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EPD®
ENVIRONMENTAL PRODUCT DECLARATION

ECO PLATFORM
EPD
VERIFIED

Environmental Product Declaration

for Cementitious Repair Mortars by ISOMAT

Programme	Programme operator	EPD registration number	Publication date	Valid until	Geographical scope
The International EPD® System, www.environdec.com	EPD International AB	S-P-09183	2023-05-29	2028-05-28	Global

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

DUROCRET
DUROCRET-PLUS
DUROCRET-FAST

An EPD should provide current information and may be updated if conditions change.
The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

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Accredited by	The International EPD® system	

Independent third-party verification of the declaration and data, according to ISO 14025:2006:
☐ EPD process certification ☒ EPD verification

Procedure for follow-up of data during EPD validity involves third party verifier:
☐Yes ☒ No

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, version 1.2.5. Published on 2022.11.01, valid until: 2024.12.20.
CPC CODE: 375 Articles of concrete, cement and plaster.

PCR review was conducted by the Technical Committee of the International EPD® System.

Chair: Contact via info@environdec.com

The EPD does not give information on release of dangerous substances to soil, water and indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonized test methods according to the provisions of the respective technical committees for European product standards are not available.

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

EPDs within the same product category but registered in different EPD programs 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 characterization factors); have equivalent content declarations; and be valid at the time of comparison.

The verifier and the programme operator do not make any claim or have any responsibility of the legality of the product.

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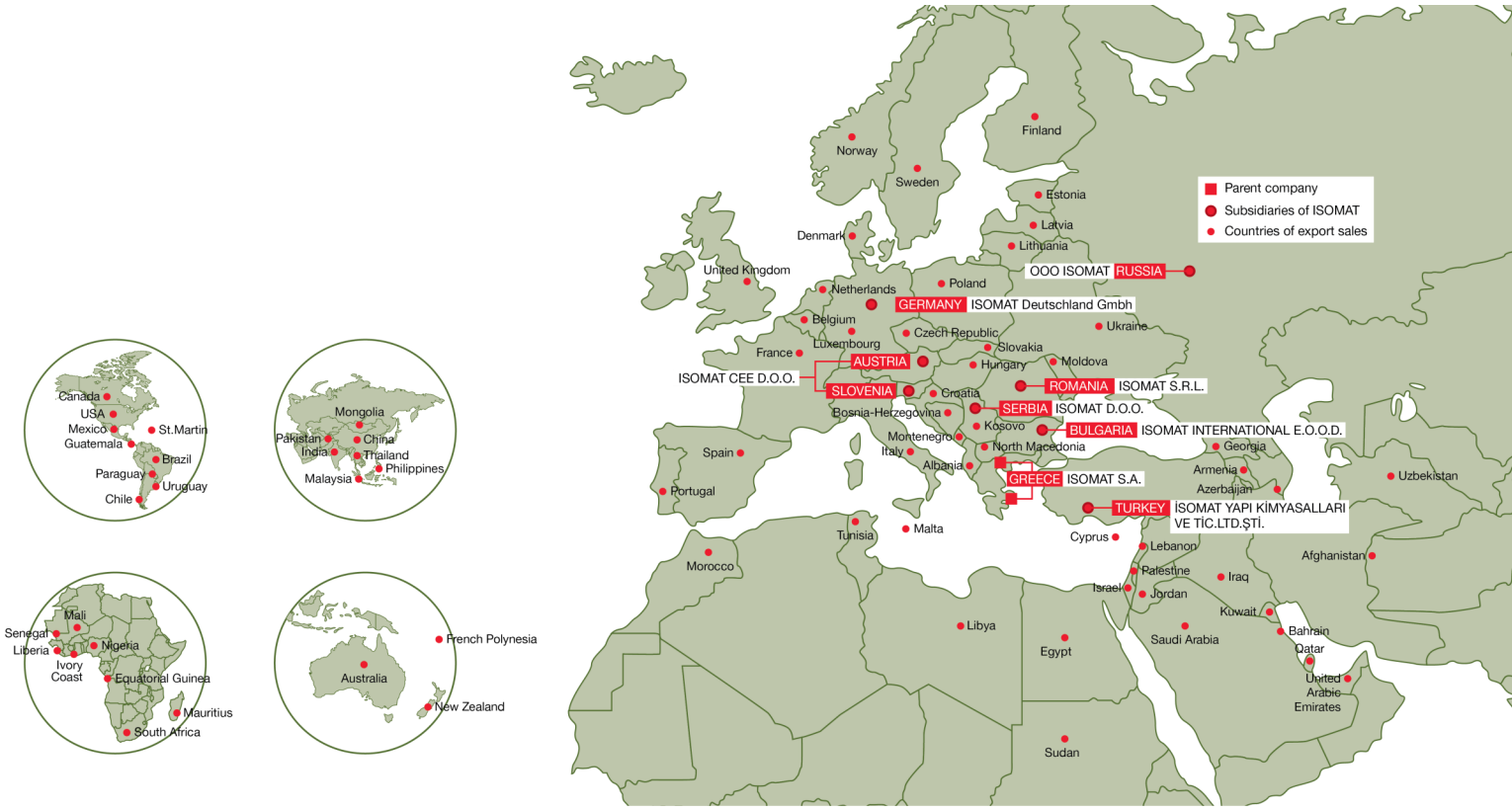
Company Info

ISOMAT is a Greek multinational Group specializing in the development and manufacture of building chemicals, mortars and paints. For over 40 years, **ISOMAT** has been making a history of quality, reliability, deep expertise and continuous business growth. It has three production plants; one in the parent company in Greece and two in its subsidiaries in Romania and Serbia. In addition, it has five commercial subsidiaries in Germany, Russia, Turkey, Bulgaria, and Slovenia and exports to over 80 countries worldwide.



The **ISOMAT** Group produces and distributes an extensive range of high-quality products falling into the following 8 categories:

- Waterproofing
- External Thermal Insulation
- Paints & Surface Protection
- Tile & Natural Stone Installation
- Concrete Admixtures & Repair Products
- Masonry Construction & Repair
- Industrial Floorings
- Microcement Coatings & Decorative Floorings

ISOMAT is committed to continuously developing new, pioneering products in line with the ever-increasing market needs and the latest technological advances in the construction industry, with sustainability as its main drive. It owns a fully organized R&D department consisting of 7 chemistry R&D labs and 3 Quality Control labs staffed by highly qualified experts. Their mission is to optimize existing products and develop innovative, high-performance product solutions and integrated systems covering a wide range of construction needs and applications.

Energy and Social Responsibility Policy

For **ISOMAT**, its people are its key asset, in which it constantly invests and thanks to which it evolves. The company's primary concern is to ensure safe and healthy working conditions, have an excellently trained staff, and provide continuous training through technical or educational seminars. In addition, it implements corporate social responsibility practices in relationships with socially vulnerable groups, public benefit foundations and entities, hospitals, educational institutions, public services, etc. Plus, with a customer-centric approach, **ISOMAT** meets its customers' ever-changing needs and provides a high-quality service experience.

ISOMAT operates in compliance with the requirements of the Legislation, the ISO 9001 standard and other international standards, based on which its products are certified. The efficiency of the Quality Management System is constantly being improved and measurable quality targets are established and reviewed on an annual basis. These objectives are stated in the annual quality review.

Sustainability is a strategic priority for the **ISOMAT** Group. **ISOMAT**'s Environmental and Energy Policy is oriented towards the guiding principles of sustainability and environmental protection. It implements an Energy and Environmental Management system, certified according to ISO 50001 and ISO 14001, to reduce the consumption of available natural resources, including water, reduce the atmospheric burden, and save energy during the production process. Staying true to its commitment to reducing its carbon footprint, ISOMAT installed a 1MW rooftop solar PV power system at its headquarters in Thessaloniki, Greece. Waste recycling is another priority for management and employees, as it is promoted through corporate policy as a whole. Moving towards a circular economy, ISOMAT joined the "In the Loop" environment-driven platform in May 2022, systematically separating and collecting its plastic waste so that new, sustainable products can be produced. In this way, the Group's environmental footprint is reduced year by year. Last but not least, aiming towards sustainability, **ISOMAT** is continuously developing and producing more and more premium quality products that contribute to a healthy living and working environment. These products have been awarded internationally recognized certifications for both their technical characteristics and their friendliness towards applicators, end-users, and the environment.

PREMISES

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Product Info

This is an average product EPD for ISOMAT cementitious repair mortars. Maximum GWP deviation of these products is under 10%, thus they can be grouped into one product category, representing one weighted average product. The results of this EPD represent the weighted average product.

Cementitious repair mortars
DUROCRET
DUROCRET-FAST
DUROCRET-PLUS

DUROCRET is a pre-mixed, polymer-modified, cementitious repair mortar, without corrosive ingredients, suitable for indoor and outdoor applications, offering:

- Abrasion resistance.
- Strong adhesion to the substrate.
- Water-repellency.
- Work simplification.

DUROCRET is used for concrete or brickwork repair and patching, fillet formation at wall-to-floor junctions, etc. In the red-brown color, DUROCRET is ideal for fixing ridge tiles on roofs. It is applied in layers up to 2 cm thick for large-scale applications, and up to 5 cm thick for localized repairs.

It is certified according to EN 1504-3, classified as a PCC R2 mortar for concrete repairs. CE marked.

DUROCRET-FAST is a fast-setting, fiber-reinforced, cementitious repair mortar, enhanced with polymers, without corrosive ingredients, for indoor and outdoor applications, offering:

- Abrasion resistance.
- Strong adhesion to the substrate.
- Superior workability.
- Work simplification.

DUROCRET-FAST is suitable for repairs on concrete, cement mortars, masonry, plasters and generally wherever high strength and fast application is necessary. It is applied in layers up to 3 cm thick for large-scale applications, and up to 5 cm thick for localized repairs.

It is certified according to EN 1504-3, classified as a PCC R2 mortar for concrete repairs. CE marked.

DUROCRET-PLUS is a pre-mixed, polymer-modified, fiber-reinforced, cementitious repair mortar, without corrosive ingredients, suitable for indoor and outdoor applications, offering:

- Abrasion resistance.
- Strong adhesion to the substrate.
- Water-repellency.
- Work simplification.

DUROCRET-PLUS is used for concrete or brickwork repair and patching, fillet formation, etc. It is applied in layers up to 3 cm thick for large-scale applications, and up to 5 cm thick for localized repairs.

It is certified according to EN 1504-3, classified as a PCC R3 mortar for concrete repairs. CE marked.

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Technical Specifications					
Specification	**DUROCRET**			**DUROCRET-FAST**	**DUROCRET-PLUS**
Form	cementitious powder			cementitious powder	cementitious powder
Colors	grey	white	red-brown	grey	grey
Water demand	4,60 l/25 kg bag	4,60 l/25 kg bag	4,60 l/25 kg bag	4,50 l/25 kg bag	4,60 l/25 kg bag
Bulk density of dry mortar	1,55 ± 0,10 kg/l	1,55 ± 0,10 kg/l	1,55 ± 0,05 kg/l	1,50 ± 0,10 kg/l	1,45± 0,10 kg/l
Bulk density of fresh mortar	1,85 ± 0,10 kg/l	1,85 ± 0,10 kg/l	1,95 ± 0,05 kg/l	2,00 ± 0,10 kg/l	1,90 ± 0,10 kg/l
Compressive strength	≥ 17,00 N/mm^2	≥ 16,00 N/mm^2	≥ 15,00 N/mm^2	≥ 24,00 N/mm^2	≥ 25,00 N/mm^2
Flexural strength	≥ 6,00 N/mm^2	≥ 6,00 N/mm^2	≥ 5,00 N/mm^2	≥ 6,00 N/mm^2	≥ 7,00 N/mm^2
Capillary water absorption	0,45 kg/m^2 h$^{-0.5}$	0,47 kg/m^2 h$^{-0.5}$	≤ 0,5 kg/m^2 h$^{-0.5}$	0,41 kg/m^2 h$^{-0.5}$	0,34 kg/m^2 h$^{-0.5}$
Adhesion	≥ 1,70 N/mm^2	≥ 1,70 N/mm^2	≥ 1,10 N/mm^2	≥ 1,50 MPa	≥ 1,70 N/mm^2
Reaction to fire	A1	A1	A1	A1	A1

Composition			
The composition ranges presented below cover all the different types of ISOMAT cementitious repair mortars.			
Component	**DUROCRET**	**DUROCRET-FAST**	**DUROCRET-PLUS**
Cement	10-30%	10-25%	15-35%
Calcium carbonate filler	65-85%	65-85%	60-80%
Copolymer RDP	<5%	<5%	<5%
Calcium sulfoaluminate cement		<7%	
Calcium sulfate anhydrite		<5%	
Hydrated lime	<5%		
No substance in the "Candidate List of Substances of Very High Concern (SVHC) for authorization" exceeds 0.1% by weight in the final products.			

For the packaging of the final products, paper sacks and plastic films are used (under 0,5% percentage w/w by mass of final product).

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System Boundaries

X= Included, ND= Module Not Declared																
	Product stage			Construction stage		Use stage							End-of-life stage				Resource recovery stage
	Raw Materials Supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction and demolition	Transport	Waste processing for re-use, recovery and/or recycling	Disposal	Re-use-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**	**GR**										**EU**	**EU**	**EU**	**EU**	**EU**
Specific data used	**> 95%**			—	—	—	—	—	—	—	—	—	—	—	—	—	—
Variation-products	**< 10%**			—	—	—	—	—	—	—	—	—	—	—	—	—	—
Variation-sites	**0%**			—	—	—	—	—	—	—	—	—	—	—	—	—	—

A1: Raw Material Supply

The production starts with the material supply. This stage includes the mining and processing of raw materials, the generation of electricity and fuels required for the manufacturing stage. Portland cement, calcium carbonate and copolymer RDP are the main raw materials.

A2: Transportation of raw materials to manufacturer

Transportation stage is relevant to delivery of raw materials from the supplier to the gate of manufacturing plant. Raw materials for the production are transported by trucks from different suppliers across Europe.

A3: Manufacturing

Manufacturing starts with weighing of raw materials. After weighing, raw materials are mixed and transferred to specially formed silos in order to obtain their final structure. Last stage of manufacturing is the packaging of final products.

C1: De-construction, demolition

Demolition of cementitious repair mortars takes place with the whole demolition of the building/construction. Thus, it is assumed that the energy used for the demolition of cementitious repair mortars has minor significance and the environmental impact of this module is set to be zero.

C2: Transportation of waste

A distance of 100 km by a 16-32 tonne lorry from construction/demolition sites to disposal sites has been chosen as a conservative assumption.

C3: Waste processing for re-use, recovery and/or recycling

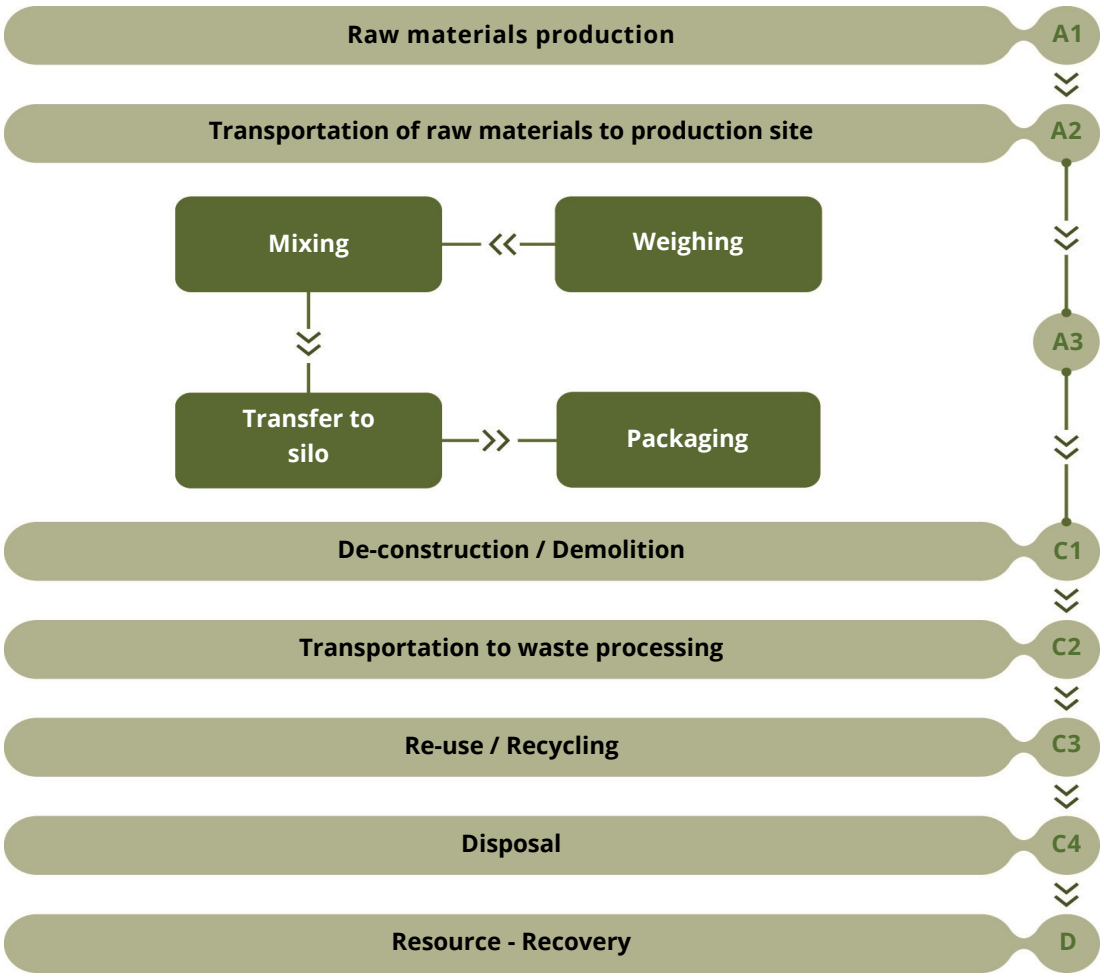
This module includes waste processing of the product after its life cycle in order to be recycled and reused in another product system. It is assumed that 100% of cementitious repair mortars' end-of-life waste will be landfilled, thus the environmental impact of this module is set to be zero.

C4: Disposal

This module includes the final disposal of the discarded product. As mentioned above, 100% of cementitious repair mortars' end-of-life waste will be landfilled.

D: Resource-Recovery stage

Since the product is only disposed of, there are no benefits deriving from the re-use or recycling of the product after its end-of-life stage, nor is there any energy recovery from incinerating the packaging materials.



LCA Info

Declared unit:
The declared unit is 1 kg of ISOMAT cementitious repair mortars.

Goal and Scope:
This EPD evaluates the environmental impacts of the production of 1 kg of ISOMAT cementitious repair mortars from Cradle to gate (A1-A3) with module C1-C4 and D.

System Boundary:
The system boundaries are set to be cradle to gate (A1-A3) with modules C+D.

Cut-off rules:
The cut-off criteria adopted is as stated in "EN 15804:2012+A2:2019/AC:2021". Where there is insufficient data or data gaps for a unit process, the cut-off criteria are 1% of the total mass of input of that process. The total of neglected input flows per module is a maximum of 5% of energy usage and mass. The cut-off rule was used in some wastes generated in the plant and have minor significance (packaging wastes, cables, batteries, electronic equipment, sludges) and chemicals used for wastewater treatment. Total mass of neglected streams is 0,2%.

Allocations:
Allocation rules have been performed in accordance with the requirements of ISO 14044:2006. Wherever possible allocation was avoided. Allocation based on physical properties (mass) is applied where allocation cannot be avoided. In this case, allocation based on the mass of the final products is applied for electricity used in the plant. Electricity data from ISOMAT was collected separately for each facility (offices, warehouses, utilities, mortars production line and liquids production line) and then was allocated to the corresponding products by mass.

Assumptions:
Module A1: a very small amount of electricity (approximately 0,46 kWh/tonne of product), derives from solar panels owned by the company, thus it is considered to be free of environmental burdens and only the electricity grid mix is taken into account.

Modules A2 and C2: A EURO5 16-32 tonne lorry was utilized for road transportation.
Module C1: Demolition of cementitious repair mortars takes place with the whole demolition of the building/construction. Thus it is assumed that the energy used for the demolition of cementitious repair mortars has minor significance and the environmental impact of this module is set to be zero.
Module C2: A conservative assumption of 100 km by a 16-32 tonne lorry was used.
Module C3+Module C4: It is assumed that 100% of cementitious repair mortars' end-of-life waste will be landfilled, thus the environmental impact of module C3 is set to be zero.

Data quality:
ISO 14044 was applied in terms of data collection and quality requirements. The impact of the production of raw materials recovered from Ecoinvent database v.3.9.1. The data concerning the modules A2 (Transportation) and A3 (Product manufacturing) were provided by ISOMAT and concerns the full year 2022. These data were the quantities of all input and output materials extracted from the company's SAP system, the consumed utilities (energy, water) and the distances and means of transport for each input stream. Regarding electricity mix, the latest (2021) national residual electricity mix as published in DAPEEP SA was utilized. The end-of-life is based on the most representative scenarios for this product. Background data for this stage are retrieved from Ecoinvent v.3.9.1.

Geographical Scope:
Worldwide

Time representativeness:
Data obtained refer to the year 2022

Software used:
OpenLCA v.1.11.0

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Environmental Performance

Cementitious repair mortars

ENVIRONMENTAL IMPACTS	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	5,70E-01	0,00E+00	1,88E-02	0,00E+00	1,39E-02	0,00E+00
GWP-fossil	kg CO_2 eq	5,67E-01	0,00E+00	1,88E-02	0,00E+00	1,39E-02	0,00E+00
GWP-biogenic	kg CO_2 eq	2,86E-03	0,00E+00	5,43E-06	0,00E+00	4,15E-06	0,00E+00
GWP-luluc	kg CO_2 eq	3,07E-04	0,00E+00	9,14E-06	0,00E+00	1,58E-05	0,00E+00
GWP-GHG[1]	kg CO_2 eq	5,39E-01	0,00E+00	3,69E-03	0,00E+00	1,38E-02	0,00E+00
ODP	kg CFC-11 eq	1,16E-08	0,00E+00	4,10E-10	0,00E+00	3,02E-10	0,00E+00
AP	mol H+ eq	2,11E-03	0,00E+00	6,14E-05	0,00E+00	1,05E-04	0,00E+00
EP-freshwater	kg P eq	1,15E-04	0,00E+00	1,32E-06	0,00E+00	9,99E-07	0,00E+00
EP-marine	kg N eq	4,62E-04	0,00E+00	2,11E-05	0,00E+00	4,35E-05	0,00E+00
EP-terrestrial	mol N eq	4,98E-03	0,00E+00	2,23E-04	0,00E+00	4,69E-04	0,00E+00
POCP	kg NMVOC eq	1,86E-03	0,00E+00	9,17E-05	0,00E+00	1,51E-04	0,00E+00
ADPe	kg Sb eq	6,82E-06	0,00E+00	6,19E-08	0,00E+00	2,08E-08	0,00E+00
ADPf	MJ	6,42E+00	0,00E+00	2,69E-01	0,00E+00	2,58E-01	0,00E+00
WDP[2]	m3 eq	1,63E-01	0,00E+00	1,42E-03	0,00E+00	7,43E-03	0,00E+00

[1] GWP-GHG indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide emissions and uptake and biogenic carbon stored in the product, with characterization factors (CFs) based on IPCC (2013).

[2] The results of this environmental impact indicators of ADPf, ADPe and WDP shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

RESOURCE USE	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	4,76E-01	0,00E+00	4,14E-03	0,00E+00	2,49E-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	4,76E-01	0,00E+00	4,14E-03	0,00E+00	2,49E-03	0,00E+00
PENRE	MJ	6,27E+00	0,00E+00	2,67E-01	0,00E+00	2,57E-01	0,00E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	6,27E+00	0,00E+00	2,67E-01	0,00E+00	2,57E-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	3,79E-03	0,00E+00	3,32E-05	0,00E+00	1,73E-04	0,00E+00

OUTPUT FLOWS AND WASTE	Unit	A1-A3	C1	C2	C3	C4	D
HWD	kg	2,51E-05	0,00E+00	1,70E-06	0,00E+00	1,49E-06	0,00E+00
NHWD	kg	8,60E-02	0,00E+00	1,30E-02	0,00E+00	1,00E+00	0,00E+00
RWD	kg	8,66E-06	0,00E+00	8,67E-08	0,00E+00	4,29E-08	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL IMPACTS	Unit	A1-A3	C1	C2	C3	C4	D
PM	Disease incidence	1,65E-08	0,00E+00	1,50E-09	0,00E+00	9,92E-09	0,00E+00
IRP[3]	kBq U235 eq	3,40E-02	0,00E+00	3,57E-04	0,00E+00	1,82E-04	0,00E+00
ETP-FW	CTUe	1,81E+00	0,00E+00	1,32E-01	0,00E+00	1,33E-01	0,00E+00
HTP-c	CTUh	2,33E-10	0,00E+00	8,58E-12	0,00E+00	5,98E-12	0,00E+00
HTP-nc	CTUh	7,21E-09	0,00E+00	1,89E-10	0,00E+00	8,02E-11	0,00E+00
SQP	dimensionless	2,02E+00	0,00E+00	1,59E-01	0,00E+00	3,42E-01	0,00E+00

[3] Ionizing radiation potential (IRP) 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.

List of abbreviations

LCA	Life Cycle assessment
EPD	Environmental Product Declaration
PCR	Product category rules
GLO	Global
RER	Europe
RoW	Rest of the world
GWP-total	Global Warming Potential total
GWP-fossil	Global Warming Potential fossil
GWP-biogenic	Global Warming Potential biogenic
GWP-luluc	Global Warming Potential land use and land use change
ODP	Ozone Depletion Potential
AP	Acidification Potential
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 photochemical oxidants
ADPe	Abiotic depletion potential for non-fossil resources
ADPf	Abiotic depletion potential for fossil resources
WDP	Water use
PERE	Use of renewable primary energy excluding 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 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 resources
SM	Use of secondary material
RSF	Use of renewable secondary fuels

NRSF	Use of non-renewable secondary fuels
FW	Use of net fresh water
HWD	Hazardous waste disposed
NHWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed
CRU	Components for re-use
MFR	Materials for recycling
MER	Materials for energy recovery
EE	Exported Energy
PM	Particulate matter emissions
IRP	Ionizing radiation, human health
ETP-FW	Ecotoxicity, freshwater
HTP-c	Human toxicity, cancer
HTP-nc	Human toxicity, non-cancer
SQP	Land use related impacts/Soil quality

References

General Programme Instructions of the International EPD® System. Version 4.0, 2021-03-29

PCR 2019:14 v.1.2.5 Construction products. EPD System. Date 2022-11-01. Valid until 2024-12-20

EN 15804:2012+A2:2019/AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

ISO 14020:2000 Environmental labels and declarations — General principles

ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures

ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework

ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines

Ecoinvent / Ecoinvent Centre, www.Eco-invent.org

Residual Energy Mix 2021 from Renewable Energy Sources Operator & Guarantees of Origin (DAPEEP SA)