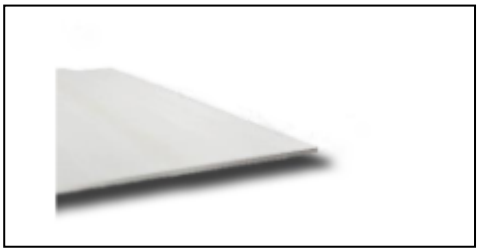
PROMATECT® XS

sept. 2021

ENVIRONMENTAL PRODUCT DECLARATION

Environmental and Health Product Declaration

In accordance with standard NF EN 15804 + A1 and its national complement NF EN 15804 / CN



Etex France Building Performance | 500 rue Marcel Demonque | Zone Agroparc | CS 70088 | Avignon Cedex 9 | 84915 | France

Société Anonyme au capital de 159 750 304 euros – RCS Avignon 562 620 773 – APE 2362Z

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WARNING

The information contained in this declaration is provided under the responsibility of ETEX Building Performance (producer of the EPD) according to NF EN 15804 + A1 and the national supplement NF EN 15804/CN.

Any use total or partial of the information provided in this document must at least be accompanied by a full reference to the original EPD as well as to its producer who can provide a full copy.

The CEN standard NF EN 15804 + A1, the national supplement XP P01-064 / CN serve for the definition of product categories rules (PCR).

This document is a translation of French EPD “PROMATECT XS”. It’s provided under the responsibility of Etex Building Performance. The original EPD was third party verified, this translation had no additional check by a third party.

READING GUIDE

Significant figures

The results of environmental impacts and indicators of use of resources, categories of waste and outgoing flows, appearing in §5 are presented with only three significant figures, in order to reflect the usual levels of uncertainty associated with the LCA results (around 20 to 30%).

Example: a calculated value of 15.124 g eq. CO2 will be displayed as 15.100 g eq. CO2 (or 15.1 kg CO2 eq); likewise, a value of 15.055 g eq. CO2 will also be displayed as 15.100 g eq. CO2 (or 15.1 kg CO2 eq).

Considering three significant digits. i.e, in the previous example considering that we manage to differentiate results other than 100 g eq. CO2, amounts to considering that the relative uncertainty is 100 / 15.000 or 0.67% which is already much lower than the usual uncertainty of LCA results.

Results display format

The data are presented in the form of scientific notation.

As example : -4 .23 E-06 = -4.23 x 10^{-6}.

PRECAUTION OF USING THE EPD FOR THE COMPARISON OF PRODUCTS

The EPD of construction products may not be comparable if they do not comply with standard NF EN 15804 + A1.

NF EN 15804 + A1 defined in § 5.3 Comparability of DEP * for construction products, the conditions under which construction products can be compared. on the basis of information provided by the EPD:

“Comparison of the environmental performance of construction products using the EPD information shall be based on the product’s use in and its impacts on the building, and shall consider the complete life cycle (all information modules)."

* Note 1 of the foreword to the national supplement defines "the literal French translation of EPD (Environmental Product Declaration) is DEP (Declaration of Environmental Product). However, in France, the term FDES (Fiche de Déclaration Environnementale et Sanitaire) is commonly used, which includes both the Environmental Declaration and Health information for the product covered by this EPD. The EPD is therefore indeed a "DEP" supplemented by health information. "

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Contents

General Information

Name and address of manufacturers

The information contained in this declaration is provided under the responsibility of the manufacturer, the company ETEX FRANCE BUILDING PERFORMANCE.

Address :
Zone Agroparc
500 rue Marcel Demonque. CS 70088
84019 AVIGNON Cedex
Contact : fdes.efbp@etexgroup.com

The site(s), the manufacturer or the group of manufacturers or their representatives for which the EPD is representative: The EPD is representative of the production of fire protective board sold for the market in French market by Etex France Building Performance.

Type of EPD: This EPD is an individual EPD that represents the product life cycle “from cradle to grave”.

Verifier : This EPD has been verified internally by Solinnen and externally by third party Tifenn GUENNEC and Estelle VIAL, FCBA.

A report accompanying the declaration was produced in 2021. The information relating to the validity of the EPD is consistent with the specifications contained in the project report.

Date of verification: This EPD was verified in September 2021..

Product identification:

The commercial references covered :

- PROMATECT XS BD 13
- PROMATECT XS BD 15
- PROMATECT XS BD 18
- PROMATECT XS BD 20
- PROMATECT XS BD 25

End of validity date: This EPD is valid until September 2026 (validity period 5 years)

Distribution channel: BtoB / BtoC

Description of the functional unit and the product

Description of the functional unit

Taking into account the functions of the product, the functional unit is as follows:
"Provide a function of 1 m² of facing fixed and jointed on any type of framework, in the form of a rigid panel intended to receive any type of finish. "

Product Description

Fire protective board in accordance with standard ETA 20/0932.

Description of the use of the product (fields of application)

The products studied are fire protective boards which are intended for ceilings, partitions, and walls with framework in metal. Their implementation is defined by ETA 20/0932.

Main performance of the functional unit

The water vapor diffusion resistance factor and the thermal conductivity of the boards are presented in the Contribution of the product to the quality of life inside buildings section.

Other technical characteristics not included in the functional unit

The other technical characteristics of the products covered by this EPD are presented on the PROMAT brand sites (www.promat.com).

Description of the main components and / or materials of the product

The main components of the fire protective boards are presented below.

Parameter		Value	Unit
Weight of the product		16.5	Kg/m²
Amount of calcium sulphate hemihydrate		10.56	Kg/m²
Surfacing of the plate: cardboard / facing		0.7	Kg/m²
Distribution packaging	Pallet	0.06	Kg/m²
	Calle glue	0.0025	Kg/m²
Complementary product	Gypsum compound	0.368	Kg/m²
	Packaging for compound	0.0008	Kg/m²
	Screw	0.0156	Kg/m²
	Joint tape	0.00894	Kg/m²

Specify whether the product contains substances from the candidate list according to the REACH regulation (if greater than 1% by mass)

No substance belonging to the list is present in the product in an amount of more than 1% by mass.

Description of the reference service life

The lifespan of fire protective board is similar to that of a building as long as the component is part of it.

Parameter	Value
Reference slife	50 years

Parameter	Value
Declared properties of the product (leaving the factory) and finishes. etc.	Fire protective boards PROMATECT XS comply with standard ETA 18/0645.
Theoretical application parameters (if imposed by the manufacturer), including references to appropriate practices	Installation according to the manufacturer's recommendations, and according to DTU 25.41.
Assumed quality of the work, when the installation complies with the manufacturer's instructions	The work must comply with the manufacturer's recommendations, and with DTU 25.31
Outdoor environment (for outdoor applications), e.g, weather, pollutants, UV and wind exposure, building orientation, shade, temperature	Not applicable
Indoor environment (for indoor applications),e.g, temperature, humidity, exposure to chemicals	Installation of fire protective board in interior rooms, in accordance with the specified DTU.
Conditions of use, e.g. frequency of use, mechanical exposure	Not applicable
Maintenance, e.g. frequency required, type and quality and replacement of replaceable components	Not applicable

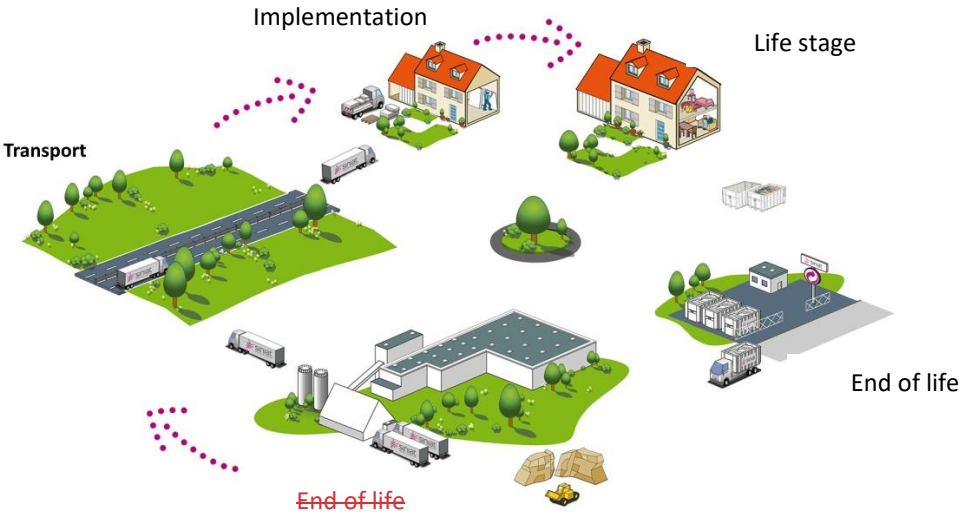
Biogenic carbon content

So-called "biogenic" carbon is the carbon constituting the plant, resulting from the process of photosynthesis from the CO2 present in the air (during the growth of plants – trees, Crops, etc.).

The quantity stored during the working life of this product is 0 KgC / FU.

This amount of stored biogenic carbon is considered an informative indicator and is not counted towards the product life cycle total.

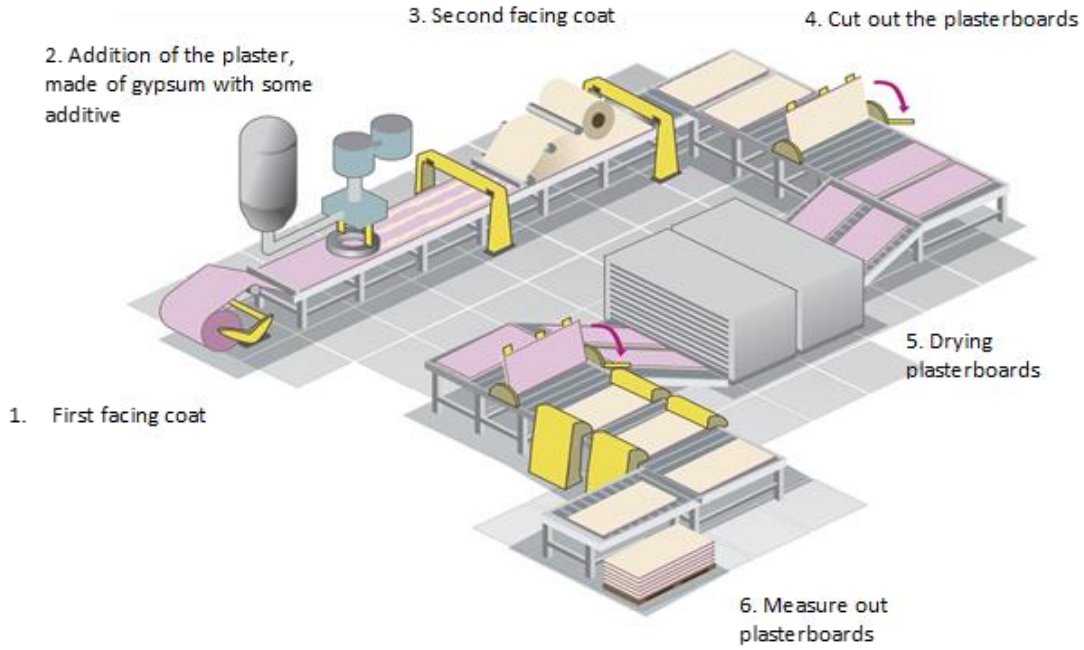
Diagram of life cycle



Production stage A1-A3

The production stage takes into account the following three stages :

o A1 Raw material supply: extraction calcium sulphate di-hydrate, and its transformation into calcium sulphate hemihydrate, additives as calcium silicate
o A2 Upstream transport of raw materials and packaging to the manufacturing site;
o A3 Manufacture of fire protective board (see diagram below) and production of packaging.



The aggregation of modules A1, A2 and A3 is a possibility given by standard EN 15804 + A1. This rule is applied to this EPD.

Construction stage A4-A5

The construction stage consists of two modules: A4, the transport of the product from the factory to the site and A5, the installation in the building.

A4 - Transport to the site:

This module includes transportation from the manufacturing site to the construction site. Transport is calculated according to a scenario including the following parameters:

Parameters	Values
Type of fuel and consumption of the vehicle or type of vehicle used for transport, e.g, long haul truck, Boat, etc.	Truck with a capacity of 24 tons Fuel: Diesel
Distance to the site	230 km
Capacity utilization (including empty returns)	Actual load: 24 tons with 20% empty return

Parameters	Values
Bulk density of transported products	Density greater than 700 kg / m3
Coefficient of use of the volume capacity	About 0.9

A5 - Installation in the building:

This module includes the materials necessary for the installation of the product in the building.

Parameters	Value		
Auxiliary inputs for the installation	Gypsum compound:	0.368	Kg/m²
	Water for compound	0.184	Kg/m²
	Joint tape:	0.00894	Kg/m²
	Screw:	0.0156	Kg/m²
Water use	-		
Use of other resources	Not concerned		
Quantitative description of the type of energy (regional mixture) and consumption during the installation process	Not concerned		
Waste produced on the construction site before the treatment of waste generated by the installation of the product (specified by type)	5% of fire protection boards Packaging waste (packaging of compound, glue, pallet)		
Materials (specified by type) produced by waste treatment at the construction site, e.g, collection for recycling, energy recovery, disposal (specified by route)	Installation losses of board follows the same end of life as deconstructed board, 100% collected for disposal.		
Direct emissions to ambient air, soil and water	Not concerned		
Breakage rate on site	5%		

Use stage (exclusion of potential savings), B1-B7

The use stage is divided into seven modules:

- B1: Use or application of the installed product
- B2: Maintenance
- B3: Repair
- B4: Replacement
- B5: Refurbishment
- B6: Operational energy use
- B7: Operational water use

No efforts occur during the use phase, until the end of life. So the fire protective board has no impact during this step.

End of life stage, C1-C4

This stage is made up of the following four modules:

- C1: deconstruction. demolition
- C2: transport to waste treatment
- C3: waste treatment for reuse, recovery and / or recycling
- C4: disposal

The calculation scenario takes into account the following parameters:

Parameters	Description
Collection process specified by type	18% of the board (excluding screws) is collected for disposal in a non-hazardous waste center, i.e. 2.98 kg per m² of wall collected either in skips specially designed for the board, or with mixed construction waste , depending on the site.
Recovery system specified by type	18% of gypsum, i.e 1.90 kg/UF, go to recycling
Disposal specified by type	20% of the board (excluding screws) is collected for disposal in a non-hazardous waste center in “regulatory” chain, i.e. 3.31 kg/UF 62% of the boards (excluding screws) is collected for disposal in a non-hazardous waste center in “local” chain, i.e. 10.26 kg/UF For 18% of the board: - 36% is collected in sanitized waste center - 64% is incinerated
Assumptions for the development of scenarios (for example transport)	Transport distance between the deconstruction site and the center for recycling: 214 km Transport distance between the deconstruction site and the regulatory disposal center: 200 km Transport carried out by 24 tons truck

Potential for recycling / reuse / recovery, D

For the calcium sulphate di-hydrate:

- Loads: transport of the calcium sulphate di-hydrate from the transformer to the production plant
- Benefits: avoided production of virgin raw material (calcium sulphate di-hydrate)

Parameters	Value
Becoming calcium sulphate di-hydrate	Recycling efficiency: 100%

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Information for calculating the life cycle analysis

The LCA model, data aggregation and environmental impacts are calculated using Simapro 9.1 software and ecoinvent v3.6 databases.

PCR used	The NF EN 15804 + A1 standard and the national supplement NF EN15804 / CN
System boundaries	The boundaries of the system respect the limits imposed by standard EN 15804 + A1 and its national complement.
Cut-off criteria for the initial inclusion of inputs and outputs	The cut-off criteria comply with the thresholds authorized by standard NF EN 15804 + A1. The following streams were omitted from the system: - The production of raw material packaging (A1) - Electricity consumption during the installation (A5) and removal (C1) of the boards. - Packaging of installation accessories used for installation (A5) These flows represent less than 1% of the inputs and do not generate any significant emissions in the air or in the water associated with this step. With the exception of the flows mentioned above, no cut-off rule has been applied.
Allocations	Mass allocations A mass weighting was applied as soon as the production takes place on several sites (according to the annual quantities produced respectively on each site).
Geographic representativeness and temporal representativeness of primary data	The data used comes from ETEX factories for the year 2020.
Variability of results	This EPD covers the products specified in the commercial references. The calculations were carried out on the basis of the control indicators: • Global warming. • Use of non-renewable primary energy excluding resources used as raw materials. • Non-hazardous waste eliminated. • Depletion of abiotic resources (elements). The differences on the impacts between the products compared to the reference product whose results are presented in this EPD are between: • -22.4% and 27.7% for the global warming indicator • -21.5% and 26.8% for the indicator of use of non-renewable primary energy excluding resources used as raw materials • -29.8% and 36.5% for the indicator non-hazardous waste eliminated • -10.3% and 12.5% for the indicator depletion of abiotic resources (elements)
Validity framework	Not applicable

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- Result of the life cycle analysis

ENVIRONMENTAL IMPACTS																		
Environnemental Impacts	**Product stage**	**Construction process stage**			**Use stage**								**End of life stage**					**Total life cycle**	D- Benefits and loads beyond the system boundaries
	Total A1-A3 Production	A4 Transport	A5 Installation	**Total A4-A5**	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	**Total B1-B7**	C1 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	**Total C1-C4**		
Global warming kg CO2 eq / FU	3.14	0.62	0.25	0.88	0	0	0	0	0	0	0	0	0.00E+00	0.30	0.03	0.18	0.50	4.52	0.04
Depletion potential of the stratospheric ozone layer, ODP (kg CFC-11 eq.) / FU	5.91E-07	1.15E-07	3.95E-08	1.54E-07	0	0	0	0	0	0	0	0	0.00E+00	5.47E-08	6.38E-9	2.58E-08	8.69E-08	8.33E-07	8.06E-09
Acidification Potential of land and water, AP (kg SO2 eq.) / FU	0.0116	0.0024	0.0109	0.0133	0	0	0	0	0	0	0	0	0.00E+00	0.0012	0.0003	0.0006	0.0021	0.0270	1E-04
Eutrophication kg (PO4) 3- eq / FU	5.06-03	5.69E-04	5.18E-04	1.09E-03	0	0	0	0	0	0	0	0	0.00E+00	2.71E-04	3.73E-05	3.65E-04	6.73E-04	6.82E-03	1.77E-05
Photochemical ozone formation (kg C2H4 eq.) / FU	1.53E-03	2.71E-04	5.54E-04	8.25E-04	0	0	0	0	0	0	0	0	0.00E+00	1.29E-04	2.41E-05	9.48E-05	2.52E-04	2.60E-03	1.04E-05
Abiotic Resource Depletion Potential for elements; ADPelements (kg Sb eq.) / FU	1.72E-04	1.72E-05	1.00E-06	2.72E-05	0	0	0	0	0	0	0	0	0.00E+00	8.18E-06	5E-8	8E-07	9.00E-06	2.08E-04	1.37E-06
Abiotic Resource Depletion Potential of fossil fuels; ADPfossil (MJ) / FU	56.7	9.4	4.1	13.5	0	0	0	0	0	0	0	0	0.00E+00	4.5	0.4	2.2	7.1	77.3	0.7
Water pollution m3 / FU	6.56	0.67	0.75	1.42	0	0	0	0	0	0	0	0	0.00E+00	0.32	0.02	1.02	1.36	9.34	-5E-03

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ENVIRONMENTAL IMPACTS

Environnemental Impacts	Product stage	Construction process stage			Use stage								End of life stage					Total life cycle	D- Benefits and loads beyond the system boundaries
	Total A1-A3 Production	A4 Transport	A5 Installation	Total A4-A5	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	Total B1-B7	C1 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	Total C1-C4		
Air pollution m3 / FU	476	70	85	155	0	0	0	0	0	0	0	0	0.00E+00	33	4	13	49	680	-29

USE OF RESOURCES

Use of resources	Product stage	Construction process stage			Use stage								End of life stage					Total life cycle	D- Benefits and loads beyond the system
	Total A1-A3 Production	A4 Transport	A5 Installation	Total A4-A5	B1 Use	B2 Maintenance	B3 Repair	B4 Substitution	B5 Rehabilitation	B6 Operational energy use	B7 Operational water use	Total B1-B7	C1 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	Total C1-C4		
Use of renewable primary energy excluding renewable primary energy resources used as raw materials - MJ / FU	4.54	0.13	0.77	0.90	0	0	0	0	0	0	0	0	0,00E+00	0.06	0.02	0.02	0.10	5.54	4E-03
Use of renewable primary energy resources used as raw materials - MJ / FU	0	0	0.1282	0.1282	0	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0.1282	0,00E+00

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USE OF RESOURCES																		
Use of resources	**Product stage**	**Construction process stage**			**Use stage**								**End of life stage**					**Total life cycle**	D- Benefits and loads beyond the system
	Total A1-A3 Production	A4 Transport	A5 Installation	**Total A4-A5**	B1 Use	B2 Maintenance	B3 Repair	B4 Substitution	B5 Rehabilitation	B6 Operational energy use	B7 Operational water use	**Total B1-B7**	C1 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	**Total C1-C4**		
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ / FU	4.54	0.13	0.89	1.03	0	0	0	0	0	0	0	0	0.00E+00	0.06	0.02	0.02	0.10	5.67	4E-03
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - MJ / FU	68.9	9.6	4.7	14.4	0	0	0	0	0	0	0	0	0.00E+00	4.6	0.6	2.2	7.4	90.8	0.6
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - MJ / FU	0.00E+00	0.00E+00	3.23E-03	3.23E-03	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.23E-03	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ / FU	68.9	9.6	4.7	14.4	0	0	0	0	0	0	0	0	0.00E+00	4.6	0.6	2.2	7.4	90.8	0.6
Use of secondary material - kg / FU	1.27	0.00E+00	0.06	0.06	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33	0.00E+00
Use of renewable secondary fuels - MJ / FU	**0**	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**	0

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USE OF RESOURCES

Use of resources	Product stage	Construction process stage			Use stage								End of life stage					Total life cycle	D- Benefits and loads beyond the system
	Total A1-A3 Production	A4 Transport	A5 Installation	**Total A4-A5**	B1 Use	B2 Maintenance	B3 Repair	B4 Substitution	B5 Rehabilitation	B6 Operational energy use	B7 Operational water use	**Total B1-B7**	C1 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	**Total C1-C4**		
Use of non-renewable secondary fuels - MJ / FU	**0**	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0
Use of net fresh water (m^3) / FU	0.0504	0.0007	0.003	0.0038	0	0	0	0	0	0	0	0	0.00E+00	0.0003	9E-05	0.0024	0.0029	0.0570	0.0003

WASTE CATEGORIES

Waste Categories	Product stage	Construction process stage			Use stage								End of life stage					T Total life cycle	D- Profits and charges beyond the boundaries of the system
	Total A1-A3 Production	A4 Transport	A5 Installation	**Total A4-A5**	B1 Use	B2 Maintenance	B3 Repair	B4 Substitution	B5 Rehabilitation	B6 Operational energy use	B7 Operational water use	**Total B1-B7**	C1 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	**Total C1-C4**		
Hazardous waste kg / FU	0.0655	0.0062	0.0121	0.0183	0	0	0	0	0	0	0	0	0	0.0029	0.0003	0.0106	0.0137	0.0975	0.0010
Non-hazardous waste kg / FU	1.2	0.5	1.4	1.9	0	0	0	0	0	0	0	0	0	0.2	9E-03	14.7	14.9	18	4E-02

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WASTE CATEGORIES

Waste Categories	Product stage	Construction process stage			Use stage								End of life stage					T Total life cycle	D- Profits and charges beyond the boundaries of the system
	Total A1-A3 Production	A4 Transport	A5 Installation	Total A4-A5	B1 Use	B2 Maintenance	B3 Repair	B4 Substitution	B5 Rehabilitation	B6 Operational energy use	B7 Operational water use	Total B1-B7	C1 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	Total C1-C4		
Radioactive waste disposed (kg) kg / FU	7.92E-05	6.52E-05	2.08E-05	8.60E-05	0	0	0	0	0	0	0	0	0	3.10E-05	5.96E-06	1.44E-05	5.14E-05	4.38E-04	3.82E-06

OUTPUTS

Outputs	Product stage	Construction process stage			Use stage								End of life stage					Total life cycle	D- Benefits and loads beyond the system boundaries
	Total A1-A3 Production	A4 Transport	A5 Installation	Total A4-A5	B1 Use	B2 Maintenance	B3 Repair	B4 Substitution	B5 Rehabilitation	B6 Operational energy use	B7 Operational water use	Total B1-B7	C1 Déconstruction/Démolition	C2 Transport	C3 Waste processing	C4 Disposal	Total C1-C4		
Components for reuse (kg) kg / FU	0	0	0	**0**	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0
Materials for recycling kg / FU	0	0	0.15	0.15	0	0	0	0	0	0	0	0	0	0	2.98	0	2.98	3.12	-5E-03
Materials for energy recovery - kg / FU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Electrical energy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00E+00	0

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OUTPUTS																			
Outputs		**Product stage**	**Construction process stage**			**Use stage**								**End of life stage**					**Total life cycle**	D- Benefits and loads beyond the system boundaries
		Total A1-A3 Production	A4 Transport	A5 Installation	**Total A4-A5**	B1 Use	B2 Maintenance	B3 Repair	B4 Substitution	B5 Rehabilitation	B6 Operational energy use	B7 Operational water use	**Total B1-B7**	C1 Déconstruction/Démolition	C2 Transport	C3 Waste processing	C4 Disposal	**Total C1-C4**		
Exported energy (by energy vector) MJ / FU	Thermal energy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Process gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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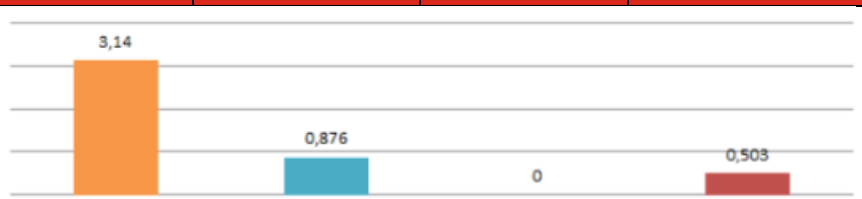
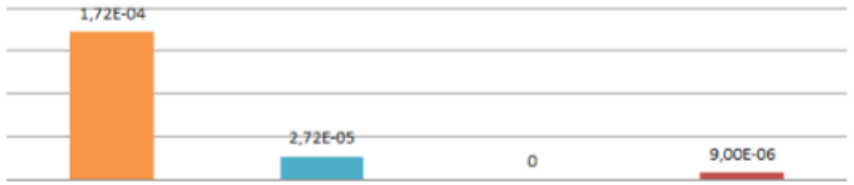
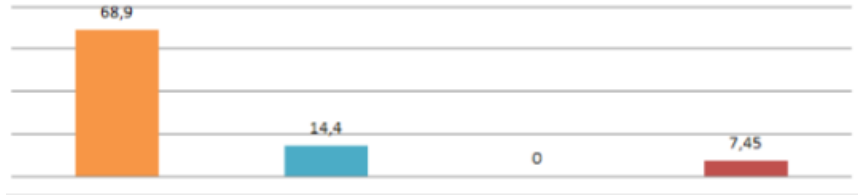
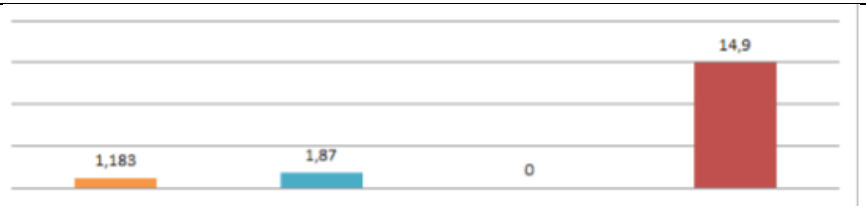
Interpretation of the life cycle

	Product stage A1-A3	Construction process stage A4-A5	Use stage B	End of life stage C	Total life cycle
Global warming kg CO2 eq / FU					4.52 Kg CO2 eq/FU
Abiotic Resource Depletion Potential for elements; ADPelements (kg Sb eq. / FU					2.08E-04 Kg Sb eq/FU
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ / FU					90.8 MJ/FU
Non-hazardous waste disposal kg / FU					18 Kg/FU

Promat

Additional information on the release of hazardous substances into indoor air, soil and water during the use stage

Indoor air

Inevitable polluting emissions to which operators may be exposed
There are no inevitable polluting emissions to which operators can be exposed.

The installation of the fire protective board must respect the rules of the art (ETA 20/0932): in this case, the cutting of the plate is carried out using a cutter, the cardboard of one of the two sides of the board is cut, the fire protective board is broken along the cutting line, and the cardboard of the second side is cut. This cut does not generate dust.

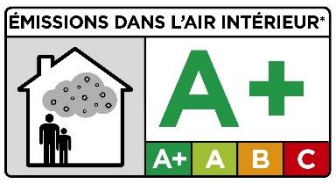
If the installation does not follow the rules of the art and if the cutting of the plate is carried out using a tool liable to emit dust (saw not equipped with a suction system, for example), the potential risk for the installers is then inhalation and ingestion of sawdust. This sawdust is not classified as dangerous substances according to the order of April 20, 1994.

Inevitable polluting emissions to which users may be exposed

During the life of the product, the emissions to which users could be exposed are: volatile organic compounds, radioactive substances, microorganisms and fibers.
Important: in normal use of the plate, it is covered with a coating which influences the characteristics of the coated partition assembly. The number of possible coatings being very large, the characteristics of the coated fire protective board cannot be provided in the context of this sheet. In this document the characteristics of the bare fire protective board are presented.

Volatile organic compounds and aldehydes

According to the decree n ° 2011-321 of March 23, 2011 relating to the labeling of construction products or wall or floor covering and paints and varnishes on their emission of volatile organic pollutants, the fire protective boards manufactured by Etex Building Performance are classified A +, the most favorable class for a building material.
A measurement report established for a product of the same family attests the health classification of the products.



Composition of radioactive substances

Calcium sulphate di-hydrate is a material with the lowest natural radioactivity of all mineral building materials. As such, the radioactivity of this board is insignificant compared to the natural radioactivity of the environment.

Radioactivity measurements carried out on board by several laboratories

And level of activity concentration index I

Origin of gypsum	Laboratory (1)	Bq/Kg			I (*)
		^{226}Ra	^{232}Th	^{40}K	
Natural gypsum	IRES (FR)	11-19	<3 – 4.7	22 - 146	< 0.04 – 0.14
	INTRON (NL)	6.1	1.7	27	0.04
	SCK-CEN (BE)	9.6 - 13	3.9 < 7	< 30 - 40	< 0.08
Desulfurization gypsum	INTRON (NL	3.8 – 5.8	< 2	<5 - <6	< 0.03

(*) The activity concentration index I combines the activities of the radioelements to take account of their respective energies:

$I = [CRa226 / 300\ Bqkg^{-1}] + [CTh232 / 200\ Bqkg^{-1}] + [CK40 / 3000\ Bqkg^{-1}]$

The average natural radioactivity of the earth's crust (2) can be used as a reference for assessing the level of radioactivity in gypsum:

^{226}Ra :	40 $Bqkg^{-1}$
^{232}Th :	40 $Bqkg^{-1}$
^{40}K :	400 $Bqkg^{-1}$
Index I =	0.47

Taking into account the way in which the materials are used in the building, the index I is correlated with dose levels (2)

Dose Levels	0.3 $mSv.a^{-1}$	0.3 $mSv.a^{-1}$
Structural materials (e.g concrete)	$I \leq 0.5$	$I \leq 1$
Covering materials (eg tiles, boards, etc).	$I \leq 2$	$I \leq 6$

The boards referred to in this document have an I index significantly lower than the index required to meet the most severe dose criterion, 0.3 mSv.a-1. In addition, the boards meet even the more severe index of structural materials.

Quality of data provided:
(1) IRES Laboratory (France); SCK-CEN Laboratory (Belgium); INTRON report R95373: Radioactivity of common building materials, 1996. (in Dutch)
(2) EC Report 112 “Radiological Protection Principles concerning the Natural Radioactivity of Building Materials”. 1999

Other general information references concerning radioactivity:
- http://www.laradioactivite.com/vief.htm
- http://www.cea.fr/Fr/Surete/securite_reperes.htm
- http://www.environnement.gouv.fr/dossiers/risques/risques-majeurs/p55.htm#3
- http://www.irsn.fr/vf/05_inf/05_inf_1dossiers/05_inf_32_accident/pdf/CD_crise_annexe.pdf

Development of microorganisms

To date, there is no standardized method for measuring the growth of microorganisms in construction products. A fortiori there are no regulatory values.

CSTB has developed its own protocol by referring to standards NF EN ISO 846 (Evaluation of the action of microorganisms) and NF V 18-122 (Determination of the ergosterol content).

These tests with the strains aspergillus niger, penicillium brevicompactum and cladosporium sphaerospermum showed visible fungal growth in some samples, and no development in others.

In normal use of the plate, it is covered with a coating which influences the characteristics of the coated partition assembly. The number of possible coatings being very large, the characteristics of the coated fire protective board cannot be provided in the context of this sheet. Also the characteristics of the bare boards are presented.
The growth of microorganisms is primarily due to excess humidity and lack of ventilation; Depending on the characteristics of the indoor air, molds can grow on all materials.

Under normal conditions of design and use of buildings, no development of microorganisms is observed on the surface of fire protective boards structures.
Accommodation occupied under normal conditions is accommodation without over-occupation and above all well ventilated. The decree of March 24, 1982 amended on October 28, 1983 makes general and permanent ventilation compulsory; this same decree also indicates the minimum ventilation rates in a dwelling as a function of the number of rooms and the type of ventilation; we can refer to it for more details.
For other conditions of use, manufacturers offer suitable solutions based on water-repellent plates and / or waterproof coatings.

Fibers

To improve the mechanical and / or fire resistance of fire protective board, fiberglass can be incorporated into the mass of the board during manufacture. These are continuous filament glass fibers, greater than 10 mm in length and greater than 10 µm in diameter, in an amount less than 0.8% of the mass of the plate.
Due to their dimensions and according to WHO criteria, these fibers are not breathable and are classified in the product category of non-carcinogenic products for humans (group 3 of the IARC classification).

Soil and water

Not applicable, as this product is not in contact with water intended for human consumption, nor with runoff, seepage water, groundwater, or surface water.

Product characteristics contributing to the creation of hygrothermal comfort conditions in the building

The fire protective boards are porous. Without a waterproof finish coating, it can thus participate in the regulation of the humidity level in the event of strong fluctuations.
The water vapor diffusion resistance factor, µ, and the thermal conductivity, λ, of the plate array are not available. For this, the information from the DOP (Declaration of performance) is used.

Additional and detailed information on the various plates can be found on the Promat brand websites (https://www.promat.com).

These characteristics are dependent on the system and will be provided in the manufacturer's documentation according to the intended use.

Characteristics of the product participating in the creation of conditions of acoustic comfort in the building

The fire protective boards structures have acoustic performance which depends on their composition (number of panels per facing, separation of frames, volume of plenums, performance of incorporated insulators). For more information, refer to the Etex Building Performance acoustic test reports.

Additional and detailed information on the various plates can be found on the Promat brand websites (https://www.promat.com).

Product characteristics contributing to the creation of visual comfort conditions in the building

The fire protective boards can be used to create flat vertical, horizontal or inclined surfaces without flushing or visible joints.

Product characteristics contributing to the creation of olfactory comfort conditions in the building

No olfactory test has been carried out.
During the use phase, if the atmosphere is very humid, odors of calcium sulphate di-hydrate or paper may be observed.

Other environmental information

Etex France Building Performance is always more committed to the environment. The production and recycling of boards and associated products are ISO 14001 certified.

Etex France Building Performance is a player engaged in the recovery of plaster waste.

In order to preserve the natural resources of gypsum quarries, and comply with the energy transition law relating to construction waste. Siniat offers a plaster-based waste recycling service through its Ecoplâtre program.