Environmental Product Declaration

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

Steel panel radiators RADIK

The average product includes the sub-products of this entire production line

from

KORADO, a.s.

Programme:	"National Environmental Labeling Program" - Czech Republic (NPEZ)
Programme operator:	Ministry of the Environment of the Czech Republic, CENIA, Czech Environmental Information Agency, executive function of the NPEZ Agency
EPD registration number:	**7250005**
Publication date:	2025-06-27
Valid until:	2030-06-26
	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*
Procedure for follow-up of data during EPD validity involves third party verifier: ☐Ano ☒ne	

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: KORADO, a.s.

Bří Hubálků 869, 560 02 Česká Třebová, Czech Republic
IČO: 252 55 843
www.korado.cz
Contact:
Dipl. Ing. Pavlína Trajtělová
info@korado.cz

Description of the organisation:

KORADO is a dynamic Czech company that has, over the course of its sixty-year history, become one of the leading global manufacturers of radiators. More than 40 million customers worldwide have come to trust the quality of our products during this time.

We continuously expand our portfolio with new innovative solutions. Our goal is to ensure the highest production quality and corresponding technical parameters of our products, which is why we employ leading experts in technical and design development. Thanks to this, we are able to regularly expand our product range, improve existing products, and enhance their technical, functional, and aesthetic properties. Due to regular contact with both lay and professional customers, we gain invaluable field experience, which we then reflect in further technical development and production itself.

Our consistent approach to environmental protection, starting already in the design phase of a new production facility, has ranked us among the most environmentally friendly and considerate manufacturers in the engineering sector not only in the Czech Republic but also within the European context. Examples of this include energy-saving heat recovery during the production process, a comprehensively developed waste management system, handling of chemical substances, prevention of major accidents, and detailed monitoring of wastewater quality. We carry out annual audits of all production processes related to environmental protection.

Product-related or management system-related certifications:

The quality of the products is ensured by an effective quality management system according to EN ISO 9001 and is in accordance with the technical regulations regarding the type of product. The manufacturer has implemented and certified the EN ISO 14001 environmental management system.

The heat output of the design radiators KORATHERM has been measured according to EN 442 in an accredited testing laboratory. Conformity with applicable European directives and standards has been confirmed by the Engineering Test institute (SZU), a notified body No. 1015, Brno.

Name and location of production site(s):

KORADO, a.s., Bří Hubálků 869, 560 02 Česká Třebová, Czech Republic

Product information

Product name: Steel panel radiators RADIK

Product identification:

In accordance with ČSN EN 15941:2024 *Sustainability of buildings - Data quality for the environmental assessment of products and construction works - Selection and use of data* (Article 5.4, Table 2, EPD types), type **1C** is chosen for the declaration of environmental indicator values, i.e. "***average product***" – “Declaration of the average product from one manufacturer's plant. (average product, 1 plant)".

The underlying data for a given group of assessed products are therefore made up of inputs that correspond to the consumption of all inputs and energy for the production of all sub-products of the given group. Similarly, the output is also used: production, waste, emissions, etc. These data are then converted for calculations according to production per one declared unit.

Steel panel radiators RADIK are produced with a classically shaped front panel, with a flat front panel, or with a flat front panel with fine horizontal grooves, and with various connection options to the heating system.

Product description:

Steel panel radiators RADIK are designed for indoor heating. These radiators consist of one or more shaped steel panels with horizontally and vertically arranged channels, between or behind which an additional heat transfer surface may be added to increase thermal output.

The low water content in the radiator enables the heating system to respond flexibly to the heat demand in the heated room and allows for effective temperature regulation.
Steel panel radiators RADIK stand out for their long service life, precise surface finish, high pressure resistance, and low weight.
Main areas of application:

- Steel panel radiators RADIK are designed for installation in central heating systems of buildings with a highest allowed working pressure of 10 bar (1.0 MPa), where the heat transfer medium is water or water-based solutions with a highest allowed working temperature of 110 °C. Radiators designed for systems with low operating temperatures have a maximum working temperature of 60 °C.
- They are suitable for single-pipe and two-pipe heating systems with forced circulation, and some even with natural circulation.
- Steel panel radiators RADIK with a flat front panel, a flat front panel with fine horizontal grooves, and vertical versions are designed to enhance the design and visual appeal of the radiator in the room's interior, making them an inspiration for demanding customers and interior designers.
- Hygienic versions of steel panel radiators RADIK are structurally modified for installation and operation in rooms with high hygiene and cleanliness requirements.
- The radiators must be professionally installed in hot water heating systems professionally executed in accordance with VDI 2035, taking into account protection against damage caused by corrosion and limescale.

A detailed description of each product, including technical specifications, can be found at:
https://www.korado.com

UN CPC code:
44823 Radiators for central heating, not electrically heated, of iron or steel

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:
All steel panel radiators KORADO are delivered in standardized packaging consisting of cardboard, protective plastic corners, shrink wrap, a tightening strap, and an inserted information sheet.
The packaging not only serves its protective purpose during storage, transport, and handling but also during and after installation. The packaging should only be removed after all construction and finishing work has been completed.
Environment and health during use
During the entire production process, it is not necessary to take any special health protection measures beyond the legally specified industrial protection measures for production employees.

LCA information

Functional unit / declared unit:

The declared unit is 1 kg of the average manufactured product – Steel panel radiators RADIK.

The average product includes all sub-products of this product line. The underlying data for a given group of assessed products are therefore made up of inputs that correspond to the consumption of all inputs and energy for the production of all sub-products of the given group. The output is also used similarly: production, waste, emissions, etc. These data are then converted for calculations according to production per one declared unit.

Designation	Unit	Value
Declared unit	t	1
Conversion factor to 1 kg	kg	1

Reference service life:
The reference lifespan for RADIK panel radiators is not declared. With proper use, their average lifespan is commonly estimated at least 50 years and may be longer.
Time representativeness:
For specific data, the manufacturer's data for the **year 2023** is used. For generic data, data from the Ecoinvent database version 3.9 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 10.1, Ecoinvent database version 3.9.
GWP-GHG from electricity production: 0.605 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 (A1–A3 + C + D and additional modules). The additional modules may be one or more selected from A4–A5 and/or B1–B7.

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.
  Results A1-A3 include a "***compensation report***" of biogenic CO_2 from packaging released in module A5, as module A5 is not fully included. According to the "polluter pays" principle, the costs/benefits from further management of this packaging are also included in this module.

The construction phase includes the following modules:

- **A4** - **transport to the construction site**. Transport is carried out by truck with a capacity of 7.5 - 16 t (EURO 6). Transport of the declared product unit over a distance of 1 km is considered.

The end-of-life phase includes modules:

- **C1,** deconstruction, demolition; of a product from a building including its dismantling or demolition, including the initial sorting of materials at the construction site. The decomposition and/or dismantling of the product is part of the demolition of the entire building and the dismantling is mainly carried out manually. In this case, the environmental impact is assumed to be very small and can be neglected.
- **C2,** transport to the waste treatment site; transport of the discarded product as part of waste treatment, e.g. to a recycling site, and transport of waste, e.g. to a final disposal site. The declared unit is transported from the dismantled building by a lorry with a load capacity of 7.5 -

16 t (EURO 6) over an average distance of 50 km to the recycling site or to an inert material landfill as a mixed building demolition.

- **C3,** waste treatment for reuse, recovery and/or recycling; e.g. collection of fractions of waste from deconstruction, and processing of waste from material flows intended for reuse, recycling and energy use. A scenario is assumed where 5% of the product is deposited in an inert landfill. 95% is considered for the use of the products as recyclable material.
- **C4,** waste disposal including its pre-processing and management of the disposal site. 5% of the dismantled product is disposed of as mixed construction waste 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 terms of net impacts or benefits. The module D scenario takes into account the savings of primary raw material inputs (excluding transport and energy) in another product system.

Production:

The panels of GRAD radiators are manufactured from two pressed steel sheets, joined at the vertical groove points by spot welding and seam welding around the perimeter. Cold-rolled low-carbon steel sheet is used

The surface treatment of steel panel radiators is carried out in three main phases:

- Steel surface preparation includes degreasing, phosphating, and a three-stage rinse.
- For the primer layer, advanced cataphoretic immersion coating (KTL) is used. The applied paint layer achieves sufficient thickness even in the most critical areas. The KTL coating gains its final anti-corrosion, adhesive, mechanical, and chemical properties in a curing oven. This surface treatment phase is crucial for the long-term durability of the radiator.
- The top coat is applied using epoxy-polyester powder paint, sprayed via automatic powder guns in an electrostatic field within a powder coating booth. After curing in an oven and subsequent cooling, the radiator surface treatment is complete.

The chosen technology ensures long-term corrosion and mechanical resistance, a high-quality final finish, and a hygienically safe surface of radiators; it is performed with maximum environmental responsibility – both during production and use. It is carried out in accordance with the requirements of DIN 55 900.

The standard colour shade is white RAL 9016. On special request, radiators can be supplied in other shades according to the colour chart.

More information:

Information module **A5** from the construction phase was not included in the LCA due to the difficult availability of input data and is therefore not declared.

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	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	GLO	GLO, EU	EU, CZ	EU									EU	EU	EU	EU	GLO, EU
Specific data used	> 95 %					-	-	-	-	-	-	-	-	-	-	-	-
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.

Content information

Product components	Weight %	Post-consumer material, weight-%	Biogenic carbon content in kg C/DU
Steel	97,7	15,3	0
Surface treatment (paint, pigment)	1,1	0,0	0
Other components	1,2	0,0	0
TOTAL	100,0	15,3	0
Packaging materials	**Weight %**	**Weight-% (versus the product)**	**Biogenic carbon content in kg C/DU**
Packaging materials - EPS	2,0	0,1	0
Packaging materials - PET	0,9	0,0	0
Packaging materials - LDPE	7,3	0,3	0
Packaging materials - cardboard	20,0	0,9	4,08E-03
Packaging materials - PP	0,9	0,0	0
Packaging materials - wood	68,8	3,1	1,39E-02
TOTAL	100,0	4,5	1,80E-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.

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.	2,87E+00	2,34E-04	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,17E-02	2,46E-02	2,83E-04	-1,55E+00
GWP-biogenic	kg CO_2 ekv.	7,62E-02	1,83E-06	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,14E-05	1,56E-03	6,88E-06	-6,24E-03
GWP- luluc	kg CO_2 ekv.	7,53E-04	1,07E-07	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,37E-06	3,61E-05	5,57E-08	-3,91E-04
GWP - total	kg CO_2 ekv.	2,95E+00	2,35E-04	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,18E-02	2,62E-02	2,90E-04	-1,55E+00
ODP	kg CFC 11 ekv.	9,04E-09	5,10E-12	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,55E-10	3,91E-10	9,80E-12	-3,73E-08
AP	mol H^+ ekv.	8,90E-03	4,82E-07	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,41E-05	2,76E-04	1,83E-06	-5,80E-03
EP-freshwater	kg P ekv.	6,40E-04	1,62E-08	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,08E-07	1,45E-05	1,32E-08	-6,31E-04
EP- marine	kg N ekv.	1,57E-03	1,20E-07	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,00E-06	6,44E-05	7,96E-07	-1,40E-03
EP - terrestrial	mol N ekv.	1,54E-02	1,21E-06	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,07E-05	7,18E-04	8,54E-06	-1,48E-02
POCP	kg NMVOC ekv.	5,34E-03	7,54E-07	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,77E-05	2,15E-04	3,39E-06	-8,28E-03
ADP- minerals& metals*	kg Sb ekv.	1,44E-05	7,48E-10	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,74E-08	1,52E-06	2,98E-10	-7,96E-07
ADP-fosil*	MJ	3,32E+01	3,29E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,65E-01	3,34E-01	7,19E-03	-1,63E+01
WDP*	m^3	6,08E+00	1,27E-05	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,33E-04	4,15E-03	2,62E-05	-8,09E-02
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.

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.	2,86E+00	2,34E-04	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,17E-02	2,48E-02	2,83E-04	-1,55E+00
PM	Disease incidence	1,25E-07	1,46E-11	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,32E-10	3,81E-09	4,61E-11	-1,08E-07
IRP	kBq U235 ekv.	5,96E+00	5,33E-06	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,66E-04	2,65E-03	6,85E-06	-2,00E-02
ETP- fw	CTUe	6,60E+00	1,44E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,22E-02	1,75E-01	2,62E-03	-2,85E+00
HTP-c	CTUh	1,13E-09	4,86E-14	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,43E-12	1,52E-11	5,00E-14	-8,46E-09
HTP- nc	CTUh	2,86E-08	7,92E-13	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,96E-11	4,88E-10	1,34E-12	-2,83E-08
SQP	dimensionless	6,18E+00	1,69E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,45E-02	5,93E-01	1,48E-02	-3,05E+00
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.*

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	1,32E+00	5,74E-05	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,87E-03	5,17E-02	1,43E-04	-3,30E-01
PERM	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,32E+00	5,74E-05	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,87E-03	5,17E-02	1,43E-04	-3,30E-01
PENRE	MJ	3,51E+01	3,50E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,75E-01	3,54E-01	7,65E-03	-1,72E+01
PENRM	MJ	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,51E+01	3,50E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,75E-01	3,54E-01	7,65E-03	-1,72E+01
SM	kg	1,62E-01	0,00E+00	ND	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	ND	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	ND	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	6,54E-04	0,00E+00	ND	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														

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	5,54E-03	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	4,36E-04	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	5,00E-02	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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	ND	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	4,63E-02	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	9,50E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	3,47E-02	0,00E+00	ND	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	3,79E-02	0,00E+00	ND	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	1,10E-01	0,00E+00	ND	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 version of the EPD.

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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