Environmental Product Declaration

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

Polylack KG

from

MCR Dunamenti Zrt.

Programme	The International EPD System, www.environdec.com
Programme Operator	EPD International AB
Type of EPD	EPD of a single product from a manufacturer
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An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com	

GENERAL INFORMATION

Programme Information	
Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14 Construction products (EN 15804+A2) (2.0.1), UN CPC Code: 5465
PCR review was conducted by: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via support@environdec.com.
c-PCR, if applicable: N/A

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ **Individual EPD verification without a pre-verified LCA/EPD tool** Third-party verifier: Mari Kirss, Meetripuu OÜ Approved by: International EPD System
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 published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.
For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

Owner of the EPD: MCR Dunamenti Zrt.

Address: Sződ, Rátóti út ipartelep 1. 2134

Contact: Anikó Üsztöke

Address and contact information of the LCA practitioner commissioned by the EPD owner, if applicable:
András Klopfer, Budapest, Váci út 20, 1132
Dominika Szűcs, Budapest, Váci út 20, 1132
Luca Papp, Budapest, Váci út 20, 1132

Description of the organisation:
MCR Dunamenti Zrt. is Hungary's market-leading passive fire protection company. MCR Dunamenti Zrt. provides a comprehensive service, from design and material supply to complete implementation. Its portfolio includes a wide range of products, professional installation and engineering consulting. MCR Dunamenti Zrt. has been committed to passive fire protection for decades, striving to achieve the highest level of customer satisfaction through their work and innovative developments.

Product-related or management system-related certifications: ISO 9001 and ISO 14001

PRODUCT INFORMATION

Product name: Polylack KG

Product identification: The importance of fire protection is inherently linked to the concept of fire compartmentation, which is fundamental to building safety. A fire compartment is an independent unit defined from a fire protection perspective, separated from adjacent areas by fire barriers with a specified fire resistance rating. To maintain a facility's functionality, service penetrations often pass through fire barriers, and it is extremely important that these penetrations are properly sealed with fire-stopping materials to ensure that the integrity of the fire compartment is not compromised. To achieve this, fireproofing materials and, in many cases, intumescent or heat-absorbing systems are typically installed.

UN CPC code: 5465

Other codes for product classification: N/A

Product description:
The product is an intumescent mastic with graphite content that forms a hard, stable foam under the effect of high temperature. When exposed to heat, the material expands to several times its original volume within the filled gaps, creating a fire-resistant and thermally insulating layer that prevents the spread of fire through penetration.

Application:
The product is a versatile fire protection material designed for use in both intumescent and ablative systems. It is primarily utilized for the following functions:

- **Service penetrations:** It is used for sealing small-diameter combustible pipes and metallic pipes provided with combustible insulation. It is also frequently applied for multilayer pipes,

single cables, cable bundles, and various pipes with combustible insulation. Due to its high expansion rate, the product is suitable for filling wider gaps around the services while maintaining fire integrity.

- **Linear joint seals:** the product is used as a fire-rated sealing component for linear joints at structural junctions, including the connections between wall and floor structures to ensure compartmentation.

Manufacturing process:

The product's manufacturing process involves mechanical mixing of liquid and solid components. The raw materials are homogenized in a batch process until the required physical properties are achieved. The finished material is then filtered and filled into containers for distribution. Systematic quality control measures, including batch sampling, are performed for every production lot to ensure compliance with technical specifications.

Name and location of production site(s): Göd, Hungary
In 2024, this product was manufactured at the Göd production facility. In September 2025, MCR Dunamenti Zrt. moved to a new manufacturing site in Sződ, Hungary.

For more information, please visit: www.dunamenti.hu

CONTENT DECLARATION

- The mass (weight) of one unit of a product, as purchased or per declared unit:
  Declared unit is 1 kg

- Content of the product in the form of a list of materials and substances, and their mass:
  - Solvent
  - Preservatives
  - Acrylic ester copolymer
  - Additives
  - Minerals
  - Functional filler
  - Pigments

  The mass and the content of distribution and/or consumer packaging:
  - Plastic packaging (buckets): 0,046 kg
  - Paper packaging: 0,002 kg

- Information on the environmental and hazardous/toxic properties of substances contained in the product:
  - One of the product's ingredients, melamine, is included in the REACH list. (CAS number of melamine: 108-78-1, EC number: 203-615-4)

- Other information on substances with hazardous and toxic properties:
  - N/A

- The declared share of biogenic/recycled materials:
  - Share of biogenic material: 0,02%
  - Share of recycled material: 0%

- Biogenic content in the packaging:
  - 0%

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Solvent	0,05-0,1	N/A	N/A	N/A
Preservatives	<0,005	N/A	N/A	N/A
Acrylic ester copolymer	0,3-0,35	N/A	N/A	N/A
Additives	0,05-0,08	N/A	0,02%	0,0002
Minerals	0,02-0,05	N/A	N/A	N/A
Functional filler	0,45-0,55	N/A	N/A	N/A

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Pigments	0,01-0,03	N/A	N/A	N/A
TOTAL	1	N/A	0,002%	0,0002

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/product
Plastic bucket	0,144	14,37%	0
Paper packaging	0,002	0,22%	0,001
TOTAL	0,146	14,59%	0,001

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

LCA INFORMATION

Declared unit: 1 kg

Expected product lifetime: 10 years

Time representativeness: 2024

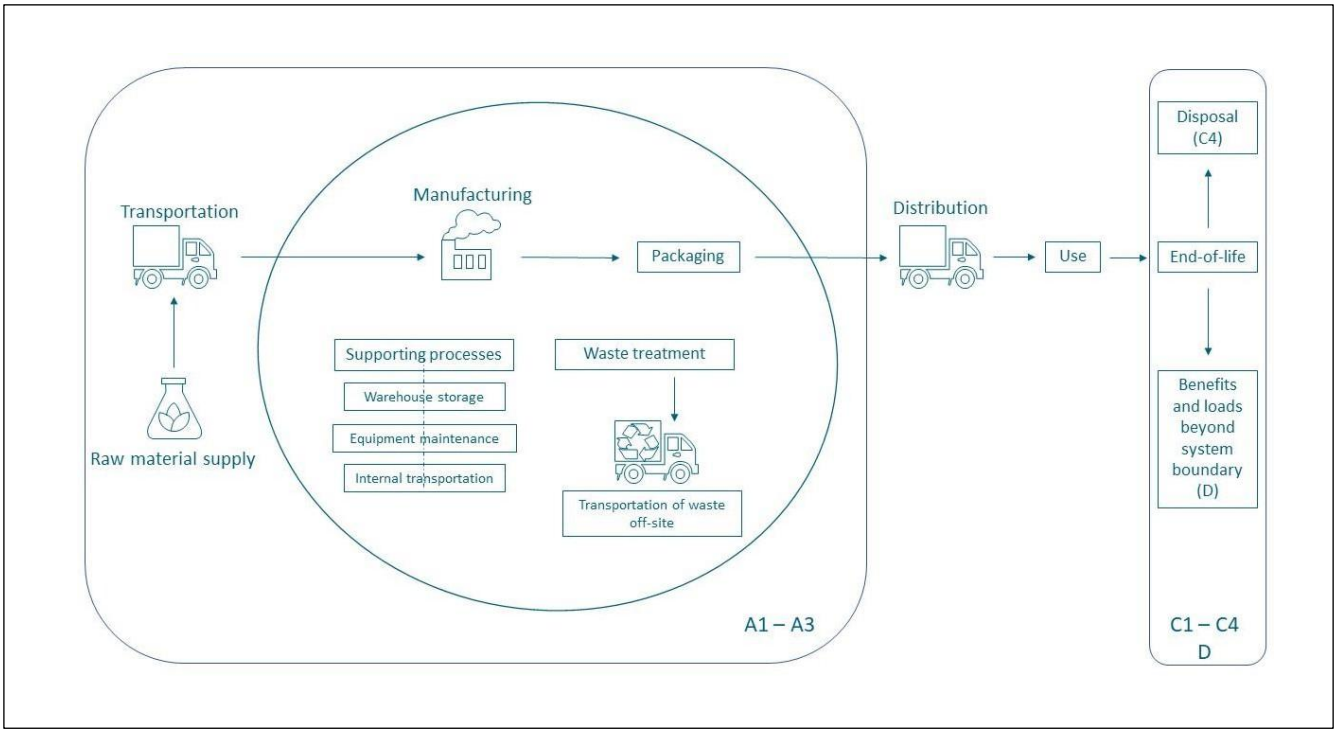
Geographical scope: Hungary

Database(s) and LCA software used: Ecoinvent 3.11 (the EN 15804 reference package based on EF 3.1 has been used) and Microsoft Excel

EPD/LCA Tool used: N/A

Description of system boundaries:
The LCA is a Cradle-to-Gatewith modules C1-C4 and module D. Major steps from raw material extraction to the endof-life (final disposal) of the product has been included in the scope of the study. Life cycle stages included are A1-A3, C1-C4 and D.
The use stage B is not considered in this study, since no impacts are associated with the use stage. All impacts associated with the production of materials and energy are included in the system boundaries. During the use phase, fireproofing materials do not consume resources and are not released into the environment. Moreover, fireproofing materials do not require maintenance, repair, replacement or refurbishment beyond their normal use, so no impact is considered for modules B1 to B7 and therefore excluded in this assessment.

Process flow diagram:



More information:
Detailed information on the products can be found at Tűzvédelmi lezárások - MCR Dunamenti Zrt
The underlying LCA study was carried out by EY Könyvvizsgáló Kft.

Data quality: The data quality assessment performed during the analysis was based on the Data quality level and criteria of the UN Environment Global Guidance on LCA database development.
The data quality information has been provided according to the requirements of EN 15941.
ISO 14044 was applied in terms of data collection and quality requirements. The data concerning the modules A1 (raw material supply), A2 (transportation) and A3 (product manufacturing) were provided by MCR Dunamenti Zrt. and involved all input and output materials to the plant, the consumed utilities (energy, water) and the distances and means of transport for each input stream. Data reliability is considered very good/ good for energy consumption, material inputs, material outputs, waste management and good for transportation. Proxy had to be applied for eight processes.
This LCA report is based on site-specific data from the manufacturer and is representative for the production for 2024 January – 2024 December (12-month period). The manufacturing location was in Göd, Hungary in 2024, since September 2025 it is in Sződ, Hungary. However, since the components are delivered by external suppliers, their production processes are modelled using data from the Ecoinvent 3.11 database.

Allocation: ISO 14040 defines the allocation as “partitioning the input or output flow of a unit process to the product system under study”. Allocation was done to identify the associated quantity of flows that are common for the factory: electricity, natural gas. Allocation is based on product volume, mass (kg), because there is a linear correlation between energy demand and weight mass of materials (product volume) and the inputs and outputs were provided in mass (kg).

Cut-off rules: According to the PCR and EN 15804, not more than 5% of the incoming flows (by mass and energy) per module can be excluded. Data is provided for all inputs and outputs to the factory processes, and they are accounted in the model in full. Materials and processes with negligible

contributions (less than 1%) are also included. For processes after the production stage, relevant scenarios are assumed regarding geographical scope and existent practices, e.g., for waste treatment options. Where site-specific data was missing, it was modelled with generic datasets from the Ecoinvent 3.11 database. Construction of buildings, machines and other equipment or infrastructure and consumption related to offices are not included as they do not have a direct relation to the production process.

Calculating the primary energy use indicators: Based on different interpretations of EN 15804, the PCR 2019:14 v2.0.1 offers three options for how to separate the use of primary energy into energy used as raw material and energy used as energy carrier. Under the present study, option A has been selected. Option A is in direct connection to the declaration of the results of the primary energy use indicators in the EPD. Even though the energy used as raw materials is not zero over the product life cycle, energy is no longer stored in the product. The reason why energy used as raw materials is not zero over the product life cycle is because the energy stored in the packaging of the product enters under module A3 and leaves under module A5, however, module A5 is not declared in the present EPD. Because module A5 is not declared in the present EPD, the leaving of the energy stored in the packaging of the product is balanced out in module A3.

Energy in the manufacturing phase: Electricity information and CO_2 emission, kg CO_2-eq./kWh (GWP-GHG):

- electricity, high voltage, residual mix// HU, electricity, high voltage (Ecoinvent 3.11): 0,42 kg CO_2-eq./kWh.
- electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted// HU, electricity, low voltage (Ecoinvent 3.11): 0,09 CO_2-eq./kWh.

End-of-life process description:

C1: building demolition with skid-steer loaders, including energy for dismantling, particulate matter emissions from dismantling and handling.

C2: the following distances are assumed for the respective waste destinations:

- To the sorting facility – 100 km by truck (transport, freight, lorry 7.5-16 metric ton, diesel, EURO5);
- To recycling – 100 km by truck (transport, freight, lorry 7.5-16 metric ton, diesel, EURO5);

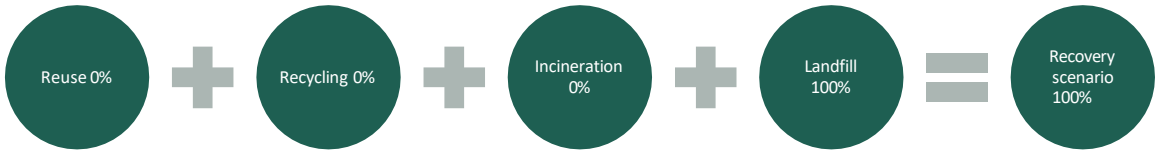
C3 and C4: the fireproofing products are sold over many European markets with varying levels of waste treatment services. One waste treatment scenario is modelled – for broad European context (100% market share). The table below summarises the total share of the of the fireproofing product by waste treatment.

- Collection rate: 100 %;
- Recycling: 0 %;
- Landfill: 100 %.

D: the product is landfilled (100 %) at the end of its lifecycle.

Processes	Unit (expressed per declared unit)
Collection process specified by type	1 kg collected separately
Recovery system specified by type	0 kg for recycling (C3) 0 kg for reuse (C3) 0 kg material for incineration (C4)
Disposal specified by type	1 kg for sanitary landfill (C4)

Processes	Unit (expressed per declared unit)
Assumptions for scenario development, e.g., transportation	The following distances are assumed for the respective waste destinations: - To the sorting facility - 100 km; - To recycling - 100 km;



Modules declared, geographical scope, share of primary 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	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	EU	EU	HU	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EU	EU	EU	EU	EU
Specific data used	3,95%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Manufacturing	Collected data	EPD owner	2024	Primary data	0,16%
Electricity	Collected data	EPD owner	2024	Primary data	0,95%
Materials	Database	Ecoinvent v3.11	2024	Secondary data	0,00%
Transportation	Collected data	EPD owner	2024	Primary data	2,66%
Direct process emissions	Collected data	EPD owner	2024	Primary data	0,00%
Other processes	Collected data	EPD owner	2024	Primary data	0,18%
Total share of primary data, of GWP-GHG results for A1-A3					3,95%

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

ENVIRONMENTAL PERFORMANCE

LCA results of the product(s) - main environmental performance results

Mandatory impact category indicators according to EN 15804

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	3,13E+00	3,23E-08	3,48E-07	1,07E-07	7,19E-08	0,00E+00
GWP-fossil	kg CO_2 eq.	3,11E+00	3,23E-08	3,48E-07	1,06E-07	7,15E-08	0,00E+00
GWP-biogenic	kg CO_2 eq.	1,63E-02	6,15E-12	1,42E-10	4,46E-10	3,24E-10	0,00E+00
GWP-luluc	kg CO_2 eq.	4,50E-03	3,31E-12	1,08E-10	4,95E-11	1,80E-11	0,00E+00
ODP	kg CFC 11 eq.	1,16E-07	4,80E-16	7,61E-15	2,40E-15	2,41E-15	0,00E+00
AP	mol H^+ eq.	2,45E-02	2,89E-10	1,07E-09	8,40E-10	8,06E-10	0,00E+00
EP-freshwater	kg P eq.	9,71E-04	1,04E-12	2,33E-11	6,16E-11	1,23E-10	0,00E+00
EP-marine	kg N eq.	2,93E-03	1,34E-10	3,57E-10	2,93E-10	2,01E-10	0,00E+00
EP-terrestrial	mol N eq.	2,99E-02	1,47E-09	3,89E-09	3,18E-09	2,16E-09	0,00E+00
POCP	kg NMVOC eq.	1,44E-02	4,40E-10	1,63E-09	1,04E-09	7,85E-10	0,00E+00
ADP-minerals&metals*	kg Sb eq.	3,80E-05	1,16E-14	1,21E-12	3,02E-13	1,24E-13	0,00E+00
ADP-fossil*	MJ	6,94E+01	4,21E-07	4,89E-06	1,83E-06	1,69E-06	0,00E+00
WDP*	m^3	2,12E+00	1,08E-09	2,49E-08	4,16E-08	8,00E-08	0,00E+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 on these results are high or as there is limited experienced with the indicator.*

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.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

The GWP biogenic values of the packaging materials of the product have been balanced out in module A3.

Additional mandatory and voluntary impact category indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	3,11E+00	3,23E-08	3,48E-07	1,06E-07	7,16E-08	0,00E+00
Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017							

Resource use indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,80E+00	3,59E-04	1,21E-02	1,08E-02	4,43E-03	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	4,80E+00	3,59E-04	1,21E-02	1,08E-02	4,43E-03	0,00E+00
PENRE	MJ	5,24E+01	5,73E-02	6,66E-01	2,49E-01	2,30E-01	0,00E+00
PENRM	MJ	1,15E+01	0,00E+00	0,00E+00	0,00E+00	-1,15E+01	0,00E+00
PENRT	MJ	6,39E+01	5,73E-02	6,66E-01	2,49E-01	-1,13E+01	0,00E+00
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	2,12E+00	1,47E-04	3,39E-03	5,67E-03	1,09E-02	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						

The primary energy indicator values of the packaging materials of the product have been balanced out in module A3.

[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.

Waste indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2,31E-01	6,42E-05	8,56E-04	3,90E-04	3,65E-04	0,00E+00
Non-hazardous waste disposed	kg	1,03E+01	9,35E-04	2,07E-02	1,31E+00	3,25E+00	0,00E+00
Radioactive waste disposed	kg	1,23E-04	5,99E-09	2,40E-07	2,57E-07	7,00E-08	0,00E+00

Output flow indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	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	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ABBREVIATIONS

All abbreviations used in the EPD must be added. Please add all the abbreviations used.

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
SVHC	Substances of Very High Concern
ND	Not Declared
PCR	Product Category Rules
N/A	Not Applicable
EU	European Union

HU	Hungary
ISO	International Organization for Standardization

REFERENCES

Ecoinvent v3.11 database, 2024

EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products, 2019

EN 15941 Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

General Programme Instructions of the International EPD® System. Version 5.

ISO 14040:2006 (E) Environmental management – Life cycle assessment – Principles and framework, 2006-07

ISO 14044:2006 + Amd 1:2017 Environmental management – Life cycle assessment – Requirements and guidelines, 2018

PCR 2019:14 v 2.0.1., Construction products

VERSION HISTORY

Original Version of the EPD, 2026-02-13

mcr dunamenti

EPD
INTERNATIONAL EPD SYSTEM
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