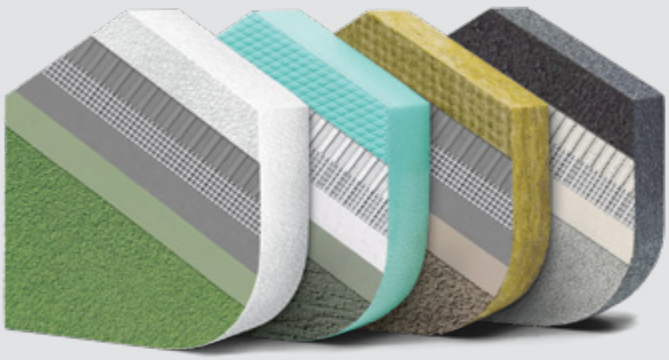
BUILDING INNOVATION

BIOCLIMA®

ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025 and EN 15804+A2



CLIMAWALL® Mineral

External Thermal Insulation Composite System (ETICS)
Containing Mineral Wool thermal insulation boards

Registration number	S-P-05719
Issue date	28.04.2022
Revision Date	17.06.2024
Valid to	27.04.2027
Geographical scope	Europe

ECO PLATFORM EPD VERIFIED

Powered by:

KRAFT PAINTS

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Company Description

Druckfarben Group S.A.

- Produces inks for flexography and rotogravure printing.
- In the coatings division, decorative and architectural products are commercialized under the KRAFT Paints brand.
- Energy saving / external thermal insulation products are commercialized under the BIOCLIMA brand.

DRUCKFARBEN Group comprises of a group of companies with worldwide activities catering to the ink, coating, and energy saving sectors.

More specifically, **DF Hellas S.A.** produces inks for flexography and rotogravure printing under the **DRUCKFARBEN** brand name using sub-brands for the various applications in the food packaging, plastic bags, cartons, and related products.

In the coatings division it commercializes its decorative and architectural paints products under the **KRAFT PAINTS** brand and in the energy saving/external thermal insulation products under the **BIOCLIMA®** brand. The Group has an important and increasing international presence in Eastern and Central Europe through subsidiaries in Bulgaria, Romania, Serbia, and through representatives in Malta, Turkey, Tunisia, Lebanon, Hungary, Slovenia, Croatia, Albania and Western and North Africa, Israel, and the Gulf countries. In West Africa, the company operates in Nigeria through its own subsidiary and the neighboring countries of the Economic Community of West African States (ECOWAS). The company's strategy includes expanding its export activities to new countries supported by a strong network of local partners.

DRUCKFARBEN holds a significant position in the area of architectural paints, varnishes and mortars related to construction activities under the **KRAFT PAINTS** brand. Also, under the **BIOCLIMA®** brand, the company offers a wide range of certified thermal insulation systems for energy upgrading and aesthetic renovation of new and existing buildings.

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General information

Owner of the declaration: DRUCKFARBEN HELLAS S.A.
Megaridos Ave., Kallistiri Area, 19300, Aspropyrgos, Greece

Programme operator: EPD International AB,
Box 210 60, SE-100 31 Stockholm, Sweden.
Website: www.environdec.com

Registration number: S-P-05719

Declared product (commercial references): **CLIMAWALL® Mineral**
external thermal insulation composition systems (ETICS) containing Mineral Wool

Production sites/producers for which the EPD is representative:
DRUCKFARBEN HELLAS S.A., Aspropyrgos, Greece

Issue date: 28.04.2022

Valid to: 27.04.2027

a) Construction products/ Registration number
and version: 2019:14, version 1.11
b) Thermal insulation products/ Registration number and version:
c-PCR-005, version 2019-12-20

Independent verification of the declaration and data according to ISO 14025:2006

internally ☐ externally ☒

Third-party verifier: Business Quality Verification P.C.

BUSINESS QUALITY VERIFICATION BQV

Comparability: Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to EN 15804+A2 and the building context, respectively the product-specific characteristics of performance, are taken into account.

Additional information:
Additional information can be obtained under: https://**kraftpaints.com** & https://**bioclima.gr**

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Specification of the product

The declared products are external thermal insulation composition systems (ETICS) produced by DRUCKFARBEN HELLAS S.A that are marketed under the brand name BIOCLIMA® .

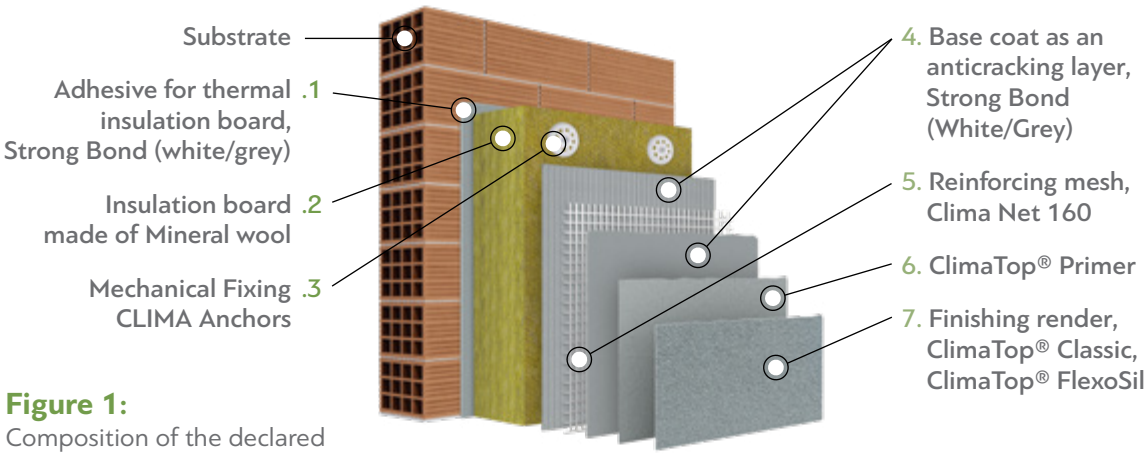

Figure 1:
Composition of the declared ETICS ClimaWall® Mineral by BIOCLIMA®

The ETICS consists of several layer, starting from the substrate/masonry:

1. Adhesive for thermal insulation board Strong Bond (white/grey):

Strong Bond is a fiber-reinforced, one-component cementitious resin mortar. Contains cement, quartz aggregates, limestone fillers and improving additives. It offers excellent adhesion, high mechanical strength and flexibility.

It is classified as a GP CS-IV W2 rendering mortar according to EN 998-1 and as part of certified external thermal insulation system CLIMAWALL® by BIOCLIMA® according to EAD 040083-00-0404, as adhesive and base coat mortar.

Strong Bond is used as an adhesive for thermal insulation boards, such as expanded polystyrene (EPS), extruded polystyrene (XPS), mineral wool (MW) etc. of the Exterior Thermal Insulation System CLIMAWALL® by BIOCLIMA®.

In addition, it is used as a base coat, for thermal insulation boards, reinforced with alkali resistant glass fiber mesh, thus being the ideal substrate for the finishing render that will follow. It also can be used, in combination with alkali resistant glass fiber mesh and ClimaTop® finishing renders, as an anti-cracking protection layer, in order to cover connections of different types of masonry (e.g. aerated concrete with concrete, bricks with concrete or aerated concrete, etc.), to cover wall drilling channels made by electricians or plumbers, to reinforce edges of openings (doors and windows) in order to prevent future cracks, to smooth surfaces, to protect entire parts of a building structure against possible cracks, etc. Suitable for outdoor & indoor usage.

2. Insulation board made of Mineral wool:

Several thicknesses and densities are available, dependent on the required energy performance and compressive strength. The dimension of each panel is length 100cm x width 60cm. The densities of Mineral wool vary between 75 - 120 kg/m^3.

3. CLIMA Anchors:

The anchors provided with Bioclima are nailed-in plastic anchor for fixing of external thermal insulation composite systems with rendering in concrete and masonry.

4. Base coat as an anticracking layer Strong Bond (White/Grey)

within which a reinforcing mesh is included. **Strong Bond (White/Grey)** can also be used as the base coat in the anticracking layer (see above).

5. Reinforcing mesh Clima Net 160:

The Clima Net 160 is a reinforcing glass fibre mesh with a weight of 160 gr/m^2 and a 4x4mm frame. It has a special anti-alkaline coating that offers excellent resistance to corrosion when found in an environment rich in alkalis.

The Clima Net 160 is used for reinforcement of CLIMAWALL® External Thermal Insulation Composite System base layer and is fully compatible with the respective base layer materials, organic or cement based. Still, it is generally suitable for use as a reinforcing glass fibre mesh for cementitious or non-cementitious base coatings, distributing the stresses evenly over their entire surface.

It has excellent resistance to alkalis, very high tensile strength and strong resistance to elastic deformation. Suitable for local reinforcement of surfaces that develop high cracking tendencies. It is suitable for indoor and outdoor use and user-friendly and environmentally friendly.

It is CE certified according to the EAD 040083-00-0404 standard (based on EOTA) as part of the external thermal insulation system of CLIMAWALL® by BIOCLIMA.

6. ClimaTop® Primer:

The Primer is an organic water-based primer, with small granules, ready to use, which creates a slightly rough surface enhancing the adhesion, filling and homogenization of the substrate, followed by the application of various types of finishing renders in pasty form, such as ClimaTop® finishing renders by BIOCLIMA®.

It participates as undercoat (primer) to the certified external thermal insulation system CLIMAWALL® by BIOCLIMA® according to EAD 040083-00-0404.

ClimaTop® Primer is recommended to be used as a primer in order to enhance the adhesion, filling and homogenization of the substrate, while regulating its roughness before applying finishing renders, such as ClimaTop® finishing renders by BIOCLIMA. It is suitable for outdoor and indoor application. It also has great adhesion on ordinary building surfaces such as: concrete, plaster, cement mortars, cement boards, gypsum boards, previously painted surfaces and well anchored to the substrate, etc.

7a. Acrylic, fiber-reinforced, ready-to-use, water-repellent, decorative finishing render in pasty form with silicone enhancement ClimaTop® Classic:

ClimaTop® Classic is a decorative, ready-to-use in pasty-form, acrylic fiber-reinforced finishing render. It is vapor permeable, water repellent, based on silicone enhancement. It consists of natural granules of suitable graded granulometry, reinforced with PP-fibers and additional enhancers.

It also contains lightweight microspheres from 100% recycled expanded glass (Recycled Glass Technology) providing excellent applicability, surface uniformity and advanced mechanical properties. It is classified as finishing render based on organic binder according to the standard EN 15824 and as part of certified external thermal insulation system CLIMAWALL® by BIOCLIMA® according to EAD 040083-00-0404, as finishing render.

ClimaTop® Classic is used as decorative finishing render of external thermal insulation system CLIMAWALL® by BIOCLIMA®.

Also, as finishing render of increased strength, for outdoor or indoor usage, above the usual building materials: plaster, concrete, cement board, plasterboard, as well as previously painted surfaces that are well anchored to the substrate.

Due to its formulation, it resists high summer and low winter temperatures, maintains elasticity and offers a hydrophobic, water-repellent, non-cracking protection film to structural surfaces.

7b. Silicone, elastomeric, ready-to-use water-repellent, decorative finishing render in pasty form ClimaTop® FlexoSil:

ClimaTop® FlexoSil is a decorative, ready-to-use in pasty form, acrylic finishing render. It is based on a combination of high quality acrylic and silicone resins , with excellent elasticity and water-repellency, natural granules of suitable graded granulometry and additional enhancers.

It also contains lightweight microspheres from 100% recycled expanded glass (Recycled Glass Technology) providing excellent applicability, surface uniformity and advanced mechanical properties.

ClimaTop® FlexoSil ideally combines high hydrophobicity and breathability, with great elasticity offering excellent protection in building constructions. It is classified as finishing render based on organic binder according to the standard EN 15824 and as part of certified external thermal insulation system CLIMAWALL® by BIOCLIMA® according to EAD 040083-00-0404, as finishing render.

ClimaTop® FlexoSil is used as decorative finishing render of external thermal insulation system CLIMAWALL® by BIOCLIMA®. Also, as finishing coat of increased strength, for outdoor or indoor usage, above the usual building materials: plaster, concrete, cement board, plasterboard, as well as previously painted surfaces that are well anchored to the substrate.

Due to its formulation, it resists high summer and low winter temperatures, maintains high elasticity and offers an excellent hydrophobic, water-repellent, breathable, non-cracking protection film to structural surfaces.

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Application of the product

BIOCLIMA external thermal insulation system has been entrusted in recent years by constructors, builders, architects and designers in various buildings such as school complexes and hotel units.

Constructional data

The application of the External Thermal Insulation Composite System (ETICS) on a suitable, ready-made substrate consists of the following basic steps:

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1. Application of thermal insulation boards onto the substrate

Strong Bond - a fiber-reinforced, one-component cementitious resin mortar - is used as an adhesive for **Mineral wool** thermal insulation boards. It offers excellent adhesion, high mechanical strength and flexibility.

2. Mechanical fastening with anchors

Clima Anchors are used for fastening the EPS thermal insulation boards.

3. Implementation of base coat (anti-cracking layer) within which a reinforcing mesh is included

Strong Bond is also used as base coat for EPS thermal insulation boards, reinforced with alkali resistant glass fiber mesh **Clima Net 160.** The special anti-alkaline coating offers excellent resistance to corrosion when found in an environment rich in alkalis.

4. Priming of the surface

ClimaTop® Primer is used for priming the surface, enhancing the adhesion, filling and homogenization of the substrate.

5. Application of colored finishing render (final layer)

ClimaTop® Classic or **ClimaTop® FlexoSil**, are used as final layer. They are decorative ready-to-use in pasty form acrylic renders providing vapour permability, water repellency and weather resistance. They consist of natural granules of suitable graded granulometry, recycled expanded glass spheres, silicone and additional enhancers.

For further information (e.g. conditions for the implementation, preparations before starting the work, substrate checks & preparations, analytical technical methods of application, material consumptions etc.) please refer to the analytical **ClimaWall® Technical Guide by BIOCLIMA®** at www.bioclima.gr or www.kraftpaints.com

Composition of the product

The declared product consists of the following components:

	kg/m²	
Adhesive	5,0	28,70%
Insulation material Mineral wool, 7 cm	6,13	35,19%
Anchors (5pcs/m²)	0,166	0,95%
Base coat	4,0	22,96%
Mesh	0,176	1,01%
Primer	0,149	0,86%
Top coat	1,80	10,33%
Total	**17,42**	

Content of substances of very high concern

The product does not contain any substances on the candidate list for substances of very high concern (SVHC) according to REACH (Annex XIV) (list accessed 26.1.2022).

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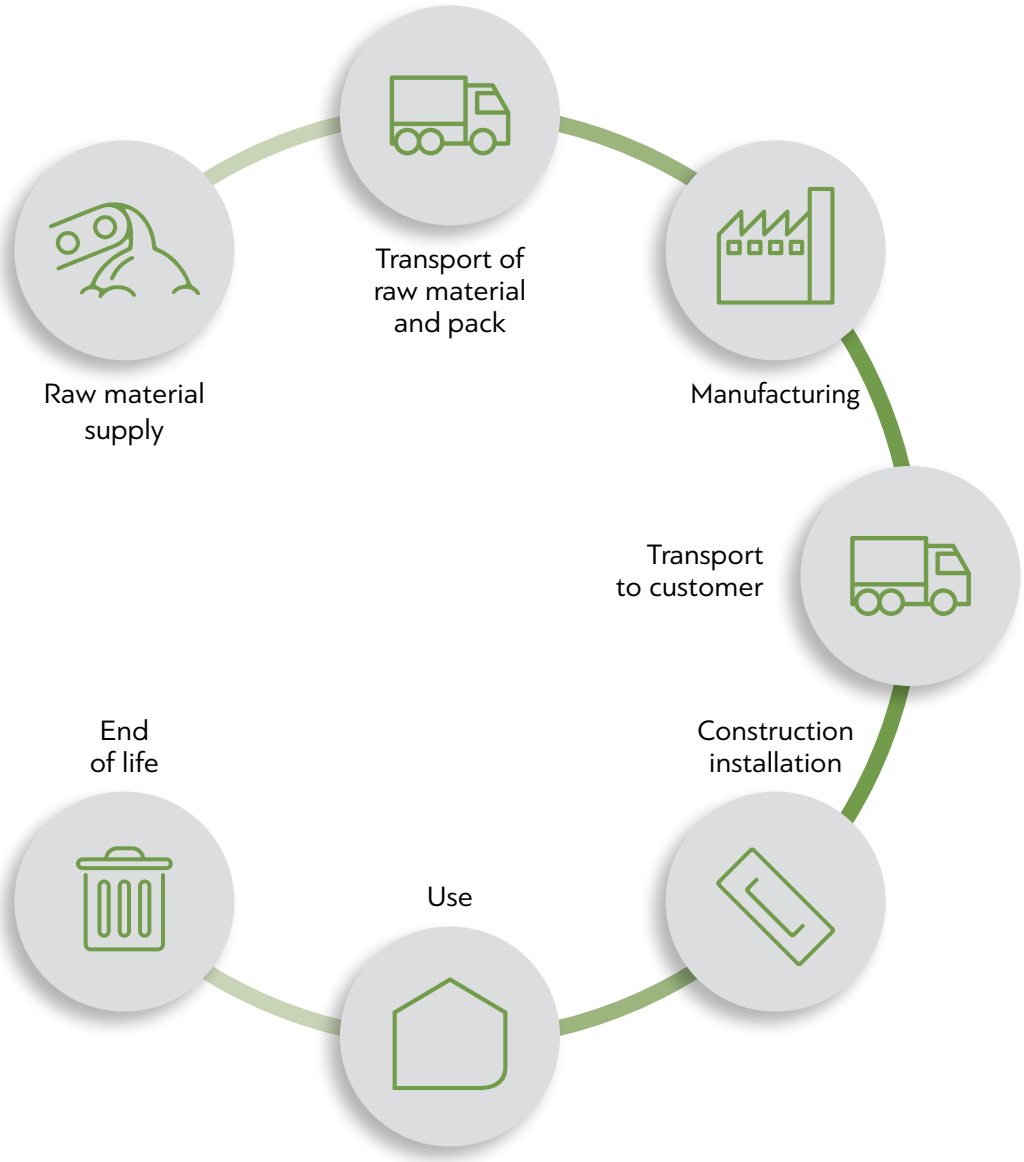
LCA: Calculation rules



Declared unit: The declared unit covers 1m^2 of external thermal insulation composition systems (ETICS) with an insulation layer of 7 cm as installed over a reference service life of 50 years.

Reference service life	
Parameter	**Parameter unit expressed per functional / declared unit**
Reference Service Life	50 Years
Declared product properties (at the gate) and finishes, etc.;	see ETA-21/0875
Design application parameters (if instructed by the manufacturer), including the references to the appropriate practices;	see ETA-21/0875
An assumed quality of work, when installed in accordance with the manufacturer's instructions;	Installed in accordance with the manufacturer's instructions.
Outdoor environment, (for outdoor applications), e.g. weathering, pollutants, UV and wind exposure, building orientation, shading, temperature;	Mediterranean climate conditions
Indoor environment (for indoor applications), e.g. temperature, moisture, chemical exposure;	not applicable
Usage conditions, e.g. frequency of use, mechanical exposure;	not applicable
Maintenance, e.g. required frequency, type and quality and replacement of replaceable components.	not applicable

Type of EPD: Cradle to gate with options, modules C1-C4, and module D (A1-A3, C, D, and additional modules A4 and A5).

Data Collection period: Year 2021. The LCA was calculated in the latest version of the LCA software SimaPro (version 9.3.0.3).

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Scenarios and additional technical information

The product does not contain significant quantities of biogenic carbon. The carbon content of multi-use pallets used for transport packaging and paper bats is disregarded.

Information describing the biogenic carbon content at the factory gate

Name	Value	Unit
Biogenic Carbon Content in product	0	kg C
Biogenic Carbon Content in accompanying packaging	0	kg C

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment.

Transport to the construction site (A4): Module A4 contains the average transport scenario from the production site to the construction site. An average transport distance of 300 km is assumed.

Parameter	Parameter unit expressed per functional/declared unit
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat etc.	Used dataset: Transport, freight, lorry >32 metric ton, EURO5 {RER}| transport, freight, lorry >32 metric ton, EURO5 | Cut-off, U
Distance	300 km
Capacity utilisation (including empty returns)	as in ecoinvent 3.7.1 database
Bulk density of transported products	not applicable (transport weight of product and packaging), per m^2 as installed: 19,1 kg
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)	Not applicable

Installation in the building (A5)

The products are delivered to the construction site ready to be used; only water 6,0-6,5 litres of water per paper bag of 25 kg of product need to be added to the Strong Bond base coat and adhesive.

Manual application is assumed, eventual further inputs (e.g., electricity consumption for the mixing), crane transport, etc.) are considered to be negligible.

An average installation loss of 4 % is taken into account.

During installation, some VOC are emitted; emission levels are based on data reported in the technical datasheet (density per litre, VOC emissions/l)

The packaging material (plastic buckets and their steel handles, PE-foil, paper bags and wooden pallets is assumed to be transported 50 km with a lorry 16-32 metric ton, EURO5 to a landfill.

For the multi-way pallets, a reuse rate of 20 times is taken into account also in the disposal scenario.

Parameter	Parameter unit expressed per functional/declared unit
Ancillary materials for installation (specified by material);	ancillary materials such as anchors are included in the “kit” of the ETICS
Water use	0,007 m^3
Other resource use	0 kg
Quantitative description of energy type (regional mix) and consumption during the installation process	0 kWh (manual installation)
Wastage of materials on the building site before waste processing, generated by the product’s installation (specified by type)	see below
Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route)	0,716 kg of PP buckets (packaging) going to landfill 0,0126 kg of steel (packaging) going to landfill 0,0315 kg of PE foil (packaging) going to landfill 0,00443 kg of wood (packaging) going to landfill 0,0596 kg of paper (packaging) going to landfill 0,245 kg of Mineral wool (construction waste) going to landfill 0,479 kg of mineral waste (construction waste) going to landfill
Direct emissions to ambient air, soil and water	0,071 kg of VOC emissions during curing

End-of-life (C1 - C4)

Mechanical, non-selective dismantling is considered. The relate environmental impacts related to the use of building machines is attributed to the de-construction of the supportive structure, as no specific information is available for the fuel consumption for the de-construction of the ETICS itself. Thus, no environmental impacts are declared in module C1.

A landfilling scenario is assumed for Greece in line with the Product Environmental Footprint Category Rules (PEFCR) for insulation production (PEFCR 2019). A default distance of 50 km is assumed between the de-construction site and the landfill.

The whole ETICS is assumed to landfilled in a dedicated landfill.

Processes	**Parameter unit expressed per functional / declared unit of components, products or materials (specified by type of material)**
Collection process specified by type	0 kg collected separately
	13,06 kg collected with mixed construction waste
Recovery system specified by type	0 kg for re-use
	0 kg for recycling
	0 kg for energy recovery
Disposal specified by type	6,12 kg of Mineral wool (construction waste) going to landfill 11,98 kg of mineral waste (construction waste) going to landfill
Assumptions for scenario development, (e.g. transportation)	see above

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Reuse, recovery and recycling potential (D)

Not relevant for the declared product

Results

DESCRIPTION OF THE SYSTEM BOUNDARY
(X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

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RESULTS OF THE LCA - ENVIRONMENTAL IMPACTS according to EN 15804+A2: 1m² of ETICS BIOCLIMA with 7 cm of Mineral wool insulation

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP total	kg CO_2 eq	1.55E+01	9.54E-01	7.79E-01	0	1.52E-01	0	1.21E-01	0
GWP fossil	kg CO_2 eq	1.55E+01	9.53E-01	7.70E-01	0	1.52E-01	0	1.21E-01	0
GWP biogenic	kg CO_2 eq	-7.94E-03	0.00E+00	7.94E-03	0	0.00E+00	0	0.00E+00	0
GWP luluc	kg CO_2 eq	5.02E-03	3.21E-04	2.22E-04	0	5.10E-05	0	1.97E-05	0
GWP-GHG	kg CO2 eq.	1.55E+01	9.54E-01	7.71E-01	0	1.52E-01	0	1.21E-01	0
ODP	kg CFC11 eq	1.32E-06	2.17E-07	6.88E-08	0	3.44E-08	0	3.87E-08	0
AP	mol H^+ eq	1.03E-01	3.82E-03	4.41E-03	0	6.07E-04	0	8.18E-04	0
EP freshwater	kg P eq	4.03E-03	6.40E-05	1.66E-04	0	1.02E-05	0	6.42E-06	0
EP-marine	kg N eq	1.50E-02	1.17E-03	1.01E-03	0	1.86E-04	0	1.02E-03	0
EP terrestrial	mol N eq	1.89E-01	1.28E-02	8.64E-03	0	2.03E-03	0	3.30E-03	0
POCP	kg NMVOC eq	5.65E-02	3.90E-03	7.34E-02	0	6.20E-04	0	9.56E-04	0
ADPE	kg Sb eq	1.34E-04	3.43E-06	5.57E-06	0	5.46E-07	0	1.76E-07	0
ADPF	MJ	1.86E+02	1.44E+01	8.55E+00	0	2.29E+00	0	2.60E+00	0
WDP	m^3 depriv.	5.75E+00	4.10E-02	3.43E-01	0	6.52E-03	0	4.59E-02	0

Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; 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 (user) deprivation potential

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RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1m² of ETICS BIOCLIMA with 7 cm of Mineral wool insulation

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ (Hu)	1.50E+01	1.91E-01	6.26E-01	0	3.03E-02	0	4.19E-02	0
PERM	MJ (Hu)	9.27E-02	0	0	0	0	0	0	0
PERT	MJ (Hu)	1.51E+01	1.91E-01	6.26E-01	0	3.03E-02	0	4.19E-02	0
PENRE	MJ (Hu)	1.81E+02	1.44E+01	8.56E+00	0	2.29E+00	0	2.60E+00	0
PENRM	MJ (Hu)	5.42E+00	0	0	0	0	0	0	0
PENRT	MJ (Hu)	1.87E+02	1.44E+01	8.56E+00	0	2.29E+00	0	2.60E+00	0
SM	kg	3.85E-02	0	0	0	0	0	0	0
RSF	MJ (Hu)	0	0	0	0	0	0	0	0
NRSF	MJ (Hu)	0	0	0	0	0	0	0	0
FW	m^3	1.61E-01	1.38E-03	6.52E-03	0	2.29E-04	0	2.15E-04	0

Caption	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 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

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RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1m² of ETICS BIOCLIMA with 7 cm of Mineral wool insulation

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.69E-04	3.76E-05	9.19E-06	0	5.97E-06	0	3.20E-06	0
NHWD	kg	1.51E+00	6.94E-01	1.77E+00	0	1.10E-01	0	1.83E+01	0
RWD	kg	6.93E-04	2.11E-04	4.36E-05	0	3.36E-05	0	3.76E-05	0
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

Caption	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; EEE = Exported electrical energy; EEE = Exported thermal energy

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RESULTS OF THE LCA - additional impact categories according to EN 15804+A2-optional: 1m² of ETICS BIOCLIMA with 7 cm of Mineral wool insulation

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Desease incidences	6.45E-07	6.60E-08	3.15E-08	0	1.05E-08	0	1.71E-08	0
IR	kBq U-235 eq	9.40E-01	7.53E-02	4.37E-02	0	1.20E-02	0	1.25E-02	0
ETP-fw	CTUe	2.43E+02	1.10E+01	1.12E+01	0	1.75E+00	0	1.61E+00	0
HTP-c	CTUh	3.55E-08	3.93E-10	1.45E-09	0	6.25E-11	0	4.41E-11	0
HTP-nc	CTUh	1.46E-07	1.12E-08	1.10E-08	0	1.78E-09	0	8.02E-10	0
SQP	-	7.53E+01	9.93E+00	4.28E+00	0	1.58E+00	0	5.70E+00	0

Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

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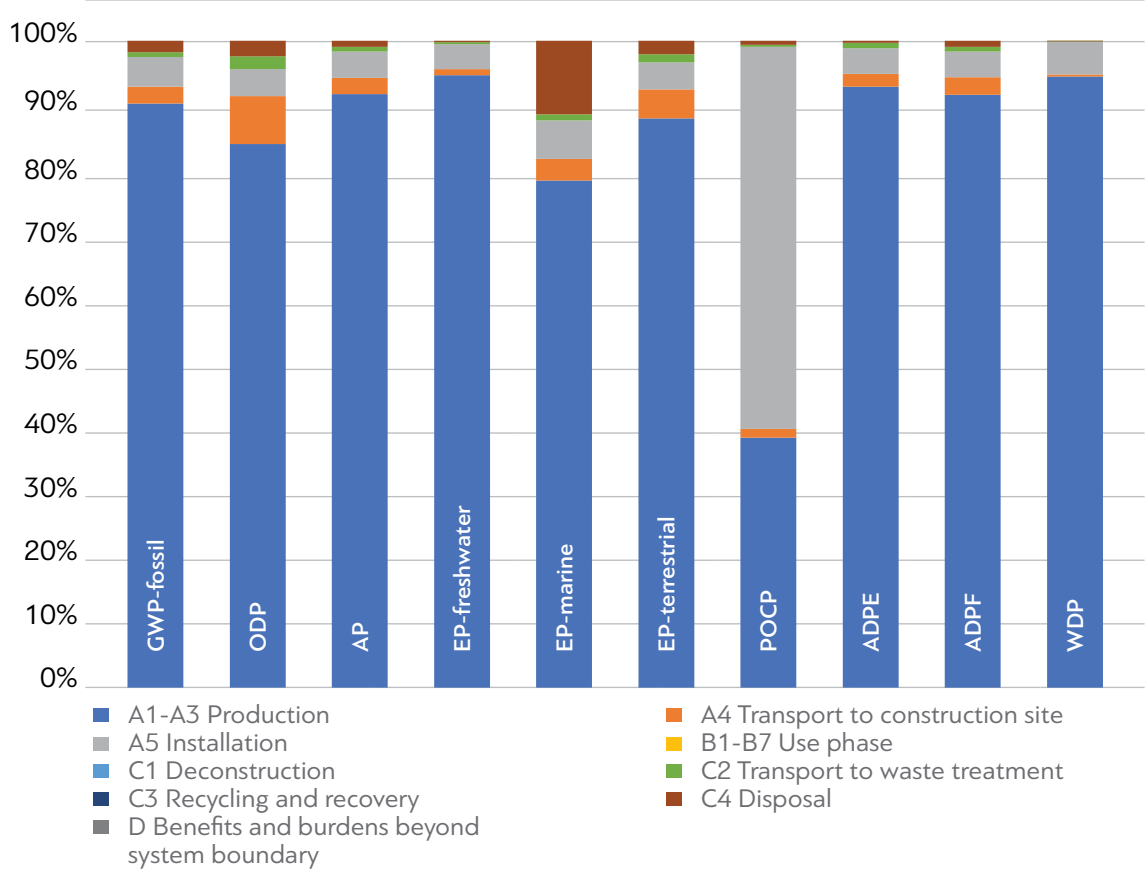
Relative contributions to the life cycle impacts



Disclaimer 1: for the indicator IR

This 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.

Disclaimer 2: for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP

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.

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Revision Details: Addition of GWP-GHG indicators

References

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

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

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

GPI: General Programme Instructions for the International EPD® System. Version 4.0.

ISO 14020:2000 Environmental labels and declarations - General principles.

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

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

EAD 040083-00-0404 External thermal insulation composite systems (ETICS) with renderings.

ETA-21/0875

EN 13163: EN 13163:2009-02: Thermal insulation products for buildings - Factory made products of expanded polystyrene (EPS) - Specification.

ISO 15686: Buildings and constructed assets - Service life planning; several parts.

Waste Framework Directive: COUNCIL REGULATION (EU) No 333/2011 of 31 March 2011 establishing criteria determining when certain types of scrap metal cease to be waste under Directive 2008/98/EC of the European Parliament and of the Council.

Further literature

PEFCR (2019): Product Environmental Footprint Category Rules (PEFCRs) for thermal insulation; version number 5.0; October 2019. https://ec.europa.eu/environment/eussd/smgp/pdf/Thermal%20Insulation%20final-Oct2019.pdf

ECHA: The Candidate List of substances of very high concern, available via https://echa.europa.eu/nl/-/four-newsubstances-added-to-the-candidate-list.

EPD International (2019a): PCR 2019:14 Construction products and construction services, version 1.11

EPD International (2019b): THERMAL INSULATION PRODUCTS. C-PCR-005, VERSION: 2019-12-20.

Weidema et al. (2013): Weidema, B., C. Bauer, R. Hischier, C. Mutel, T. Nemecek, J. Reinhard, C.O. Vadenbo, G. Wernet (2013): Overview and methodology, Data quality guideline for the ecoinvent database version 3. ecoinvent report no. 1 (v3), St. Gallen, Schweiz.

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BUILDING INNOVATION

BIOCLIMA®

CLIMAWALL® Mineral

ENVIRONMENTAL PRODUCT DECLARATION

According to ISO 14025 and EN 15804+A2

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