

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804 for:

Aquafire and Supersil (6, 9 and 12 mm)

from

Bifire srl



Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-01593
Publication date:	2019-05-17
Valid until:	2024-05-14
Geographical scope	Global



Programme information

Programme:	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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Product category rules (PCR): *CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES 2012:01, VERSION 2.3*
sub PCR ACOUSTICAL SYSTEM SOLUTIONS (CONSTRUCTION PRODUCT) (v2.2) PCR 2012:01-SUB-PCR-C rev.16/11/2018

PCR review was conducted by: *The Technical Committee of the International EPD® System. Chair: Massimo Marino.*
Contact via info@environdec.com

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

EPD process certification EPD verification

Third party verifier: *Rina Services Spa - signature*

In case of accredited certification bodies:
Accredited by: *Accredia, Accreditation n. 001H.*

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes No

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.

Company information

Owner of the EPD: Bifire srl, Via Lavoratori Autobianchi, 1, 20832 Desio MB, tel: +39 0362 364570 – mail: bifire@bifire.it

Description of the organisation: BIFIRE®, leader in the production of products for fire protection in construction, industry and marine, offers advantageous technological solutions through a wide mix of products, which constitute a "cut" proposal exactly on the needs of individual customers.

Product-related or management system-related certifications:

- Occupational Health and Safety Management System according to OHSAS 18001: OHS-2399
- Quality Management System according to ISO 9001: 7690/02/S
- Environmental Management System according to ISO 14001: EMS-5106/AN

Name and location of production site:

- Via Lavoratori Autobianchi, 1, 20832 Desio MB: Aquafire production site
- via Bergamo 16, 20037 Paderno Dugnano: Supersil production site

Product information

Aquafire

Product identification: slabs for fire protection and soundproofing in construction

Product description: Fiber-reinforced lightweight concrete slab for indoor or outdoor use, 12,5 mm thick.

Very light, highly insulating, water resistant for use in environments with high humidity, it can be used for internal or external applications.

Supplied with smooth side for internal applications with traditional grouting and rough side for plaster and smoothing applications.

UN CPC code: 375 Articles of concrete, cement and plaster

Geographical scope: Global

Supersil

Product identification: slabs for fire protection and soundproofing in construction

Product description:

SUPERSIL is a high density calcium fiber silicate totally free of asbestos composed of silicates, cement, fibers and inert additives.

It is available in 6 mm, 9 mm and 12 mm thicknesses.

SUPERSIL sheets are treated in an autoclave, making the finished product totally stable in the event of fire, incombustible (class 0), and guaranteeing high mechanical strength and resistance to atmospheric humidity.

SUPERSIL is supplied in rigid self-supporting panels with mechanical stability, flexibility, abrasion resistance and excellent heat performance.

Its high mechanical strength allows it to be used in the most severe conditions within its operating temperatures.

UN CPC code: 375 Articles of concrete, cement and plaster

Geographical scope: Global

Technical data		Aquafire	Supersil
Dry density	[kg/m ³]	960	900
Width	[mm]	1200	1200
Length	[mm]	2000	Da 2000 a 3000
Thickness			6
			9
	[mm]	12,5	12
Weight			5,4
			8,1
	[kg/m ²]	12	10,8
Reaction to fire	-	A1	0/A1

LCA information

Declared unit: 1 m² of product

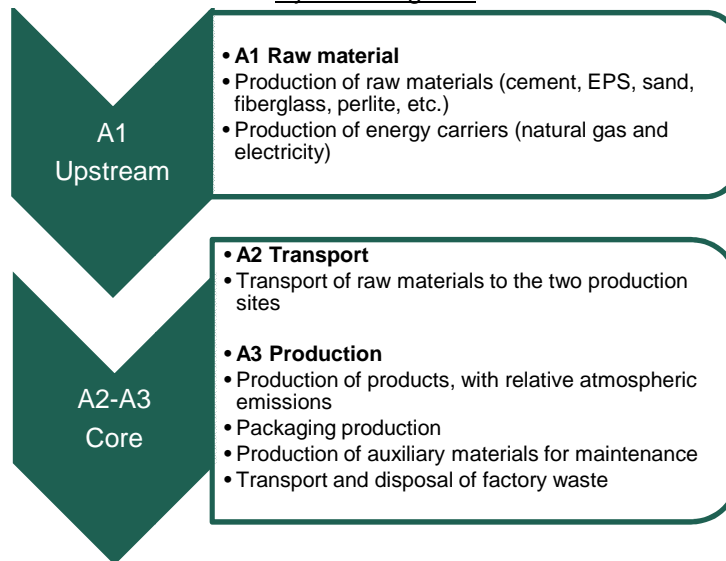
Sima pro 9.0

Time representativeness: the data refer to the year 2018.

Description of system boundaries: Type of EPD: cradle to gate

Database(s) and LCA software used:
ecoinvent v. 3.5, November 2018.

System diagram:



Excluded lifecycle stages: the study is limited to the factory gate, as the subsequent phases are optional.

More information:

A 1% cut-off was used, in terms of environmental relevance.

In cut off were considered:

- the labels affixed to the products during shipment;

- general office consumption;

- packaging of packaging materials.

Specific energy consumption per production line was used in the study.

Maintenance and atmospheric emissions are also line specific.

Name and contact information of LCA

practitioner: LCA study was carried out by e3 studio associato di consulenza, info@ecubo.it

Content declaration

Aquafire

Materials / chemical substances	%	Environmental / hazardous properties
Portland cement	23-33%	H315, H318, H317, H335
EPS expanded polystyrene	0,6-1,0%	-
Sand	63-77%	-
Glass fiber mesh	0,9 - 1,3%	-
Chemical agent	0,5-1,1%	-

Supersil

Materials / chemical substances	%	Environmental / hazardous properties
Portland cement	5-13%	H315, H318, H317, H335
Expanded perlite	3-7%	-
Sand *	1-8%	-
Glass fiber	1,2-1,5%	-
Calcium-based mineral	65-75%	-
Glass fiber mesh	0,3-1,3 %	
Glass fiber mat	0,3-0,65 %	

* the sand can be replaced by internal recovery aggregates

Both products don't contain substances listed in the "Candidate List of Substances of Very High Concern for Authorisation over 0,1%".

Packaging

Consumer and distribution packaging: the products are distributed on pallets, packaged with cardboard corners and metal straps.

Recycled material

In both products there is material deriving from the recycling of internal cuts from cutting, in a variable percentage between 6 and 12%.

Environmental performance: Aquafire

Potential environmental impact

1 m2 Aquafire	Unit	A1	A2	A3	Total
Global Warming potential (GWP)	kg CO2 eq	4,77	0,08	0,05	4,91
Formation potential of tropospheric ozone (POCP)	kg C2H4 eq	6,18E-04	1,30E-05	1,03E-05	6,42E-04
Acidification potential (AP)	kg SO2 eq	0,0129	0,0003	0,0001	0,0134
Eutrophication potential (EP)	kg PO4---eq	3,83E-03	7,25E-05	7,65E-05	3,98E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq	2,16E-07	1,53E-08	3,25E-09	2,35E-07
Abiotic depletion potential – Elements	kg Sb eq	5,46E-06	1,50E-07	3,02E-07	5,91E-06
Abiotic depletion potential – Fossil resources	MJ	36,6	1,3	0,4	38,3

Use of resources

PARAMETER		UNIT	A1	A2	A3	TOTAL A1-A3
Primary energy resources – Non Renewable	Use as energy carrier	MJ, net calorific value	31	1	0	33
	Used as raw materials	MJ, net calorific value	10	0	0	10
	TOTAL	MJ, net calorific value	41	1	0	43
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	5	0	0	5
	Used as raw materials	MJ, net calorific value	0	0	1	1
	TOTAL	MJ, net calorific value	5	0	1	6
Secondary material	kg		0	0	0	0
Renewable secondary fuels	MJ, net calorific value		0	0	0	0
Non-renewable secondary fuels	MJ, net calorific value		0	0	0	0
Net use of fresh water	m ³		6,4	0,1	0,2	6,7

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	2,6E-05	7,4E-07	7,6E-07	2,8E-05
Non-hazardous waste disposed	kg	0,17	0,11	0,01	0,29
Radioactive waste disposed	kg	1,2E-04	8,7E-06	1,8E-06	1,3E-04

Environmental performance: Supersil

Potential environmental impact

1 m2 Supersil 6 mm	Unit	A1	A2	A3	Total
Global Warming potential (GWP)	kg CO2 eq	2,04	0,09	0,63	2,76
Formation potential of tropospheric ozone (POCP)	kg C2H4 eq	4,96E-04	1,47E-05	1,83E-05	5,28E-04
Acidification potential (AP)	kg SO2 eq	0,0092	0,0004	0,0002	0,0097
Eutrophication potential (EP)	kg PO4---eq	2,55E-03	8,22E-05	7,25E-05	2,70E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq	2,31E-07	1,74E-08	2,02E-09	2,50E-07
Abiotic depletion potential – Elements	kg Sb eq	4,10E-06	1,71E-07	3,13E-07	4,59E-06
Abiotic depletion potential – Fossil resources	MJ	28,3	1,4	0,2	29,9

1 m2 Supersil 9 mm	Unit	A1	A2	A3	Total
Global Warming potential (GWP)	kg CO2 eq	2,90	0,12	0,89	3,92
Formation potential of tropospheric ozone (POCP)	kg C2H4 eq	6,80E-04	2,04E-05	2,56E-05	7,26E-04
Acidification potential (AP)	kg SO2 eq	0,0132	0,0005	0,0003	0,0139
Eutrophication potential (EP)	kg PO4---eq	3,58E-03	1,14E-04	9,81E-05	3,79E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq	3,27E-07	2,42E-08	2,88E-09	3,54E-07
Abiotic depletion potential – Elements	kg Sb eq	5,51E-06	2,39E-07	3,27E-07	6,08E-06
Abiotic depletion potential – Fossil resources	MJ	39,9	2,0	0,3	42,2

1 m2 Supersil 12mm	Unit	A1	A2	A3	Total
Global Warming potential (GWP)	kg CO2 eq	3,62	0,15	1,20	4,98
Formation potential of tropospheric ozone (POCP)	kg C2H4 eq	8,10E-04	2,52E-05	3,35E-05	8,69E-04
Acidification potential (AP)	kg SO2 eq	0,0165	0,0006	0,0003	0,0174
Eutrophication potential (EP)	kg PO4---eq	4,39E-03	1,41E-04	1,24E-04	4,66E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq	4,17E-07	2,98E-08	3,67E-09	4,50E-07
Abiotic depletion potential – Elements	kg Sb eq	6,48E-06	2,95E-07	3,40E-07	7,12E-06
Abiotic depletion potential – Fossil resources	MJ	50,6	2,4	0,4	53,5

Use of resources

Supersil 6 mm		UNIT	A1	A2	A3	TOTAL A1-A3
Primary energy resources – Non Renewable	Use as energy carrier	MJ, net calorific value	31	1	0	32
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	31	1	0	32
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	6	0	0	6
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	6	0	0	6
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	4,2	0,1	0,1	4,4	

Supersil 9 mm		UNIT	A1	A2	A3	TOTAL A1-A3
Primary energy resources – Non Renewable	Use as energy carrier	MJ, net calorific value	43	2	0	46
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	43	2	0	46
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	8	0	0	8
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	8	0	0	8
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	5,9	0,1	0,1	6,1	

Supersil 12 mm		UNIT	A1	A2	A3	TOTAL A1-A3
Primary energy resources – Non Renewable	Use as energy carrier	MJ, net calorific value	55	2	0	58
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	55	2	0	58
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	9	0	0	9
	Used as raw materials	MJ, net calorific value	0	0	1	1
	TOTAL	MJ, net calorific value	9	0	1	9
Secondary material		kg	0	0	0	0
Renewable secondary fuels		MJ, net calorific value	0	0	0	0
Non-renewable secondary fuels		MJ, net calorific value	0	0	0	0
Net use of fresh water		m ³	7,4	0,1	0,2	7,7

Waste production

Supersil 6 mm	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	1,1E-02	8,4E-07	4,5E-07	1,1E-02
Non-hazardous waste disposed	kg	0,12	0,12	0,01	0,25
Radioactive waste disposed	kg	6,4E-05	9,8E-06	1,2E-06	7,5E-05

Supersil 9 mm	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	1,3E-02	1,2E-06	5,9E-07	1,3E-02
Non-hazardous waste disposed	kg	0,17	0,17	0,01	0,35
Radioactive waste disposed	kg	9,0E-05	1,4E-05	1,6E-06	1,1E-04

Supersil 12 mm	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	1,1E-02	1,4E-06	7,1E-07	1,1E-02
Non-hazardous waste disposed	kg	0,21	0,21	0,01	0,42
Radioactive waste disposed	kg	1,1E-04	1,7E-05	2,0E-06	1,3E-04

Additional information

Emission of Volatile Organic Compounds (VOC) using testing chamber method according to standard UNI EN ISO 16000-9:2006 and classification “Décret n° 2011-321 du 23 mars 2011” and “Arrêté del 19/04/2011”:

- *Aquafire: Emission class A+ (TEST REPORT No. 340720 Istituto Giordano)*
- *Supersil: Emission class A+ (TEST REPORT No. 340041 Istituto Giordano)*

References

General Programme Instructions of the International EPD® System. Version 2.5., CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES, 2012:01, VERSION 2.3

Rapporto LCA Bifire rev.1, 09/05/2019

ecoinvent v. 3.5, November 2018, www.ecoinvent.org

