of the information system.

Consistency point of view: Uniform points of view are used throughout the report (allocation rules, age of data, technological scope of validity, temporal scope of validity, geographical scope of validity).

Credibility aspect: All important data were checked for adherence to cross-comparison of mass balances.

The GWP-GHG variability between the sub-products included (see Product Description) is less than 10%. Production takes place at only one production site.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

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Content information

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Steel	92,3	15	0
Glass fabric	7,7	0	0
TOTAL	100	15	0
Packaging materials	**Weight %**	**Weight-% (versus the product)**	**Biogenic carbon content in kg C/DU**
Paperboard	31,0	0,49	3,16E-02
LDPE packaging	69,0	1,09	0
TOTAL	100	1,58	3,16E-02

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit (DU)
They are not	-	-	-

Substances listed on the list of substances of very high concern subject to authorization by the European Chemicals Agency are not contained in the product in declarable quantities.

Paperboard
LDPE packaging

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Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804:2012+A2:2019/AC:2021 (characterisation factors based on EF 3.1 package)

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fosil	kg CO_2 ekv.	3,63E+01	2,68E-03	2,15E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,09E-02	8,38E-01	6,08E-03	-2,28E+01
GWP-biogenic	kg CO_2 ekv.	-1,70E-01	1,86E-06	2,14E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,65E-05	3,73E-04	1,65E-01	-8,72E-02
GWP- luluc	kg CO_2 ekv.	2,19E-02	9,02E-07	3,79E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,00E-05	8,72E-05	1,13E-06	-5,06E-03
GWP - total	kg CO_2 ekv.	3,61E+01	2,68E-03	4,29E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,10E-02	8,38E-01	1,71E-01	-2,28E+01
ODP	kg CFC 11 ekv.	5,36E-07	5,85E-11	1,85E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,20E-09	1,25E-08	2,16E-10	-9,36E-08
AP	mol H^+ ekv.	1,53E-01	5,75E-06	1,03E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,14E-04	7,49E-03	4,05E-05	-7,99E-02
EP-freshwater	kg P ekv.	1,84E-02	1,86E-07	1,56E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,84E-06	2,85E-05	3,16E-07	-9,10E-03
EP- marine	kg N ekv.	3,33E-02	1,39E-06	2,26E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,77E-05	3,48E-03	1,73E-05	-1,91E-02
EP - terrestrial	mol N ekv.	3,49E-01	1,50E-05	4,67E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,15E-04	3,81E-02	1,89E-04	-2,05E-01
POCP	kg NMVOC ekv.	1,20E-01	9,12E-06	1,62E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,81E-04	1,14E-02	7,09E-05	-7,07E-02
ADP- minerals& metals*	kg Sb ekv.	2,17E-04	9,20E-09	2,61E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,99E-07	5,10E-07	7,56E-09	-1,12E-05
ADP-fosil*	MJ	4,39E+02	3,81E-02	1,19E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,24E+00	1,11E+01	1,60E-01	-2,39E+02
WDP*	m^3	1,52E+01	1,50E-04	-2,14E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,43E-03	2,47E-02	5,52E-04	-1,52E+00
Acronyms	**GWP-fossil** = Global Warming Potential fossil fuels; **GWP-biogenic** = Global Warming Potential biogenic; **GWP-luluc** = Global Warming Potential land use and land use change; **ODP** = Depletion potential of the stratospheric ozone layer; **AP** = Acidification potential, Accumulated Exceedance; **EP-freshwater** = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-marine** = Eutrophication potential, fraction of nutrients reaching marine end compartment; **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance; **POCP** = Formation potential of tropospheric ozone; **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; **ADP-fossil** = Abiotic depletion for fossil resources potential; **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
Disclaimer: If module C is included then when assessing the results of A1-A3, also take into account the results of modules C.

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Additional mandatory and voluntary impact category indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 ekv.	3,63E+01	2,68E-03	2,84E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,10E-02	8,38E-01	6,08E-03	-2,29E+01
PM	Disease incidence	3,50E-06	2,01E-10	9,03E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,70E-09	2,13E-07	1,02E-09	-1,71E-06
IRP	kBq U235 ekv.	2,18E+00	4,60E-05	1,74E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,01E-03	1,47E-02	1,49E-04	-2,59E-01
ETP- fw	CTUe	2,88E+02	5,11E-03	1,62E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,45E-01	6,14E-01	8,49E-03	-6,21E+01
HTP-c	CTUh	4,30E-08	4,47E-13	1,07E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,39E-11	8,84E-11	7,75E-13	-3,31E-08
HTP- nc	CTUh	5,55E-07	2,39E-11	4,42E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,19E-10	1,51E-09	2,19E-11	-5,28E-08
SQP	dimensionless	1,15E+02	2,28E-02	1,11E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,31E-01	9,69E-01	3,25E-01	-4,62E+01
Acronyms	**GWP-GHG** = this indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide and biogenic carbon stored in the product; as such the indicator is identical to GWP-total except that the CF for biogenic CO 2 is set to zero, **PM** = Potential incidence of disease due to PM emissions, **IRP** = Potential Human exposure efficiency relative to U235, **ETP-fw** = Potential Comparative Toxic Unit for ecosystems, **HTP-c** = Potential Comparative Toxic Unit for humans, **HTP-nc** = Potential Comparative Toxic Unit for humans, **SQP** = Potential soil quality index															

[1] *This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.*

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Resource use indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	3,66E+01	6,30E-04	3,17E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,82E-02	2,27E-01	0,00E+00	-5,13E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,66E+01	6,30E-04	3,17E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,82E-02	2,27E-01	0,00E+00	-5,13E+00
PENRE	MJ	2,90E+02	3,03E-03	1,68E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,61E-01	5,80E-01	0,00E+00	-2,01E+02
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,90E+02	3,03E-03	1,68E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,61E-01	5,80E-01	0,00E+00	-2,01E+02
SM	kg	1,99E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	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	ND	ND	ND	ND	ND	ND	ND	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	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Acronyms	**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 of non-renewable primary energy resources used as raw materials; **PENRT** = Total use of non-renewable primary energy re-sources; **SM** = Use of secondary material; **RSF** = Use of renewable secondary fuels; **NRSF** = Use of non-renewable secondary fuels; **FW** = Use of net fresh water															

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Additional environmental information - Waste indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,19E-02	9,72E-07	2,10E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,18E-05	1,26E-04	2,67E-06	-4,16E-03
Non-hazardous waste disposed	kg	3,96E+00	1,86E-03	6,84E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,85E-02	8,96E-03	1,10E+00	-6,99E-01
Radioactive waste disposed	kg	4,39E-04	1,13E-08	4,34E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,48E-07	3,38E-06	3,46E-08	-6,42E-05

Additional environmental information - Output flow indicators

Results per functional or declared unit																
Indicator	Unit	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	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	9,400E-01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,32E+01	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Other environmental performance indicators

Additional environmental information

Differences versus previous versions

This is the first edition of the EPD.

ABBREVIATIONS

Abbreviation	Definition
General abbreviations	
EN	European standard
EPD	Environmental product declaration
EF	Environmental footprint
GPI	General guidelines for the environmental labelling program (in the Czech Republic – NPEZ)
ISO	International Organization for Standardization
LCA	Life cycle assessment
LCI	Life cycle inventory analysis
LCIA	Life cycle impact assessment
DJ / DU	Declared unit
ILCD	International Reference Life cycle data system
PCR	Product category rules
c-PCR	Additional rules for product categories
PRICE	European Committee for Standardization
CPC	Central Product Classification (Central Product Classification)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GRI	Global Reporting Initiative
National	Undeclared
Environmental impact indicators (EN 15804)	
Greenhouse gas	a gas in the atmosphere that absorbs and emits infrared radiation, thereby contributing to the warming of the planet (CO_2, CH_4, N_2O and others)
GWP	Global warming potential (kg CO_2 eq .)
GWP-fossil	Global warming potential from fossil fuels (kg CO_2 eq .)
GWP-biogenic	Global warming potential from biogenic sources (kg CO_2 eq .)
GWP- luluc	Global warming potential due to land use and land use change (kg CO_2 (eq .)
ODP	Stratospheric ozone depletion potential (kg CFC-11 equivalent)
AP	Acidification potential, cumulative exceedance (mol H^+ (eq .)
EP	Eutrophication potential
EP-freshwater	Freshwater eutrophication potential (kg P eq .)
EP-seawater	Seawater eutrophication potential (kg N eq .)
EP-soils	Land eutrophication potential (mol N eq .)
POCP	Ground-level ozone formation potential (kg NMVOC equivalent)
ADP	Potential for resource/raw material depletion
ADP - minerals and metals	Potential for depletion of non-fossil resources/raw materials (kg Sb equivalent)
ADP-fossil	Fossil resource/raw material depletion potential (MJ)
WDP	Water shortage potential (m^3)
Additional environmental impact indicators (EN 15804)	
GWP-GHG	Global warming potential for greenhouse gases (kg CO_2 eq .). The indicator includes all greenhouse gases except biogenic uptake and emissions of carbon dioxide and biogenic carbon stored in the product; as such, the indicator is identical to GWP- total except that the CF for biogenic $CO2_{is}$ set to zero.

Abbreviation	Definition
PM	Potential incidence of diseases due to particulate matter emissions
IRP	Potential effect of human exposure to the isotope U235
ETP- fw	Potential toxicity benchmark for ecosystems
HTP-c	Potential human toxicity comparator – carcinogenic effects
HTP- oc	Potential human toxicity comparator - non-carcinogenic effects
SQP	Potential Soil Quality Index
Resource utilization indicators	
PERE	Renewable primary energy consumption excluding energy sources used as raw materials (MJ)
PERM	Consumption of renewable primary energy sources used as raw materials (MJ)
PERT	Total consumption of renewable primary energy sources (primary energy and primary energy sources used as raw materials) (MJ)
PENRE	Consumption of non-renewable primary energy excluding energy sources used as raw materials (MJ)
PENRM	Consumption of non-renewable primary energy sources used as raw materials (MJ)
PENRT	Total consumption of non-renewable primary energy sources (primary energy and primary energy sources used as raw materials) (MJ)
SM	Consumption of secondary raw materials (kg)
RSF	Consumption of renewable secondary fuels (MJ)
NRSF	Consumption of non-renewable secondary fuels (MJ)
FW	Net drinking water consumption (m^3)
Waste indicators	
HWD	Hazardous waste removed (kg)
NHWD	Other waste removed (kg)
RWD	Radioactive waste removed (kg)
Output flow indicators	
CRU	Reusable building elements (kg)
MR	Materials to be recycled (kg)
MER	Materials for energy recovery (kg)
EEE	Exported energy, electricity (MJ)
EET	Exported thermal energy (MJ)
Lifecycle phases/modules	
A1	Mining and processing of raw materials, processing of input secondary raw materials
A2	Transport to the manufacturer
A3	Production
A4	Transport to the construction site
A5	Installation in a building
B1	Use or application of the installed product
B2	Maintenance
B3	Repair
B4	Exchange
B5	Reconstruction
B6	Operating energy consumption

Abbreviation	Definition
B7	Operating water consumption
C1	Deconstruction / Demolition
C2	Transportation to the waste processing site
C3	Waste treatment for reuse, recovery and/or recycling
C4	Removal
D	Reuse, recovery and recycling potential
Other relevant terms	
Substances of Very High Concern (SVHC)	Substances of very high concern
CAS number	An internationally recognized unique numerical code used in chemistry for chemical substances
CF	Characterization factor
RSL	Reference life span
MJ	Megajoule
kg	Kilogram
m^3	Cubic meter
NMVOC	methane volatile organic compounds
Sat eq .	Antimony equivalents
P eq .	Phosphorus equivalents
Not equal .	Nitrogen equivalents
Equivalent to CFC-11	Chlorofluorocarbon-11 equivalents
CO_2 equivalent	Carbon dioxide equivalents
kg C	Kilograms of carbon
kg CO_2 eq .	Kilograms of carbon dioxide equivalent
OTE	OTE, as (in the Czech Republic) – energy market operator

References

EN ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
EN ISO 14040:2006 Environmental management - Life Cycle Assessment - Principles and Framework
EN ISO 14044:2006 Environmental management - Life Cycle Assessment – Requirements and guidelines
EN ISO 14063:2020 Environmental management - Environmental communication - Guidelines and examples
EN 15643:2021 Sustainability of construction works - Framework for assessment of buildings and civil engineering works
EN 15941:2024 Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data
EN 15942:2021 Sustainability of construction works - Environmental product declarations - Communication format business-to-business
EN 17672:2022 Sustainability of construction works - Environmental product declarations - Horizontal rules for business-to-consumer communication
EN 16908:2017+A1:2022 Cement and building lime - Environmental product declarations - Product category rules complementary to EN 15804
EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide
ILCD General guide for Life Cycle Assessment (2010) - JRC EU
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives; CZ - Act No. 541/2020 Coll., as amended (Waste Act)
Decree No. 8/2021 Coll. Waste catalogue – Waste catalogue
Regulation (EC) No 1907/2006 of the European Parliament concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency - REACH (Registration, Evaluation and Authorisation of Chemicals
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
SimaPro LCA Package, Pré Consultants, the Netherlands, www.pre-sustainability.com
Ecoinvent Centre, www.Ecoinvent.org
EU PEF (EF reference package) - https://eplca.jrc.ec.europa.eu/LCDN/EN15804.html
Explanatory documents are available from the head of Technical Support of the EPD owner.

a) Note: If the CSN EN 15804 standard is not used as the PCR, it is necessary to state the basic valid PCR according to which the EPD was processed.

Independent verification of the declaration and data according to EN ISO 14025:2006			
CEN standard EN 15804:2012+A2:2019/AC:2021 serves as the core PCR			
☐	internal	☒	external
Third party verifier [b]:			
Elektrotechnický zkušební ústav, s. p. Pod lisem 129/2, Troja, 182 00 Praha 8 Czech Republic ezú elektrotechnický zkušební ústav		Mgr. Miroslav Sedláček *Head of the Certification Body*	
Elektrotechnický zkušební ústav, s.p., the Certification Body No. 3018 accredited by Czech Accreditation Institute, o.p.s. according to ČSN EN ISO/IEC 17065:2013			
[a] *Products category rules* [b] *Optional for business-to-business communication, mandatory for business-to-consumer communication (see ISO 14025:2006, 9.4).*			

This document is a translation of the EPD issued in Czech. In cause of doubt use the Czech version of this EPD as a reference.

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