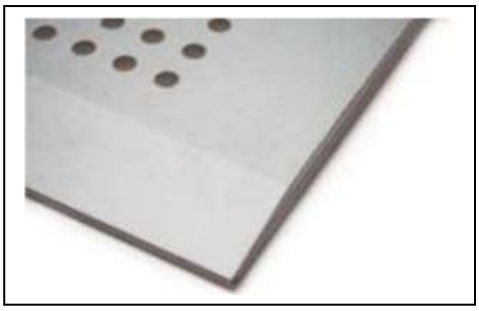
CREATEX

Aout. 2020

ENVIRONMENTAL PRODUCT DECLARATION

Environmental and Health Product Declaration

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



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

WARNING

The information contained in this declaration is provided under the responsibility of ETEX Group (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 “CREATEX”. It’s provided under the responsibility of Etex France 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.

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 :
PLADUR®GYPSUM, S.A.U.Ctra. Andalucía Km. 30.200
28343 VALDEMORO (Madrid) –Spain
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 plasterboard sold for the market in France 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 August 2020.

Date of publication: This EPD was published in August 2020.

Program: The external and independent verification program “AFNOR-INIES Program” was applied.

www.inies.fr

Product identification:

The commercial references covered :

- CREATEX BA 13 ; BV 13 ; BC13.

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 facade fixed and jointed to any type of framing, in the form of a rigid panel intended to provide sound absorption properties

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 Siniat brand sites (www.siniat.fr).

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

The main components of plasterboard are presented below.

Parameters		Value	Unit
Parameters	Weight of the product	10	Kg/m²
	Thickness	12.5	mm
	Reaction against fire	A2-s1, d0	
Conditionning description	Pallet	4,19E-01	Kg/FU
	Angle protection	4,64E-03	Kg/FU
	Plastic film	9,71E-02	Kg/FU
Complementary product	Water	0,17	Kg/m²
	Screw	18.75	g/m²
	Gypsum compound	0.34	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 plasterboard is similar to that of a building as long as the component is part of it.

Parameter	Value
Reference slife	50 years
Declared properties of the product (leaving the factory) and finishes. etc.	Plasterboards comply with standard EN 520.

Parameter	Value
Theoretical application parameters (if imposed by the manufacturer), including references to appropriate practices	Will be applied in accordance with the manufacturer's indications.
Assumed quality of the work, when the installation complies with the manufacturer's instructions	Quality of the work comply with the product's specifications.
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	The product is subject to labelling health in relation to the quality of indoor air.
Conditions of use. eg frequency of use. mechanical exposure	The product is subject to labelling health in relation to the quality of indoor air.
Maintenance, e.g, frequency required, type and quality and replacement of replaceable components	With this product, no maintenance will not be required.

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.

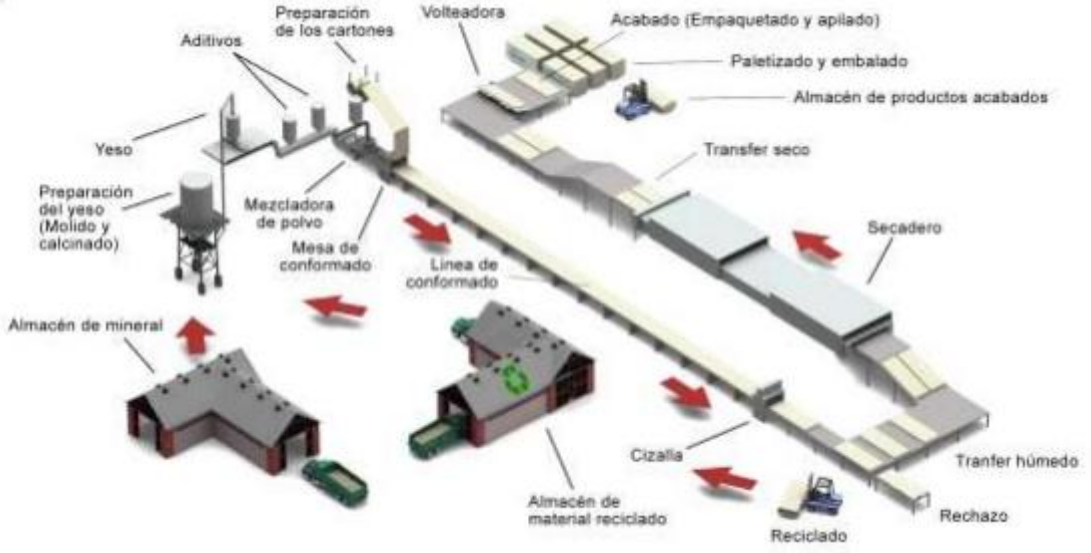
This amount of stored biogenic carbon is considered an informative indicator and is not counted towards the product life cycle total.

Diagram of life cycle

Production stage A1-A3

The production stage takes into account the following three stages :

o A1 Raw material supply: extraction of gypsum and its transformation into plaster, additives;
o A2 Upstream transport of raw materials and packaging to the manufacturing site;



o A3 Manufacture of plasterboard (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 16-32 tons, EURO VI capacity
Distance to the site	Createx plasterboard are made in Spain. So the reference distance is 700km.
Capacity utilization (including empty returns)	Actual load: 38% of the volule's capacity. 100% empty return
Bulk density of transported products	Density greater than 700 kg / m3
Coefficient of use of the volume capacity	784 kg/m3

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:	0.34	Kg/m²
	Screw:	15 screw 1.25g, by m2	
Installation instruction	You need to use with paste joint, mixed with water, and strip joint.		
Water use	0.17 L/m2		
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 product and second materials, considered like installations waste. 0.05 m² of plasterboard 0.0017 kg of strip joint Screw : 0.75g Conditionning waste : Wood : 0.146g Angle protection : 4.88e-03 kg Plastic film : 1.02e-2 kg		
Materials (specified by type) produced by waste treatment at the construction site, e.g, collection for recycling. energy recovery. disposal (specified by route)	From plasterboard and installation products : Rubbbish dump. Conditionning waste : Rubbish dump Packaging waste : Recycling.		
Direct emissions to ambient air, soil and water	Not concerned		

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 plasterboard 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
Demolition	Diesel consumption : 35.9 Mj/tn Particle emission : 0.15 kg/tn
Collection process specified by type	10.16 kg/m2 of the boards goes to recycling of wall collected either in skips specially designed for plasterboard, or with mixed construction waste,depending on the site.
Recovery system specified by type	0 kg to the recovery.
Disposal specified by type	10.16 kg/m2 to landfill (100%).
Assumptions for the development of scenarios (for example transport)	Waste are carried out for 50 km, in 16-33 Tonne trucks. Euro VI

Potential for recycling / reuse / recovery, D

Module D, charges and benefits beyond system boundaries has not been assessed.

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 PLADUR factories between November 2018 and October 2019. Simapro v9.0.

- 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	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	3.92	1.15	4.34e-01	1.59	0	0	0	0	0	0	0	0	3.34e-02	8.19e-02	0	1.32e-01	2.47e-01	5.75	NC
Ozone layer depletion kg CFC 11 eq / FU	3.25E-07	2.13e-07	5e-08	2.34e-07	0	0	0	0	0	0	0	0	6.07e-09	1.52e-08	0	3.13e-08	5.26e-08	6.41e-07	NC
Soil and water acidification kg SO2 eq / FU	1.10e-02	2.76e-03	2.79e-03	5.55e-03	0	0	0	0	0	0	0	0	2.54e-04	1.96e-04	0	3e-01	3e-01	3.17e-01	NC
Eutrophication kg (PO4) 3- eq / FU	2.17-03	3.70e-04	3.01e-04	6.71e-04	0	0	0	0	0	0	0	0	5.50e-05	2.63e-05	0	1.46e-04	2.27e-04	3.06e-03	NC
Photochemical ozone formation Ethene eq / FU	6.35E-04	1..76e-04	1.63e-04	3.39e-04	0	0	0	0	0	0	0	0	6.68e-06	1.25e-05	0	1.20e-02	1.20e-02	1.30e-02	NC
Depletion of abiotic resources (elements) kg Sb eq / FU	4.44E-06	3.53e-06	1.22e-06	4.75e-06	0	0	0	0	0	0	0	0	1.13e-08	2.51e-07	0	1.55e-07	4.17e-07	9.60e-06	NC
Depletion of abiotic (fossil) resources MJ / FU	4.14e01	1.76e+01	5.74	2.34e+01	0	0	0	0	0	0	0	0	4.81e-01	1.25	0	3.07	4.80	6.95e+01	NC
Water pollution m3 / FU	1.05	3.90e-01	1.65e-01	5.55e-01	0	0	0	0	0	0	0	0	1.03e-02	2.76e-02	0	1.61e-01	1.99e-01	1.81	NC

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	B7 Operational water use	Total B1-B7	C1 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	Total C1-C4		
Air pollution m3 / FU	6.80e+02	1.15e+02	7.76e+01	1.92e+02	0	0	0	0	0	0	0	0	4.22e+01	8.14	0	1.24e+03	1.29e+03	2.16e+03	NC

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 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 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	9.81	1.90e-01	1.38	1.57	0	0	0	0	0	0	0	0	2.83e-03	1.35e-02	0	9.90e-02	1.15e-01	1.15e+01	NC
Use of renewable primary energy resources as raw materials - MJ / FU	1.07e+01	0	7.30e-01	7.30e-01	0	0	0	0	0	0	0	0	0	0	0	0	0	1.14e+01	NC

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 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 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	2.05e+01	1.90e-01	2.11	2.30	0	0	0	0	0	0	0	0	2.83e-03	1.35e-02	0	9.90e-02	1.15e-01	2.29e+01	NC
Use of non-renewable primary energy. excluding non-renewable primary energy resources used as raw materials - MJ / FU	4.96e+01	1.89e+01	6.36	2.53e+01	0	0	0	0	0	0	0	0	5.20e-01	1.34	0	3.33	5.19	8.01e+01	NC
Use of non-renewable primary energy. excluding non-renewable primary energy resources used as raw materials - MJ / FU	4.16e-01	0	6.86e-02	6.86e-02	0	0	0	0	0	0	0	0	0	0	0	0	0	4.85e-01	NC
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ / FU	5e-01	1.89e+01	6.43	2.54e+01	0	3.2	0	0	0	0	0	0	5.20e-01	1.34	0.0	3.33	5.19	8.06e+01	NC
Use of secondary material - kg / FU	5.32e-01	0	2.66e-02	2.66e-02	0	0	0	0	0	0	0	0	0	0	0	0	0	5.59e-01	NC
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	NC
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	NC

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 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 Deconstruction/Demolition	C2 Transport	C3 Waste processing	C4 Disposal	Total C1-C4		
Net freshwater use - m3 / FU	2.46^{e}-02	2.91^{e}-03	3.30^{e}-03	6.20^{e}-03	0	0	0	0	0	0	0	0	6.40^{e}-05	2.06^{e}-04	0	3.02^{e}-03	3.29^{e}-03	3.41^{e}-02	NC

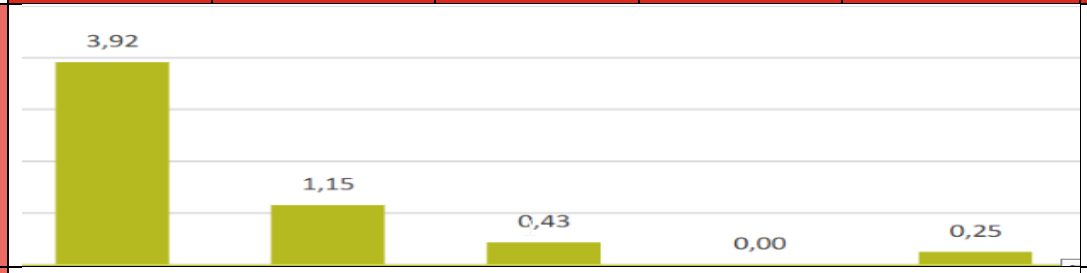
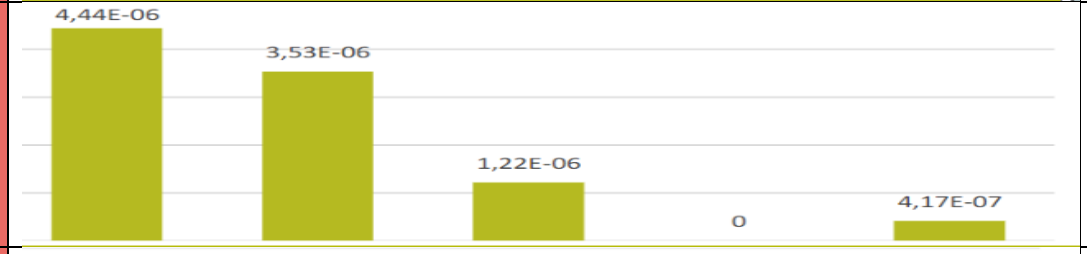
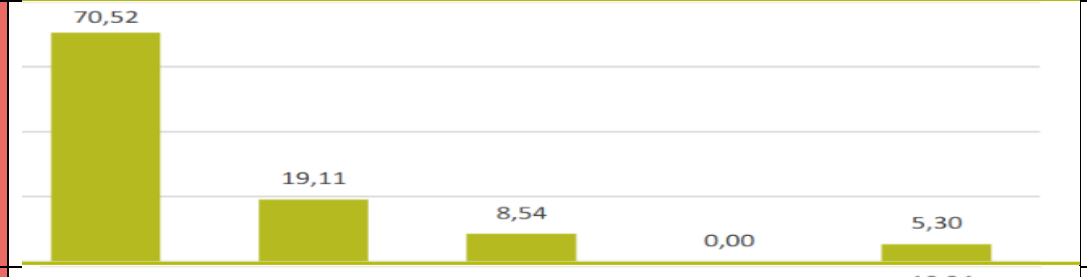
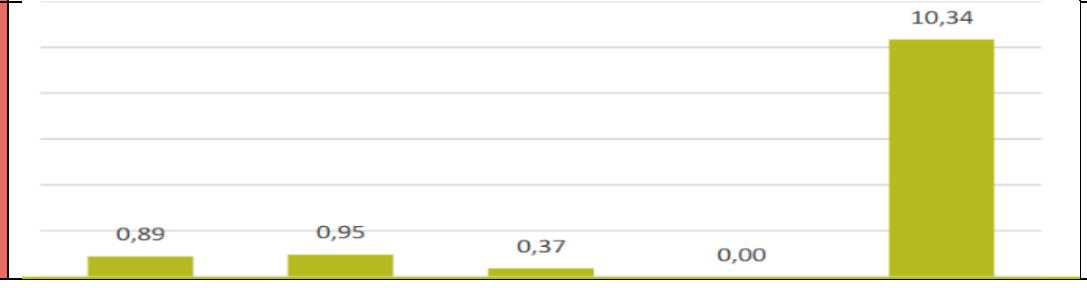
WASTE CATEGORIES

Waste Categories	Product stage	Construction process stage			Use stage								End of life stage					T 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		
Hazardous waste kg / FU	1.11^{e}-01	1.12^{e}-02	2.01^{e}-02	3.12^{e}-02	0	0	0	0	0	0	0	0	2.84^{e}-04	7.93^{e}-04	0	5.29^{e}-02	5.40^{e}-02	1.96^{e}-01	NC
Non-hazardous waste kg / FU	7.75^{e}-01	9.42^{e}-01	3.45^{e}-01	1.29	0	0	0	0	0	0	0	0	1.88^{e}-03	6.68^{e}-02	0	1.02^{e}+01	1.03^{e}+01	1.23^{e}+01	NC
Radioactive waste disposed of kg / FU	1.89^{e}-04	1.20^{e}-04	2.83^{e}-05	1.49^{e}-04	0	0	0	0	0	0	0	0	3.40^{e}-06	8.55^{e}-06	0	1.88^{e}-05	3.07^{e}-05	3.69^{e}-04	NC

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 intended for reuse kg / FU		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NC
Materials for recycling kg / FU		5.82e-01	0	1.76e-01	1.76e-01	0	0	0	0	0	0	0	0	0	0	0	0	0	7.57e-01	NC
Materials for energy recovery - kg / FU		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NC
Energy supplied to the exterior (by energy vector) MJ / FU	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NC
	Steam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NC
	Process gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NC

Cycle life

	Product stage A1-A3	Transport A4	Installation A5	Use stage B	End of life stage C	Total life cycle
Global warming kg CO2 eq / FU						**5.75 Kg CO2 eq/FU**
Abiotic Resource Depletion Potential for elements; ADPelements (kg Sb eq. / FU						**9.60 -06E Kg Sb eq/FU**
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ / FU						**103 MJ/FU**
Non-hazardous waste disposal kg / FU						**3.41 Kg/FU**

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 plasterboard must respect the rules of the art (DTU 25.41): in this case, the cutting of the board is carried out using a cutter, the cardboard of one of the two sides of the board is cut, the plasterboard is broken along the cutting line, and the cardboard of the second side is cut. This cut does not generate dust.

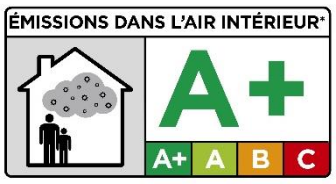
If the installation does not follow the rules of the art and if the cutting of the board is carried out using a tool liable to emit dust (saw not equipped with a suction system, for example), the potential risk for the installers is then inhalation and ingestion of sawdust. This sawdust is not classified 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 board, 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 plasterboard cannot be provided in the context of this sheet. In this document the characteristics of the bare plasterboard 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 emissions of volatile pollutants, the plasterboards manufactured by Siniat 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

Gypsum is a material with the lowest natural radioactivity of all mineral building materials. As such, the radioactivity of the plasters is insignificant compared to the natural radioactivity of the environment.

Radioactivity measurements carried out on plasterboard 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).	$I \leq 2$	$I \leq 6$

All plasterboard 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).

As an indication and provisionally, the SNIP asked CSTB in 2004 to characterize the ability of BA13 STANDARD plasterboard to support fungal development.

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 board, 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 plasterboard cannot be provided in the context of this sheet. Also the characteristics of the bare plasterboards 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 plasterboard 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 boards and / or waterproof coatings.

Fibers

To improve the mechanical and / or fire resistance of plasterboards, fiberglass can be incorporated into the mass of the plaster 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 board.

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 plasterboard is 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, of the array of boards is in the range 10 (Rules RT 12).

The thermal conductivity λ of the array of boards is in a range from 0.25 to 0.296 W/mK.

Additional and detailed information on the various boards can be found on the Siniat brand websites (www.siniat.fr).

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 plasterboard 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 France BP acoustic test reports.

Additional and detailed information on the various boardcan be found on the Siniat brand websites (www.siniat.fr).

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

The plasterboards can be used to create flat vertical, horizontal or inclined surfaces without flushing or visible joints, as well as curved surfaces and decorative elements (box. niche. etc.).

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 gypsum or paper may be observed.

Other environmental information

Etex France Building Performance is always more committed to the environment. The production and recycling of plasterboard 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.