PERLITA
Y VERMICULITA
A Division of Carboline

DAPcons 100.050

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

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

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Barcelona

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DECLARACIÓN AMBIENTAL DE PRODUCTO
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According to the standards:

ISO 14025 y EN UNE 15804 + A2:2020

GENERAL INFORMATION

Product

Firefilm A6

Company

Product description

Water-based paint, with CE marking (ETA-20/1200) intended for passive fire protection of interior or semi-exposed metalic structures.

Reference RCP

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

Production plant

Industrial Park Carretera de la Isla. Calle Aljibe, 19. Dos Hermanas (Seville).

Validity

From: 07/10/2021 Until: 07/10/2026

The validity of DAPcons 100.050 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

Firefilm A6

	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

Firefilm A6

Geographic representation

Europe

Variability between different products

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

Declaration number

DAPcons 100.050

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) 01.08.2023 20:00:14 +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 01.08.2023 19:59:46 +0200

ENVIRONMENTAL PRODUCT DECLARATION

1. DESCRIPTION OF THE PRODUCT AND ITS USE

Firefilm A6 is a water-based intumescent paint, with CE marking (ETA-20/1200) intended for passive fire protection of indoor or semi-exposed metal structures. It offers a fire resistance of up to 90 minutes.

1.1 Content information

Product components

Water-based intumescent paint composed of different types of flame retardants and binders.

Packaging materials

The paint is packaged in metal drums of approximately 25 net kg. Subsequently, it is palletized on wooden pallets with 24 containers (600kg net) and covered with plastic film.


carboline
FIREFILM A6
CE
25 Kg

2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

Firefilm A6 is a water-based intumescent paint composed of different types of flame retardants and binders, to improve its mechanical application.

The transport of raw materials and auxiliary materials to the Perlita y Vermiculita factory in Dos Hermanas (Seville). 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 2020.

Manufacturing (A3)

Module A3 considers the energy consumption of the production process, the production and transport of the finished product packaging and treatment of the waste generated during production.
All the raw materials for the paint are supplied to the factory in different formats of containers and packaging that are transferred to the factory warehouse by electric forklifts.
The production process of the Firefilm A6 paint is carried out in a 2.500 liters capacity agitator and follows the process indicated by a computer software, which indicates the dosage of each of the raw materials and their sequential order. The agitator has two shafts, one of high speed which is the spreading shaft and the other of low speed which is the anchor shaft.
The mixing of the components is carried out sequentially at different times and speeds, the total process lasts 194 minutes.
The paint is packaged in metal drums of approximately 25 net kg. Subsequently, it is palletized on wooden pallets with 24 containers (600kg net) and covered with plastic film.
A semi-automatic packaging machine and a stretch wrapper is used to make up the pallets. An electric forklift is used to transport the pallets within the facilities and for the exit of the material.
The energy consumption linked to the manufacture of the product has been determined considering the total electricity consumption of 2020 divided by the batches manufactured in 2020, sent by the manufacturer.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

Using the data provided by the company of 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	62	550
Europe	Truck	37	2200
	Shipping	1	3000

Product installation process and construction (A5)

Paints in general have a liquid consistency that allows their application on various supports.
The way of application depends on the size and shape of the surfaces, being possible by brush, roller, airless, etc.
The recommended application is by “AIRLESS” spray gun, although it can also be applied by brush or roller in small areas and repairs.
A 15% loss is considered and the application is carried out without water to dissolve the product.
The drying time depends on the ambient temperature, the temperature of the substrate to be protected and the ventilation. Drying is fast as it is a base paint.
On-site storage must guarantee tightly closed containers protected from heat sources and sub-zero temperatures.
Firefilm A6 provides a smooth, uniform white color finish.

2.3. Product use (B1-B7)

Use (B1)

Once installed, the product does not require any energy or water input for its use, nor does it require maintenance after it is put into operation.

Maintenance (B2)

Throughout its useful life (10 years), nor does it require maintenance after it is put into operation.

Repair (B3)

Throughout its useful life (10 years), the product does not need any type of repair.

Replacement (B4)

It is considered that the Firefilm A6 paint product will be able to maintain all of its characteristics up to 10 years (According to CE marking), once this time has passed, within the 50 years of reference of the study, it is not considered that the product has to be replaced by 100%

Refurbishment (B5)

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

Operational energy use (B6)

Once installed, the product does not require any energy or water input for its use, nor does it require maintenance after it is put into operation.

Operational water use (B7)

Once installed, the product does not require any energy or water input for its use, nor does it require maintenance after it is put into operation.

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, it is very difficult (usually unfeasible) to separate it, even prior to demolition or reform for future reuse or recycling.

Disposal (C4)

The product at the end of its life cycle is classified with the LER Code: 170107 Mixtures of concrete, bricks, tiles and ceramic materials, other than those specified in the code 170106 and the final disposal scenario is D05: Deposit controlled 100% of the end-of-life waste of the product.

2.5. Reuse/recovery/recycling potential (D)

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

- Plastic waste: 42% Recycling (Reference: Plastic Europe 2018).
- Metal waste: 80% Recycling
- Wood: 100% Reused (Manufacturer data 2020)

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+A2:2013) according to the Product Category Rules PCR 100 Environmental Product Declaration on construction products (V3 27.05.2021).
Specific data from the Dos Hermanas (Seville) manufacturing plant corresponding to the year 2020 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

It is defined by the extraction and processing of raw materials, their transport to the production plant, the manufacturing process of the product and its transport to the customer, as well as the installation, use and end of life of the amount necessary to cover 1m2 of support metal with an average thickness of 900 microns and a consumption of 1.8 kg/m2 and an average fire resistance of up to R-90.
For a temporary period of 50 years in a geographical and technological environment of Spain in the year in which it is prepared for the year 2020.

Additional comments

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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	7,95E+00	1,22E+00	1,30E+00	0,00E+00	0,00E+00	0,00E+00	7,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,12E-02	0,00E+00	1,80E+00	-8,72E-01
Climate change - fossil (GWP-fossil)	kg CO2 eq	7,99E+00	1,22E+00	1,32E+00	0,00E+00	0,00E+00	0,00E+00	7,61E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,11E-02	0,00E+00	1,14E-01	-8,74E-01
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	-5,10E-02	2,48E-04	-1,92E-02	0,00E+00	0,00E+00	0,00E+00	-1,65E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,57E-06	0,00E+00	1,69E+00	2,24E-03
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	1,01E-02	4,32E-04	1,93E-03	0,00E+00	0,00E+00	0,00E+00	1,20E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,28E-05	0,00E+00	2,98E-05	-4,46E-04
Ozone layer depletion (ODP)	kg CFC 11 eq	8,49E-07	2,73E-07	1,33E-07	0,00E+00	0,00E+00	0,00E+00	9,65E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,10E-08	0,00E+00	7,42E-09	-5,06E-08
Acidification (AP)	mol H+ eq	6,65E-02	3,55E-03	1,05E-02	0,00E+00	0,00E+00	0,00E+00	7,50E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,02E-04	0,00E+00	3,51E-04	-4,81E-03
Eutrophication of fresh water (EP-freshwater)	kg P eq	1,77E-02	6,70E-04	2,78E-03	0,00E+00	0,00E+00	0,00E+00	1,72E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,98E-05	0,00E+00	4,82E-03	-2,99E-03
Eutrophication of sea water (EP-marine)	kg N eq.	6,75E-03	6,54E-04	1,09E-03	0,00E+00	0,00E+00	0,00E+00	7,57E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,35E-05	0,00E+00	3,36E-03	-9,84E-04
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	8,93E-02	7,28E-03	1,45E-02	0,00E+00	0,00E+00	0,00E+00	9,86E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,91E-04	0,00E+00	9,41E-04	-1,09E-02
Photochemical ozone formation (POCP)	kg NMVOC eq	2,33E-02	2,74E-03	3,91E-03	0,00E+00	0,00E+00	0,00E+00	2,61E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,82E-04	0,00E+00	6,63E-04	-4,16E-03
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	4,54E-05	4,84E-06	6,89E-06	0,00E+00	0,00E+00	0,00E+00	5,21E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,77E-07	0,00E+00	3,95E-08	-1,12E-05
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	1,02E+02	1,84E+01	1,64E+01	0,00E+00	0,00E+00	0,00E+00	1,16E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,56E-01	0,00E+00	6,91E-01	-9,58E+00
Water consumption (WDP)	m3 worldwide eq. private	7,16E+00	1,28E-01	1,10E+00	0,00E+00	0,00E+00	0,00E+00	8,24E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,51E-03	0,00E+00	2,43E-02	-2,30E-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	7,92E+00	1,21E+00	1,30E+00	0,00E+00	0,00E+00	0,00E+00	7,50E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,07E-02	0,00E+00	1,18E+00	-8,40E-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	9,43E+00	2,16E-01	1,69E+00	0,00E+00	0,00E+00	0,00E+00	1,11E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,03E-02	0,00E+00	2,65E-02	-8,46E-01
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	9,43E+00	2,16E-01	1,69E+00	0,00E+00	0,00E+00	0,00E+00	1,11E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,03E-02	0,00E+00	2,65E-02	-8,46E-01
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	1,09E+02	1,95E+01	1,75E+01	0,00E+00	0,00E+00	0,00E+00	1,24E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,03E-01	0,00E+00	7,34E-01	-1,02E+01
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	1,09E+02	1,95E+01	1,75E+01	0,00E+00	0,00E+00	0,00E+00	1,24E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,03E-01	0,00E+00	7,34E-01	-1,02E+01
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	1,47E-01	2,85E-03	2,25E-02	0,00E+00	0,00E+00	0,00E+00	1,69E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,25E-04	0,00E+00	4,92E-04	-5,18E-03
Hazardous waste removed	kg	1,61E-04	1,32E-05	2,58E-05	0,00E+00	0,00E+00	0,00E+00	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,43E-07	0,00E+00	1,98E-06	-5,23E-05
Non-hazardous waste eliminated	kg	3,11E+00	7,16E-01	8,12E-01	0,00E+00	0,00E+00	0,00E+00	3,12E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,28E-02	0,00E+00	1,89E+00	-3,29E-01
Radioactive waste disposed of	kg	3,69E-04	1,23E-04	6,32E-05	0,00E+00	0,00E+00	0,00E+00	4,26E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,93E-06	0,00E+00	3,66E-06	-2,17E-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	2,55E-01	0,00E+00	0,00E+00	0,00E+00	6,37E-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	6,31E-02	0,00E+00	0,00E+00	0,00E+00	1,58E-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
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	-9,15E-02 Kg
Contenido Carbono (biogénico) - producto	-6,30E-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: Firefilm A6

3.5. Cut-off rules

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

3.6. Additional environmental information

VOCs content 0.5 g/liter

3.7. Other data

Firefilm A6 has CE markings through the European Technical Assessment (ETA) 20/1200, issued by Warrintongfire Testing and Certification Limited and is tested under the European standard EN 13381-8.
Firefilm A6 is compatible with a wide variety of families of primers and finishing enamels as indicated in its ETA-20/1200.

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 tonnes, Euro VI, consumes 0,047 kg/ton.km of diesel. Sea: Medium freighter.
Distance	Road transport: 916 km average Sea transport: 3.000 km average
Capacity utilization (including empty return)	Road transport: 85%Freighter transport: 100%
Apparent density of transported product	721,45 kg
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	-
Use of other resources	-
Quantitative description of the type of energy (regional mix) and consumption during the installation process	Airless: 0,13 kWh
Waste of materials in the work before the treatment of waste, generated by the installation of the product (specify by type)	Firefilm A6 Plastic waste: 2,55E-03 kg Metal waste: 3,17E-01 kg Paint (LER 080011): 2,70E-01 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 1,20E-03kg Recycling, 1,02E-03kg Energy rec. And 4,59E-04kg landfill. Metal: 2,53E-01kg Recycling, 6,21E-02kg Energy Rec. and 2,79E-03kg landfill. LER 080011: 2,70E-01kg special.
Direct emissions to air, soil and water	VOCs emissions 6,50E-04 kg (0,5 g/l)

4.3. Reference life (B1)

Parameter	Parameter expressed per functional unit
Reference Lifetime (RSL)	10 years (According to CE marking)
Characteristics and properties of the product	Water-based intumescent paint intended for passive fire protection of indoor or semi-exposed metallic structures. It offers a fire resistance of up to 90 minutes. Firefilm A6 is solvent free.
Requirements (conditions of use, frequency of maintenance, repair, etc.)	Does not require

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 50 years of reference of the study have been exceeded, it is not considered that the product has to be 100% replaced, but that a partial rehabilitation will be possible, 25% of the applied product is considered.
Rehabilitation cycle	Every 10 years
Energy input during rehabilitation, for example for the use of cranes (quantity and energy vector)	Electricity: 3,33E-02 kWh
Input material for rehabilitation, including auxiliary materials (specifying by material)	Firefilm A6: 5,18E-01 kg
Waste of material during rehabilitation (specifying each material)	Firefilm A6: 6,75E-02 kg
Other scenario development assumptions	-

4.5. Reference life

Parameter	Parameter expressed per functional unit
Reference life	10 years (According to CE marking)
Declared properties of the product, finishes, etc.	Firefilm A6 provides a smooth, uniform white color finish.
Application design parameters (manufacturer's instructions)	Product designed for indoor or semi-exposed applications. Apply to a clean, undamaged, dry surface coated with a compatible primer.
Estimation of the quality of execution, when installed according to the manufacturer's instructions	Once the required dry thicknesses have been reached (without taking into account the primer), a compatible finishing enamel can be applied (Consult Technical Department).
Outdoor environment for outdoor applications. For example, weather, pollutants, UV radiation, temperature, etc.	-
Indoor environment for indoor applications. For example, temperature, humidity, chemical exposure	During its application, the incidence of winds and high temperatures so as not to produce drying fast and defects. In this case, it is recommended the application of layers in small thicknesses.
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
	1.80	0	1.80
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

CE marking (ETA-20/1200) 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:

07/10/2021

References

ANÁLISIS DEL CICLO DE VIDA DEL PRODUCTO: Firefilm A6

Programme Manager

Colegio de la Arquitectura Técnica de Barcelona (Cateb)

Bon Pastor, 5 · 08021 Barcelona www.apabcn.cat

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	5,36E-07	6,79E-08	8,29E-08	0,00E+00	0,00E+00	0,00E+00	6,03E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,77E-09	0,00E+00	4,04E-09	-8,07E-08
Ionizing radiation, human health (IRP)	kBq U235 eq	7,33E-01	8,91E-02	1,39E-01	0,00E+00	0,00E+00	0,00E+00	8,66E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,66E-03	0,00E+00	4,41E-03	-4,30E-02
Eco-toxicity (freshwater) (ETP-fw)	CTUe	1,69E+02	1,35E+01	2,66E+01	0,00E+00	0,00E+00	0,00E+00	1,90E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,93E-01	0,00E+00	9,63E+00	-3,46E+01
Human toxicity, cancer effects (HTP-c)	CTUh	1,68E-08	4,42E-10	2,68E-09	0,00E+00	0,00E+00	0,00E+00	1,73E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,27E-11	0,00E+00	6,00E-11	-7,63E-09
Human toxicity, non-cancer effects (HTP-nc)	CTUh	2,18E-07	1,45E-08	3,43E-08	0,00E+00	0,00E+00	0,00E+00	2,34E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,51E-10	0,00E+00	2,99E-09	-9,17E-08
Land use related impacts / Soil quality (SQP)	dimensionless	7,91E+01	1,07E+01	1,22E+01	0,00E+00	0,00E+00	0,00E+00	9,02E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,63E-01	0,00E+00	1,15E+00	-3,14E+00