

No. Eq-DOP/tectiva/EN/v20220701

1. Unique identification code of the product-type:

**EQUITONE [ectiva]**

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

[colour code] batch nr DD.MM.YY EQUITONE [type] CE 7000 NT EN 12467 [Class] [Category] A2-s1,d0<sup>1)</sup>

<sup>1)</sup>DD.MM.YY: day.month.year of production

3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:

**Fibre cement flat sheets for internal and external walls and ceilings finishes**

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

**Eternit NV, Kuiermansstraat 1, 1880 Kappelle-op-den-Bos, Belgium**

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2):

**not relevant**

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

**a) Fire behaviour testing: 3 ; b) all other type tests: 3**

7. In case of the declaration of performance concerning a construction product covered by a harmonised standard:

**1173 WFRGENT NV, Ottergemsesteenweg-Zuid 711, B-9000 Gent, Belgium**

**1136 WTCB, Avenue P. Holoffe 21, 1342 Limelette, Belgium**

performed **the determination of product type** under system **3**

and issued:

**not relevant**

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:

**not relevant**

9. Declared performance

Notes to the table.

1. Column 1 shall contain the list of essential characteristics as determined in the harmonised technical specifications for the intended use or uses indicated in point 3 above.

2. For each essential characteristic listed in column 1 and in compliance with the requirements of Article 6, column 2 shall contain the declared performance, expressed by level or class, or in a description, related to the corresponding essential characteristics. The letters 'NPD' (No Performance Determined) shall be indicated where no performance is declared.

3. For each essential characteristic listed in column 1, column 3 shall contain:

(a) dated reference of the corresponding harmonised standard and, where relevant, the reference number of the Specific or Appropriate Technical Documentation used;

or

(b) dated reference of the corresponding European Assessment Document where available and reference number of the European Technical Assessment used.

Essential characteristics (see Note 1)	Performance (see Note 2)	Harmonised technical specification (see Note 3)
Mechanical resistance	Class 5, Category A	EN 12467:2012+A2:2018
Reaction to fire	A2 - s1, d0	
Release of dangerous substances	'NPD' (no performance determined)	
Water impermeability	Passed	
Dimensional variation	Level I - trimmed sheet Level II - untrimmed sheet	
Durability against warm water	Passed	
Durability against soak / dry	Passed	
Durability against freeze-thaw	Passed	
Durability against heat-rain	Passed	
Type	NT	

Where pursuant to Article 37 or 38 the Specific Technical Documentation has been used, the requirements with which the product complies:

not relevant

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

p.p. Wouter Muysoms

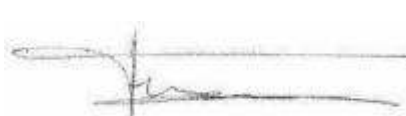
plant manager



Kapelle-op-den-Bos, 01.07.2022

on behalf: Filip Waem

Head Quality Management




www.equitone.com

## ETEX EQUITONE [tectiva] fibre cement sheets

The production and installation of 1 m<sup>2</sup> (thickness 8 mm) of a “EQUITONE [tectiva]” panel and its related impacts over cradle-to-grave life cycle stages, over a reference service life of 60 years.

Issued 07.10.2021  
Valid until 07.10.2026

Third party verified  
Conform to EN 15804+A2, NBN/DTD B08-001 and ISO 14025

					Modules declared Cradle-to-grave
A123	A4	A5	B	C	D
•	•	•	•	•	•

[B-EPD n° 21-0135-04-00-00-EN]

OWNER OF THIS ENVIRONMENTAL PRODUCT DECLARATION

**Etex services**



EPD PROGRAM OPERATOR

**Federal Public Service of Health, Food Chain Safety  
and Environment**

[www.b-epd.be](http://www.b-epd.be)

The intended use of this EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings. This EPD is only valid when registered on [www.b-epd.be](http://www.b-epd.be). The FPS Public Health cannot be held responsible for the information provided by the owner of the EPD.

## PRODUCT DESCRIPTION

### PRODUCT NAME

EQUITONE [tectiva]

### IMAGES OF THE PRODUCT AND ITS INSTALLATION

#### PRODUCT DESCRIPTION

EQUITONE [tectiva] is an autoclaved calcium silicate fibre cement sheet produced at Kapelle-op-den-Bos production plant, Belgium. It is mainly made of sand, cement, cellulose, wollastonite, clay and lime. This product is used as panel for exterior wall covering. This average product is representative of the following colour range: TE00, TE 10, TE 20, TE 30, TE 40, TE 50, TE 60, TE 85 and TE 90 made in 8mm or 10mm thick panel. Only pigment composition changes from a EQUITONE [tectiva] product to the other.



#### INTENDED USE

EQUITONE [tectiva] product is mainly used as a cladding sheet for ventilated exterior claddings and ceilings and insulated lightweight facade-systems. The panel itself is fixed to a back-structure in wood or metal. This back-structure is mounted on a supporting wall in a massive construction (such as bricks, concrete, ...), lightweight skeleton (steel, wood) or prefabricated solutions. The application field is new construction and renovation of low, middle high and high rise buildings. It is also used as exterior ceiling and as a finishing board for roof eaves and verges. In a minor application, the EQUITONE [tectiva] can be used as protection for insulated foundations.



#### REFERENCE FLOW / DECLARED UNIT

The functional unit is defined as: the production and installation of 1 m<sup>2</sup> (thickness 8 mm) of a "EQUITONE [tectiva]" sheets and its related impacts over cradle-to-grave life cycle stages, where the product's expected average reference service life is of 60 years.

Packaging is included.

The weight per reference flow is 14,22 kg.

The minimum (dry) density of the product is 1580 kg / m<sup>3</sup>.

Dimensions of the panel per FU: 1 m<sup>2</sup> of thickness 8mm

#### INSTALLATION

The product is installed according to the following scenario(s): fixation of the panel to a framework in wood or metal. This EPD declares the screws and energy consumption to fixate the panels, but does not include the framework. This may lead to the need of additional products and materials for which the impact is not included in this EPD and which shall be taken into account at building level. The different frameworks are described in the chapter "Additional technical information for scenario development at building".

## COMPOSITION AND CONTENT

Components	Composition / content / ingredients	Quantity
Product	<ul style="list-style-type: none"> <li>- Sand</li> <li>- Cement</li> <li>- Pigments</li> <li>- Lime</li> <li>- Cellulose</li> <li>- Wollastonite</li> <li>- Clay</li> <li>- Water</li> <li>- Other</li> </ul>	25 - 40% 25 - 40% <10% <10% <10% <10% <10% 5 - 20% Appr 5%
Fixation materials	- Screws for wooden substructure)- Rivets (for metal substructure)	6 p
Jointing materials	NA	/
Treatments	NA	/
Packaging	<ul style="list-style-type: none"> <li>- Pallet</li> <li>- Carton</li> <li>- PE strap</li> </ul>	0,2278 kg 0,0146 kg 0,0012 kg

The product does not contain materials listed in the “Candidate list of Substances of Very High Concern for authorization”.

## REFERENCE SERVICE LIFE

The reference service life is estimated at 60 years.

EQUITONE [tectiva] is a rather new product on the market (°2007), and there is not yet extensive evidence regarding its reference service life. However there are some studies that suggest that it is feasible to assume that this product lasts for the average lifetime of a building<sup>1</sup>.

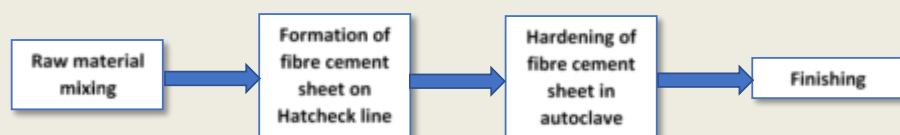
The RSL is valid under normal conditions of use.

## DESCRIPTION OF GEOGRAPHICAL REPRESENTATIVITY

The EPD is representative for the Belgian market.

## DESCRIPTION OF THE PRODUCTION PROCESS AND TECHNOLOGY

Façade panels made of fiber cement are manufactured largely in accordance to an automated winding process: the raw materials are mixed with water to prepare a homogenous mixture. Rotating screen cylinders are immersed in this fiber cement pulp which drain internally. The screen surface is covered in a thin film of fiber cement which is transferred onto an infinite conveyor belt from where it is conveyed to a format roller which is gradually covered in an increasingly thicker layer of fiber cement. Once the requisite material thickness is achieved, the still moist and malleable fiber cement layer (fiber cement fleece) is separated and removed from the format roller. The fiber cement fleece is cut to size. Leftovers are returned to the production process preventing any waste from being incurred. The sheets are then laid on templates, pressed and steam-hardened in an autoclave. The façade panels are then calibrated, sanded and hydrophobated before being packed and shipped to the customer.



<sup>1</sup> 'Durability of Autoclaved Cellulose Fiber Cement Composites', A.M.Cooke, Managing Director, Building Materials and Technology Pty Ltd, Sydney, NSW, Australia

## TECHNICAL DATA / PHYSICAL CHARACTERISTICS

Technical property	Standard	Value	Unit	Comment
<b>Gross density dry (min)</b>	EN12467	1580	kg/m <sup>3</sup>	
<b>Standard panel thickness</b>		8	mm	
<b>Thermal conductivity</b>		0.39	W/(mK)	
<b>Water vapour diffusion resistance factor acc. to DIN V 4108-4, EN ISO 12572</b>	DIN 4108-4, EN ISO 12572	214	-	
<b>Flexural strength parallel</b>	EN12467	32	N/mm <sup>2</sup>	
<b>Flexural strength perpendicular</b>	EN12467	22	N/mm <sup>2</sup>	
<b>Modulus of elasticity parallel</b>	EN12467	> 14000	N/mm <sup>2</sup>	
<b>Modulus of elasticity perpendicular</b>	EN12467	> 12000	N/mm <sup>2</sup>	
<b>Moisture content at 23 °C, 80% humidity</b>		6	M.-%	
<b>Coefficient of thermal expansion</b>		10	10-6K-1	
<b>Chemical resistance</b>		similar to concrete C 35/45	-	
<b>Ageing resistance</b>		similar to concrete C 35/45	-	
<b>Permanent temperature resistance</b>		80	°C	

# LCA STUDY

## DATE OF LCA STUDY

September 2021

## SOFTWARE

For the calculation of the LCA results, the software program SimaPro 9.1.1.1 (PRé Consultants, 2021) has been used in combination with a specific LCA software program for ETEx.

## INFORMATION ON ALLOCATION

At Etex, different types of cement fiber products are produced. However EQUITONE [tectiva] products are produced only on certain production lines. Only facility level data were available for electricity use, the use of natural gas, etc. The facility level data have been allocated to the analyzed product using their respective annual production volume (physical relationship), therefore volume allocation is applied. Material inputs and outputs which were not available at the product level, such as waste, were allocated similarly, by mass allocation.

## INFORMATION ON CUT OFF

Following processes were considered below the cut-off:

- Transport of packaging of raw materials
- The metal templates in which the boards are produced need to be greased periodically. The template oil is considered below cut-off
- Packaging and transport of ancillary materials used during installation
- Waste treatment of ancillary materials used during installation
- Wearable sieves and cutting knives

## INFORMATION ON EXCLUDED PROCESSES

Following processes were excluded for the inventory:

- 
- Infrastructure and land use of the factory
- Environmental impacts caused by the personnel of the production plants are not included in the LCA, e.g. waste from the cafeteria and sanitary installations, accidental pollution caused by human mistakes, or environmental effects caused by commuter traffic

## INFORMATION ON BIOGENIC CARBON MODELLING

The fibre cement panels contain cellulose, which is a biobased material. Uptake of biogenic CO<sub>2</sub> within cellulose is reported in module A1, release of biogenic CO<sub>2</sub> related to this flow is reported in C4.

The fibre cement panels are transported using wooden pallets and a carton coverage. Uptake of biogenic CO<sub>2</sub> within these pallets and the carton is reported in module A3, release in module A5.

Biogenic carbon content (kg C / FU)	
Biogenic carbon content in product (at the gate)	4,37E-01
Biogenic carbon content in accompanying packaging (at the gate)	1,08E-01

## INFORMATION ON CARBON OFFSETTING

Carbon offsetting is not allowed in the EN 15804 and hence not taken into account in the calculations.

## ADDITIONAL OR DEVIATING CHARACTERISATION FACTORS

The characterization factors from EC-JRC were applied. No additional or deviating characterization factors were used.

# DATA

## SPECIFICITY

The data used for the LCA are specific for this product which is manufactured by a single manufacturer in a single production site.

## PERIOD OF DATA COLLECTION

Manufacturer specific data have been collected for the year 2016.

## INFORMATION ON DATA COLLECTION

Company specific data for the product stage have been collected by Eternit and were provided to VITO through an excel file. The LCI data has been checked by the EPD verifier (Evert Vermaut, Vinçotte). VITO uses publicly available generic data for all background processes such as the production of electricity, transportation by means of a specific truck, etc. Primary data is used for modules A1, A2, A3, and A5. The rest of the study is based on scenarios (module A4, modules B1-B7, modules C1-C4, and module D).

## DATABASE USED FOR BACKGROUND DATA

The main LCI source used in this study is the Ecoinvent 3.6 database (Wernet et al., 2019).

## ENERGY MIX

The Belgian electricity mix (consumption mix + import) has been used to model electricity use in life cycle stages A3, A5, C1, C3, C4 and D. The used record is the ecoinvent record 'Electricity, low voltage {BE}| market for | Cut-off, U' (Wernet et al., 2016).



## PRODUCTION SITES

The production site is located at Kuiermansstraat 1, 1880 Kapelle-op-den-Bos, Belgium.

## SYSTEM BOUNDARIES

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Construction installation stage	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 = included in the EPD











MND = module not declared




EQUITONE [tectiva] does not contain recycled content.

In the default end-of-life scenario as described by the B-PCR 100% is landfilled, so the end-of-waste state is not reached.

The production waste is partly recycled in another production line of the ETEX factory and partly externally recycled. However, it has been assumed that the recycled waste has no economic value, so 100% of the impacts of the production are allocated to the product and 0% to recycled production waste.

POTENTIAL ENVIRONMENTAL IMPACTS PER REFERENCE FLOW

		Production			Construction process stage		Use stage							End-of-life stage				D Reuse, recovery, recycling	Total excl module D
		A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal		
	GWP total (kg CO2 equiv/FU)	5,27E+00	8,77E-01	8,95E-01	2,42E-01	1,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,62E-03	1,90E-01	1,20E-05	1,68E+00	-6,91E-02	1,06E+01
	GWP fossil (kg CO2 equiv/FU)	7,01E+00	8,76E-01	1,12E+00	2,42E-01	1,05E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,60E-03	1,90E-01	1,19E-05	7,88E-02	-6,88E-02	1,06E+01
	GWP biogenic (kg CO2 equiv/FU)	-1,75E+00	3,68E-04	-2,23E-01	1,02E-04	4,00E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,03E-05	7,73E-05	4,57E-08	1,60E+00	-9,36E-05	2,43E-02
	GWP luluc (kg CO2 equiv/FU)	9,71E-03	5,13E-04	1,61E-03	8,49E-05	1,28E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,19E-06	6,63E-05	2,73E-08	4,33E-05	-1,74E-04	1,33E-02
	ODP (kg CFC 11 equiv/FU)	4,67E-07	1,79E-07	1,84E-07	5,53E-08	1,03E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,43E-10	4,31E-08	2,44E-12	3,34E-08	-9,73E-09	1,07E-06
	AP (mol H+ eq)	3,42E-02	1,52E-02	2,03E-03	9,94E-04	5,97E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,47E-06	7,75E-04	3,21E-08	6,77E-04	-2,54E-04	5,99E-02
	EP freshwater (kg P-equiv/FU)	2,16E-04	7,00E-06	2,80E-05	1,96E-06	2,95E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,93E-08	1,49E-06	3,22E-10	8,36E-07	-2,25E-06	2,85E-04
	EP marine (kg N-equiv/FU)	5,74E-03	4,34E-03	7,43E-04	2,94E-04	1,27E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,33E-06	2,30E-04	6,92E-09	2,51E-04	-7,07E-05	1,29E-02
	EP terrestrial (mol N-equiv/FU)	6,41E-02	4,81E-02	5,96E-03	3,25E-03	1,39E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,63E-05	2,54E-03	8,37E-08	2,77E-03	-7,87E-04	1,41E-01
	POCP (kg NMVOC equiv/FU)	1,79E-02	1,27E-02	1,81E-03	1,01E-03	3,87E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,18E-06	7,79E-04	2,25E-08	7,90E-04	-2,67E-04	3,89E-02

	ADP Elements (kg Sb equiv/FU)	4,98E-06	1,06E-06	4,98E-07	4,51E-07	2,75E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,81E-09	3,70E-07	3,24E-11	8,04E-08	-7,50E-08	1,02E-05
	ADP fossil fuels (MJ/FU)	5,45E+01	1,20E+01	2,82E+01	3,68E+00	1,16E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,04E-01	2,86E+00	4,60E-04	2,55E+00	-1,30E+00	1,15E+02
	WDP (m³ water eq deprived /FU)	3,63E+00	3,30E-02	-1,87E-01	1,11E-02	3,67E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,88E-04	7,96E-03	4,40E-06	1,10E-02	-1,96E-02	3,88E+00

GWP total = total Global Warming Potential (Climate Change); GWP-luluc = Global Warming Potential (Climate Change) land use and land use change; ODP = Ozone Depletion Potential; AP = Acidification Potential for Soil and Water; EP = Eutrophication Potential; POCP = Photochemical Ozone Creation; ADPE = Abiotic Depletion Potential – Elements; ADPF = Abiotic Depletion Potential – Fossil Fuels; WDP = water use (Water (user) deprivation potential, deprivation-weighted water consumption)

RESOURCE USE

	Production			Construction process		Use stage							End-of-life stage					
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
PERE (MJ/FU, net calorific value)	2,95E+01	1,68E-01	3,96E+00	5,15E-02	5,85E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,12E-02	3,95E-02	4,93E-05	8,59E-02	-4,10E+00	3,97E+01
PERM (MJ/FU, net calorific value)	1,53E+01	0,00E+00	3,42E+00	0,00E+00	-3,49E-01	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	1,84E+01
PERT (MJ/FU, net calorific value)	4,48E+01	1,68E-01	7,37E+00	5,15E-02	5,51E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,12E-02	3,95E-02	4,93E-05	8,59E-02	-4,10E+00	5,81E+01
PENRE (MJ/FU, net calorific value)	6,29E+01	1,21E+01	3,03E+01	3,71E+00	1,29E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,09E-01	2,88E+00	4,87E-04	2,56E+00	-1,44E+00	1,28E+02
PENRM (MJ/FU, net calorific value)	6,19E-02	0,00E+00	1,29E-02	0,00E+00	-2,63E-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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,85E-02
PENRT (MJ/FU, net calorific value)	6,30E+01	1,21E+01	3,04E+01	3,71E+00	1,29E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,09E-01	2,88E+00	4,87E-04	2,56E+00	-1,44E+00	1,28E+02
SM (kg/FU)	5,40E-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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,37E-01	5,40E-03
RSF (MJ/FU, 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	0,00E+00	0,00E+00	0,00E+00


NRSF (MJ/FU, 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	0,00E+00	0,00E+00	0,00E+00
FW (m³ water eq/FU)	9,22E-02	8,03E-04	5,04E-03	2,85E-04	1,06E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,97E-05	2,07E-04	1,32E-07	2,46E-03	-4,87E-04	1,12E-01

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 = Net use of fresh water

## WASTE CATEGORIES & OUTPUT FLOWS

[illegible]

IMPACT CATEGORIES ADDITIONAL TO EN 15804






		Production			Construction process		Use stage							End-of-life stage					
		A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	Total excl module D
	PM (disease incidence)	2,59E-07	5,67E-08	1,85E-08	1,81E-08	4,52E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,19E-11	1,32E-08	2,12E-13	1,41E-08	-3,62E-09	4,25E-07
	IRHH (kg U235 eq/FU)	2,58E-01	5,14E-02	2,04E-01	1,61E-02	6,06E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,17E-03	1,25E-02	5,17E-06	1,47E-02	-6,74E-03	6,18E-01
	ETF (CTUe/F U)	1,60E+02	9,55E+00	1,32E+01	2,98E+00	2,20E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,54E-02	2,29E+00	2,15E-04	1,36E+00	-9,89E-01	2,12E+02
	HTCE (CTUh/FU)	1,16E-08	4,96E-10	4,25E-10	8,26E-11	2,53E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,07E-12	6,44E-11	7,65E-15	3,28E-11	-8,15E-11	1,52E-08
	HTnCE (CTUh/FU)	1,17E-07	9,84E-09	6,72E-09	3,28E-09	1,82E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,94E-11	2,50E-09	1,48E-13	7,91E-10	-8,83E-10	1,58E-07
	Land Use Related impacts (dimensionless)	2,63E+02	5,65E+00	4,76E+01	3,03E+00	3,32E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,74E-02	1,97E+00	3,08E-04	4,69E+00	-3,13E+01	3,59E+02

HTCE = Human Toxicity – cancer effects; HTnCE = Human Toxicity – non cancer effects; ETF = Ecotoxicity – freshwater; (potential comparative toxic unit)  
 PM = Particulate Matter (Potential incidence of disease due to PM emissions );  
 IRHH = Ionizing Radiation – human health effects (Potential Human exposure efficiency relative to U235 );

	Global Warming Potential	<p>The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.</p> <p>It is split up in 4:</p> <ul style="list-style-type: none"> <li>- Global Warming Potential total (GWP-total) which is the sum of GWP-fossil, GWP-biogenic and GWP-luluc</li> <li>- Global Warming Potential fossil fuels (GWP-fossil) : The global warming potential related to greenhouse gas (GHG) emissions to any media originating from the oxidation and/or reduction of fossil fuels by means of their transformation or degradation (e.g. combustion, digestion, landfilling, etc).</li> <li>- Global Warming Potential biogenic (GWP-biogenic) : The global warming potential related to carbon emissions to air (CO<sub>2</sub>, CO and CH<sub>4</sub>) originating from the oxidation and/or reduction of aboveground biomass by means of its transformation or degradation (e.g. combustion, digestion, composting, landfilling) and CO<sub>2</sub> uptake from the atmosphere through photosynthesis during biomass growth – i.e. corresponding to the carbon content of products, biofuels or above ground plant residues such as litter and dead wood.<sup>2</sup></li> <li>- Global Warming Potential land use and land use change (GWP-luluc): The global warming potential related to carbon uptakes and emissions (CO<sub>2</sub>, CO and CH<sub>4</sub>) originating from carbon stock changes caused by land use change and land use. This sub-category includes biogenic carbon exchanges from deforestation, road construction or other soil activities (including soil carbon emissions).</li> </ul>
	Ozone Depletion	<p>Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons), Which break down when they reach the stratosphere and then catalytically destroy ozone molecules.</p>
	Acidification potential	<p>Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production, heating and transport.</p>
	Eutrophication potential	<p>The potential to cause over-fertilization of water and soil, which can result in increased growth of biomass and following adverse effects.</p> <p>It is split up in 3:</p> <ul style="list-style-type: none"> <li>- Eutrophication potential – freshwater: The potential to cause over-fertilization of freshwater, which can result in increased growth of biomass and following adverse effects.</li> <li>- Eutrophication potential – marine: The potential to cause over-fertilization of marine water, which can result in increased growth of biomass and following adverse effects.</li> <li>- Eutrophication potential – terrestrial: The potential to cause over-fertilization of soil, which can result in increased growth of biomass and following adverse effects.</li> </ul>
	Photochemical ozone creation	<p>Chemical reactions brought about by the light energy of the sun creating photochemical smog. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.</p>
	Abiotic depletion potential for non-fossil resources	<p>Consumption of non-renewable resources, thereby lowering their availability for future generations. Expressed in comparison to Antimony (Sb).</p> <p>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 experience with the indicator.</p>
	Abiotic depletion potential for fossil resources	<p>Measure for the depletion of fossil fuels such as oil, natural gas, and coal. The stock of the fossil fuels is formed by the total amount of fossil fuels, expressed in Megajoules (MJ).</p> <p>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 experience with the indicator.</p>
	Ecotoxicity for aquatic fresh water	<p>The impacts of chemical substances on ecosystems (freshwater).</p> <p>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 experience with the indicator.</p>
	Human toxicity (carcinogenic effects)	<p>The impacts of chemical substances on human health via three parts of the environment: air, soil and water.</p>

<sup>2</sup> Carbon exchanges from native forests shall be modelled under GWP - luluc (including connected soil emissions, derived products or residues), while their CO<sub>2</sub> uptake is excluded.



		<i>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.</i>
	<i>Human toxicity (non-carcinogenic effects)</i>	<i>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.</i>
	<i>Particulate matter</i>	<i>Accounts for the adverse health effects on human health caused by emissions of Particulate Matter (PM) and its precursors (NOx, SOx, NH3)</i>
	<i>Resource depletion (water)</i>	<p><i>Accounts for water use related to local scarcity of water as freshwater is a scarce resource in some regions, while in others it is not.</i></p> <p><i>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.</i></p>
	<i>Ionizing radiation - human health effects</i>	<i>This impact category deals mainly with the eventual impact on human health of low dose ionizing radiation 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.</i>
	<i>Land use related impacts</i>	<p><i>The indicator is the “soil quality index” which is the result of an aggregation of following four aspects:</i></p> <ul style="list-style-type: none"> <li>- <i>Biotic production</i></li> <li>- <i>Erosion resistance</i></li> <li>- <i>Mechanical filtration</i></li> <li>- <i>Groundwater</i></li> </ul> <p><i>The aggregation is done based on a JRC model. The four aspects are quantified through the LANCA model for land use.</i></p> <p><i>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.</i></p>

# DETAILS OF THE UNDERLYING SCENARIOS USED TO CALCULATE THE IMPACTS

## A1 – RAW MATERIAL SUPPLY

This module takes into account the extraction and processing of all raw materials and energy which occur upstream to the studied manufacturing process.

ETEX uses different pigments to colour their fibre cement panels. Due to the lack of appropriate proxies for many of the pigments the model prorated the content up to 100% for the Titanium dioxide and Ferrite, which are available in Ecoinvent.. Considering that Titanium dioxide has an overall higher contribution than the other pigments, this is a worst case scenario. The impacts of the pigments will be thus overestimated.

## A2 – TRANSPORT TO THE MANUFACTURER

The raw materials are transported to the manufacturing site.

## A3 – MANUFACTURING

This module takes into account the production process.

## A4 – TRANSPORT TO THE BUILDING SITE

Fuel type and consumption of vehicle or vehicle type used for transport	Truck 16-32 ton EURO 5 (0,260 l/km)	Truck >32 ton EURO 5 (0,366 l/km)	Truck 7.5-16 ton EURO 5 (0,186 l/km)
Distance	100 (40% from factory to construction site)  35 (60%*85% from supplier to construction site)	100 (60% from factory to supplier)	35 (60%*15% from supplier to construction site)
Capacity utilisation (including empty returns)	50%	50%	50%
Bulk density of transported products	Ecoinvent	Ecoinvent	Ecoinvent
Volume capacity utilisation factor	Ecoinvent	Ecoinvent	Ecoinvent

The B-PCR provides default transport scenarios for the transport to the building site for cases where specific data on transport are missing. The B-PCR provides scenario's for this life cycle stage. Fibre cement panels are categorized as 'loose products' in table 5 of the B-PCR. The following transport steps apply:

- 40% directly to the construction site over 100 km with a 16-32 ton lorry (ecoinvent record: 'Transport, freight, lorry 16-32 metric ton, EURO5 {RER}| transport, freight, lorry 16-32 metric ton, EURO5 | Cut-off, U')
- 60% to a supplier over 100 km with a >32 ton lorry (ecoinvent record: 'Transport, freight, lorry >32 metric ton, EURO5 {RER}| transport, freight, lorry >32 metric ton, EURO5 | Cut-off, U')
- 85% of these 60% is transported over 35 km from supplier to construction site with a 16-32 ton lorry (ecoinvent record: 'Transport, freight, lorry 16-32 metric ton, EURO5 {RER}| transport, freight, lorry 16-32 metric ton, EURO5 | Cut-off, U')

- 15% of these 60% is transported over 35 km from supplier to construction site with a 7.5-16 ton lorry (ecoinvent record: 'Transport, freight, lorry 7.5-16 metric ton, EURO5 {RER}| transport, freight, lorry 7.5-16 metric ton, EURO5 | Cut-off, U')

## A5 – INSTALLATION IN THE BUILDING

The installation involves an amount of 0,00176 kWh per screw used to fix the EQUITONE [tectiva] product, where 6 screws are necessary for the functional unit. The dataset used to model the impacts is "Electricity, low voltage {BE}| market for | Cut-off, U".

During the installation, depending on how the EQUITONE [tectiva] sheets are cut, there is a loss rate between 5-30%, depending on the building shape. For this EPD an average loss rate of 10% is used.

All packaging material for the EQUITONE [tectiva] product is transported to End of Life (EoL) and disposed of in line with the B-PCR default EoL scenarios for Belgium.

Parts of the installation	quantity	Description
Processes necessary for the installation of the product	0,01056 kWh	energy needed to fix the screws
Fixation materials	6	Screws
Material losses	10%	Average material losses
Packaging	0,2278 kg 0,0146 kg 0,0012 kg	Wooden pallet Cardboard - PE strap

Ancillary materials for installation (specified by material);	6 Screws		
Water use	None		
Other resource use	10% losses		
Quantitative description of energy type (regional mix) and consumption during the installation process	0,01056 kWh electricity, low voltage		
Waste materials on the building site before waste processing, generated by the product's installation (specified by type)	packaging waste: 0,2278 kg wood	packaging waste: 0,0146 kg cardboard	packaging waste: 0,0012 kg plastic
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)	60% recycling 20% incinerated	95% recycling 5% incinerated	35% recycling 60% incinerated 5% landfill
Direct emissions to ambient air, soil and water	None	None	None
Distance	Not applicable	Not applicable	Not applicable

## B – USE STAGE (EXCLUDING POTENTIAL SAVINGS)

- B1: No emissions during the use phase.  
B2: The product does not require maintenance.  
B3: The product does not require repair.  
B4: No replacement required.  
B5: No refurbishment

B6: The product does not require operational energy use.

B7: No operational water use.

## C: END OF LIFE

The default scenario for Cement fibre boards from NBN/DTD B08-001 is used to model the End-of-life of the boards. The default scenario for metals from NBN/DTD B08-001 is used to model the End-of-life of the screws.

C1: The dismantling of EQUITONE [tectiva] involves the same amount of energy as for the installation, which is 0,01056 kWh.

C2: The default scenario for fibre cement boards from NBN/DTD B08-001 describes that the end-of-life waste is transported to a sorting facility over a distance of 30 km. Afterwards, 100% of the fibre cement boards and 5% of the metal screws is transported to a landfill over a distance of 50 km.

C3: No recycling/reuse of fibre cement boards, 95% recycling of metal screws

C4: 100% landfill of fibre cement boards, 5% landfill of metal screws

Module C2 – Transport to waste processing					
Type of vehicle (truck/boat/etc.)	Fuel consumption (litres/km)	Distance (km)	Capacity utilisation (%)	Density of products (kg/m <sup>3</sup> )	Assumptions
Truck 16-32 ton	0,260 l diesel/km	80	50%	Ecoinvent scenario	Ecoinvent scenario

### End-of-life modules – C3 and C4

Parameter	Unit	Value
Wastes collected separately	kg	0,0132
Wastes collected as mixed construction waste	kg	14,22
Waste for re-use	kg	0
Waste for recycling	kg	0,0125
Waste for energy recovery	kg	0
Waste for final disposal	kg	14,22

## D – BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES

In module D, the benefits and loads beyond the system boundaries are quantified. Following waste streams are considered after their end-of-waste: wooden pallets in A3 and A5 (of which 60% is recycled), plastic packaging in A3 and A5 (of which 35% is recycled), paper and cardboard in A3 and A5 (of which 95% is recycled), steel cables in A3 (of which 95% is recycled) and metal screws in C3 (of which 95% is recycled)

Quantitative description of the loads beyond the system boundaries	Treatment of 0,01464 kg of scrap steel to prepare it for recycling at the remelter
	Sorting and shredding of 0,148 kg of waste wood to prepare it for recycling
	Treatment of 0,00093 kg plastic to prepare it for recycling
Quantitative description of the benefits beyond the system boundaries	Avoided production of 0,29 MJ of heat using natural gas
	Avoided production of 0,15 MJ of Belgian electricity mix
	Avoided production of 0,01464 kg cast iron
	Avoided production of 0,148 kg primary softwood
	Avoided production of 0,00093 kg primary polypropylene/polypropylene granulates
	Avoided production of 0,016 kg primary sulfate pulp

# ADDITIONAL INFORMATION ON RELEASE OF DANGEROUS SUBSTANCES TO INDOOR AIR, SOIL AND WATER DURING THE USE STAGE

## INDOOR AIR

Under normal conditions of use, EQUITONE [tectiva] products do not cause any adverse health effects or release of volatile organic compounds (VOCs) to indoor air.

## SOIL AND WATER

No environmental impact to water, air or soil is expected due to the extremely low metal release from the low maintenance requirements.

# DEMONSTRATION OF VERIFICATION

EN 15804+A2 serves as the core PCR
Independent verification of the environmental declaration and data according to standard EN ISO 14025:2010 <div>Internal <input type="checkbox"/></div> <div>External<input checked="" type="checkbox"/></div>
Third party verifier: Evert Vermaut (Vincotte) Jan Olieslagerslaan 35 1800 Vilvoorde, Belgium <a href="mailto:evermaut@vincotte.be">evermaut@vincotte.be</a>

## ADDITIONAL TECHNICAL INFORMATION FOR SCENARIO DEVELOPMENT

This EPD does not include the framework on which the panels are installed. At building level the impact of the framework should be added. If specific information on quantities is missing, following weights can be used. The values are applicable for exterior wall cladding and ceilings. Note that the screws to attach the boards to the framework are already included in the EPD.

### Wooden framework

Components	quantity	Description
Wooden frame	2,4 kg	
EPDM sealing tape	0,018 kg	UV protection of the joints

### Aluminium framework

Components	quantity	Description
Aluminium profiles	1,61 kg	
PVC foam	0,02 kg	The foam strip is designed to create a watertight seal even with minimal force applied. It also minimizes vibrations from the facade panel and prevents contact between uncoated fiber cement and the aluminum support structure.

### Steel framework

Components	quantity	Description
Steel frame	2,48 kg	
PVC foam	0,02 kg	The foam strip is designed to create a watertight seal even with minimal force applied. It also minimizes vibrations from the facade panel and prevents contact between uncoated fiber cement and the aluminum support structure.

## APPLICATION UNIT

This paragraph gives information on the applied product and how the reference flow and table with impacts relate to different applications. The table below gives an overview of the standard thicknesses, the thickness range and the ratio to the declared unit of 1 m<sup>2</sup> for each application. The environmental impact is proportional with the thickness.

Application	Standard thickness	Thickness range	Ratio to the declared unit of 1 m <sup>2</sup>
Exterior wall covering	8 mm	8 and 10 mm	1
Ceilings	8 mm	8 and 10 mm	1

## ADDITIONAL INFORMATION ON REVERSIBILITY

For the application and installation as described in this EPD a qualitative assessment of the reversibility is given. Following 4 indicators shall be used (based on BAMB – buildings as material banks). The assessment is applicable for exterior wall cladding and ceilings and for all frameworks.

Reversibility	- Reversible with light repairable damage (fixation with screws, bolts and dowels)
Simplicity of disassembly	- simple - no specific dismantling tools required
Speed of disassembly	- speedy disassembly
Ease of handling (size and weight)	- can be handled manually, but size and/or weight requires two or more workers
Robustness of material (material resistance to disassembly)	- the material resists well during disassembly

## BIBLIOGRAPHY

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- Industry 2.0 data: This library contains data as collected by industry associations, such as Plastics Europe, World Steel, ERASM and International Molybdenum Association (IMO). Several datasets were updated and added in April 2015, September 2015, March 2016, December 2017, April 2018 and December 2019.

## General information

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Publisher of this EPD

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Contact programma operator

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Based on following PCR documents

EN 15804+A2:2019  
NBN/DTD B 08-001 and its complement

PCR review conducted by

Federal Public Service of Health and Environment &  
PCR Review committee

Author(s) of the LCA and EPD

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Identification of the project report

Life cycle assessment of EQUITONE [tectiva] (VITO,  
07-09-21)

Verification

External independent verification of the declaration and data  
according to EN ISO 14025 and relevant PCR documents

Name of the third party verifier  
Date of verification

Evert Vermaut (Vinçotte)  
08.09.2021

[www.b-epd.be](http://www.b-epd.be)

[www.environmentalproductdeclarations.eu](http://www.environmentalproductdeclarations.eu)

*Comparing EPDs is not possible unless they are conform to the same PCR and taking into account the building context.  
The program operator cannot be held responsible for the information supplied by the owner of the EPD nor LCA practitioner.*



LCA practitioner

[www.vito.be](http://www.vito.be)  
[www.enperas.be](http://www.enperas.be)



Building calculator of the  
regional authorities

[www.totem-building.be](http://www.totem-building.be)



Federal Public Service of  
Health, Food Chain Safety  
and Environment

[www.b-epd.be](http://www.b-epd.be)

Dieter De Lathauwer  
(Signature)

## 1. Product Appearance

EQUITONE [tectiva] is a high-density through coloured fibre cement panel with no coating. The panel has an honest, pure and natural appearance with natural colour variations and hues. The natural characteristic of the panel may be accentuated by the production process as well as light or dark inclusions.

The surface of the panel is characterised by fine sanding lines in the longitudinal direction. However, the panels are not considered directional and may be installed in any direction to enhance the natural look of the facade.

The panel has been made water repellent by means of hydrophobation.

## 2. Colour

The colour is throughout the panel. Natural colour variations, accentuated by the orientation of the panel, the viewing angle and the effects of light and moisture, strengthen the natural look of the facade.

Colour variations and random hues are part of the natural characteristics of the material. Each panel has its own individual character.

Colour differences are measured according to a simplified CIELAB colour model, by which only the parameter lightness  $\Delta L$  of the colour is followed. Tolerated colour differences on a dry facade are  $\Delta L^* = \pm 2.5$ .

Available colours



Note: It is not possible to realistically show available colours in literature, therefore the final choice of colours should be made with samples. Please order your samples on the website [www.equitone.com](http://www.equitone.com)

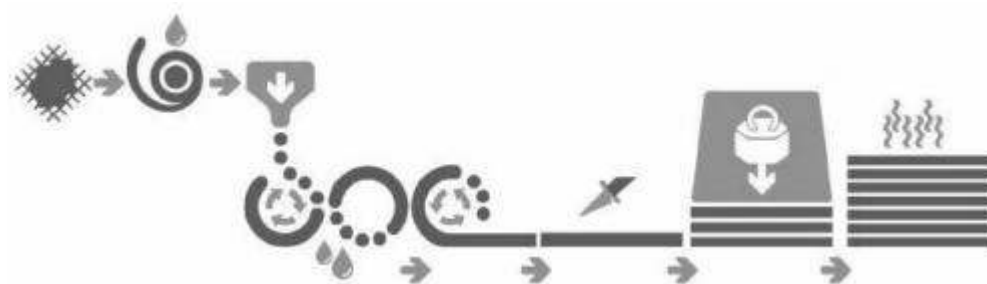


### 3. Product Composition

EQUITONE [tectiva] panels consist of cement, quartz sand, cellulose, natural calcium silicate, inorganic colour pigments, water and additives.

### 4. Production Method

EQUITONE [tectiva] is a highly compressed, autoclaved fibre cement material manufactured in Belgium (Europe).



EQUITONE [tectiva] panels are manufactured through the Hatschek process where the base materials which are mainly cement, sand, cellulose, pigments and water are first mixed together to form a slurry. This slurry is then pumped into several vats with rotating cylindrical sieves on the surface of which a film of fibre cement is formed through a sieving mechanism as they rotate, which is then transferred to a felt belt traveling overhead. This thin layer of fibre cement is then dewatered before being transferred via the felt belt to a forming drum on which several layers of fibre cement are collected and squeezed together until the required thickness is achieved. Once this occurs, this fresh sheet of fibre cement is cut by an automatic cutting knife. A conveyor then transports the sheet to where all the sheets are stacked with an interleaving steel plate. The stacked sheets are then highly compressed, resulting in a high density material.

This is followed by a curing process in an autoclave where the panels harden under high temperature and pressure. After curing the panels receive their final finish.

Subsequently and finally, EQUITONE [tectiva] panels receive a hydrophobation making them water repellant.

### 5. Dimensions and Tolerances

EQUITONE [tectiva] is available in a standard thickness of 8 mm and also in 10 mm thickness for specific applications or fixings (minimal order quantities may apply). The panels are available in either untrimmed (production dimension) or trimmed (maximum usable size) formats.



**The panel must not be installed with untrimmed edges.** Approximately 10 mm needs to be trimmed from each of the untrimmed (raw) edges.

Dimensions		
Nominal Thickness	8 mm	10 mm
Width		
Trimmed	1220 mm	
Untrimmed	1240 mm	

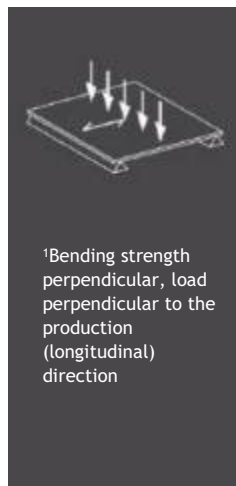
Length		
Trimmed	2500 mm / 3050 mm	
Untrimmed	2520 mm / 3070 mm	
Tolerances <sup>1</sup> (for trimmed panels)		
Thickness	-0.5/+0.8 mm	-0.5/+1.0 mm
Width	± 3 mm	
Length	± 3 mm	
Squareness	± 1.0 mm/m	
Tolerances <sup>1</sup> (for untrimmed panels)		
Thickness	-0.5/+0.8 mm	-0.5/+1.0 mm
Width	± 5 mm	
Length	± 5 mm	
Squareness	± 2.0 mm/m	
Weight per m <sup>2</sup> (nominal, ambient)		
	14.9 kg/m <sup>2</sup>	18.6 kg/m <sup>2</sup>
Weight per panel (without pallet)		
2500 x 1220 mm (trimmed)	45.4 kg	56.7 kg
3050 x 1220 mm (trimmed)	55.4 kg	69.2 kg
2520 x 1240 mm (untrimmed)	46.6 kg	58.1 kg
3070 x 1240 mm (untrimmed)	56.7 kg	70.8 kg
Packaging		
Number of panels on pallet	40	30
Usable surface per pallet		
2500 x 1220 mm (trimmed)	122.0 m <sup>2</sup>	91.5 m <sup>2</sup>
3050 x 1220 mm (trimmed)	148.8 m <sup>2</sup>	111.6 m <sup>2</sup>
Colour tolerance (CIELAB) <sup>2</sup>		
	ΔL*, brightness = ± 2.5	

<sup>1</sup> Factory tolerances for trimmed and untrimmed panels outperform the requirements of the EN12467 Level I and II dimensional tolerances, respectively.

<sup>2</sup> Colour tolerance are only to be measured on dry surfaces.

## 6. Material Properties

EQUITONE [tectiva] cladding panels conform to the requirements of EN 12467:2012+A2:2018 “Fibre cement flat sheets - Product specification and test methods“. The results below are presented as defined by the standard.



Classification		
Type of product	EN12467	NT
Durability classification	EN12467	Category A
Strength classification	EN12467	Class 5
Dimensional tolerances for trimmed panels	EN12467	Level I
Dimensional tolerances for untrimmed panels	EN12467	Level II

Physical requirements and characteristics				
Mean density	dry	EN12467	1630	kg/m <sup>3</sup>
Moisture movement	30-90 %	EN12467	<0.08	%
Mean bending strength perpendicular <sup>1</sup>	ambient	EN12467	32.0	MPa
Mean bending strength parallel <sup>2</sup>	ambient	EN12467	22.0	MPa
Average bending strength	wet	EN12467	≥24.0	MPa
Mean module of elasticity	ambient	EN12467	14,000	MPa
Water impermeability test		EN12467	No drops/Pass	

Durability requirements		
Freeze-thaw test for category A panel	EN12467	Pass
Heat-rain tests for category A panel	EN12467	Pass
Warm water test	EN12467	Pass
Soak-dry test	EN12467	Pass

Fire and safety		
Reaction to fire	EN13501-1	A2-s1,d0

Other characteristics				
Thermal movement	α	-	0.01	mm/mK
Thermal conductivity	λ	ASTM C518	0.39	W/mK
Moisture content at 23°C, 80 % humidity		-	6	M.-%
Poisson's ratio	ν	-	0.2	-

Note to the units: 1 K (degree Kelvin) = 1 °C, 1 MPa (Mega Pascal) = 1 N/mm<sup>2</sup>, M.-% = mass percentage

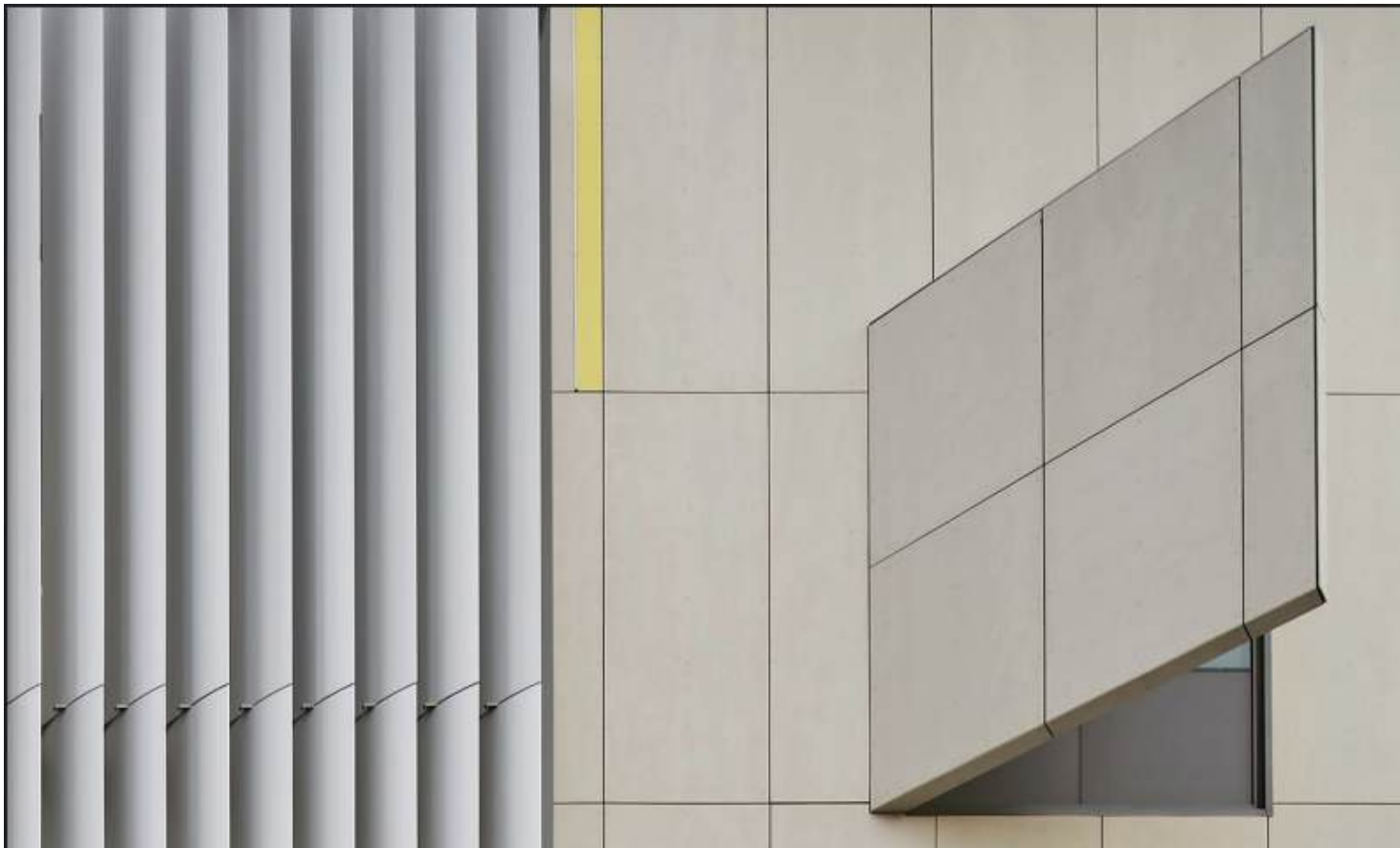
Note: EQUITONE [tectiva] panels also comply with the requirements of ISO8336:2017 “Fibre cement flat sheets - Product specification and test methods“

# Distances of rivet fasteners with respect to wind load

It is the responsibility of the installer to ensure that the metal support frame is installed in accordance to the structural engineer and metal support frame supplier's recommendations, specific to project requirements. EQUITONE panels, however, must be fixed in accordance with guideline below.

Design wind load	Maximum centre distances of rivet fasteners
$\leq 1.2\text{kPa}$	600mm
1.2–2.0kPa	500mm
2.0–2.5kPa	400mm
$> 2.5\text{kPa}$	300mm

As a general rule of thumb, above maximum distances between rivet fasteners must be respected.



## 7. Advantages

Providing the application guidelines are followed, EQUITONE [tectiva] fibre cement panels have the following superior mix of properties compared to other materials:

- Recyclable according to Environmental Product Declaration (EPD)
- Expected average reference service life of 50 years (based on EPD)
- Fire safe (no fire ignition, no spread of fire)
- Improved sound insulation of the facade
- UV-resistant
- Resistant to extreme temperatures
- Weather resistant
- Resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- Resistant to many chemicals
- Strong and rigid panel
- Hail impact tested
- Can be ideally combined with [lunara] and [linea] in the same colour

Working with the material:

- The material is easy to drill, cut and install with the proper tools
- Cut edges do not need to be sealed
- As the material is uncoated, minor scratches or stains may be sanded off

## 8. Applications

EQUITONE [tectiva] can be used in several ventilated applications, including, but not limited to:

- Ventilated facade or rainscreen cladding
- Window and door reveal
- Exterior ceiling: decorative cladding of ceiling
- Soffits, eaves and verge boards
- Interior wall and ceiling lining (subject to local regulations)

For restrictions on the above-mentioned applications read the specific application guidelines.

The panels may be face or concealed fixed with Etex proprietary or recommended fixing solutions.

EQUITONE [tectiva] can not be used in the following applications, but not limited to: Internal applications exposed to direct moisture e.g. wet areas, situations with direct contact with standing snow or ice, applications where exposed to long term temperatures exceeding 80°C, and roof applications.

## 9. Health and Safety Aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. The inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. For more information, please visit [www.equitone.com](http://www.equitone.com) for the most recent Safety Information Sheet.

## 10. Maintenance and Cleaning

Refer to the relevant "EQUITONE Cleaning Information" Guide.

## 11. Certification



The manufacturer can - within the framework of the European Regulation N° 305/2011 (CPR) - present the Declaration of Performance (DOP) of the product such confirming that the product has a CE marking. The CE marking guarantees that the product is in accordance with the basic requirements determined by the harmonized European standard and applicable to the product.

The Declaration of Performance is presented in accordance with the CPR and can be found at [www.equitone.com](http://www.equitone.com).

The manufacturing facility holds the latest versions of the following ISO certificates

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety

EQUITONE [tectiva] is certified with an Environmental Product Declaration according to ISO 14025 or EN 15804. The life cycle assessment includes raw material and energy production, the actual manufacturing phase, and the use phase of the fibre cement panels. More information available in the Material Sustainability Datasheet.

## 12. Information



Please visit [www.equitone.com](http://www.equitone.com) for contact details and further information and technical documents.

### Disclaimer

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[www.equitone.com](http://www.equitone.com)

## Weathering Test

Architectural Testing Report No: D1647.01-106-31

Date: 04/04/2014

ASTM G 155-05a, *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*

ASTM D 2244-09a, *Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates*

The following overall color changes were recorded.

Sample Designation	Overall Color Change - $\Delta E$ - 2000 Hours
TE 00 (NW 41-43)	1.56
TE 90 (NW 44-46)	2.51
TE 10 (NW 47-49)	1.29
TE 20 (NW 50-52)	1.20
TE 80 (NW 53-55)	0.86
Grün PU 541 - Y (AW47-49)	0.21
Anthrazit NU 251 (AW 50-52)	1.83
Rot PU 341 - X (AW 53-55)	0.37
Blau PU 441 - Y "Blue" (AW 56-58)	0.37
Cremeweiss 154Y (AW 59-61)	0.93
Natural Grey N 250 (AW 62-64)	1.17
Anthrazit N 251 X (AW 65-67)	0.57
Uben N 359 Y "Robin Red" (AW 68-70)	0.98

It is generally considered that a  $\Delta E$  of 1.0 is the smallest color difference the human eye can see up close. However color difference between 1.0 and 2.0 are perfectly acceptable and depending on color and light can also be unnoticeable. (In accordance to 1976 CIE formula to measure colour difference (CIE76), a  $\Delta E^* = 2.3$  can be considered Just Noticeable Difference (JND). So anything below 2.3 should not be noticeable by the naked eye.)

TE90, white tectiva has the greatest difference which is still in our tolerance. In fact the value shows the panel has got brighter.

The values for  $\Delta L$ ,  $\Delta a$  and  $\Delta b$  at the end of the report also fall within our manufacturing tolerances for new sheets for the allowable color difference. So, to say that the panels after 2000 hours of weathering exposure would still be acceptable as new panels shows the true level of performance.





**AFITI  
LICOF**

Centro de Ensayos e  
Investigación del Fuego  
Center for Fire Testing and Research

Nº/Nr: 3397T18-2

Página 1 de 7

Page 1 of 7

Asociación para el Fomento de la Investigación y la Tecnología de la Seguridad contra Incendios  
Association for the Promotion of Research and Fire Safety Technology

# Informe de Clasificación *Classification Report*

## Laboratorio de Reacción al Fuego *Reaction to Fire Laboratory*

**SOLICITANTE:** EUROPANELS OVERSEAS, N.V.  
**APPLICANT:**

**CLASIFICACIÓN DE LA REACCIÓN AL FUEGO SEGÚN NORMA**  
**UNE-EN 13501-1:2007+ A1:2010 (EN 13501-1 :2007+A1 :2009)**  
**REACTION TO FIRE CLASSIFICATION ACCORDING TO STANDARD**  
**UNE-EN 13501-1:2007+A1:2010 (EN 13501-1:2007+A1:2009).**

- Producto: Plancha de fibrocemento de 8 mm de espesor  
*Product Fibrecement sheet of 8 mm of thickness*
  - Fabricante: Eternit N.V.  
*Manufacturer :*  
Gama de producto:  
*Product family*  
Según información incluida en página 5 de 7 (Tabla 1)  
*According to information included on page 5 of 7 (table 1)*

**SEDE SOCIAL Y LABORATORIOS** Camino del Estrechillo, 8  
**HEAD OFFICE & LABORATORIES** E-28500 Arganda del Rey - Madrid (Spain)

**SEDE CENTRAL Y LABORATORIOS** C/ Río Estenilla, s/n - P.I. Sta. Mª de Benquerencia  
**CENTRAL OFFICE & LABORATORIES** E-45007 Toledo (Spain)

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🌐 www.afiti.com





**CLASIFICACIÓN DE LA REACCIÓN AL FUEGO SEGÚN  
NORMA UNE-EN 13501-1:2007+A1:2010 (EN 13501-1:2007+A1:2009)  
REACTION TO FIRE CLASSIFICATION ACCORDING TO UNE-EN 13501-1:2007+A1:2010 (EN  
13501-1:2007+A1:2009) STANDARD**

**Solicitante:** **EUROPANEL OVERSEAS N.V.**  
*Applicant :* Kuiermansstraat 1  
1880 - Kapelle-op-den-Bos, Belgium

**Laboratorio emisor:** **AFITI-LICOF**  
*Issuer Laboratory:* Organismo notificado nº: 1168  
*Notified body Nr*

**Producto:** Planchas de fibrocemento de 8 mm de espesor.  
*Product :* Fibrecement sheet of 8 mm of thickness

Fabricante Eternit N.V.  
*Manufacturer :* Kuiermansstraat 1  
1880 - Kapelle-op-den-Bos , Belgium  
Referencia: Según información incluida en página 5 de 7 (Tabla 1)  
*Reference :* Information included on page 5 of 7 (table 1)

**Informe de Clasificación nº:** **3397T18-2**  
*Classification Report Nr:*

Fecha de emisión: 27-mar-18  
*Date of issue :* 27<sup>th</sup>-Mar-18



**Contenido del informe - Content of the report**

<b>1.-</b>	Objeto del informe .....	Página 3
	<i>Aim of the report</i> .....	<i>Page 3</i>
<b>2.-</b>	Detalles del producto objeto de clasificación .....	Página 3
	<i>Details of classified product</i> .....	<i>Page 3</i>
<b>3.-</b>	Informes y resultados de ensayo en los .....	Página 3
	que se basa la clasificación. <i>Reports and test results in support of this classification</i> .....	<i>Page 3</i>
<b>4.-</b>	Clasificación y campo de aplicación .....	Página 6
	<i>Classification and field of application</i> .....	<i>Page 6</i>
<b>5.-</b>	Limitaciones .....	Página 7
	<i>Limitations</i> .....	<i>Page 7</i>

La información contenida en este Informe de Clasificación tiene carácter confidencial, por lo que el Laboratorio no facilitará a terceros información relativa a este Informe, salvo que lo autorice el Solicitante.

El presente Informe de Clasificación no debe reproducirse parcialmente sin la aprobación por escrito del Laboratorio

*The information held in this Classification Report is a confidential nature, meaning the Laboratory shall not provide information in relation to this report to third parties, except with the authorisation of the Applicant.*

*It is not allowed to reproduce partially this Classification Report without the Laboratory's written approval.*



DOCUMENTO FIRMADO DIGITALMENTE

DIGITAL SIGNED DOCUMENT

## 1.- OBJETO DEL INFORME – AIM OF THE REPORT

Este Informe de Clasificación define la clasificación de la Reacción al Fuego asignada a la gama de planchas de fibrocemento con un espesor de 8 mm, de acuerdo con los procedimientos establecidos en la norma UNE-EN 13501-1:2007+A1:2010 (EN 13501-1:2007+A1:2009) "Clasificación en función del comportamiento frente al Fuego de productos de construcción y elementos para edificación. Parte 1: Clasificación a partir de datos obtenidos en ensayos de Reacción al Fuego".

*This Classification report defines the Reaction to Fire classification of the product of fibre cement sheet of 8 mm of thickness the basis of the procedures established in UNE-EN 13501-1:2007+A1:2010*

*(EN 13501-1:2007+A1:2009) "Fire classification of construction products and building elements-Part 1: Classification using data from reaction to fire tests".*

## 2.- DETALLES DEL PRODUCTO OBJETO DE CLASIFICACIÓN DETAILS OF CLASSIFIED PRODUCT

### 2.1.- GENERAL – GENERAL

La gama de productos definida por el solicitante según información incluida en página 5 de 7 (Tabla 1) se define como planchas de fibrocemento con un espesor de 8 mm según la especificación técnica correspondiente.

*The product family defined by applicant according information included in page 5 of 7 (Table 1) is defined as fibre cement sheet of 8 mm of thickness according to the relevant technical specification.*

### 2.2.- DESCRIPCIÓN – DESCRIPTION


La gama de productos está completamente descrita en el informe de ensayo y en el informe que incluye el campo de aplicación extendido de resultados de ensayo [Informe EXAP] en los que se basa esta clasificación. Dichos informes se identifican en el capítulo 3 del presente informe.

*The product family is fully described on the test report and the extended applications report [EXAP report] on which the classification is based. These reports are indicated on chapter 3 of this report.*

## 3.- INFORMES Y RESULTADOS DE ENSAYO EN LOS QUE SE BASA LA CLASIFICACIÓN. REPORTS AND TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION.

### 3.1.- ENSAYOS – TEST

#### Informes de ensayo – Test reports

Laboratorio emisor <i>Issuer laboratory</i>	Solicitante <i>Applicant</i>	Informes <i>Reports</i>	Norma de ensayo <i>Test standard</i>	Condición final de uso <i>End use application</i>
<b>AFITI-LICOF</b> Pol. Ind. Sta. Mª de Benquerencia C/ Río Estenilla, s/n 45007-TOLEDO  Organismo notificado nº: <i>Notified body Nr:</i> <b>1168</b>	<b>EUROPANEL OVERSEAS N.V.</b> Kuiermansstraat 1 1880 - Kapelle-op-den-Bos, Belgium	<b>Nº/ Nr: 3397T18</b>  F. emisión: 27-mar-18 <i>Date of issue:</i> 27 <sup>th</sup> -Mar-18 F ensayo: 13-mar-18 <i>Test date:</i> 13 <sup>th</sup> -Mar-18	UNE-EN 13823:2012+A1:2016 (EN 13823:2010+A1:2014)	Revestimiento externo / fachadas. <i>External cladding facade.</i>   DOCUMENTO FIRMADO DIGITALMENTE DIGITALLY SIGNED DOCUMENT
			UNE-EN 1716:2011 (EN ISO 1716:2010)	

**Resultados de ensayo – Test results**

**Informe de ensayo nº 3397T18**  
*Test report Nr*

Método de ensayo <i>Test method</i>	Parámetro <i>Parameters</i>	Número de ensayos <i>Nr. test</i>	Resultados <i>Results</i>	
			Media de parámetro continuo (m) <i>Continuous parameter mean (m)</i>	Parámetros que se tienen que cumplir <i>Compliance with parameters</i>
UNE-EN 13823:2012+A1:2016, S.B.I. (EN 13823:2010+A1:2014)	FIGRA <sub>0,2MJ</sub> (W/s)	1	33,73	No aplicable <i>Non applicable</i>
	FIGRA <sub>0,4MJ</sub> (W/s)		No aplicable <i>Non applicable</i>	No aplicable <i>Non applicable</i>
	LSF < borde		No aplicable <i>Non applicable</i>	<input checked="" type="checkbox"/> Sí <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	THR <sub>600s</sub> (MJ)		2,0	No aplicable <i>Non applicable</i>
	SMOGR <sub>A</sub> (m <sup>2</sup> /s <sup>2</sup> )		0,00	No aplicable <i>Non applicable</i>
	TSP <sub>600 s</sub> (m <sup>2</sup> )		6,3	No aplicable <i>Non applicable</i>
	Gotas/ partículas en llamas <i>Drops / Particles flamed</i>		No aplicable <i>Non applicable</i>	<input type="checkbox"/> Sí <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Método de ensayo <i>Test method</i>	Parámetro <i>Parameter</i>	Número de ensayos <i>Nr. test</i>	Resultados - Results	
			Media de parámetro continuo (m) <i>Continuous parameter mean (m)</i>	Parámetros que se tienen que cumplir <i>Compliance with parameters</i>
UNE-EN ISO 1716:2011 (EN ISO 1716) Determinación del Potencial Calorífico Superior (PCS) <i>EN ISO 1716:2011 (EN ISO 1716:2010) Product gross calorific potential (PCS)</i>	PCS (MJ/kg)	1	0,6594	No aplicable <i>Non applicable</i>



### 3.2.- CAMPO DE APLICACIÓN EXTENDIDO DE RESULTADOS EXTEND APPLICATION FIELD

#### Informes – Reports

Laboratorio emisor <i>Issue laboratory</i>	Solicitante <i>Applicant</i>	Informes <i>Reports</i>	Norma <i>Standard</i>
<b>AFITI-LICOF</b> Pol. Ind. Sta. Mª de Benquerencia C/ Río Estenilla, s/n <u>45007 – TOLEDO</u>	<b>EUROPANEL OVERSEAS N.V.</b> Kuiermansstraat 1 1880 - <u>Kapelle-op-den-Bos</u> , Belgium	Nº: <b>EXAP-3397T18</b>  F. emisión: 27-mar-18 <i>Date of issue:</i> 27 <sup>th</sup> -Mar-18	- UNE-EN 15725:2011 -ER 003:2016
Organismo notificado nº <i>Notified body Nr:</i> <b>1168</b>			

#### Campo de aplicación extendido de los resultados de ensayo Extended application field of test results

A continuación se muestra el rango permitido de variabilidad para los distintos parámetros del producto/condiciones finales de uso. El resto de parámetros deben mantenerse conforme a lo descrito en los informes de ensayo de referencia.

*Hereafter it is shown the range of variation allowed for the different parameters of the product/end use conditions. Rest of parameters shall be kept as described on the referenced test reports.*

-Tabla 1-  
-Table 1-

	Gama de productos <i>Product family</i>
<b>Tipo de producto</b> <i>Type of product</i>	Planchas de fibrocemento de 8 mm de espesor. <i>Fibre cement sheet of 8 mm of thickness</i>
<b>Color</b> <i>Colour</i>	Resultados válidos para cualquier color <i>Results valid for all colours</i>
<b>Cámara de aire</b> <i>Air gap</i>	Resultados válidos para cualquier cámara de aire como panel autoportante <i>Results valid for all air gaps and self – supported panel</i>
<b>Sustrato</b> <b>Substrate</b>	Sustratos de placa de yeso laminado con densidad igual o superior a 525,5 kg/m3. Sustratos con una euroclase A1 ó A2-s1,d0. Gypsum plasterboard substrates with density equal or higher to 525,5 kg/m3. Substrates with a euroclass A1 or A2-s1,d0

#### 4.- CLASIFICACIÓN Y CAMPO DE APLICACIÓN CLASSIFICATION AND FIELD OF APPLICATION

##### 4.1.- NORMA DE CLASIFICACIÓN – CLASSIFICATION STANDARD

La clasificación de la reacción al fuego se ha realizado de acuerdo con lo establecido en la norma UNE-EN 13501-1:2007+A1:2010 (EN 13501-1 :2007+A1 :2009).

*Reaction to Fire classification according to UNE-EN 13501-1:2007+A1:2010 (EN 13501-1:2007+A1:2009) standard*

##### 4.2.- CLASIFICACIÓN – CLASSIFICATION

La gama de productos de planchas de fibrocemento de 8 mm de espesor. (ver Tabla 1) presenta la siguiente clasificación:

*Product family of fibrecement sheet of 8 mm of thickness (see table 1) reaches the following classification:*

##### Clasificación de la Reacción al Fuego – Reaction to fire classification

Comportamiento al Fuego <i>Fire behaviour</i>	Producción de humo <i>Smoke production</i>	Gotas inflamadas <i>Flaming droplets</i>
<b>A2</b>	<b>s</b> <b>1</b>	<b>d</b> <b>0</b>
<b>A2 – s1 , d0</b>		

##### 4.3.- CAMPO DE APLICACIÓN – FIELD OF APPLICATION

Según lo establecido en el informe técnico EXAP nº EXAP-3397T18, la gama de productos (ver tabla 1), tiene el siguiente campo de aplicación.

*According to Technical Report EXAP nr. 3397T18, the product family (see Table 1), has the following field of application.*

La clasificación obtenida sigue siendo válida para las siguientes variaciones en las características de la muestra, sin que la realización de estas modificaciones suponga la ejecución de nuevos ensayos.

*Classification obtained is valid for the following simple characteristic variations, without further testing needed.*



Característica/Propiedad <i>Characteristic/Property</i>	Variación permitida <i>Range allowed</i>
– Tipo de producto <i>Kind of product</i>	Planchas de fibrocemento de 8 mm de espesor. <i>Fibre cement sheet of 8 mm of thickness</i>
– Color <i>colour</i>	Resultados válidos para cualquier color <i>Results valid for all colours</i>
– Cámara de aire <i>Air gap</i>	Resultados válidos para cualquier cámara de aire y como panel autoportante <i>Results valid for all air gaps and self – supported panel</i>
– Sustrato <i>Substrate</i>	Sustratos de placa de yeso laminado con densidad igual o superior a 525,5 kg/m <sup>3</sup> . Sustratos con una euroclase A1 ó A2-s1,d0. Gypsum plasterboard substrates with density equal or higher to 525,5 kg/m <sup>3</sup> . Substrates with a euroclass A1 or A2-s1,d0

## 5.- LIMITACIONES - LIMITATIONS

Este informe no representa ninguna aprobación de tipo ni certificación del producto.  
*This document does not represent type approval or certification of the product.*

Toledo, 27 de marzo de 2018  
*Toledo, 27<sup>th</sup> of March of 2018*



Documento Firmado Digitalmente  
*Digitally Signed Document*

Fdo.: David Sáez García  
Director Técnico del Laboratorio  
de Reacción al Fuego  
*Technical Director of Fire Reaction Laboratory*



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