PERLITA
Y VERMICULITA
A Division of Carboline

DAPcons®.100.049

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

According to the standards:
ISO 14025 y EN 15804 + A2:2020

cateb
Arquitectura Tècnica
Barcelona

ECO PLATFORM
EPD
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dapcons®

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GENERAL INFORMATION

Product

Perlifoc HP Eco+

Company

Product description

Low density gypsum-based fireproof mortar for passive fire protection on structural elements.

Reference RCP

RCP 100 (version 3 - 27/05/2021) Construction products in general

Production plant

Pol. Ind. Can Prunera

C/Garraf s/n. 08759. Vallirana (Barcelona)

Validity

From: 26/07/2021 Until: 26/07/2026

The validity of DAPcons®.100.049 is subject to the conditions of the regulation DAPcons®. The current edition of this DAPcons® is the one that appears in the registry maintained by Cateb; for informational purposes, it is included on the Program website www.csostenible.net

EXECUTIVE SUMMARY

Perlifoc HP Eco+

	DAPconstruction® Programme Operator Environmental Product Declarations in the Construction sector www.csostenible.net
	Programme Manager Colegio de la Arquitectura Técnica de Barcelona (Cateb) Bon Pastor, 5 · 08021 Barcelona www.apabcn.cat
	Owner of the declaration Perlita y Vermiculita SLU carrer Garraf s/n poligono industrial Can Prunera 08759 - BARCELONA (España) https://www.perlitayvermiculita.com/
	Author of the Life cycle assessment: ECOPENTA SL C/Muntaner 48-50, 2-3a, 08009 - BARCELONA, España

Declared product

Perlifoc HP Eco+

Geographic representation

Global

Variability between different products

In this document the results of each of the products are declared individually.

Declaration number

DAPcons®.100.049

Issue date

21/07/2023

Validity

This verified declaration authorizes its holder to carry the logo of the operator of the ecolabelling program DAPconstruction®. The declaration is applicable exclusively to the mentioned product and for five years from the date of registration. The information contained in this statement was provided under the responsibility of: **Perlita y Vermiculita SLU**

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

36548201M CELESTINO VENTURA (R: Q0875009C) 36548201M CELESTINO VENTURA (R: Q0875009C) 02.08.2023 22:26:33 +0200

Programme Verifier Signature

Ferran Pérez Ibáñez. Institut de Tecnologia de la Construcció de Catalunya - ITeC. Verifier accredited by the administrator of the DAPcons® Programme

Fernando Pérez Ibáñez Fernando Pérez Ibáñez 02.08.2023 22:26:11 +0200

ENVIRONMENTAL PRODUCT DECLARATION

1. DESCRIPTION OF THE PRODUCT AND ITS USE

Flame retardant and ecological mortar based on gypsum, fire resistant, with thermal insulation properties for passive fire protection in structural elements. The mortar has a low density which makes it a high performance mortar.

Perlifoc HP Eco + mortar is intended for passive fire protection of structural elements made of steel, concrete, mixed concrete-sheet floors, compartmentalisation and fire-resistant strips.

1.1 Content information

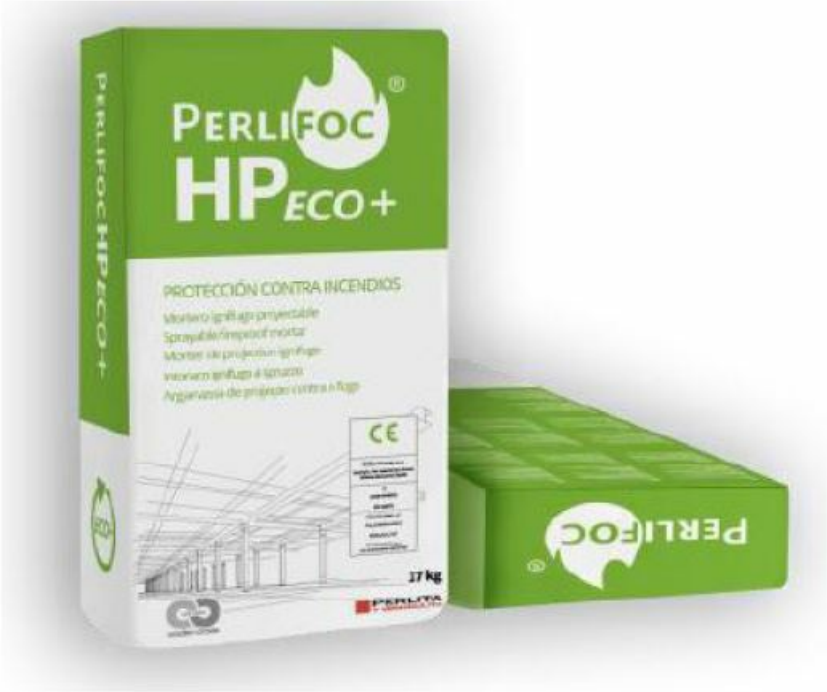
Product components

Is composed of light aggregates (mainly gypsum) and expanded materials, hydraulic binders, setting controllers and additives to improve its mechanical application.

Packaging materials

The product is packed in 17kg paper bags. The bags go through a series of belts until they reach a Cartesian palletizer that places the bags according to a mosaic. Each pallet contains about 42 bags.

Once the pallet is formed, it goes to the wrapping machine where film plus a cover is placed.


PERLIFOC
HP ECO+
PROTECCIÓN CONTRA INCENDIOS
CE
17 kg
PERLIFOC

2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

Perlifoc HP Eco + is composed of light aggregates (mainly gypsum) and expanded materials, hydraulic binders, setting controllers and additives to improve its mechanical application. It does not contain asbestos.

The transport of raw materials and auxiliary materials to the Perlita y Vermiculita factory in Vallirana (Barcelona). The distance and type of truck have been entered for each raw material and auxiliary material, an average calculated taking into account the distances to the different suppliers and weighing with the quantities served in 2019.

Manufacturing (A3)

The production process of the Perlifoc HP Eco + mortar begins with a first dosage of the components through the use of hovercraft, fans / blowers and augers. The components are transported through metal pipes to the two weighing hoppers. Dosing of the batch is carried out in two phases to optimize the load in the mixer.
The unloading of the components once dosed is done by gravity by actuating gate valves.
Mixing lasts 150 seconds. Once the product is mixed, it is discharged into a receiving hopper before proceeding to its packaging.
The product is packed in 17kg paper bags. The bags go through a series of belts until they reach a Cartesian palletizer that places the bags according to a mosaic. Each pallet contains about 42 bags.
Once the pallet is formed, it goes to the wrapping machine where film plus a cover is placed. The transport for the factory storage of the pallets is carried out by mechanical bull cranes.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

Using the data provided by the company on the sales by country of the products, an average transport distance has been calculated.

Table 1. Basic of a scenario with the parameters described in the following table

Destinations	Type of transport	Percentage	Average km
Spain	Truck 7,5-16 Tn	63	600
	Cargo ship	3	2500
Europe	Truck 7,5-16 Tn	22	1650
Rest of the world	Cargo ship	12	9804

Product installation process and construction (A5)

Perlifoc HP Eco + mortar is applied wet by means of a mixer and compressor type spraying machine. The machine itself is the one that performs the function of mixing mortar-water and mixing prior to spraying the mortar.

The protection thicknesses will vary depending on the element to be protected, the fire resistance required and the test results obtained. The water-mortar ratio will be approximately 0,8/1 kg.

The projection can be carried out directly on the substrate or on the previously treated surface, such as, for example, a metallic profile previously protected against corrosion.

The losses in projection are very relative and depend not only on the substrate to be protected but also on the skill of the operator. The losses are usually around 10-15% of the total consumption of the mortar.

On-site storage of mortar products does not require any special care, apart from the usual good health and safety practices.

2.3. Product use (B1-B7)

Use (B1)

This module includes the environmental aspects and impacts in the normal use of the products, without including the consumption of water and energy. Being a passive material in construction, the value of this module is 0.

Maintenance (B2)

Once installed, the product does not require maintenance after it is put into operation.

Repair (B3)

Throughout its useful life (25 years), the product does not need any type of repair or replacement.

Replacement (B4)

Throughout its useful life (25 years), the product does not need any type of repair or replacement.

Refurbishment (B5)

Within the 50 years of reference of the study, it is not considered that the product has to be replaced 100%, if not that a partial rehabilitation will be possible, 25% of the applied product is considered.

Operational energy use (B6)

Once installed, the product does not require any energy input for its use

Operational water use (B7)

It does not require any water use during its operational lifetime.

2.4. End of life (C1-C4)

Deconstruction and demolition (C1)

At the end of its useful life, the product will be removed during its demolition. In the context of the demolition of a building, the impacts attributable to the uninstallation of the product are negligible.

Transport to waste processing (C2)

Product waste is transported by truck that complies with Euro VI regulations, at a distance of 50 km to its destination.

Waste processing for reuse, recovery and/or recycling (C3)

Due to the installation characteristics of the product that is the object of this study, it is very difficult (usually unfeasible) to separate it, even prior to demolition or reform for future reuse or recycling.

Disposal (C4)

Gypsum, the main component of the Perlifoc HP Eco + product, is a product that is not inert, that is, it reacts by dissolving in water, so it can contaminate surface or groundwater, so it must be treated in specific landfills. The waste is classified with the LER code: 170802 Construction materials made with plaster other than those specified in the code 170801.

2.5. Reuse/recovery/recycling potential (D)

The net impacts of recycling and energy recovery of the following packaging waste from the installation stage have been considered, these are:

- Plastic waste: 42% Recycling (Reference: Plastic Europe 2018).
- Cardboard: 71,6% Recycling (Reference: European Paper Recycling Council, 2018)
- Wood: 100% Reused (Manufacturer data 2019)

3. LIFE CYCLE ASSESSMENT

Carrying out a Life Cycle Analysis of the type "from the cradle to the grave", covering the stages of product manufacturing, construction, use and end of life according to ISO 14040: 2006 and ISO 14044: 2006 of the products, taking into account environmental impacts (UNE-EN 15804: 2012 + A1: 2014) according to the Product Category Rules PCR 100 Environmental Product Declaration on construction products (V3 27.05.2021).
Specific data from the Vallirana (Barcelona) manufacturing plant corresponding to the year 2019 have been used to inventory the manufacturing stage. Generic data from the Ecoinvent 3.7.1 database have been used for the rest of the stages.

3.1. Functional Unit

1m2 of support covered with a mass of 7,38 kg of Perlifoc HPEco + mortar, guaranteeing thermal properties (thermal conductivity 0,087W/mk), fire resistance 120 minutes during a useful life of 25 years.
It is considered a geographical and technological environment of Spain for the year 2019.

Additional comments

-

3.2. Scope and modules that are declared

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	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	x	x	x	x	x	x	x	x	x	x	x	x

X = Declared module **MND** = Undeclared module

3.3. LCA results of potential environmental impact referred to the declared unit (ACV)

Table 3. Parameters of environmental impact

Parameter	Unit	Life cycle stage														Module D
		Product stage	Construction Process Stage		Use stage							End of life stage				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2 eq	1,78E+00	1,47E+00	6,54E-01	0,00E+00	0,00E+00	0,00E+00	5,99E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,16E-02	0,00E+00	7,06E+00	6,34E-02
Climate change - fossil (GWP-fossil)	kg CO2 eq	2,51E+00	1,47E+00	4,24E-01	0,00E+00	0,00E+00	0,00E+00	7,21E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,15E-02	0,00E+00	4,64E-01	-1,02E-01
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	-7,34E-01	3,95E-04	2,30E-01	0,00E+00	0,00E+00	0,00E+00	-1,23E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,86E-05	0,00E+00	6,59E+00	1,67E-01
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	3,37E-03	5,40E-04	7,63E-04	0,00E+00	0,00E+00	0,00E+00	1,03E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,24E-05	0,00E+00	1,14E-04	-1,09E-03
Ozone layer depletion (ODP)	kg CFC 11 eq	2,04E-07	3,24E-07	3,94E-08	0,00E+00	0,00E+00	0,00E+00	6,04E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,05E-08	0,00E+00	2,93E-08	-1,16E-08
Acidification (AP)	mol H+ eq	1,12E-02	6,97E-03	2,08E-03	0,00E+00	0,00E+00	0,00E+00	3,27E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,50E-04	0,00E+00	1,39E-03	-8,41E-04
Eutrophication of fresh water (EP-freshwater)	kg P eq	4,46E-04	1,40E-04	1,40E-04	0,00E+00	0,00E+00	0,00E+00	1,45E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,45E-06	0,00E+00	1,24E-04	-7,00E-05
Eutrophication of sea water (EP-marine)	kg N eq.	2,23E-03	1,32E-03	5,56E-04	0,00E+00	0,00E+00	0,00E+00	6,81E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,46E-04	0,00E+00	1,33E-02	-1,74E-04
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	2,50E-02	1,48E-02	4,66E-03	0,00E+00	0,00E+00	0,00E+00	7,29E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,61E-03	0,00E+00	3,81E-03	-2,11E-03
Photochemical ozone formation (POCP)	kg NMVOC eq	7,82E-03	4,80E-03	1,48E-03	0,00E+00	0,00E+00	0,00E+00	2,27E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,58E-04	0,00E+00	2,59E-03	-4,94E-04
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	2,37E-06	5,36E-06	3,97E-07	0,00E+00	0,00E+00	0,00E+00	6,72E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,64E-07	0,00E+00	1,57E-07	-1,65E-07
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	3,93E+01	2,20E+01	6,91E+00	0,00E+00	0,00E+00	0,00E+00	1,15E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,38E+00	0,00E+00	2,71E+00	-1,96E+00
Water consumption (WDP)	m3 worldwide eq. private	2,08E+00	1,52E-01	6,73E-01	0,00E+00	0,00E+00	0,00E+00	6,86E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,62E-03	0,00E+00	9,41E-02	-2,41E-01
The Indicador includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicador is thus equal to the GWP Indicador originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																
Global Warming Potential (GHG)	kg CO2 eq	2,44E+00	1,46E+00	6,15E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,54E-01	0,00E+00	0,00E+00	0,00E+00	9,08E-02	0,00E+00	4,52E+00	-1,02E-01

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 4. Parameters for the use of resources, waste and output material flows

Parameter	Unit	Life cycle stage														Module D
		Product stage	Construction Process Stage		Use stage							End of life stage				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ, net calorific value	1,35E+01	2,77E-01	2,16E+00	0,00E+00	0,00E+00	0,00E+00	3,89E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,62E-02	0,00E+00	1,03E-01	-4,64E+00
Use of renewable primary energy used as raw material	MJ, net calorific value	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	1,35E+01	2,77E-01	2,16E+00	0,00E+00	0,00E+00	0,00E+00	3,89E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,62E-02	0,00E+00	1,03E-01	-4,64E+00
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	4,22E+01	2,33E+01	7,39E+00	0,00E+00	0,00E+00	0,00E+00	1,23E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,47E+00	0,00E+00	2,88E+00	-2,08E+00
Use of non-renewable primary energy used as raw material	MJ, net calorific value	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	4,22E+01	2,33E+01	7,39E+00	0,00E+00	0,00E+00	0,00E+00	1,23E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,47E+00	0,00E+00	2,88E+00	-2,08E+00
Use of secondary materials	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ, net calorific value	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ, net calorific value	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of freshwater resources	m3	4,01E-02	3,44E-03	1,46E-02	0,00E+00	0,00E+00	0,00E+00	1,37E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,14E-04	0,00E+00	1,96E-03	-4,71E-03
Hazardous waste removed	kg	1,03E-01	1,55E-05	1,54E-02	0,00E+00	0,00E+00	0,00E+00	2,95E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,89E-07	0,00E+00	7,64E-06	-1,54E-06
Non-hazardous waste eliminated	kg	4,06E-01	7,92E-01	1,22E+00	0,00E+00	0,00E+00	0,00E+00	3,69E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,38E-02	0,00E+00	7,43E+00	-1,28E-02
Radioactive waste disposed of	kg	8,78E-05	1,46E-04	2,09E-05	0,00E+00	0,00E+00	0,00E+00	2,76E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,21E-06	0,00E+00	1,44E-05	-1,05E-05
Components for reuse	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	9,36E-02	0,00E+00	0,00E+00	0,00E+00	2,34E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery (energy recovery)	kg	0,00E+00	0,00E+00	2,85E-02	0,00E+00	0,00E+00	0,00E+00	7,13E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ by energy vector	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 5. Kg of biogenic carbon

Contenido Carbono (biogénico) - embalaje	-6,84E-01 Kg
Contenido Carbono (biogénico) - producto	-5,26E-02 Kg

3.4. Recommendations of this DAP

The comparison of construction products must be done by applying the same functional unit and at the building level, that is, including the behavior of the product throughout its entire life cycle. The environmental product declarations of different type III ecolabelling systems are not directly comparable, since the calculation rules may be different. Product included in this DAP: Perlifoc HP Eco +.

3.5. Cut-off rules

More than 95% of all the system's mass and energy inputs and outputs have been included, leaving out, among others, diffuse emissions in the factory and on-site installation.

3.6. Additional environmental information

The product does not contain asbestos.
Cradel to Cradel Certification (C2C)
VOCs content and emission (EN 16516)

3.7. Other data

• Fire resistance according to EN standards carried out by accredited laboratories: Protection of metallic structures (EN 13381-4): Open beams and pillars and tubular profiles up to R240.
• Protection of concrete structures (EN 13381-3): Beams, columns, solid slabs, walls and floors up to REI 240
• Protection of composite slabs of collaborating plate-concrete (EN 13381-5): Protection of composite slabs up to REI 180
• Non-bearing division (EN 1364-1): vertical partition wall with EI 120 classification
• Firewall strip (According to the protocol of the Ministry of Industry): System anchored to belts EI 180
• Reaction to fire (Classified according to EN 13501-1). Classification A1

4. ADDITIONAL TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport to the building site (A4)

Parameter	Parameter expressed per functional unit
Type and fuel consumption, type of vehicle used for transportation	Road: Truck between 7,5 to 16 tons, Euro VI, consumes 0,047 kg/ton.km of diesel. Sea: Medium freighter.
Distance	Road transport: 743 km average Sea transport: 1.245 km average
Capacity utilization (including empty return)	Road transport: 85% Freighter transport: 100%
Apparent density of transported product	365 kg/m3
Useful capacity factor (1, <1 or >1 for products that are packed compressed or nested)	1

4.2. Installation processes (A5)

Parameter	Parameter expressed per functional unit
Auxiliary materials for construction (specifying each material)	-
Water use	7,64E+00 liters per m2 of installed product
Use of other resources	-
Quantitative description of the type of energy (regional mix) and consumption during the installation process	Mixer and compressor type spraying machine: 0,08 kWh
Waste of materials in the work before the treatment of waste, generated by the installation of the product (specify by type)	Perlifoc HP eco + Plastic waste: 1,01E-02 kg Cardboard waste: 1,25E-01 kg CDW: 1,11E + 00 kg
Material outputs (specified by type) as a result of waste treatment on the building site. For example: collection for recycling, energy recovery, disposal (specified by route)	Plastics 4,24E-03kg Recycling, 4,04E-03kg Energy rec. and 1,82E-03kg landfill. Cardboard: 8,94E-02kg Recycling, 2,45E-02kg Energy Rec. and 1,10E-03kg landfill. CDW: 1,11E+00kg landfill.
Direct emissions to air, soil and water	Are not considered

4.3. Reference life (B1)

Parameter	Parameter expressed per functional unit
Reference Lifetime (RSL)	25
Characteristics and properties of the product	Flame retardant plaster-based mortar, fire resistant, with thermal insulation properties.
Requirements (conditions of use, frequency of maintenance, repair, etc.)	-

4.4. Maintenance (B2), Repair (B3), Replacement (B4), or Rehabilitation (B5)

Maintenance (B2)

Parameter	Parameter expressed per functional unit
Maintenance process, for example; cleaning agent, surfactant type	Does not require
Maintenance cycle	-
Auxiliary materials for the maintenance process (specifying each material)	-
Energy inputs for the maintenance process (quantity and type of energy vector)	-
Net consumption of fresh water during maintenance or repair	-
Material waste during maintenance (specifying the type)	-

Repair (B3)

Parameter	Parameter expressed per functional unit
Repair process	Does not require
Proceso de inspección	Does not require
Repair cycle	-
Auxiliary materials (specifying each material], for example lubricant	-
Interchange of parts during the product life cycle	-

Parameter	Parameter expressed per functional unit
Energy inputs during maintenance, type of energy, example: electricity, and quantity	-
Energy input during the repair, renovation, replacement process if applicable and relevant (quantity and type of energy vector)	-
Material waste during repair (specifying each material)	-
Consumo neto de agua dulce	-

Replacement (B4)

Parameter	Parameter expressed per functional unit
Energy input during substitution, for example for the use of cranes (quantity and energy vector)	Does not require
Change of worn parts in the product life cycle (specifying each material)	-
Net freshwater consumption	-

Refurbishment (B5)

Parameter	Parameter expressed per functional unit
Rehabilitation process	Once the 25-year useful life has been exceeded, it is not considered that the product has to be replaced 100%, but rather that a partial rehabilitation of 25% of the applied product will be possible.
Rehabilitation cycle	Every 25 years
Energy input during rehabilitation, for example for the use of cranes (quantity and energy vector)	Electricity: 1,94E-02 kWh
Input material for rehabilitation, including auxiliary materials (specifying by material)	Perlifoc HP Eco+: 2,12E+00 kg Water: 1,91E+00 kg
Waste of material during rehabilitation (specifying each material)	Perlifoc HP Eco+: 2,77E-01kg
Other scenario development assumptions	-

4.5. Reference life

Parameter	Parameter expressed per functional unit
Reference life	25 years
Declared properties of the product, finishes, etc.	Flame retardant plaster-based mortar, fire resistant, with thermal insulation properties for passive fire protection.
Application design parameters (manufacturer's instructions)	Product designed for indoor applications. It cannot be exposed to rainwater or leaks.
Estimation of the quality of execution, when installed according to the manufacturer's instructions	It cannot be exposed to rainwater or leaks. It is not recommended for use as a refractory mortar or where normal operating temperatures exceed 90 ° C.
Outdoor environment for outdoor applications. For example, weather, pollutants, UV radiation, temperature, etc.	It is not designed for exteriors beyond normal construction phases and timelines.
Indoor environment for indoor applications. For example, temperature, humidity, chemical exposure	In highly corrosive atmospheres, consult the Technical Service of Perlita y Vermiculita, SLU for the selection of the most suitable coating for the work environment.
Terms of use. For example, frequency of use, mechanical exposure, etc.	Does not require
Maintenance. For example, the required frequency, etc.	Does not require

4.6. Operational energy use (B6) and operational water use (B7)

Parameter	Parameter expressed per functional unit
Auxiliary materials (specified by material)	Does not require
Type of energy vector. For example, electricity, natural gas, district heating	Does not require
Equipment output power	-
Net freshwater consumption	-
Characteristic features (energy efficiency, emissions, etc.)	-
Other scenario development assumptions. For example, transportation	-

4.7. End of life (C1-C4)

	Process		
	Collection processes (specified by types)	Recovery systems (specified by type)	Elimination
	kg collected with mixed construction waste	kg	kg for final disposal
	8.49	0	8.49
Assumptions for scenario development	Product waste is transported by truck that complies with Euro VI regulations, at a distance of 50 km to its final destination.		

5. ADDITIONAL INFORMATION

- Thermal conductivity: 0,087 W/mK
- CE marking of the product.

6. RCP AND VERIFICATION

This statement is based on Document

RCP 100 (version 3 - 27/05/2021) Construction products in general

Independent verification of the declaration and data, in accordance with ISO 14025 and IN RCP 100 (version 3 - 27/05/2021)

☑ External

Third party Verifier

Ferran Pérez Ibáñez

Accredited by the administrator of the DAPcons® Programme

Verification date:

26/07/2021

References

PRODUCT LIFE CYCLE ANALYSIS: PERLIFOC HP Eco +

Programme Manager

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ANNEX

Below are the additional impact categories:

Parameter	Unit	Life Cycle Phase														Módulo D
		Manufacture	Construction		Use							End of Life				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Particulate Matter emissions (PM)	Disease incidence	1,19E-07	7,85E-08	2,15E-08	0,00E+00	0,00E+00	0,00E+00	3,44E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,86E-09	0,00E+00	1,60E-08	-1,54E-08
Ionizing radiation, human health (IRP)	kBq U235 eq	1,73E-01	1,09E-01	4,81E-02	0,00E+00	0,00E+00	0,00E+00	5,80E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,70E-03	0,00E+00	1,73E-02	-2,99E-02
Eco-toxicity (freshwater) (ETP-fw)	CTUe	9,61E+02	1,60E+01	1,48E+02	0,00E+00	0,00E+00	0,00E+00	2,77E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,01E+00	0,00E+00	3,70E+01	-1,15E+01
Human toxicity, cancer effects (HTP-c)	CTUh	7,07E-09	5,25E-10	1,37E-09	0,00E+00	0,00E+00	0,00E+00	2,10E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,37E-11	0,00E+00	2,43E-10	-8,68E-11
Human toxicity, non-cancer effects (HTP-nc)	CTUh	2,48E-08	1,68E-08	1,43E-08	0,00E+00	0,00E+00	0,00E+00	9,36E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,14E-09	0,00E+00	1,20E-08	-2,91E-09
Land use related impacts / Soil quality (SQP)	dimensionless	8,20E+01	1,20E+01	1,33E+01	0,00E+00	0,00E+00	0,00E+00	2,32E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,01E-01	0,00E+00	4,51E+00	-2,61E+01