



# ENVIRONMENTAL AND SANITARY DECLARATION SHEET OF THE PRODUCT

## *CLT by Stora Enso*

*In accordance with the NF EN 1580 + A1 and its national supplement EN 15804 / CN*

May 2017



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## Warning

The information contained in this declaration is supplied by Stora Enso (producer of the FDES) according to NF EN 15804 + A1: 2014 and the national supplement NF EN 15804 / CN: 2016.

Any exploitation, total or partial, of the information provided in this document must at least be accompanied by the complete reference to the FDES of origin and its producer who will be able to give a complete copy.

It is recalled that the results of the study are based only on facts, circumstances and assumptions that were submitted during the study. If these facts, circumstances and assumptions differ, the results are subject to change.

In addition, the results of the study should be considered as a whole, in relation to the assumptions, and not in isolation.

EN 15804 + A1 and the national supplement NF EN 15804 / CN of CEN serve as the Product Category Definition Rules (RCP).

The standards EN 16449: 2014 and EN 16485: 2014 are used respectively for the calculation of the biogenic carbon content and for the accounting of the biogenic carbon.

## Reading guide

The display of the inventory data complies with the requirements of NF EN 15804 + A1.  
In the following tables 2.53E-06 should be read:  $2.53 \times 10^{-6}$  (scientific writing).

The units used are specified in front of each flow, they are:

- the kilogram "kg"
- the gram "g"
- the liter "l"
- the kilowatt hour "kWh"
- the megajoule "MJ".

Abbreviations:

- LCA: Lifecycle Analysis
- DVR: Reference Lifetime
- UF: Functional Unit
- PCI: Lower Calorific Value

## Precaution of use of the FDES for the comparison of products

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

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

"A comparison of the environmental performance of construction products using FDES information should be based on the use of the products and their impacts on the building and should take into account the entire life cycle (Information)."

# SUMMARY

1	Introduction.....	4
2	Général Information .....	5
3	DESCRIPTION OF THE FUNCTIONAL UNIT OF THE PRODUCT.....	6
4	STAGES OF THE LIFE CYCLE.....	8
4.1	Production step, A1-A3.....	8
4.2	Construction step, A4-A5.....	8
4.3	Potential for recycling / reuse / recovery, D.....	11
5	INFORMATION FOR THE CALCULATION OF THE LIFE CYCLE ANALYSIS .....	11
6	Résultat de l'analyse du cycle de vie.....	<b>Erreur ! Signet non défini.</b>
7	ADDITIONAL INFORMATION ON THE RELEASE OF DANGEROUS SUBSTANCES IN THE AIR, THE SOIL AND WATER DURING THE PERIOD OF USE.....	17
7.1	Indoor Air .....	17
7.2	Soil and water.....	18
8	CONTRIBUTION OF PRODUCTS TO QUALITY OF LIFE WITHIN BUILDINGS.....	18

# 1 INTRODUCTION

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The scope used for the presentation of the environmental statement produced is based on the national supplement NF EN 15804 / CN.

This sheet is a suitable framework for presenting the environmental characteristics of construction products in accordance with the requirements of NF EN 15804 + A1, its national supplement NF EN 15804 / CN and the provision of additional comments and information in the Respect of the spirit of this standard in terms of sincerity and transparency.

An accompanying report of the declaration has been prepared and it can be consulted, under confidentiality agreement, at the head office of Stora Enso.

The information contained in this declaration is provided under the responsibility of Stora Enso.

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FRANCE

## 2 GENERAL INFORMATION

1. Name and address of suppliers :

**Stora Enso France**

83 Avenue Charles de Gaulle, CS 50035  
9200 NEUILLY SUR SEINE

2. Manufacturers' sites for which the FDES is representative :

**Stora Enso Wood Products**

Bad St. Leonhard  
Wisperndorf 4  
A-9462 Bad St. Leonhard Austria


**Stora Enso Wood Products**

Ybbs an der Donau  
Bahnhofstrasse 31  
A-3370 Ybbs an der Donau  
Austria

A weighting according to the production volumes of the two plants is taken into account.

Type of FDES: "from the cradle to the grave".

3. Type of FDES: individual.
4. Date of publication: May 2017
5. Date of expiry: May 2022.
6. Product reference / product identification: CLT by Stora Enso
7. FDES verified

<b>The NF EN 15804 + A1 standard and the national supplement NF EN 15804/CN du CEN serves as RCP a).</b>	
Independent verification of the declaration according to EN ISO 14025: 2010 <input type="checkbox"/> intern <input checked="" type="checkbox"/> extern	
<b>Verification :</b> 	<i>Name of auditor: Pierre Ravel Verification Program: Programme FDES-INIES Address : Association HQE. 4, avenue du Recteur Poincaré - 75016 Paris. Web Site: www.base-inies.fr</i>
a) Rules for defining product categories (B) Optional for communication between undertakings, mandatory for communication between an undertaking and its customers (see EN ISO 14025: 2010, 9.4).	

### 3 DESCRIPTION OF THE FUNCTIONAL UNIT OF THE PRODUCT

#### 3. Description of the functional unit:

"To ensure a structural or construction function for 1m<sup>3</sup> of panel used according to the manufacturer's recommendations on the basis of a reference life of 50 years, while ensuring the prescribed performance of the product. "

#### 4. Product description:

Cross Laminated Timber (CLT) is a construction material made of solid wood. It consists of at least three monolayer plates bonded to each other and arranged in crossed folds, in other words perpendicular to one another. It can measure up to 2.95 m × 16.00 m.

CLT panels consist of several layers (3, 5, 7 or 8) and are available in different thicknesses (maximum thickness 40 cm). The resistance class of the panels corresponds to C24 (EN 338). The use classes are 1 and 2 (EN 1995-1-1).

The wooden boards used to make the Stora Enso CLT panels are in spruce, fir, pine and PEFC certified (certificate of the chain of traceability: DNV-COC-001077, DNV-CW-001077).

The structural panels are intended for the construction of structural structures in classes of service 1 and 2 as defined in NF EN 1995-1-1 and in classes of use 1 and 2 as defined in NF EN 335. This FDES does not cover finishing products.

For the construction of floors, the process is limited to the recovery of static or quasi-static charges for use categories A, B, C1, C2, C3, and D1 in the sense of NF EN1991-1- 1.

#### 5. Description of the use of the product (field of application):

Cross Laminated Timber (CLT) can be used for interior and exterior walls as well as for ceilings and roofing elements.

#### 6. Other technical data not included in the functional unit: see product data sheet.

#### 7. Description of the main components and materials of the product:

Parameters	Units	Value
Amount of product	kg/m <sup>3</sup>	470
Distribution Packaging	-	The product is delivered by truck, attached to the tray by reusable straps and packed in a protective polyethylene film.
PE Film	kg	5,60E-01
Loss rate During Implementation	%	0%
Loss rate during maintenance	%	Not concerned.
Justification of the information provided	-	Informations provided by Stora Enso.

3. Please specify whether the product contains substances from the candidate list under the REACH Regulation (if greater than 0,1% by mass):

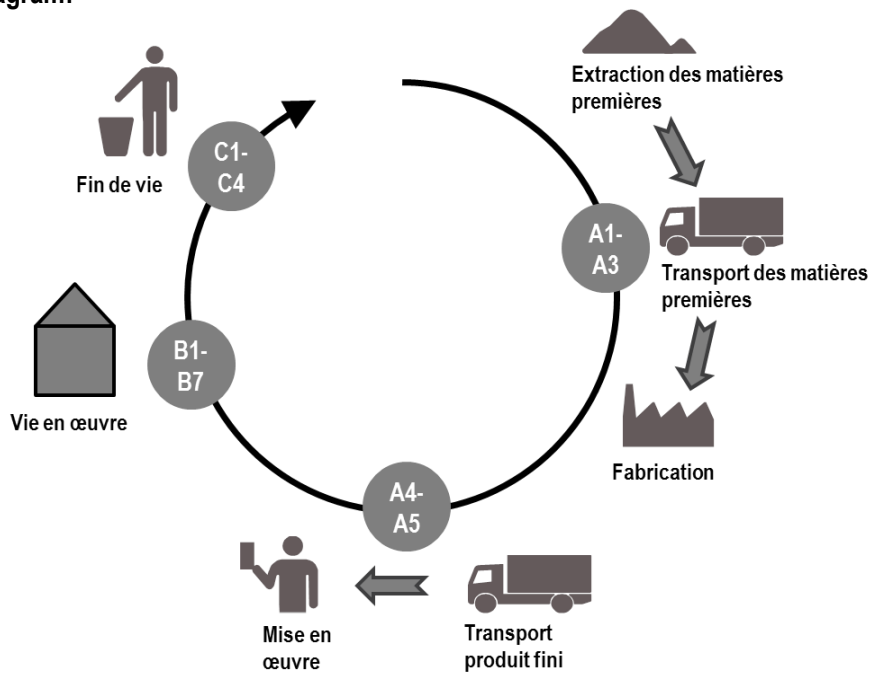
The product does not contain substances from the candidate list according to REACH to more than 0,1% by mass.

4. Description of the reference service life (if applicable and in accordance with §7.2.2 of NF EN 15804 + A1)

Parameters	Units	Value
Reference life	YEARS	50
Presumed quality of work	-	The quality of the work is presumed to conform to the recommendations of the manufacturer. This 50-year hypothesis is based on current technical knowledge and on the information and experience we have today. ATE-14/0349 specifies the expected service life.
Outdoor environment	-	-
Indoor environment	-	A detail of the volatile pollutant emissions of the product covered by the FDES is given in paragraph 7.
Terms of use	-	The use of the product is assumed to conform to the manufacturer's recommendations.
Maintenance	-	Not concerned

## 4 STAGES OF THE LIFE CYCLE

Product Life Cycle Diagram:



### 4.1 Production step, A1-A3

Steps A1 to A3 include all processes from the extraction of the raw materials to their conversion into the factory.

### 4.2 Construction step, A4-A5

Transport to construction site:

Parameter	Units	Value
Fuel Type and Vehicle Consumption or Vehicle Type	-	The vehicles in question are Euro 4 trucks and 16-32 tons payload.
Distance to the construction site	km	An average of 1189km is achieved by truck.
Capacity of use	%	36.25% (Generic data from the ecoinvent database)
Density of product transported	kg/m <sup>3</sup>	470
Coefficient of capacity utilization	-	-
Description of the scenario	-	The product is delivered by truck from the manufacturing plant to the customers. The transport distance is averaged and weighted according to the sales volume of the two production sites on a France distribution.



**Installation in the building:**

Parameters	Units	Value
<b>Auxiliary inputs for installation</b>	-	-
Fixing screws	kg/m <sup>3</sup>	2,00E+00
Vibro-protective sealing rubber (waterproofing membrane)	kg/m <sup>3</sup>	1,00E+00
<b>Production of waste at the facility</b>	-	-
Scenario description	-	<p>The product is implemented with the aid of screws associated with a rubber ensuring the sealing and protecting vibrations.</p> <p>No installation waste is considered, based on the fact that the product is delivered in bulk by truck, directly to the site, to the extent of the project in question.</p>

**4.3 Stage of life (excluding potential savings), B1-B7****B1 Utilisation**

Parameters	Units	Value
VOC emissions	µg/m <sup>3</sup>	130
Description of the scenario	-	More information on the volatile pollutant emissions of the product covered by the FDES is given in paragraph 7. These are established according to emission report n ° 2010-10-050-01.
Storage of biogenic carbon during the lifetime of the product	kg éq. CO <sub>2</sub> /m <sup>3</sup>	739
Description of the storage scenario		Biogenic carbon is stored over the lifetime of the product, calculated on the basis of the recommendations of EN 16449.

**B2 Maintenance:**

Parameters	Units	Value/description
scenario description	-	No maintenance should be considered under normal conditions of use.
Frequency of maintenance	Années	-
Auxiliary inputs for normal maintenance	-	-
Vacuum cleaner bag filled with dust	kg/cycle	-
Consumption of electricity	kWh/cycle	-

**B3 Réparation:**

Parameter	Units	Value/description
Description of the scenario	-	No maintenance should be considered under normal conditions of use.
Inspection Process	-	-
Repair frequency	year	-
Auxiliary inputs (eg lubricant, specify materials)	-	-
Wastes produced during repair (specify materials)	kg	-

Net fresh water consumption	m <sup>3</sup>	-
Consumption and type of energy	-	-

#### B4 Replacement:

Parameter	Units	Value/description
Replacement frequency	year	-
Consumption and type of energy	kWh	-
Quantity of replaced part	kg	-
Description of the scenario	-	No maintenance should be considered under normal conditions of use.

#### B5 Rehabilitation:

Parameter	Units	Value/description
Other assumptions for developing scenarios	Appropriated unit	-
Frequency of rehabilitation	year	-
Quantity of material required	-	-
Waste produced during rehabilitation	kg	-
Consumption and type of energy	kWh	-
Description of the scenario	-	No maintenance should be considered under normal conditions of use.

#### B6 – B7 Use of energy and water:

Parameter	Units	Value/description
Auxiliary inputs specified by material	Appropriated unit	-
Net fresh water consumption	m <sup>3</sup>	-
Type of energy	kWh	-
Equipment Output Power	kWh	-
Characteristic performance	Appropriated unit	-
Other assumptions for developing scenarios	Appropriated unit	-
Description of the scenario	-	Not concerned.

#### 4.3 End-of-life stage C1-C4:



Parameter	Units	Value/description
Quantity collected separately	kg	-
Amount collected with mixed construction waste	kg/m <sup>3</sup>	4,70E+02

Quantity for reuse	kg	-
Quantity for recycling	kg	2,66+02
Quantity for energy recovery	kg	1,23+02
Quantity of product landfilled	kg/m <sup>3</sup>	8,05E+01
Description of the scenario	-	The scenario advocated by the FCBA study report "Strand 2 - Taking into account the end of life of wood products. Phase 1: State-of-the-art on end-of-life scenarios for wood products" has been applied. This scenario is as follows: 57.2% of wood waste is recovered as a material, 25.5% of wood waste is recovered in energy, and 17.3% of wood waste is buried. The adhesive contained in the product is treated by incineration.

### 4.3 Potential for recycling / reuse / recovery, D

Module D has been applied according to the recommendations of the FCBA study report "Strand 2 - Taking into account the end of life of wood products. Phase 3: LCA modeling and impact calculations for material recycling and reuse. "

## 5 INFORMATION FOR THE CALCULATION OF THE LIFE CYCLE ANALYSIS

<b>PCR used</b>	NF EN 15804 + A1 and its national supplement NF EN 15804 / CN. EN 16449 and EN 16485
<b>System Boundaries</b>	The boundaries of the system comply with the limits imposed by standard NF EN 15804 + A1 and its national supplement NF EN 15804 / CN.
<b>allowances</b>	The allocation of data from the two production sites is carried out according to the respective production of the two sites.
<b>Geographical representativeness and temporal representativeness of primary data</b>	Generic data from the ecoinvent 3.3 database Alloc Rec., 2016. Software used : - SimaPro, lifecycle analysis software (V8.3).   - Ev-DEC, (www.ev-dec.com), developed by the consulting firm EVEA (www.evea-conseil.com), which helps in the realization of the FDES.
<b>Variability of results</b>	Not applicable

## 6 RESULTS OF THE LIFE CYCLE ANALYSIS

Environmental impacts	Stage of manufacture			Stage of implementation		Stage of life Implemented							End-of-life stage				D Benefits and Expenses Beyond the Boundaries of the System
	A1 Raw Material Supply	A2 Transport	A3 Manufacturing	A4 Transport	A5 Installation	B1 Usage	B2 Maintenance	B3 Repair	B4 Replacement	B5 Rehabilitation	B6 Energy Use	B7 Water Use	C1 Deconstruction / Demolition	C2 Transport	C3 Waste treatment	C4 Landfill	
Global warming kg CO <sub>2</sub> eq/UF	-7,06E+02	1,24E+01	1,87E+01	8,96E+01	1,01E+01	-	-	-	-	-	-	-	3,31E+00	4,15E+00	7,17E+00	6,65E+02	-2,90E+01
Depletion of the ozone layer kg CFC 11 eq/UF	2,19E-06	2,17E-06	4,64E-06	1,71E-05	1,05E-06	-	-	-	-	-	-	-	6,08E-07	7,91E-07	1,32E-06	4,73E-07	-1,74E-05
Soil and Water Acidification kg SO <sub>2</sub> eq/UF	1,46E-01	5,53E-02	7,14E-02	3,55E-01	5,37E-02	-	-	-	-	-	-	-	2,54E-02	1,64E-02	5,49E-02	2,52E-02	-1,20E-01
Eutrophication kg (PO <sub>4</sub> ) <sup>3-</sup> eq/UF	3,04E-02	9,82E-03	1,08E-02	6,31E-02	8,17E-03	-	-	-	-	-	-	-	5,42E-03	2,92E-03	1,17E-02	8,30E-03	-6,52E-03
Photochemical ozone formation Ethene eq/UF	1,11E-01	5,89E-03	1,04E-02	4,03E-02	7,91E-03	4,89E-08	-	-	-	-	-	-	2,80E-03	1,86E-03	6,07E-03	8,84E-03	-1,62E-02
Abiotic resources depletion (elements) kg Sb eq/UF	5,59E-05	3,43E-05	1,15E-05	2,81E-04	1,48E-04	-	-	-	-	-	-	-	1,20E-06	1,30E-05	2,61E-06	4,96E-06	-1,22E-05
Exhaustion of abiotic resources (fossils) MJ PCI/UF	5,75E+02	1,89E+02	4,45E+02	1,38E+03	1,87E+02	-	-	-	-	-	-	-	4,80E+01	6,39E+01	1,04E+02	4,32E+01	-4,56E+02
Water pollution m <sup>3</sup> /UF	2,35E+01	5,02E+00	6,50E+00	3,29E+01	4,53E+00	-	-	-	-	-	-	-	1,12E+00	1,52E+00	2,42E+00	1,85E+00	-4,84E+00
Air pollution m <sup>3</sup> /UF	9,29E+03	1,44E+03	1,74E+03	9,82E+03	2,34E+03	1,18E-03	-	-	-	-	-	-	4,06E+02	4,54E+02	8,79E+02	4,91E+02	-1,84E+03

Use of resources	Stage of manufacture			Stage of implementation		Stage of life Implemented							End-of-life stage				D Benefits and Expenses Beyond the Boundaries of the System
	A1 Raw Material Supply	A2 Transport	A3 Manufacturing	A4 Transport	A5 Installation	B1 Usage	B2 Maintenance	B3 Repair	B4 Replacement	B5 Rehabilitation	B6 Energy Use	B7 Water Use	C1 Deconstruction /demolition	C2 Transport	C3 Waste treatment	C4 Landfill	
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials MJ PCI/UF	3,20E+01	6,14E+00	1,14E+03	1,93E+01	1,15E+01	-	-	-	-	-	-	-	2,84E-01	8,92E-01	6,15E-01	1,89E+03	-1,23E+02
Use of renewable primary energy resources as raw materials MJ PCI/UF	7,40E+03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-6,31E+03	-
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) MJ PCI/UF	7,43E+03	6,14E+00	1,14E+03	1,93E+01	1,15E+01	-	-	-	-	-	-	-	2,84E-01	8,92E-01	6,15E-01	-4,42E+03	-1,23E+02
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials MJ PCI/UF	5,30E+02	2,05E+02	4,63E+02	1,42E+03	1,58E+02	-	-	-	-	-	-	-	4,84E+01	6,56E+01	1,05E+02	4,46E+01	-2,49E+03
Use of non-renewable primary energy resources as raw materials MJ PCI/UF	1,17E+02	-	-	-	4,18E+01	-	-	-	-	-	-	-	-	-	-	-	-
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) MJ PCI/UF	6,47E+02	2,05E+02	4,63E+02	1,42E+03	1,99E+02	-	-	-	-	-	-	-	4,84E+01	6,56E+01	1,05E+02	4,46E+01	-2,49E+03
Use of secondary material kg/UF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Use of renewable secondary fuels MJ PCI/UF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Use of non-renewable secondary fuels MJ PCI/UF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net use of fresh water m³/UF	6,63E-01	5,15E-02	8,37E-01	2,63E-01	9,84E-02	-	-	-	-	-	-	-	6,62E-03	1,22E-02	1,43E-02	6,72E-02	-6,59E-01

Waste category	Stage of manufacture			Stage of implementation		Stage of life Implemented							End-of-life stage				D Benefits and Expenses Beyond the Boundaries of the System
	A1 Raw Material Supply	A2 Transport	A3 Manufacturing	A4 Transport	A5 Installation	B1 Usage	B2 Maintenance	B3 Repair	B4 Replacement	B5 Rehabilitation	B6 Energy Use	B7 Water Use	C1 Deconstruction / demolition	C2 Transport	C3 Waste treatment	C4 Landfill	
Removed hazardous waste kg/UF	6,34E-01	1,34E-01	1,60E-01	6,01E-01	1,19E+00	-	-	-	-	-	-	-	2,22E-02	2,78E-02	4,81E-02	6,19E-01	-1,98E-01
Removed non-hazardous waste kg/UF	3,68E+00	8,96E+00	7,14E+00	7,25E+01	7,21E+00	-	-	-	-	-	-	-	1,90E-01	3,36E+00	4,11E-01	8,17E+01	-5,04E+00
Removed radioactive waste kg/UF	1,29E-03	1,33E-03	8,11E-04	9,85E-03	5,86E-04	-	-	-	-	-	-	-	3,42E-04	4,56E-04	7,40E-04	2,37E-04	-2,88E-02


Outbound flows		Stage of manufacture			Stage of implementation		Stage of life Implemented							End-of-life stage				D Benefits and Expenses Beyond the Boundaries of the System
		A1 Raw Material Supply	A2 Transport	A3 Manufacturing	A4 Transport	A5 Installation	B1 Usage	B2 Maintenance	B3 Repair	B4 Replacement	B5 Rehabilitation	B6 Energy Use	B7 Water Use	C1 Deconstruction / demolition	C2 Transport	C3 Waste treatment	C4 Landfill	
Components for reuse kg/UF		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Materials for recycling kg/UF		.	.	1,71E-01	.	.	.	.	.	.	.	.	.	.	.	2,66E+02	.	.
Materials for the recovery of energy kg/UF		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Energy supplied outside (by energy vector) MJ/UF	Electricity	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1,14E+02	.
	Vapour	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2,21E+02	.
	Process gas	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Impact category / flows	Unit	Total Manufacturing	Total implementation	Total of life Implemented	Total End-of-life	Total life cycle
Global warming	kg CO <sub>2</sub> eq/UF	-6,75E+02	9,98E+01	-	6,80E+02	1,05E+02
Depletion of the ozone layer	kg CFC 11 eq/UF	9,00E-06	1,82E-05	-	3,19E-06	3,03E-05
Soil and Water Acidification	kg SO <sub>2</sub> eq/UF	2,73E-01	4,09E-01	-	1,22E-01	8,03E-01
eutrophication	kg (PO <sub>4</sub> ) <sup>3-</sup> eq/UF	5,10E-02	7,13E-02	-	2,84E-02	1,51E-01
Photochemical ozone formation	Ethene eq/UF	1,27E-01	4,82E-02	4,89E-08	1,96E-02	1,95E-01
Exhaustion of Abiotic Resources - Elements	kg Sb eq/UF	1,02E-04	4,29E-04	-	2,18E-05	5,53E-04
Exhaustion of abiotic resources -fossils	MJ PCI/UF	1,21E+03	1,57E+03	-	2,59E+02	3,04E+03
Water pollution	m <sup>3</sup> /UF	3,50E+01	3,75E+01	-	6,91E+00	7,93E+01
Air pollution	m <sup>3</sup> /UF	1,25E+04	1,22E+04	1,18E-03	2,23E+03	2,69E+04
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ PCI/UF	1,18E+03	3,08E+01	-	1,89E+03	3,10E+03
Use of renewable primary energy resources as raw materials	MJ PCI/UF	7,40E+03	-	-	-6,31E+03	1,09E+03
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ PCI/UF	8,57E+03	3,08E+01	-	-4,42E+03	4,18E+03
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ PCI/UF	1,20E+03	1,58E+03	-	2,63E+02	3,04E+03
Use of non-renewable primary energy resources as raw materials	MJ PCI/UF	1,17E+02	4,18E+01	-	-	1,59E+02
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ PCI/UF	1,31E+03	1,62E+03	-	2,63E+02	3,19E+03
Use of secondary material	kg/UF	-	-	-	-	-
Use of renewable secondary fuels	MJ PCI/UF	-	-	-	-	-
Use of non-renewable secondary fuels	MJ PCI/UF	-	-	-	-	-
Net use of fresh water	m <sup>3</sup> /UF	1,55E+00	3,61E-01	-	1,00E-01	2,01E+00
Hazardous waste disposed of	kg/UF	9,28E-01	1,79E+00	-	7,17E-01	3,44E+00
Non-hazardous waste disposed of	kg/UF	1,98E+01	7,97E+01	-	8,56E+01	1,85E+02
Removed radioactive waste	kg/UF	3,43E-03	1,04E-02	-	1,77E-03	1,56E-02
Components for reuse	kg/UF	-	-	-	-	-



Materials for recycling	kg/UF	1,71E-01	-	-	2,66E+02	2,66E+02
Materials for the recovery of energy	kg/UF	-	-	-	-	-
Energy supplied outside (electricity)	MJ/UF	-	-	-	1,14E+02	1,14E+02
Energy supplied outside (steam)	MJ/UF	-	-	-	2,21E+02	2,21E+02
Energy supplied outside (gas)	MJ/UF	-	-	-	-	-

## 7 ADDITIONAL INFORMATION ON THE RELEASE OF DANGEROUS SUBSTANCES IN THE AIR, THE SOIL AND WATER DURING THE PERIOD OF USE

SCENARIO	PARAMETER	UNITS	RESULTS
Emission in indoor air	Test results according to CEN / TC 351	a)	
Emissions to soil and water	Description of scenario 1		Sending report No. 2010-10-050-01. The tests meet the requirements of NF EN ISO 16000-9.
	Test results according to CEN / TC 351	a)	No available data
	Description of scenario 1		-

a) Emissions to indoor air, soil and water according to the horizontal standards for the measurement of emissions of regulated dangerous substances from construction products using harmonized test methods in accordance with the provisions of the respective Technical Committees of the Standards Products, where available.

For more information refer to the EeB Guide : <http://www.eebguide.eu/?p=1991>

### 7.1 Indoor Air

#### VOC and formaldehyde emissions

The Cross Laminated Timber (CLT) is rated A + according to the decree of 19 April 2011.

The VOC emissions as a function of the thickness of the CLT product are given in the following table:

Thickness of CLT (mm)	60	160	240	320
Emission of COV ( $\mu\text{g}/\text{m}^3$ )	134	132	132	121

#### Behavior in the face of fungal and bacterial growth

No attempt was made to characterize the behavior of the product in the face of fungal or bacterial growth.

#### Natural radioactive emissions of construction products

No radioactive emissions tests have been conducted on the products.

#### Fiber and Particle Emissions

No fiber and particle emission tests were carried out for the products studied.

## 7.2 Soil and water

The products are not in contact with drinking water but may be in contact with rainwater. However, no tests have been carried out on the release of substances into runoff.

# 8 CONTRIBUTION OF PRODUCTS TO QUALITY OF LIFE WITHIN BUILDINGS

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### **Characteristics of the product involved in the creation of hygrothermal comfort conditions in the building:**

For wood in the corresponding density range, the Austrian standard ÖNORM EN 12524 [3] indicates a thermal conductivity value equivalent to 0.13 W / mK.

### **All the thermal performances claimed by the product can be found on the following document:**

<http://www.clt.info/fr/produits/caracteristiques-techniques/isolation-thermique/>

### **In addition, the fire performance of the product can be found here:**

<http://www.clt.info/en/products/technical-characteristics/protection-counter-client/>

### **Characteristics of the product involved in the creation of acoustic comfort conditions in the building:**

No acoustic performance is claimed here.

### **Characteristics of the product involved in creating the visual comfort conditions in the building:**

Not applicable.

### **Characteristics of the product involved in creating the olfactory comfort conditions in the building:**

Not applicable.