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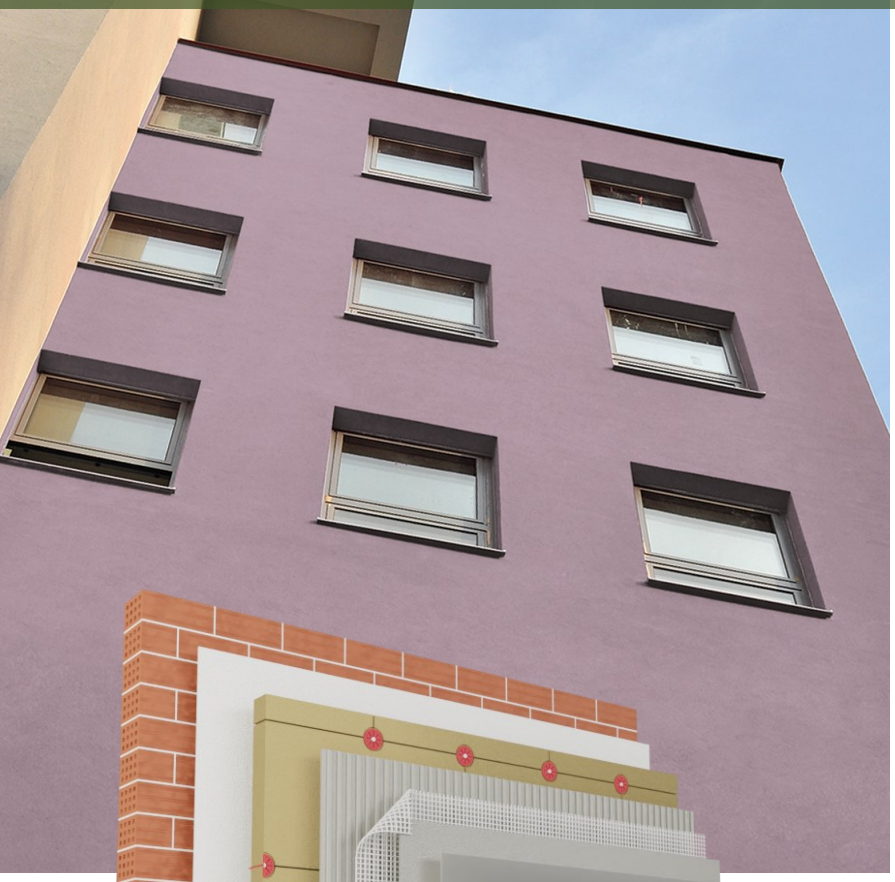
EPD®
ENVIRONMENTAL PRODUCT DECLARATION

ECO PLATFORM EPD VERIFIED

Environmental Product Declaration

for the External Thermal Insulation Composite System
ISOMAT THERMOSYSTEM WOOL 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-09901	2023-07-21	2028-07-20	Global





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

ISOMAT THERMOSYSTEM WOOL

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.

EPD owner	isomat building quality for a sustainable future	**ISOMAT S.A.** **BUILDING CHEMICALS, MORTARS & PAINTS** 17th km Thessaloniki – Ag. Athanasios Road, P.O. BOX 1043, 570 03 Ag. Athanasios, Greece **export@isomat.eu| www.isomat.eu**
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Programme operator	EPD® ENVIRONMENTAL PRODUCT DECLARATION	**The International EPD® System** EPD International AB Box 210 60 SE-100 31 Stockholm Sweden **www.environdec.com|info@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) & EN 16783:2017 serves as standard for c-PCR 005

Product category rules (PCR): **PCR 2019:14** Construction products, version 1.11 Published on 2021-02-05

& **c-PCR 005** 'Thermal insulation products', 2019-12-20. CPC CODE: 54650 Insulation services.

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

Chair: Contact via info@environdec.com

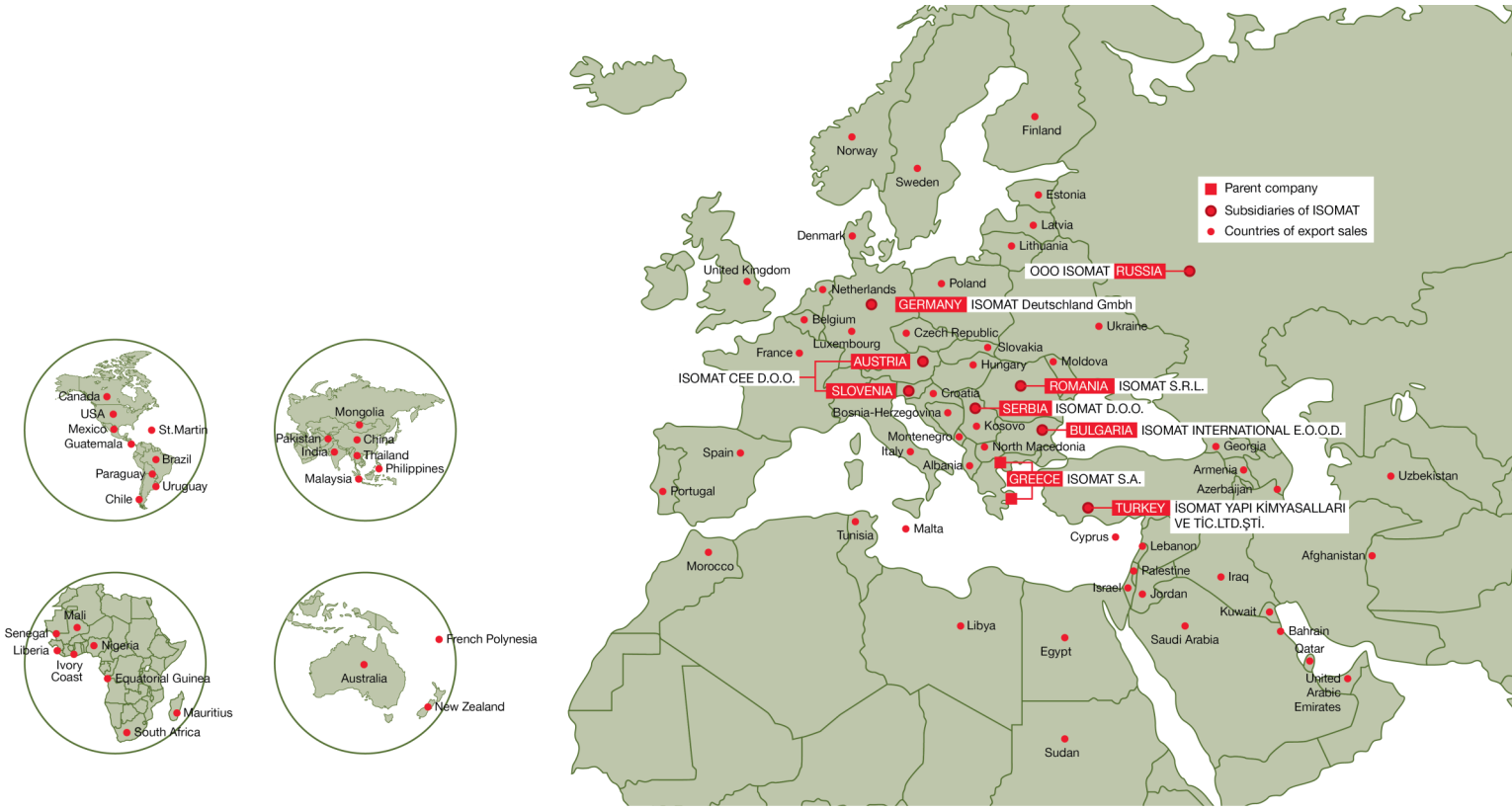
The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable.
EPDs of construction products may not be comparable if they do not comply with EN 15804.
For further information about comparability, see EN 15804 and ISO 14025.

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

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.

P R E M I S E S

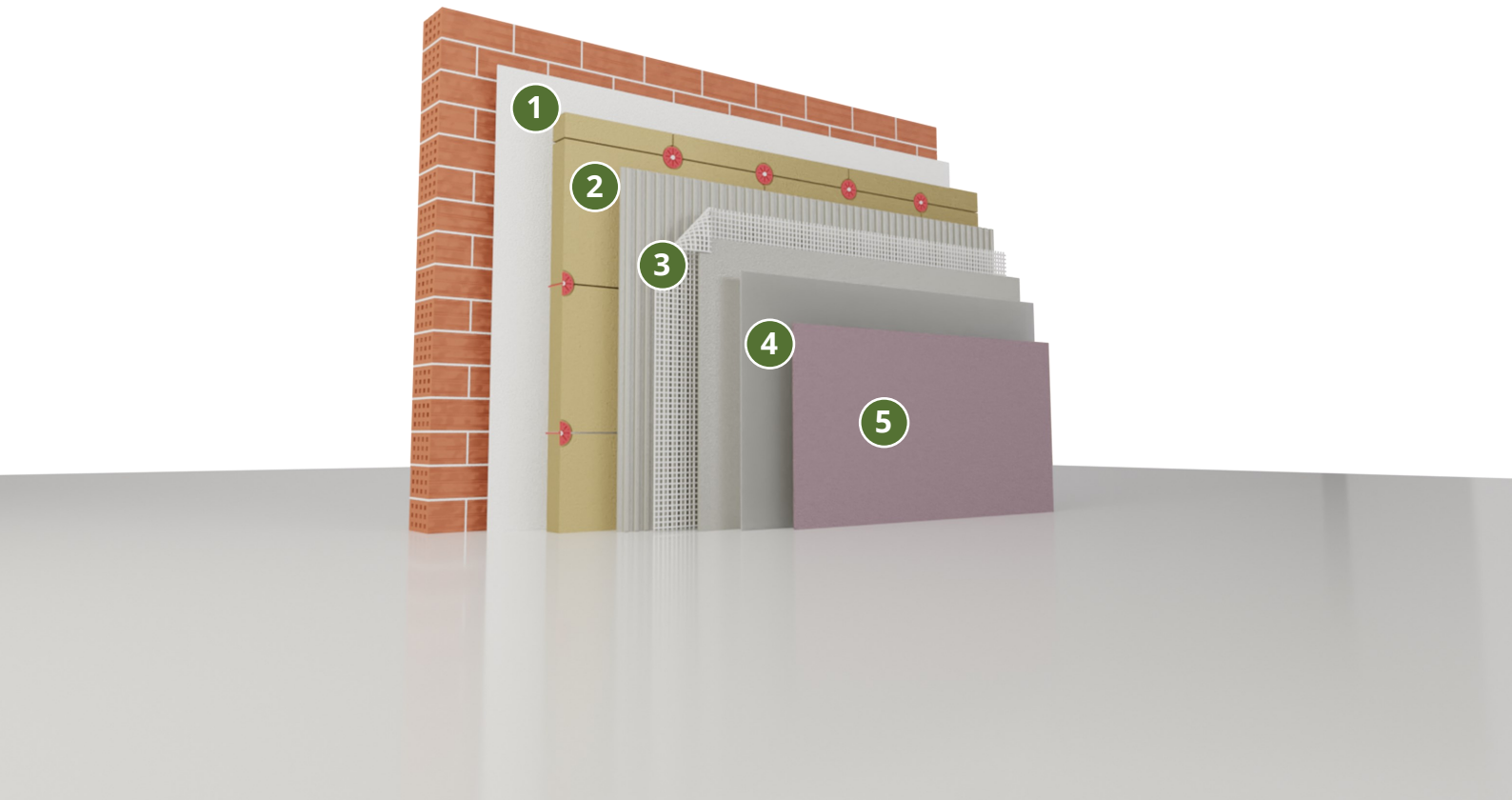


Product Info

ISOMAT THERMOSYSTEM WOOL is a multi-layer bonding system consisting of:

1. ISOMAT AK-T35 adhesive for bonding thermal insulation boards
2. Mineral wool (MW) insulation boards mechanically fixed with ISOMAT collar head anchors
3. ISOMAT AK-T65 base coat reinforced with THERMOSYSTEM RF fiberglass mesh (149 or 161 g/m²)
4. ML-PRIMER, FLEX-PRIMER or SILICONE-PRIMER
5. MARMOCRYL SILICONE-SILICATE / MARMOCRYL FR render

Ancillary components: aluminum base profile (starter track) with drip edge, corner profile with mesh, etc.



Certified according to EAD 040083-00-0404 ETA 16/0626

ISOMAT THERMOSYSTEM WOOL is the ideal solution for those applications where excellent fire performance is critical consideration, given that mineral wool provides unrivalled fire protection being practically non-combustible. In addition, MARMOCRYL SILICONE-SILICATE and MARMOCRYL FR pasty renders feature exceptional fire resistance (class A2-s1, d0 in accordance with EN 13501-1). The system has achieved an A2-s1,d0 reaction to fire classification in accordance with EN 13501-1. ISOMAT THERMOSYSTEM WOOL offers exceptional vapor permeability, allowing the building to breathe, provides excellent soundproofing properties and constitutes a great renovation opportunity for existing buildings, which acquire a new, beautiful look with the premium, colored pasty renders MARMOCRYL SILICONE-SILICATE and MARMOCRYL FR that are easily tinted in a wide range of colors through the ISOMAT COLOR SYSTEM tinting system. Plus, delivering an all-in-one render and paint coat, these renders help building facades retain both their aesthetic and functional properties for long, meaning no change in color and texture or risk of efflorescence and cracking.

Component	ISOMAT THERMOSYSTEM WOOL with MW Thickness 7 cm	ISOMAT THERMOSYSTEM WOOL with MW Thickness 10 cm
	Consumption (kg/m^2)	
ISOMAT AK-T35 as adhesive and ISOMAT AK-T65 as base coat	8,00	8,00
MW board	7,35	10,50
Anchors (6 pieces/m^2)	0,07	0,08
Fiberglass mesh reinforcement (including 10% overlap)	0,18	0,18
ML-PRIMER	0,15	0,15
MARMOCRYL pasty renders	2,20 (average consumption, in case of MARMOCRYL FR FINE or MARMOCRYL SILICONE-SILICATE FINE usage) 2,80 (average consumption, in case of MARMOCRYL FR DECOR or MARMOCRYL SILICONE-SILICATE DECOR usage)	2,20 (average consumption, in case of MARMOCRYL FR FINE or MARMOCRYL SILICONE-SILICATE FINE usage) 2,80 (average consumption, in case of or MARMOCRYL FR DECOR or MARMOCRYL SILICONE-SILICATE DECOR usage)
Total (kg/m^2)	17,95 (in case of MARMOCRYL FR FINE or MARMOCRYL SILICONE-SILICATE FINE usage) 18,55 (in case of MARMOCRYL FR DECOR or MARMOCRYL SILICONE-SILICATE DECOR usage)	21,11 (in case of MARMOCRYL FR FINE or MARMOCRYL SILICONE-SILICATE FINE usage) 21,71 (in case of MARMOCRYL FR DECOR or MARMOCRYL SILICONE-SILICATE DECOR usage)

No substance in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” exceeds 0.1% by weight in the final products.

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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	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	GLO	GLO	GR	EU	—	—	—	—	—	—	—	—	EU	EU	EU	EU	EU
Specific data used	>95%			—	—	—	—	—	—	—	—	—	—	—	—	—	—
Variation-products	<10%			—	—	—	—	—	—	—	—	—	—	—	—	—	—
Variation-sites	0%			—	—	—	—	—	—	—	—	—	—	—	—	—	—

A1: Raw Material Supply

Production starts with the material supply. This stage includes the mining and processing of raw materials used for the production of ISOMAT THERMOSYSTEM WOOL components and the generation of electricity and other utilities required for the manufacturing stage.

A2: Transportation of raw materials to the manufacturer

This module includes the delivery of raw materials from the supplier used for the production of system components by ISOMAT up to the gate of its manufacturing plant in Agios Athanasios, Thessaloniki, Greece. Raw materials for the production are transported by trucks and vessels from different suppliers all over the world.

A3: Manufacturing

This module includes the manufacturing of all components of ISOMAT THERMOSYSTEM WOOL.
The system components are:

- Cement-based adhesives (ISOMAT AK-T35 and ISOMAT AK-T65)
- Mineral wool (MW) boards
- Anchors for mechanical fixing
- Fiberglass mesh
- Primer
- Pasty render

A4: Transport to the construction site

This module includes the transport of system components to the construction site.

A5: Construction/Installation

This module includes the energy and water consumed during the assembling and installation of the system.

B1: Use

This module covers environmental aspects and impacts arising from components of the building and construction works during their normal (i.e. anticipated) use.

B2: Maintenance

This module covers the combination of all planned technical and associated administrative actions during the service life to maintain the product installed in a building.

B3: Repair

This module covers a combination of all technical and associated administrative actions during the service life associated with corrective, responsive or reactive treatment of a construction product or its parts installed in the building or construction works to return it to an acceptable condition in which it can perform its required functional and technical performance.

B4: Replacement

This module covers the combination of all technical and associated administrative actions during the service life associated with the return of a construction product to a condition in which it can perform its required functional or technical performance, by replacement of a whole construction element.

B5: Refurbishment

This module covers the combination of all technical and associated administrative actions during the service life of a product associated with the return of a building or other construction works or its parts to a condition in which it can perform its required functions.

B6: Operational energy use

The boundary of this module shall include energy use during the operation of the product, together with its associated environmental aspects and impacts including processing and transportation of any waste arising on site from the use of energy.

B7: Operational water use

This module includes the water use regarding the period from the handover of the building or construction works to when the building is deconstructed or demolished.

C1: De-construction, demolition

Demolition of ISOMAT THERMOSYSTEM WOOL takes place with the whole demolition of the building/construction. Thus, it is assumed that the energy used for the demolition of ISOMAT THERMOSYSTEM WOOL 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 reuse, 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 the end-of-life waste of ISOMAT THERMOSYSTEM WOOL components 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 it is said above, 100% of the end-of-life waste of ISOMAT THERMOSYSTEM WOOL components will be landfilled.

D: Resource-Recovery stage

Since the product is only disposed, there are no benefits deriving from the reuse 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 m^2 of ISOMAT THERMOSYSTEM WOOL.

Goal and Scope:
This EPD evaluates the environmental impacts of the production, construction, use and end-of-life of 1 m^2 of ISOMAT THERMOSYSTEM WOOL from Cradle to Grave (modules A+B+C) with module D.

System Boundary:
The system boundaries are set to be cradle to grave (modules A1-A5 + B1-B7 + C1-C4) with resource-recovery stage (module D).

Cut-off rules:
The cut-off criteria adopted is as stated in "EN 15804:2012+A2:2019". Where there is insufficient data 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 ISOMAT's plant in Agios Athanasios, Thessaloniki, Greece and have minor significance (packaging wastes, cables, batteries, electronic equipment, sludges) and chemicals used for wastewater treatment.

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 ISOMAT's plant in Agios Athanasios, Thessaloniki, Greece. 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-A3: For ISOMAT THERMOSYSTEM WOOL components manufactured by ISOMAT (renders, adhesives), the following average EPDs that ISOMAT has published on the **EPD international** website were used.

Components	EPD Registration number	EPD link
Cement-based adhesives for thermal insulation boards	S-P-09182	*Cement-based Adhesives for thermal insulation boards_S-P-09182*
Acrylic renders	S-P-09187	*Acrylic renders_S-P-09187*
Silicone-silicate renders	S-P-09189	*Silicone-silicate renders_S-P-09189*

Modules A2, A4 and C2: A EURO5 16-32 tonne lorry was utilized for road transportation.

Module A4: For those materials comprising the ISOMAT THERMOSYSTEM WOOL and produced by ISOMAT (adhesives, primers, renders), a distance of 500 km is used as the most representative assumption, since the vast majority of the customers are located in Athens and ISOMAT's manufacturing plant is located in Agios Athanasios, Thessaloniki, Greece. For MW (mineral wool), a distance of 500 km is used, since it derives from manufacturing plants located in Northern Greece. For the fiberglass mesh, a distance of 2000 km is used as the most representative assumption, since it is imported from manufacturing plants in Central Europe. Regarding the anchors for mechanical fixing, their transportation to the construction site was omitted from the study due to the very low mass contribution compared to the whole system.

Module A5: For module A5, it was calculated that for the assembling of 1 m^2 of ISOMAT THERMOSYSTEM WOOL, 0,0633 kWh of electricity are required. Furthermore, the water needed during the installation of ISOMAT THERMOSYSTEM WOOL is also taken into account, due to the water demand of ISOMAT cement-based adhesives for thermal insulation boards (5,5-6,0 l /25 kg according to the technical specifications).

Modules B1-B7: It is assumed that ISOMAT THERMOSYSTEM WOOL does not require maintenance, repair or refurbishment during its use phase in standard conditions providing it is properly installed. Furthermore, there is no need for energy or water consumption during the use phase of the building. Thus, environmental impacts regarding the modules B1-B7 are assumed to be zero.
The provisions made in the ETA-16/0626 of ISOMAT THERMOSYSTEM WOOL are based on an assumed intended working life of at least 25 years. The indications given as to the working life of the construction product cannot be interpreted as a guarantee but are regarded as means for expressing the expected economically reasonable working life of the product. Thus, reference service life (RSL) is 25 years.

Module C1: Demolition of ISOMAT THERMOSYSTEM WOOL takes place with the whole demolition of the building/construction. Thus, it is assumed that the energy used for the demolition of ISOMAT THERMOSYSTEM WOOL 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: It is assumed that 100% of the end-of-life waste of ISOMAT THERMOSYSTEM WOOL components will be landfilled, thus the environmental impact of this module is set to be zero.

Module C4: As it is said above, 100% of the end-of-life waste of ISOMAT THERMOSYSTEM WOOL components will be landfilled.

Data quality:

ISO 14044 was applied in terms of data collection and quality requirements. The impact of the production of components and raw materials not manufactured by ISOMAT 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 are 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

ISOMAT THERMOSYSTEM WOOL with MW, thickness 7 cm

(average usage of MARMOCRYL FR FINE or MARMOCRYL SILICONE-SILICATE FINE)

ENVIRONMENTAL IMPACTS	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	1,61E+01	1,73E+00	2,82E-02	0,00E+00	0,00E+00	3,38E-01	0,00E+00	2,72E-01	0,00E+00
GWP-fossil	kg CO_2 eq	1,61E+01	1,73E+00	2,80E-02	0,00E+00	0,00E+00	3,38E-01	0,00E+00	2,72E-01	0,00E+00
GWP-biogenic	kg CO_2 eq	6,36E-02	4,99E-04	1,04E-04	0,00E+00	0,00E+00	9,74E-05	0,00E+00	1,22E-04	0,00E+00
GWP-luluc	kg CO_2 eq	1,38E-02	8,41E-04	5,15E-05	0,00E+00	0,00E+00	1,64E-04	0,00E+00	1,74E-04	0,00E+00
GWP-GHG[1]	kg CO_2 eq	1,59E+01	3,40E-01	2,81E-02	0,00E+00	0,00E+00	6,63E-02	0,00E+00	2,66E-01	0,00E+00
ODP	kg CFC-11 eq	3,62E-07	3,77E-08	5,45E-10	0,00E+00	0,00E+00	7,35E-09	0,00E+00	4,36E-09	0,00E+00
AP	mol H+ eq	1,16E-01	5,65E-03	1,49E-04	0,00E+00	0,00E+00	1,10E-03	0,00E+00	1,37E-03	0,00E+00
EP-freshwater	kg PO4-3 eq	1,46E-02	3,72E-04	1,08E-04	0,00E+00	0,00E+00	7,25E-05	0,00E+00	4,71E-05	0,00E+00
EP-freshwater[2]	kg P eq	4,77E-03	1,21E-04	3,52E-05	0,00E+00	0,00E+00	2,36E-05	0,00E+00	1,54E-05	0,00E+00
EP-marine	kg N eq	1,51E-02	1,94E-03	2,48E-05	0,00E+00	0,00E+00	3,79E-04	0,00E+00	5,51E-04	0,00E+00
EP-terrestrial	mol N eq	2,15E-01	2,05E-02	1,95E-04	0,00E+00	0,00E+00	4,00E-03	0,00E+00	5,92E-03	0,00E+00
POCP	kg NMVOC eq	7,06E-02	8,44E-03	6,79E-05	0,00E+00	0,00E+00	1,65E-03	0,00E+00	1,98E-03	0,00E+00
ADPe	kg Sb eq	1,56E-04	5,69E-06	4,96E-08	0,00E+00	0,00E+00	1,11E-06	0,00E+00	2,89E-07	0,00E+00
ADPf	MJ	1,94E+02	2,47E+01	5,62E-01	0,00E+00	0,00E+00	4,83E+00	0,00E+00	3,79E+00	0,00E+00
WDP[3]	m^3 eq	4,80E+00	1,31E-01	9,01E-02	0,00E+00	0,00E+00	2,56E-02	0,00E+00	1,36E-01	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]Eutrophication aquatic freshwater shall be given in both kg PO4 eq and kg P eq.

[3]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 experienced with the indicator.

RESOURCE USE	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	MJ	1,32E+01	3,81E-01	9,40E-02	0,00E+00	0,00E+00	7,43E-02	0,00E+00	4,03E-02	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,32E+01	3,81E-01	9,40E-02	0,00E+00	0,00E+00	7,43E-02	0,00E+00	4,03E-02	0,00E+00
PENRE	MJ	1,91E+02	2,46E+01	5,47E-01	0,00E+00	0,00E+00	4,79E+00	0,00E+00	3,77E+00	0,00E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,91E+02	2,46E+01	5,47E-01	0,00E+00	0,00E+00	4,79E+00	0,00E+00	3,77E+00	0,00E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,12E-01	3,05E-03	2,10E-03	0,00E+00	0,00E+00	5,95E-04	0,00E+00	3,16E-03	0,00E+00

OUTPUT FLOWS AND WASTE CATEGORIES	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	kg	5,45E-04	1,56E-04	8,25E-07	0,00E+00	0,00E+00	3,05E-05	0,00E+00	2,08E-05	0,00E+00
NHWD	kg	1,63E+00	1,20E+00	1,54E-03	0,00E+00	0,00E+00	2,34E-01	0,00E+00	1,77E+01	0,00E+00
RWD	kg	1,97E-04	7,98E-06	3,02E-06	0,00E+00	0,00E+00	1,56E-06	0,00E+00	7,19E-07	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	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	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	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	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL IMPACTS	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	Disease incidence	7,60E-07	1,38E-07	5,47E-10	0,00E+00	0,00E+00	2,69E-08	0,00E+00	9,10E-08	0,00E+00
IRP[4]	kBq U235 eq	7,84E-01	3,29E-02	1,18E-02	0,00E+00	0,00E+00	6,41E-03	0,00E+00	3,03E-03	0,00E+00
ETP-FW	CTUe	5,93E+01	1,21E+01	9,57E-02	0,00E+00	0,00E+00	2,36E+00	0,00E+00	3,40E+00	0,00E+00
HTP-c	CTUh	4,10E-08	7,89E-10	1,21E-11	0,00E+00	0,00E+00	1,54E-10	0,00E+00	8,28E-11	0,00E+00
HTP-nc	CTUh	1,89E-07	1,74E-08	3,33E-10	0,00E+00	0,00E+00	3,40E-09	0,00E+00	1,18E-09	0,00E+00
SQP	Dimension less	7,32E+01	1,46E+01	6,84E-02	0,00E+00	0,00E+00	2,85E+00	0,00E+00	6,31E+00	0,00E+00

[4]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.

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Environmental Performance

ISOMAT THERMOSYSTEM WOOL with MW, thickness 10 cm

(average usage of MARMOCRYL FR FINE or MARMOCRYL SILICONE-SILICATE FINE)

ENVIRONMENTAL IMPACTS	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	2,03E+01	2,03E+00	2,82E-02	0,00E+00	0,00E+00	3,98E-01	0,00E+00	2,91E-01	0,00E+00
GWP-fossil	kg CO_2 eq	2,02E+01	2,03E+00	2,80E-02	0,00E+00	0,00E+00	3,97E-01	0,00E+00	2,91E-01	0,00E+00
GWP-biogenic	kg CO_2 eq	7,50E-02	5,85E-04	1,04E-04	0,00E+00	0,00E+00	1,15E-04	0,00E+00	1,30E-04	0,00E+00
GWP-luluc	kg CO_2 eq	1,63E-02	9,85E-04	5,15E-05	0,00E+00	0,00E+00	1,93E-04	0,00E+00	1,86E-04	0,00E+00
GWP-GHG[1]	kg CO_2 eq	2,01E+01	3,98E-01	2,81E-02	0,00E+00	0,00E+00	7,80E-02	0,00E+00	2,85E-01	0,00E+00
ODP	kg CFC-11 eq	4,46E-07	4,41E-08	5,45E-10	0,00E+00	0,00E+00	8,64E-09	0,00E+00	4,92E-09	0,00E+00
AP	mol H+ eq	1,54E-01	6,62E-03	1,49E-04	0,00E+00	0,00E+00	1,30E-03	0,00E+00	1,52E-03	0,00E+00
EP-freshwater	kg PO4-3 eq	1,87E-02	4,35E-04	1,08E-04	0,00E+00	0,00E+00	8,53E-05	0,00E+00	5,20E-05	0,00E+00
EP-freshwater[2]	kg P eq	6,10E-03	1,42E-04	3,52E-05	0,00E+00	0,00E+00	2,78E-05	0,00E+00	1,69E-05	0,00E+00
EP-marine	kg N eq	1,92E-02	2,28E-03	2,48E-05	0,00E+00	0,00E+00	4,46E-04	0,00E+00	6,06E-04	0,00E+00
EP-terrestrial	mol N eq	2,80E-01	2,40E-02	1,95E-04	0,00E+00	0,00E+00	4,71E-03	0,00E+00	6,51E-03	0,00E+00
POCP	kg NMVOC eq	9,12E-02	9,88E-03	6,79E-05	0,00E+00	0,00E+00	1,94E-03	0,00E+00	2,19E-03	0,00E+00
ADPe	kg Sb eq	1,84E-04	6,67E-06	4,96E-08	0,00E+00	0,00E+00	1,31E-06	0,00E+00	3,16E-07	0,00E+00
ADPf	MJ	2,43E+02	2,90E+01	5,62E-01	0,00E+00	0,00E+00	5,68E+00	0,00E+00	4,27E+00	0,00E+00
WDP[3]	m^3 eq	5,88E+00	1,53E-01	9,01E-02	0,00E+00	0,00E+00	3,01E-02	0,00E+00	1,57E-01	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]Eutrophication aquatic freshwater shall be given in both kg PO4 eq and kg P eq.

[3]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 experienced with the indicator.

RESOURCE USE	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	MJ	1,59E+01	4,46E-01	9,40E-02	0,00E+00	0,00E+00	8,74E-02	0,00E+00	4,44E-02	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,59E+01	4,46E-01	9,40E-02	0,00E+00	0,00E+00	8,74E-02	0,00E+00	4,44E-02	0,00E+00
PENRE	MJ	2,39E+02	2,88E+01	5,47E-01	0,00E+00	0,00E+00	5,63E+00	0,00E+00	4,24E+00	0,00E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,39E+02	2,88E+01	5,47E-01	0,00E+00	0,00E+00	5,63E+00	0,00E+00	4,24E+00	0,00E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,37E-01	3,57E-03	2,10E-03	0,00E+00	0,00E+00	7,00E-04	0,00E+00	3,65E-03	0,00E+00

OUTPUT FLOWS AND WASTE CATEGORIES	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	kg	6,58E-04	1,83E-04	8,25E-07	0,00E+00	0,00E+00	3,59E-05	0,00E+00	2,33E-05	0,00E+00
NHWD	kg	1,91E+00	1,41E+00	1,54E-03	0,00E+00	0,00E+00	2,75E-01	0,00E+00	2,09E+01	0,00E+00
RWD	kg	2,29E-04	9,35E-06	3,02E-06	0,00E+00	0,00E+00	1,83E-06	0,00E+00	7,89E-07	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	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	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	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	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL IMPACTS	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	Disease incidence	9,91E-07	1,61E-07	5,47E-10	0,00E+00	0,00E+00	3,16E-08	0,00E+00	9,41E-08	0,00E+00
IRP[4]	kBq U235 eq	9,16E-01	3,85E-02	1,18E-02	0,00E+00	0,00E+00	7,54E-03	0,00E+00	3,34E-03	0,00E+00
ETP-FW	CTUe	7,28E+01	1,42E+01	9,57E-02	0,00E+00	0,00E+00	2,78E+00	0,00E+00	3,62E+00	0,00E+00
HTP-c	CTUh	5,66E-08	9,24E-10	1,21E-11	0,00E+00	0,00E+00	1,81E-10	0,00E+00	9,10E-11	0,00E+00
HTP-nc	CTUh	2,29E-07	2,04E-08	3,33E-10	0,00E+00	0,00E+00	4,00E-09	0,00E+00	1,28E-09	0,00E+00
SQP	Dimension less	9,31E+01	1,71E+01	6,84E-02	0,00E+00	0,00E+00	3,35E+00	0,00E+00	7,25E+00	0,00E+00

[4]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.

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Environmental Performance

ISOMAT THERMOSYSTEM WOOL with MW, thickness 7 cm

(average usage of MARMOCRYL FR DECOR or MARMOCRYL SILICONE-SILICATE DECOR)

ENVIRONMENTAL IMPACTS	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	1,65E+01	1,79E+00	2,82E-02	0,00E+00	0,00E+00	3,50E-01	0,00E+00	3,02E-01	0,00E+00
GWP-fossil	kg CO_2 eq	1,65E+01	1,79E+00	2,80E-02	0,00E+00	0,00E+00	3,49E-01	0,00E+00	3,01E-01	0,00E+00
GWP-biogenic	kg CO_2 eq	6,56E-02	5,16E-04	1,04E-04	0,00E+00	0,00E+00	1,01E-04	0,00E+00	1,41E-04	0,00E+00
GWP-luluc	kg CO_2 eq	1,41E-02	8,69E-04	5,15E-05	0,00E+00	0,00E+00	1,70E-04	0,00E+00	1,79E-04	0,00E+00
GWP-GHG[1]	kg CO_2 eq	1,63E+01	3,51E-01	2,81E-02	0,00E+00	0,00E+00	6,85E-02	0,00E+00	2,95E-01	0,00E+00
ODP	kg CFC-11 eq	3,78E-07	3,89E-08	5,45E-10	0,00E+00	0,00E+00	7,60E-09	0,00E+00	4,53E-09	0,00E+00
AP	mol H+ eq	1,18E-01	5,83E-03	1,49E-04	0,00E+00	0,00E+00	1,14E-03	0,00E+00	1,42E-03	0,00E+00
EP-freshwater	kg PO4-3 eq	1,50E-02	3,84E-04	1,08E-04	0,00E+00	0,00E+00	7,49E-05	0,00E+00	4,99E-05	0,00E+00
EP-freshwater[2]	kg P eq	4,90E-03	1,25E-04	3,52E-05	0,00E+00	0,00E+00	2,44E-05	0,00E+00	1,63E-05	0,00E+00
EP-marine	kg N eq	1,55E-02	2,01E-03	2,48E-05	0,00E+00	0,00E+00	3,92E-04	0,00E+00	5,70E-04	0,00E+00
EP-terrestrial	mol N eq	2,19E-01	2,12E-02	1,95E-04	0,00E+00	0,00E+00	4,14E-03	0,00E+00	6,12E-03	0,00E+00
POCP	kg NMVOC eq	7,23E-02	8,71E-03	6,79E-05	0,00E+00	0,00E+00	1,70E-03	0,00E+00	2,05E-03	0,00E+00
ADPe	kg Sb eq	1,62E-04	5,88E-06	4,96E-08	0,00E+00	0,00E+00	1,15E-06	0,00E+00	3,04E-07	0,00E+00
ADPf	MJ	2,01E+02	2,56E+01	5,62E-01	0,00E+00	0,00E+00	4,99E+00	0,00E+00	3,95E+00	0,00E+00
WDP[3]	m^3 eq	4,99E+00	1,35E-01	9,01E-02	0,00E+00	0,00E+00	2,64E-02	0,00E+00	1,42E-01	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]Eutrophication aquatic freshwater shall be given in both kg PO4 eq and kg P eq.

[3]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 experienced with the indicator.

RESOURCE USE	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	MJ	1,38E+01	3,93E-01	9,40E-02	0,00E+00	0,00E+00	7,68E-02	0,00E+00	4,31E-02	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,38E+01	3,93E-01	9,40E-02	0,00E+00	0,00E+00	7,68E-02	0,00E+00	4,31E-02	0,00E+00
PENRE	MJ	1,97E+02	2,54E+01	5,47E-01	0,00E+00	0,00E+00	4,95E+00	0,00E+00	3,92E+00	0,00E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,97E+02	2,54E+01	5,47E-01	0,00E+00	0,00E+00	4,95E+00	0,00E+00	3,92E+00	0,00E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,16E-01	3,15E-03	2,10E-03	0,00E+00	0,00E+00	6,15E-04	0,00E+00	3,31E-03	0,00E+00

OUTPUT FLOWS AND WASTE CATEGORIES	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	kg	5,66E-04	1,61E-04	8,25E-07	0,00E+00	0,00E+00	3,15E-05	0,00E+00	2,15E-05	0,00E+00
NHWD	kg	1,73E+00	1,24E+00	1,54E-03	0,00E+00	0,00E+00	2,42E-01	0,00E+00	1,83E+01	0,00E+00
RWD	kg	2,06E-04	8,24E-06	3,02E-06	0,00E+00	0,00E+00	1,61E-06	0,00E+00	7,73E-07	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	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	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	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	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL IMPACTS	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	Disease incidence	7,79E-07	1,42E-07	5,47E-10	0,00E+00	0,00E+00	2,78E-08	0,00E+00	9,21E-08	0,00E+00
IRP[4]	kBq U235 eq	8,22E-01	3,39E-02	1,18E-02	0,00E+00	0,00E+00	6,62E-03	0,00E+00	3,26E-03	0,00E+00
ETP-FW	CTUe	6,22E+01	1,25E+01	9,57E-02	0,00E+00	0,00E+00	2,44E+00	0,00E+00	3,86E+00	0,00E+00
HTP-c	CTUh	4,12E-08	8,15E-10	1,21E-11	0,00E+00	0,00E+00	1,59E-10	0,00E+00	8,69E-11	0,00E+00
HTP-nc	CTUh	1,94E-07	1,80E-08	3,33E-10	0,00E+00	0,00E+00	3,51E-09	0,00E+00	1,26E-09	0,00E+00
SQP	Dimension less	7,58E+01	1,51E+01	6,84E-02	0,00E+00	0,00E+00	2,95E+00	0,00E+00	6,65E+00	0,00E+00

[4]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.

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Environmental Performance

ISOMAT THERMOSYSTEM WOOL with MW, thickness 10 cm

(average usage of MARMOCRYL FR DECOR or MARMOCRYL SILICONE-SILICATE DECOR)

ENVIRONMENTAL IMPACTS	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	2,07E+01	2,09E+00	2,82E-02	0,00E+00	0,00E+00	4,09E-01	0,00E+00	3,21E-01	0,00E+00
GWP-fossil	kg CO_2 eq	2,06E+01	2,09E+00	2,80E-02	0,00E+00	0,00E+00	4,09E-01	0,00E+00	3,21E-01	0,00E+00
GWP-biogenic	kg CO_2 eq	7,70E-02	6,01E-04	1,04E-04	0,00E+00	0,00E+00	1,18E-04	0,00E+00	1,48E-04	0,00E+00
GWP-luluc	kg CO_2 eq	1,66E-02	1,01E-03	5,15E-05	0,00E+00	0,00E+00	1,98E-04	0,00E+00	1,91E-04	0,00E+00
GWP-GHG[1]	kg CO_2 eq	2,05E+01	4,09E-01	2,81E-02	0,00E+00	0,00E+00	8,02E-02	0,00E+00	3,14E-01	0,00E+00
ODP	kg CFC-11 eq	4,62E-07	4,54E-08	5,45E-10	0,00E+00	0,00E+00	8,89E-09	0,00E+00	5,08E-09	0,00E+00
AP	mol H+ eq	1,56E-01	6,80E-03	1,49E-04	0,00E+00	0,00E+00	1,33E-03	0,00E+00	1,57E-03	0,00E+00
EP-freshwater	kg PO4-3 eq	1,91E-02	4,47E-04	1,08E-04	0,00E+00	0,00E+00	8,77E-05	0,00E+00	5,48E-05	0,00E+00
EP-freshwater[2]	kg P eq	6,23E-03	1,46E-04	3,52E-05	0,00E+00	0,00E+00	2,86E-05	0,00E+00	1,79E-05	0,00E+00
EP-marine	kg N eq	1,95E-02	2,34E-03	2,48E-05	0,00E+00	0,00E+00	4,58E-04	0,00E+00	6,25E-04	0,00E+00
EP-terrestrial	mol N eq	2,84E-01	2,47E-02	1,95E-04	0,00E+00	0,00E+00	4,84E-03	0,00E+00	6,72E-03	0,00E+00
POCP	kg NMVOC eq	9,29E-02	1,02E-02	6,79E-05	0,00E+00	0,00E+00	1,99E-03	0,00E+00	2,26E-03	0,00E+00
ADPe	kg Sb eq	1,89E-04	6,85E-06	4,96E-08	0,00E+00	0,00E+00	1,34E-06	0,00E+00	3,31E-07	0,00E+00
ADPf	MJ	2,49E+02	2,98E+01	5,62E-01	0,00E+00	0,00E+00	5,84E+00	0,00E+00	4,43E+00	0,00E+00
WDP[3]	m^3 eq	6,07E+00	1,58E-01	9,01E-02	0,00E+00	0,00E+00	3,09E-02	0,00E+00	1,64E-01	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]Eutrophication aquatic freshwater shall be given in both kg PO4 eq and kg P eq.

[3]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 experienced with the indicator.

RESOURCE USE	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	MJ	1,65E+01	4,59E-01	9,40E-02	0,00E+00	0,00E+00	8,99E-02	0,00E+00	4,72E-02	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,65E+01	4,59E-01	9,40E-02	0,00E+00	0,00E+00	8,99E-02	0,00E+00	4,72E-02	0,00E+00
PENRE	MJ	2,46E+02	2,96E+01	5,47E-01	0,00E+00	0,00E+00	5,79E+00	0,00E+00	4,40E+00	0,00E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,46E+02	2,96E+01	5,47E-01	0,00E+00	0,00E+00	5,79E+00	0,00E+00	4,40E+00	0,00E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,41E-01	3,67E-03	2,10E-03	0,00E+00	0,00E+00	7,20E-04	0,00E+00	3,81E-03	0,00E+00

OUTPUT FLOWS AND WASTE CATEGORIES	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	kg	6,78E-04	1,88E-04	8,25E-07	0,00E+00	0,00E+00	3,69E-05	0,00E+00	2,40E-05	0,00E+00
NHWD	kg	2,01E+00	1,44E+00	1,54E-03	0,00E+00	0,00E+00	2,83E-01	0,00E+00	2,15E+01	0,00E+00
RWD	kg	2,38E-04	9,61E-06	3,02E-06	0,00E+00	0,00E+00	1,88E-06	0,00E+00	8,43E-07	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	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	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	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	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL IMPACTS	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	Disease incidence	1,01E-06	1,66E-07	5,47E-10	0,00E+00	0,00E+00	3,25E-08	0,00E+00	9,52E-08	0,00E+00
IRP[4]	kBq U235 eq	9,53E-01	3,96E-02	1,18E-02	0,00E+00	0,00E+00	7,75E-03	0,00E+00	3,56E-03	0,00E+00
ETP-FW	CTUe	7,57E+01	1,46E+01	9,57E-02	0,00E+00	0,00E+00	2,86E+00	0,00E+00	4,08E+00	0,00E+00
HTP-c	CTUh	5,68E-08	9,50E-10	1,21E-11	0,00E+00	0,00E+00	1,86E-10	0,00E+00	9,50E-11	0,00E+00
HTP-nc	CTUh	2,35E-07	2,10E-08	3,33E-10	0,00E+00	0,00E+00	4,11E-09	0,00E+00	1,36E-09	0,00E+00
SQP	Dimension less	9,57E+01	1,76E+01	6,84E-02	0,00E+00	0,00E+00	3,45E+00	0,00E+00	7,60E+00	0,00E+00

[4]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.

Linear equations – Thickness conversion

The following equations depict the linear relationship between the insulation thickness and the GWP-total indicator. It is presented in the form y=a*x+b, where x is the insulation thickness (in cm) and y is the GWP-total indicator (in kg CO_2 eq.) for the interested thickness.

- ISOMAT THERMOSYSTEM WOOL with MW (usage of MARMOCRYL FR FINE / MARMOCRYL SILICONE-SILICATE FINE)

y=1,3934*x+6,3903

- ISOMAT THERMOSYSTEM WOOL with MW (usage of MARMOCRYL FR DECOR / MARMOCRYL SILICONE-SILICATE DECOR)

y=1,3934*x+6,7895

List of abbreviations

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 3.01, 2019-09-18

PCR 2019:14 v.1.11 Construction products. EPD System. Date 2021-02-05. Valid until 2024-12-20

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

c-PCR-005 Thermal Insulation Products, version 2019-12-20, International EPD® System

EN 16783:2017: Thermal insulation products - Product category rules (PCR) for factory made and in-situ formed products for preparing environmental product declarations

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)