

ENVIRONMENTAL PRODUCT DECLARATION (EPD)



ENVIRONMENTAL PRODUCT DECLARATION FOR MEDIUM DENSITY FIBREBOARDS (MDF) AND FOR MELAMINE FACED MEDIUM DENSITY FIBREBOARDS (MDF)



PCR 2012:01 PRODUCT CATEGORY RULES FOR PREPARING AN ENVIRONMENTAL PRODUCT DECLARATION
FOR CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES (V 2.2)
CPC 314 BOARDS AND PANELS



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ECO EPD
Reference number: **0000572**

This environmental product declaration has been prepared in accordance with ISO 14025 and EN 15804. The geographical scope of this EPD is international. The verifier and the program operator are not responsible for any claims about the product or the legality of the product.

GENERAL INFORMATION	
	Summary Environmental product declaration
EPD® International System Anxo Mourelle Álvarez. EPD Verifier	Verified by
FINANCIERA MADERERA S.A. Carretera (National Road) N-550 km 15890 Santiago de Compostela – A Coruña	Owners declaration by
<p>The product is Medium density fibreboard (MDF), both raw as well as melamine faced.</p> <p>The present environmental product declaration complies with standards ISO 14025, ISO 14040, ISO 14044 , EN 15804 and describes the environmental features and behaviour of the construction product described herein.</p> <p>Its purpose is to promote compatible and sustainable environmental development of related construction methods.</p> <p>All relevant environmental data are disseminated in the present declaration, which has been submitted to independent validation by a third party.</p> <p>Reference PCR document: PCR 2012:01 Construction products and Construction services V 2.01 DATE 2016-03-09.</p>	Declaration as construction products
<p>12th September 2022⁽¹⁾</p> <p>(1) Note: unless there is a variation greater than 10% on the environmental effects in any of the categories of impact.</p>	Validity
<p>This declaration is complete in itself and contains:</p> <ul style="list-style-type: none"> - The product definition and physical data related to the preparation for being used in construction - Details of the base materials and on the origins thereof - Descriptions of how the product is manufactured and the intervening processes - Instructions on how to process the product - Data on the conditions of use, unusual effects, and on the end of the product's life cycle - The results from the total life cycle analysis - Evidence, verifications and tests supporting the stated features. 	Contents of the declaration
2 nd March 2011	Registration data
12 th September 2017.	Issuing date
Sergio Blanco. FINSA Business Unit Director	Manufacturer
Anxo Mourelle. EPD Verifier	Verified by
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  Sergio Blanco. FINSA Business Unit Director </div> <div style="text-align: center;">  Anxo Mourelle Álvarez. EPD Verifier </div> </div>	Signatures

<p>Raw medium density fibreboards (MDF) or melamine faced fibreboards are panel-like products that comply with standards EN 622-1, EN 622-5 and EN 14322. They are considered reliable products used as raw material for the construction and furniture industry.</p> <p>MDF boards can easily be coated with decorative paper, by resorting to simple technologies.</p>	Product description
<p>MDF boards are homogeneous and provide good results in the most demanding machine work. They are stable, as they keep their form and dimensions despite the changes in environment humidity and temperature.</p> <p>The multiple possibilities they offer in terms of framing, coating and finishing imply a greater quality of the end product and provide greater rationalization in terms of work.</p> <p>With the appropriate coating, they are the ideal support for manufacturing doors, frames, home and office furniture, screens, wall coverings, false ceilings and so on.</p> <p>In smaller thicknesses, it is a high-density board, with good wrap behaviour, and which is very easily stapled and curved. They have great homogeneity and dimensional stability.</p> <p>These boards have become the strongest allies of different sectors: industrial electronics, backing of items of furniture, curved structures for furniture and for covering walls, complementary automotive industry, machine packaging, fruit boxes...</p> <p>In greater thicknesses, for architectural applications such as columns, pillars, vaulted passageways, etc. Other possibilities include shelves, bed heads, steps, benches, interior doors with moulded faces, table legs, etc. They are also used as basic material for wood veneering and PVC coatings.</p>	Applications
<p>The Life Cycle Analysis (LCA) was carried out according to standards ISO 14025; ISO 14040; ISO 14044 and EN 15804. Both specific data from the production of the product under analysis as well as the following databases were used: Ecoinvent 3.1. The methods used for calculating the categories of impact were CML-IA BASELINE 4.7 (January 2016) and the Environmental Design of Industrial Products Method (EDIP) 2003.</p> <p>The life cycle analysis covers the production of raw materials and energy, the transportation of raw materials, the actual manufacturing stage, all the way to the shipping stage and the waste processing. The functional unit under consideration is 1 m³ of raw MDF and 1 m² of melamine faced MDF.</p>	Scope of application of the LCA
<p>In addition, the environmental product declaration also considers:</p> <ul style="list-style-type: none"> - That formaldehyde complies with standard EN ISO 12460-5 (Aitim Certification) - CARB P2 Certification - NAF Certification 	Other evidence and verifications

RESULTS
Environmental impact of 1m³ MDF (per m³)

Plain MDF boards (per m3)						
Category	A1	A2	A3	Total [A1+A2+A3]	C3	D
Global warming, excluded biogenic (GWP100) [kg CO ₂ eq/m ³]	5,33E+02	1,47E+01	5,21E+01	6,00E+02	9,12E+00	-8,87E+02
Global warming, (GWP100) included biogenic storage [kg CO ₂ eq/m ³]	-6,64E+02	1,47E+01	5,21E+01	-5,97E+02	9,12E+00	-8,87E+02
Ozone depletion [kg CFC 11 eq/m ³]	3,64E-01	2,54E-06	2,29E-06	3,64E-01	5,77E-07	-1,62E-04
Acidification of land and water [kg SO ₂ /m ³]	1,49E+00	4,47E-02	9,93E-01	2,53E+00	3,96E-02	-2,79E+00
Eutrophication [kg PO ₄ ³⁻ eq/m ³]	2,29E-01	8,50E-03	5,35E-01	7,72E-01	2,34E-02	-4,80E-01
Photochemical ozone creation [kg C ₂ H ₄ eq/ m ³]	6,00E-02	2,50E-03	7,59E-02	1,38E-01	1,79E-03	-1,40E-01
Depletion of abiotic resources (elements) [kg Sb/m ³]	6,76E+03	3,40E-05	3,24E-05	6,76E+03	4,90E-06	-5,78E-04
Depletion of abiotic resources (fossil) [MJ/m ³]	4,61E+03	2,41E+02	2,34E+02	5,08E+03	1,37E+02	-1,48E+04

Environmental impact of 1m² Melamine faced MDF (per m²)

Melamine faced MDF (per m ²)						
Category	A1	A2	A3	Total [A1+A2+A3]	C3	D
Global warming, excluded biogenic (GWP100) [kg CO ₂ eq/m ²]	2,29E+00	5,81E-02	2,04E-01	2,55E+00	3,56E-02	-3,47E+00
Global warming, (GWP100) included biogenic storage [kg CO ₂ eq/m ²]	-2,43E+00	5,81E-02	2,04E-01	-2,17E+00	3,56E-02	-3,47E+00
Ozone depletion [kg CFC 11 eq/m ²]	1,42E-03	1,01E-08	8,95E-09	1,42E-03	2,26E-09	-6,35E-07
Acidification of land and water [kg SO ₂ /m ²]	7,27E-03	1,77E-04	3,88E-03	1,13E-02	1,55E-04	-1,09E-02
Eutrophication [kg PO ₄ ³⁻ eq/m ²]	1,24E-03	3,37E-05	2,09E-03	3,37E-03	9,14E-05	-1,88E-03
Photochemical ozone creation [kg C ₂ H ₄ eq/ m ²]	3,37E-04	9,92E-06	2,97E-04	6,44E-04	7,02E-06	-5,46E-04
Depletion of abiotic resources (elements) [kg Sb/m ²]	2,64E+01	1,35E-07	1,27E-07	2,64E+01	1,91E-08	-2,26E-06
Depletion of abiotic resources (fossil) [MJ/m ²]	2,19E+01	9,56E-01	9,13E-01	2,38E+01	5,37E-01	-5,78E+01

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1. Description of the manufacturing company

1.2 Tradition and innovation

Finsa is a pioneering company in manufacturing particleboards and MDF boards on the Iberian Peninsula.

The company, founded in 1931 as a small saw mill, has kept up sustainable growth even since.

FINSA currently manufactures a wide variety of wood-based products. Over the last few years, investment has focused mostly on expanding the company's international presence and on increasing its production capacity, especially in products with high added value within the technical wood processing chain: particleboards, MDF and melamine faced boards, plywood, veneered wood, frames, kitchen modules, components for furniture, laminate floors, etc.

Thanks to this, FINSA is now a world leader in the sector.

With great enthusiasm grounded in years of experience in the development of wood-based products, we would like you to take advantage of the opportunity to use technical wood boards in your projects and share our investment in the future of this material.



1.3 Entrepreneurial experience

Backed by 60 years dedicated to wood-based products, we are one of the leading companies in Europe.

We have twenty production centers and the most advanced technology in order to ensure the highest level of quality.

We boast a highly qualified human capital who identify with our company's values.



1.4 Future vision

A strong investment in innovation and an environmental policy based on sustainable development.

1.5 Focus on the customer

A swift and reliable logistics network: 450 vehicles out on the road daily.

Wood solutions designs that adapt to the needs of the market.

An entrepreneurial spirit: ready to learn, to improve and to take up new challenges in order to offer greater value to our customers every day.

1.6 Social responsibility

FINSA's commitment towards sustainable growth extends beyond the limits of our manufacturing facilities.

From Nature we get wood, our main raw material, and so our obligation is to respect it and protect it.

We develop initiatives regarding the collaboration with other public and private organizations that foster the protection and efficient management of forests.

1.7 The environment

Through our Environmental Policy we are actively committed to environmental protection.

We want the environmental impact of our manufacturing processes to be as small as possible.

As a result, we are one of the cleanest industries: we generate more energy than we consume processing our products.

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faces, table legs, etc. They are also used as basic material for wood veneering and PVC coatings.

2.3 Main product standards

UNE-EN 622-1:2004 - Fibreboards. Specifications. Part 1: General requirements.

UNE-EN 622-5:2010 - Fibreboards. Specifications. Part 5: Requirements for fibreboards manufactured using dry processes (MDF).

UNE-EN 14322:2004 –Wood-derived boards. Melamine faced boards for indoor use. Definition, requirements and classification.

UNE-EN 13986:2006+A1:2015 – Wood-based panels for use in construction. Characteristics, evaluation of conformity and marking.

2.4 Accreditations and certifications

CE marking according to standard EN 13986 –AENOR certification, if applicable.

AITIM Quality Certification:

Aitim Certification 9-3-05/E1 Medium density fibreboards (MDF) for furniture and carpentry.

Aitim Certification 9-6-01 Melamine boards for indoor applications.

Chain of custody certification PEFC/1435-00006

Chain of custody certification FSC: Certificate Code: TT-COC-003279

Certification CARB Phase 2 and NAF Certification (with no added formaldehyde) if applicable.

EN ISO 14001 – IQNet & AENOR

2.5 Tests and verifications

Formaldehyde:

Raw MDF boards have AITIM quality certification confirming that they comply with all Class E1 requirements (analyzed according to standard EN ISO 12460-5) defined under European Standard EN 622-1:2004.

AITIM Quality Certification:

Aitim Certification 9-3-05/E1 Medium density fibreboards –MDF- for furniture and carpentry.

MDF boards quality E-Z have Certificate of Conformity with CARB phase 2 of formaldehyde emissions, based on standard ASTM E 1333-96 (2002). In addition, the formaldehyde contents of these boards are less than or equal to 3 mg/100 g for dry board, according to standard EN ISO 12460-5.

Certificate of conformity: Formaldehyde Emission Standard: Phase 2 (0.11 ppm) In compliance with the provisions of California Code Regulation 93120 concerning Airborne Toxic Control Measures to reduce Formaldehyde Emissions from Composite Products.

MDF boards if required have NAF Certification – ‘No added formaldehyde resins’ according to section 93120.3, title 17, of the CARB Regulation.

Melamine faced MDF have AITIM quality certification confirming that they comply with all the requirements of European standard EN 14322.

AITIM Quality Certification:

Aitim Certification 9-6-01 Melamine boards for indoor applications.

3. Raw materials and composition

3.1 Primary and secondary materials, and additives

MDF boards with thicknesses ranging from 1.8 mm to 70 mm with an average density of 840 kg/m³, have the following composition:

- Wood (mainly pine and eucalyptus wood used): 80-88%

- Recycled material is identified in accordance with the standard EN 14021
- Resin Urea – Formaldehyde (or others): 6-10%
- Water: 5%-9%
- Paraffin emulsion: 0,2%-0,6 %
- Impregnated paper with MUF resins: 160 g/m²

- Wood: The production of MDF boards uses only green timber, most of which is pine and eucalyptus wood, as well as waste from sawmills.
- UF Glue: consists of a urea-formaldehyde resin.
- Paraffin emulsion: a paraffin emulsion is added to the formulation during the bonding process, thus enhancing the boards' water resistance.
- Resin from melamine-urea-formaldehyde: resin for impregnating decorative paper.

During the board's pressing process resin fully hardens and generates a smooth, hard and resistant surface, upon which the paper can be applied, in the case of coated boards.

NOTE: FINSA raw materials do not require registration under the REACH Regulation.

3.2 Extraction and origin of raw materials:

Wood comes predominantly from regional forest areas. This wood comes from forests situated within a radius of approx. 100 km from the production site. Transportation distances tend to be small in order to keep logistic costs as low as possible with the acquisition of raw materials.

Preference is given to wood certified according to the FSC or PEFC standards in the wood selection process.



PEFC and FSC certified products can be supplied under request.

The adhesive agents and impregnation resins or, if such is the case, the raw materials for their production, come from suppliers situated no further than 150 km away from the production site.

3.3 Local and general availability of raw materials

The wood used in the production of MDF boards is obtained first and mainly from sustainably managed forests. The forest areas from where wood is collected may be forests owned by the company, or private forest areas situated close to the MDF production facilities. Wood selection includes green timber from forest clearing and forestry, as well as waste from saw mills (wood chips).

All resin used, as well as the paraffin emulsion, are synthesized in manufacturing facilities belonging to the Group.

4. Manufacturing process. Key processes (Core Business)

4.1 The different stages of the manufacturing process:

Manufacture of MDF:

1. Debarking the wood trunks
2. Chipping and grinding the wood
3. Cleaning the wood chips and the feeding system from the wood storage
4. Steam digestion of wood chips
5. Refining and de-fibreing
6. Bonding the fibres with resins
7. Drying the fibres in approx. 2-3% of residual contents of humidity
8. Transportation and internal storage of fibres
9. Formation of fibre sheets
10. Compressing the fibre sheets using continuous hot pressing
11. Cutting and edging the fibre strips in order to obtain the required board sizes
12. Sanding the upper and lower surfaces
13. Intermediate storage and packing

From the raw MDF board, the following stages are added in the coating lines:

1. Placing the impregnated paper on the top / lower side of the board surfaces (Forming the 'Sandwich').

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2. Hot pressing
3. Trimming the extra paper on the edges after pressing
4. Classification and piling
5. Packing the product and preparation for shipping.

All waste generated during the production process (waste from cutting the boards, chip waste, and debarking or sanding waste) and which can no longer be reused in the process, is, without exception, forwarded to a thermal reusing process. It is kept in storage in the wood park and fed from the wood park along with the stored material that was purchased in the market.

4.2 Health and safety during production

Throughout the whole process, FINSA's production center adopts preventative measures for workers enforced by the existing standards. As well as preventative measures, this includes regular control of exposure according to the types of risks.

The results obtained are well below the limit values set forth by law and are supervised by the competent authorities.

4.3 Environmental protection throughout the process

The production center complies with all authorizations and permits defined by law, issued by environmental authorities, both with an integrated nature as well as in relation to the protection of the various aspects.

Emissions into the atmosphere: the installation cleanses the exhaust gases from each process to values below the limit values for emissions. Quality control of the

environmental air is supervised by the official surveillance network for air quality. Whenever applicable, FINSA demands that its suppliers provide evidence that they comply with the legal requirements for the value chain.

Water and soil protection: this is a process with a scarce water flow and there is a treatment station for processing all the waters which are then returned to the environment within the limit values set forth by the environmental authorities.

There are protection systems for drainage waters, both for the wood parks and for the plant.

The soils are impermeable and have secondary retention tanks. Additionally, in the chemical storage warehouses, all applicable standards are complied with.



Protection against noise and vibrations: prevention and protection measures have been adapted to guarantee that all legal requirements that have been defined are complied with, both within and outside the facilities.

5. Conditions for use

5.1 Components

The components of the raw and melamine faced MDF correspond to those specified under the item "raw materials". The bonding agents are chemically inert and are strongly bonded to the wood by gelification. Formaldehyde emissions are negligible (at least all boards manufactured by FINSA comply with class E1).

5.2 Environment–Health interactions

Environmental protection:

According to the present state of knowledge, with the appropriate use of the product described there are no risks for water, air or soil.

Health protection:

Health aspects: No health-related damage or limitations are expected under normal conditions of use, as provided for MDF boards. Natural substances present in natural timber could be released in small amounts. With the exception of small amounts of formaldehyde, which are harmless to human health, no emissions of contaminants are detected.

5.3 Useful life

Useful life under conditions of common use is defined through the class of application set forth for the product according to standard EN 622-5.

5.4 End of life of the product

Reuse: At the end of a stage of use of a given building, the boards can be separated and can be reused for the same applications. At the end of a stage of a building, a selective deconstruction and separation of components is desirable. The correct disaggregation and separation allows to the reuse the boards for the same application.

Recycling and other uses: All wooden boards should be reused or recycled whenever possible. If the boards are properly disaggregated and separated, they can be recovered for use with the same or other uses, as well as in the manufacture of new wood-based products.

Whenever this is not possible, their end of life shall be the generation of power at a biomass plant, which is always preferable to sending them to a landfill.

6. Principles and criteria for product Life Cycle Analysis (LCA)

6.1 Definition of declared unit

For this EPD, the concept of "functional unit" applies, following the guidelines established in the reference PCR, since the end of life phase is included within the scope of this environmental product declaration.

The present declaration refers to the manufacture of 1 m³ of raw MDF boards and 1 m² of melamine faced MDF, with average characteristics.

The average density is 840 kg/m³ (± 20 Kg, with relative humidity of around 7 %).

6.2 System limits

The limits that have been selected for the system cover the manufacture of melamine faced MDF, including the production of raw materials up to the point of the final packed product at the factory gate and the waste processing (life cycle designated from Cradle to Gate with Options), following the guidelines of PCR 2012: 01 for construction products and services:

Product stage			Construction process stage		Use Stage								End of life stage				Resource recovery stage
Raw materials	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	MND	X

The Ecoinvent's database was consulted throughout the whole life cycle analysis.

The processes observed in detail were as follows:

- The forest stage, for wood procurement and transportation

- The transportation of all relevant raw materials for the process.
- The manufacturing process of raw MDF boards and melamine faced MDF.
- The packing process and thermal use as the final closure of the life cycle.

- Infrastructure processes fall outside the scope of the system.
- Waste processing: Recycling (this scenario considers downcycling into wood chips)
- Reuse-Recovery-Recycling-potential: it is assumed an energy recovery in a biomass combustion plant with the following efficiencies, established in the PCR in the Annex A, for a waste wood fuel type: heat 90% and electricity 35%. The energy substitutes are heat from natural gas and the Spain electricity mix.

The stage related to the use of raw MDF and melamine faced MDF has not been researched in the present declaration.

Note on the stage of use: the conditions of use, as well as any possible uncommon effects associated with it, were not studied when valuing the life cycle analysis.

6.3 Inclusion of transportation and logistics

The transportation of raw materials and secondary materials that were used, as well as the transportation of the waste that was generated, were also included in the study.

6.4 Period of reference for life cycle analysis

The data used refers to actual production processes during the fiscal year from 01/01/2016 to 31/12/2016. The life cycle evaluation was prepared for Spain as the area of reference.

6.5 Background

The global analysis software, "LCAManager" was used to model the life cycle. All the relevant data to manufacturing and waste disposal were taken from the software database, Ecoinvent 3.1.

6.6 Criteria for calculating the life cycle analysis

The results from the life cycle analysis are based on the following assumptions:

Transportation of all raw materials and / or secondary materials is calculated according to the means of transportation that were used, using data from Ecoinvent 3.1 database.

The power supply companies and the fuel sources that were used at the production site were considered for energy supply.

All waste that is generated during production and which cannot be re-circulated into the process (cutting and milling waste) is directed towards a process of thermal use as biomass fuel.

6.7 Data quality

The data used are less than 5 years old.

All data were obtained directly from FINSA facilities and from suppliers. In order to assess in detail the quality of the data in use, a dual exercise was carried out:

Identification of the primary/secondary nature of each data.

Maximum percentage in mass/energy for any category of impact per stage of the most relevant data.

After analyzing the data, it was concluded that they are very representative and comply with 90% of the primary data required by the applicable standards and regulations.

Viability of all data delivered has been confirmed. All information comes from operational data and from measurements, so data quality can be described as very good.

6.8 Allocation and interpretation criteria

Allocation refers to the allocation of input and output flows to and from a product life cycle module that is being researched according to the criteria set forth under standard ISO 14040.

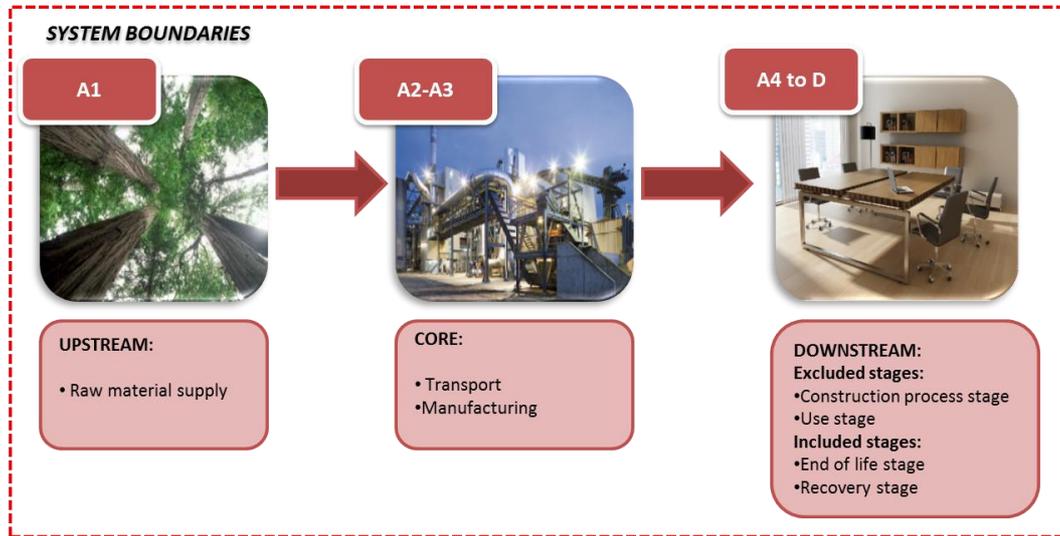
Waste materials from the process, such as wood waste, are used as a source of energy via a biomass boiler. In order to calculate combustion levels, the databases from Ecoinvent 3.1.

Allocation of the different factors of the categories of impact that were studied in the case of electricity consumption was calculated based on the Spanish average for electricity sources. Calculation of emissions (for instance, CO₂, HCl, SO₂ or particles), depending on inputs, was carried out based on emission controls performed periodically at the facilities, as required by the applicable environmental standards and according to the volume of exhaust gases from the emission sources.

6.9 Cut-off rules

ISO 14025 and specifically PCR 2012: 01 for construction products and services, indicate the possibility of applying a criteria of cut to the inventoried data. Although PCR 2012: 01 indicates that Life Cycle

Inventory data for a minimum of 95% of total inflows (mass and energy) to the upstream and core module shall be included, in the present study it has not been taken into account cutting criteria of this type.



7. Results from the Life Cycle Analysis

7.1 Life cycle inventory

The life cycle model that was chosen is called "from cradle to gate with options", covering all the operations from felling timber and cutting the wood required for manufacturing the boards until the fully finished product is obtained and some other modules (end of life and potential benefits).

The data that feed the calculation process represent the manufacturing process of wooden boards for the production period which is indicated in epigraph 6.4. This is mainly primary data for the most part, collected directly from reliable sources that can be divided into the following categories:

- Delivery notes from material delivered or supplied
- Map distances
- Invoices
- Direct measurements

- Counters
- Product data sheets

The actual life cycle analysis is carried out through a spreadsheet, where all the data collected in the inventory are entered and classified, by production stages.

The CML-IA BASELINE 4.7 (January 2016), and EDIP (Environmental Design of Industrial Products) methods are used in order to assign to each data collected, the factors in all categories of impact required for fulfilling the environmental product declaration.

The sum of all data multiplied by each factor of the categories of impact result in the final figure called the ecological footprint. The following table shows the absolute contributions from manufacturing 1 m³ of raw MDF boards and 1 m² of melamine faced MDF, for each category of impact set forth in the applicable standard.

Environmental impact of 1m³ MDF (per m³)

Plain MDF boards (per m ³)						
Category	A1	A2	A3	Total [A1+A2+A3]	C3 Recycling	D
Global warming, excluded biogenic (GWP100) [kg CO ₂ eq/m ³]	5,33E+02	1,47E+01	5,21E+01	6,00E+02	9,12E+00	-8,87E+02
Global warming, (GWP100) included biogenic storage [kg CO ₂ eq/m ³]	-6,64E+02	1,47E+01	5,21E+01	-5,97E+02	9,12E+00	-8,87E+02
Ozone depletion [kg CFC 11 eq/m ³]	3,64E-01	2,54E-06	2,29E-06	3,64E-01	5,77E-07	-1,62E-04
Acidification of land and water [kg SO ₂ /m ³]	1,49E+00	4,47E-02	9,93E-01	2,53E+00	3,96E-02	-2,79E+00
Eutrophication [kg PO ₄ ³⁻ eq/m ³]	2,29E-01	8,50E-03	5,35E-01	7,72E-01	2,34E-02	-4,80E-01
Photochemical ozone creation [kg C ₂ H ₄ eq/ m ³]	6,00E-02	2,50E-03	7,59E-02	1,38E-01	1,79E-03	-1,40E-01
Depletion of abiotic resources (elements) [kg Sb/m ³]	6,76E+03	3,40E-05	3,24E-05	6,76E+03	4,90E-06	-5,78E-04
Depletion of abiotic resources (fossil) [MJ/m ³]	4,61E+03	2,41E+02	2,34E+02	5,08E+03	1,37E+02	-1,48E+04

Environmental impact of 1m² Melamine faced MDF (per m²)

Melamine faced MDF (per m ²)						
Category	A1	A2	A3	Total [A1+A2+A3]	C3 Recycling	D
Global warming, excluded biogenic (GWP100) [kg CO ₂ eq/m ²]	2,29E+00	5,81E-02	2,04E-01	2,55E+00	3,56E-02	-3,47E+00
Global warming, (GWP100) included biogenic storage [kg CO ₂ eq/ m ²]	-2,43E+00	5,81E-02	2,04E-01	-2,17E+00	3,56E-02	-3,47E+00
Ozone depletion [kg CFC 11 eq/ m ²]	1,42E-03	1,01E-08	8,95E-09	1,42E-03	2,26E-09	-6,35E-07
Acidification of land and water [kg SO ₂ / m ²]	7,27E-03	1,77E-04	3,88E-03	1,13E-02	1,55E-04	-1,09E-02
Eutrophication [kg PO ₄ ³⁻ eq/ m ²]	1,24E-03	3,37E-05	2,09E-03	3,37E-03	9,14E-05	-1,88E-03
Photochemical ozone creation [kg C ₂ H ₄ eq/ m ²]	3,37E-04	9,92E-06	2,97E-04	6,44E-04	7,02E-06	-5,46E-04
Depletion of abiotic resources (elements) [kg Sb/ m ²]	2,64E+01	1,35E-07	1,27E-07	2,64E+01	1,91E-08	-2,26E-06
Depletion of abiotic resources (fossil) [MJ/ m ²]	2,19E+01	9,56E-01	9,13E-01	2,38E+01	5,37E-01	-5,78E+01

Use of resources for manufacturing 1 m³ of MDF (per m³)

Plain MDF boards (per m ³)						
Category	A1	A2	A3	Total [A1+A2+A3]	C3 Recycling	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]	5,37E+02	3,61E+00	4,46E+03	5,00E+03	1,63E+01	-7,61E+02
Use of renewable primary energy resources used as raw materials [MJ]	2,96E+01	0,00E+00	0,00E+00	2,96E+01	0,00E+00	0,00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) [MJ]	5,67E+02	3,61E+00	4,46E+03	5,03E+03	1,63E+01	-6,01E+01
Use of non- renewable primary energy excluding non- renewable primary energy resources used as raw materials [MJ]	1,23E+04	2,53E+02	2,66E+02	1,28E+04	1,78E+02	-1,56E+04
Use of non- renewable primary energy resources used as raw materials [MJ]	2,16E+03	0,00E+00	0,00E+00	2,16E+03	0,00E+00	0,00E+00
Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials) [MJ]	1,45E+04	2,53E+02	2,66E+02	1,50E+04	1,78E+02	-9,07E+03
Use of secondary material [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels [MJ]	0,00E+00	0,00E+00	4,54E+07	4,54E+07	0,00E+00	0,00E+00
Use of non-renewable secondary fuels [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water [m3]	1,75E+03	1,02E+01	6,16E+01	1,82E+03	6,74E+01	-2,49E+03

Use of resources for manufacturing 1 m² of Melamine faced MDF (per m²)

Melamine faced MDF (per m²)						
Category	A1	A2	A3	Total [A1+A2+A3]	C3 Recycling	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]	4,18E+00	1,43E-02	1,74E+01	2,16E+01	6,38E-02	-2,98E+00
Use of renewable primary energy resources used as raw materials [MJ]	1,04E+00	0,00E+00	0,00E+00	1,04E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) [MJ]	5,22E+00	1,43E-02	1,74E+01	2,27E+01	6,38E-02	-2,35E-01
Use of non- renewable primary energy excluding non- renewable primary energy resources used as raw materials [MJ]	5,21E+01	1,00E+00	1,04E+00	5,41E+01	6,97E-01	-6,11E+01
Use of non- renewable primary energy resources used as raw materials [MJ]	9,08E+00	0,00E+00	0,00E+00	9,08E+00	0,00E+00	0,00E+00
Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials) [MJ]	6,12E+01	1,00E+00	1,04E+00	6,32E+01	6,97E-01	-3,55E+01
Use of secondary material [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels [MJ]	0,00E+00	0,00E+00	1,78E+05	1,78E+05	0,00E+00	0,00E+00
Use of non-renewable secondary fuels [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water [m3]	7,37E+00	4,03E-02	2,41E-01	7,66E+00	2,64E-01	-9,73E+00

Related waste production 1 m³ of MDF (per m³)

Plain MDF boards (per m³)						
Category	A1	A2	A3	Total [A1+A2+A3]	C3 Recycling	D
Hazardous waste disposed [kg]	2,16E+01	2,22E+01	4,74E+01	9,12E+01	5,48E-01	-1,25E+01
Non-hazardous waste disposed [kg]	6,56E-03	1,38E-04	1,06E-01	1,13E-01	1,76E-04	-1,22E-02
Radioactive waste disposed [kg]	5,59E-02	1,65E-03	1,88E-03	5,94E-02	1,09E-03	-4,70E-02

Related waste production 1 m² of Melamine faced MDF (per m²)

Melamine faced MDF (per m²)						
Category	A1	A2	A3	Total [A1+A2+A3]	C3 Recycling	D
Hazardous waste disposed [kg]	1,00E-01	8,78E-02	1,85E-01	3,73E-01	2,14E-03	-4,87E-02
Non-hazardous waste disposed [kg]	3,92E-05	5,48E-07	4,16E-04	4,56E-04	6,88E-07	-4,76E-05
Radioactive waste disposed [kg]	2,31E-04	6,53E-06	7,35E-06	2,45E-04	4,26E-06	-1,84E-04

8. Other additional environmental information: Balance of GHG emissions

The amount of CO₂ stored in the product was considered for carrying out this balance, according to EN 16449.

The used formula for calculating this content of CO₂ is indicated in point 5 of *EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide*:

$$P_{CO_2} = \frac{44}{12} \times cf \times \frac{\rho_{\omega} \times V_{\omega}}{1 + \frac{\omega}{100}}$$

Where:

P_{CO_2} is the biogenic carbon oxidized as carbon dioxide emission from the product system into the atmosphere (kg)

cf is the carbon fraction of woody biomass (oven dry mass), 0,5 as the default value

ω is the moisture content of the product (5,5 %)

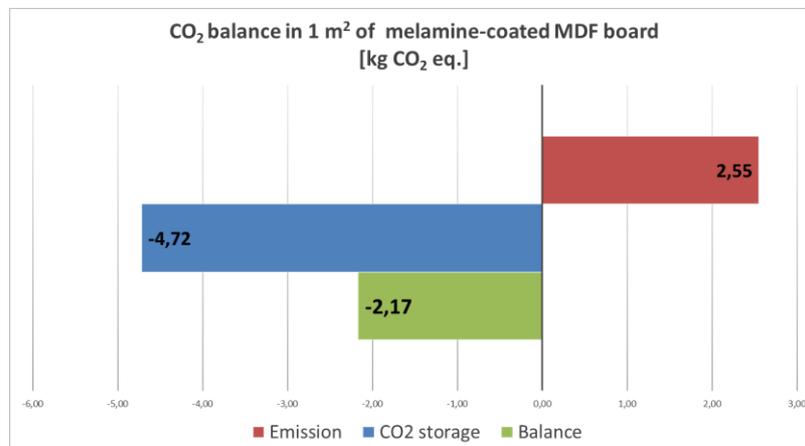
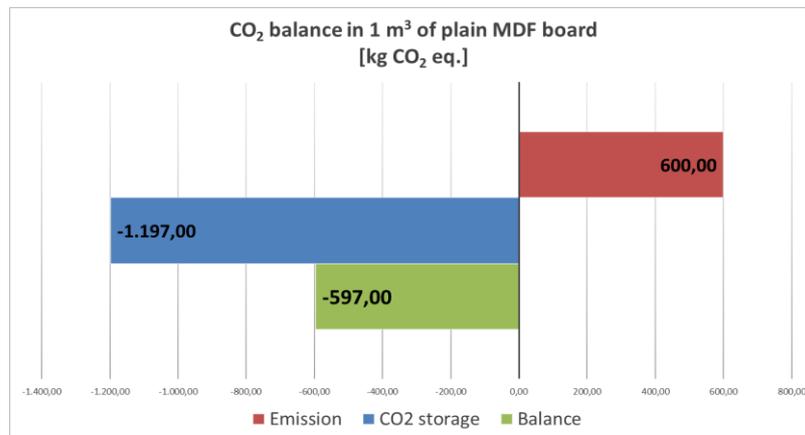
ρ_{ω} is the density of woody biomass of the product at that moisture content (kg/m³)

V_{ω} is the volume of the solid wood product at that moisture content (m³)

The CO₂ balance in figure 1, shows that manufacturing 1 m³ of raw MDF board [A1+A2+A3] generates 600 kg of CO₂ per m³, and in the case of melamine faced MDF it generates 2,55 kg of CO₂ per m².

On the other hand, a total of 1.197 kg of CO₂ per m³ is the biogenic carbon (according to EN 16449) in raw MDF boards. The overall balance is -597 kg CO₂ eq.

A total of 4,72 kg CO₂ per m² is the biogenic carbon in MDF boards coated with melamine. The overall balance is -2,17 kg of CO₂ eq.



9. Validity of the declaration

The validity established for the environmental declaration for medium density fibreboards (MDF), both raw and melamine faced, is 5 years (until 12th September 2022); as the sensitivity of former years has been tested and there are no variations over 10 % regarding the environmental effects in any of the categories of impact.

10. Verification

EPD program and operator:	<p>The International EPD® System</p> <p>Box 210 60, SE-100 31 Stockholm, Sweden.</p> <p>www.environdec.com</p>
CEN standard EN 15804 served as the core PCR	
PCR:	PCR 2012:01 Construction products and Construction services, Version 2.2, 2017- 05-30
PCR review was conducted by:	<p>The Technical Committee of the International EPD® System. Chair: Filippo Sessa</p> <p>Contact via info@environdec.com</p>
Independent verification of the declaration and data, according to ISO 14025:	<input type="checkbox"/> EPD process certification (Internal) <input checked="" type="checkbox"/> EPD verification (External)
Third party verifier:	Anxo Mourelle Álvarez. EPD Verifier
Accredited or approved by:	The International EPD® System
<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: left;">  FINSA </div> <div style="text-align: right;"> <p>FINANCIERA MADERERA S.A.</p> <p>Polígono Industrial de Rábade (Industrial Site) (Apdo. 6)</p> <p>27370 Rábade (Lugo) Spain</p> </div> </div>	

EPD of construction products may not be comparable if they do not comply with EN 15804. Environmental product declarations within the same product category from different programs may not be comparable. More information about the certification system in the Environdec website: www.environdec.com

11. Annexes

11.1 Life Cycle Model



11.2 Technical features and Standard Formats

Raw MDF boards manufactured by FINSA have different denominations depending on their thickness:

Fibranor: thicknesses less than or equal to 7mm

Fibrapan: thicknesses between 7 and 30 mm

Iberpan: thicknesses over 30 mm

Fibraplast: thicknesses below 15 mm, between 15 and 20 mm and over 20 mm

MDF boards, either raw or melamine faced are available in a wide range of sizes which can be found in our website:
www.finsa.com

11.3 REACH declaration



Departamento de Calidad
Ctra. A Coruña - Tui, km. 57
15884 Santiago de Compostela (A Coruña)
España.
e-mail: p.lopre@finsa.es

Asunto: Reglamento REACH

Estimado CLIENTE:

El motivo de la presente es informarle que de acuerdo a las directrices del **Reglamento Europeo REACH** (Registration, Evaluation, Authorisation and Restriction of Chemicals) que entró en vigor el 1 de Junio de 2008, se establece la obligación de realizar un registro para todo aquel que introduzca sustancias químicas en el mercado comunitario a partir de 1 tonelada anual, ya sean fabricantes o importadores de sustancias, como tales o en forma de preparados. Por tanto, el REACH sólo afecta a sustancias como tales. No se registran ni preparados ni artículos, sólo sustancias.

FINANCIERA MADERERA S.A., se ha comprometido plenamente con el cumplimiento del Reglamento y conoce perfectamente sus obligaciones e implicaciones en REACH. **FINANCIERA MADERERA S.A.** como fabricante de tablero, es considerada usuario intermedio*, por lo que no tiene obligación de registrar sustancia alguna. Corresponde a los **FABRICANTES** o **IMPORTADORES** de dichas sustancias el pre-registro y registro de las mismas en los plazos previstos.

No obstante, derivadas de las obligaciones que le corresponden como usuario intermedio hará todo lo posible por cumplir con lo siguiente:

- **Asegurarse de que sus proveedores pre-registren todas las sustancias utilizadas en su proceso productivo, para su uso concreto.**
Para tal fin, ha contactado con ellos, comunicando sus usos, para que las pre-registren, ajustándose a las exigencias de REACH y según el calendario establecido en el Reglamento.

FINANCIERA MADERERA S.A. utilizará únicamente materias primas que estén pre-registradas y autorizadas para su uso específico.

- Además, **FINANCIERA MADERERA S.A.** como proveedor de un artículo tiene la obligación de transmisión de información sobre las 'sustancias altamente preocupantes' que contenga (en cumplimiento al Art.33 del Reglamento Reach). Dado que **FINANCIERA MADERERA S.A.** no utiliza en la fabricación de sus productos ninguna de estas sustancias, no se requiere notificación alguna a nuestros clientes.

Para evitar una carga administrativa innecesaria **FINANCIERA MADERERA S.A.** no va a responder cuestionarios individuales sino que utiliza este documento para informar de la su posición respecto al REACH.

Esperando que esta información le sea de utilidad, reciba un cordial saludo,



Javier Portela

11.4 Commitment letter



La aplicación del Reglamento Europeo de la Madera *Información para nuestros Clientes*

El Reglamento Europeo de la Madera (EUTR) UE n°995/2010

A partir del 3 de marzo 2013, todos los estados miembros de la UE habrán puesto en marcha su legislación nacional para implantar el Reglamento Europeo de la Madera. El objetivo es prohibir la importación de productos de madera de origen ilegal en la UE.

Cualquier empresa que importe productos de madera de fuera de la UE es responsable de garantizar su origen legal gestionando un sólido sistema de debida diligencia para verificar la legalidad. Los estados miembros de la UE analizarán regularmente sus importaciones y harán seguimiento siempre que exista preocupación por una posible ilegalidad.

Los Estados miembros también tendrán la obligación de investigar activamente la legalidad de cualquier importación en la que "un denunciante", haya expresado su preocupación.

La Política del Grupo Finsa

Desde 2004 Grupo Finsa tiene implantado un sistema de certificación de cadena de custodia PEFC / FSC certificado, que le permite suministrar productos de madera certificada a nuestros clientes.

Como valor de empresa, el Grupo Finsa evita cualquier fuente controvertida (basado en las categorías de madera controlada FSC) y progresivamente va aumentando los volúmenes de madera certificada FSC / PEFC para cumplir con nuestros objetivos de sostenibilidad.

La Política del Grupo Finsa (en cumplimiento de Madera Controlada FSC) excluye, la utilización de:

- Madera extraída ilícitamente;
- Madera extraída en violación de derechos tradicionales y civiles;
- Madera aprovechada en bosques cuyos altos valores de conservación estén amenazadas por actividades de manejo;
- Madera aprovechada en bosques que se estén convirtiendo a plantaciones o usos no forestales;
- Madera de bosques en los que se planten árboles modificados genéticamente.

La organización controla el mantenimiento de la documentación que acredite el origen de cada uno de los artículos que compra.

Además, FINSA dispone de un sistema de diligencia debida para el cumplimiento del Reglamento Europeo de la Madera (EUTR) UE n° 995/2010.

Enero 2013

11.5 Certificate SDD FINSA EUTR995 2010**Certificado de Conformidad**

AENOR

SDD-2016/0003

AENOR, Asociación Española de Normalización y Certificación, certifica que

FINANCIERA MADERERA, S.A.

con domicilio social en: CR A CORUÑA – TUL KM 57

15884 SANTIAGO DE COMPOSTELA (A CORUÑA) España

dispone de un Sistema de Diligencia Debida conforme con: RP B54.03 rev. 01. Reglamento Particular para la Certificación AENOR del Sistema de Diligencia Debida de acuerdo con el Reglamento (UE) N° 995/2010.

Para el alcance: Detallado en el anexo al certificado

Fecha de primera emisión: 2016-09-06
Fecha de expiración: 2019-09-06
AENOR Asociación Española de Normalización y Certificación
Agustín BRITO MARQUINA
Gerente General de AENOR**AENOR** Asociación Española de Normalización y Certificación | Génova, 6. 28004 Madrid, España
Tel. 902 302 202 - www.aenor.es

11.6 Managing finished products

Recommendations for storing products:

All products should always be stored under a roof and on a flat surface.

The optimal storage conditions are 65% relative humidity, and either more humid or drier environments should be avoided.

Always avoid any direct contact with water.

Runners should always be vertically aligned.

The maximum storage height is 4 bales.

If packaging gets damaged during handling, it must be repackaged for the proper conservation of the product.

Recommendations for processing the product:

Raw or melamine faced mdf can be normally sawn and drilled using common tools. The corresponding IPEs should always be used, for instance, a mask when hand tools are used without a dust-extracting device.

Labour and environmental protection:

All standard safety measures should be applied when processing or installing particleboards. Such measures are specified in the product handbooks that are delivered to the customer.

The main effects on the environment during the preparation stage of finished products refer to dust

emissions which can be prevented using conventional extraction systems.

Waste such as waste from packing the product, is non-hazardous waste that complies with the criteria set forth in the European Directive and can be handled according to the guidelines set forth in the appropriate facilities, for proper recycling (plastic waste, retractable film, strips, etc).

Waste materials

Waste material accumulated during installation or processing work (cutting and package waste) shall be collected and separated according to their type and according to the applicable type at the point of destination. Wood components re-enter the process as fuel for biomass boiler.

Environment–Health interactions

According to the current status of knowledge, under the appropriate use of the product described, there are no risks for water, air and soil.

In addition, no health-related damage or limitations are expected under normal conditions of use, as provided for particleboards. During their use, natural substances present in natural timber could be released in small amounts. With the exception of small amounts of formaldehyde, which is harmless to human health, no significant levels of emissions of contaminants are detected.

11.7 Uncommon effects

Fire:

Fire reaction

Fire reaction of board or melamine faced boards with thickness > 9mm and density > 600 kg/m³

Main classification according to Combustibility: D according to standard EN 13501-1 (Cf requirements set forth under standard EN 13986)

Additional classifications:

Smoke opacity: s2, s1 average opacity

Fall of swollen drops or particles: d0 no drops or particles fall.

Fire reaction boards, either raw or melamine faced:

Main classification according to Combustibility: B according to standard EN 13501-1 (Cf requirements set forth under standard EN 13986)

Fire-fighting measures:

Special measures: Not classified as inflammable. Its complete combustion releases carbon dioxide (CO₂), with carbon monoxide (CO) released whenever there is incomplete combustion.

Individual protection equipment:

Self-contained breathing equipment should be used in the event of major fires.

Means of extinction: Water, chemical powder or foam.

Stability and reactivity:

Conditions to be avoided: Unknown

Materials to be avoided: Unknown

Hazardous decomposition products: Cf fire-fighting measures

Toxicological information:

Acute toxicity (irritation, sensitivity etc.): Unknown



Chronic effects: Risk of slight skin irritation and risks to the respiratory tract.

Ecological information:

Level of degradability: 100 %

Mobility: Boards are not water soluble

Ecotoxicity: LC 50: not available

IC 50: not available

Effects upon water:

There are no components that can be dangerous for wash water. The wooden boards are not resistant to continued water exposure. The recommendations for use should be complied with.

Mechanical destruction:

The standard of rupture of a board demonstrates relatively fragile behaviour, and sharp edges may develop (injury risks).

11.8 References

PCR 2012:01 Construction products and Construction services v2.01 Date:2016-03-09

Requirements for Environmental Product Declarations, EPD, (MSR 1999:2), published by the Swedish Council for Environmental Management available at: www.environdec.com

The international standards of reference are as follows:

ISO 14040:2006, Environmental management. Life cycle analysis. Principles and reference framework

ISO 14025:2006 Labels and environmental declarations. Environmental declarations type III. Principles and procedures

ISO 14044:2006, Environmental management. Life cycle analysis. Requirements and guidelines

EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

UNE-EN 622-5:2010, Fibreboards. Specifications. Part 5: Requirements for fibreboards manufactured using dry processes (MDF).

UNE-EN 14322:2004 – Wood-based panels. Melamine faced boards for interior uses. Definition, requirements and classification.

UNE-EN 13986:2006+A1:2015 - Wood-based panels for use in construction. Characteristics, evaluation of conformity and marking

EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide.

11.9 Product pictures



Figure 1: Finished product (raw MDF boards)



Figure 2: Packed product ready for shipping (MDF boards)



Figure 3: Finished product (Melamine faced MDF boards)



Figure 4: Packed product ready for shipping_Melamine faced MDF boards