Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019 for:

Particleboards and Melamine Faced Particleboards

from

Financiera Maderera S.A.

Programme:	The International EPD® System, www.environdec.com
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General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 Construction products (EN 15804:A2) Version 1.11
PCR review was conducted by: The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via info@environdec.com.
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☒ External ☐ Internal Covering ☐ EPD process certification ☒ EPD verification
Third party verifier: Anxo Mourelle Álvarez. EPD Verifier. Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804:2012+A2:2019. For further information about comparability, see EN 15804:2012+A2:2019 and ISO 14025:2006.

Company information

Owner of the EPD: Financiera Maderera S.A.

Description of the organisation:

Tradition and innovation

FINSA is a pioneering company in manufacturing particle chip boards and MDF boards on the Iberian Peninsula. The company, founded in 1931 as a small sawmill, 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 and melamine faced MDF 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.

Entrepreneurial experience

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

Future vision

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

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.

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.

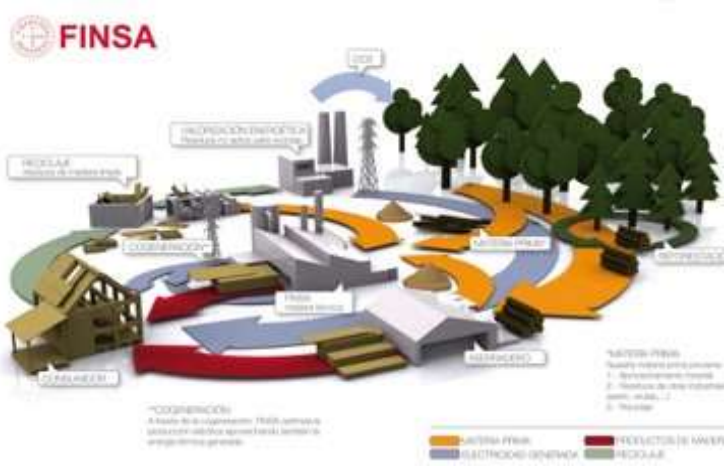
We develop initiatives regarding the collaboration with other public and private organizations that foster the protection and efficient management of forests.

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.

Our production processes are optimized in order to achieve the maximum level of energy savings and achieve a minimum level of waste.

In addition, the waste generated by our activity can be reincorporated to the process or if it is not possible, it is used for generating energy through our biomass production facilities.

The life cycle model is the model specified below:



Scope of application of the Declaration
The present document applies to particleboards and to melamine faced particleboards, manufactured by the Finsa Group.

Product-related or management system-related certifications:

- CE marking according to standard EN 13986 – AENOR certification, if applicable.
- AITIM Quality Certification:
  - Particleboards for carpentry and furniture: 2-4-02, 2-5-01 and 2-6-01.
  - Wood based panels with improved behaviour against fire: 7-1-01 and 7-6-01.
  - Melamine faced boards for interior uses: 2-8-01
- CARB Phase 2 Certification
- Certification of chain of custody PEFC.
- Certification of chain of custody FSC.
- Certification ISO 38200.
- EN ISO 14001 – IQNet & AENOR

Name and location of production site(s):
FINANCIERA MADERERA S.A.
Carretera (National Road) N-550 km 15890,
Santiago de Compostela – A Coruña

Estrada Nacional 234, Km 92.7,
Aptdo. 23,
3524-952 Nelas (Portugal)

Contact:
Pablo Figueroa López
FINSA Executive Comittee

Product information

Product name: Raw particleboards and melamine faced particleboards.

Product description:

Product definition
The products to be verified herein are the raw wood based particleboards as well as the melamine faced variety.

Particleboards are products manufactured from carefully selected wood. The most appreciated features are their smooth surface and the homogeneity of their inner layer. The most common applications are found in the furniture and construction industries.

These boards are made of three layers of chipped wood bonded together by synthetic resins through flat pressing at high temperatures and then sanded.

Raw particleboards comply with standard EN 312 and the melamine faced particleboards comply with standard EN 14322.

Particleboards can easily be coated with decorative paper impregnated with melamine by resorting to simple technologies.

Particleboards are classified into different types according standard EN 312.

Boards are initially classified according to their use, as structural or non-structural; and according to the environment where they are used, as dry and humid.

Planned applications
Particleboards have a smooth and homogeneous surface that tolerates any type of coating.

This type of board is a significant reference in the furniture industry, for manufacturing interior doors, screens, cupboards, and in general for any indoor use in dry environments. Forty years in the market endorse it has a reliable raw material in all those applications.

Main product standards

- EN 312:2010 – Particleboards. Specifications.
- EN 14322:2017 – Wood-based panels. Melamine faced board for interior uses. Definition, requirements and classification.
- EN 13986:2006+A1:2015 - Wood-based panels for use in construction. Characteristics, evaluation of conformity and marking.

Product Certifications

- Particleboards have AITIM quality certification confirming that all comply at least with Class E1 requirements (according standard EN ISO 12460-5) and under European Standard EN 312:2010.
- Aitim Certification Particleboards for furniture and wood finishings.
- E-Z-quality particleboards have Certificates of Conformity with phase 2 CARB 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 of dry board, according to standard EN ISO 12460-5.
- Certificate of conformity: Formaldehyde Emissions Standard: Phase 2 (0.09 ppm).
- In compliance with the provisions of the California Code Regulation 93120 concerning Airborne Toxic Control Measures to reduce Formaldehyde Emissions from Composite Products.
- Melamine faced boards have AITIM quality certification confirming that they comply with all the requirements of European standard EN 14322.

UN CPC code: 314 Boards and panels

Responsible Product Certifications

Extraction and origin of raw materials:
Wood comes predominantly from regional forest areas. This wood (including recycled wood) comes from woods situated within a radius of approx. 100 km from the production site. Transportation distances tend to be small in order to keep logistics costs as low as possible with the purchase of raw materials. Preference is given to woods certified according to the FSC or PEFC standards in the wood selection process.

Forest Certifications:

- PEFC & FSC
  Wood is a sustainable and 100% recyclable material that helps to fight climate change. We buy certified wood; we certify our forests, and we help our suppliers to obtain their certification. Since 2004 FINSA group has implemented a chain of custody certification system PEFC/FSC® which allows us to supply certified wood products to its customers.

FSC www.fsc.org FSC® C041397 The mark of responsible forestry

PEFC PEFC/14-35-00006 www.pefc.org

  PEFC- and FSC-certified products can be supplied under request.

- EUTR
  As a sign of transparency, FINSA voluntarily certifies compliance with the EU regulation 995/2010 on the legal origin of wood.

EUTR

- ISO 38200
  Finsa has ISO 38200 certification. Globally valid standard for the transmission of the information throughout the supply chain of wood and its derived products.

Cradle to Cradle

In 2018, work began to obtain C2C Multi-attribute Certification to ensure that a product is safe and “circular”. It is a certification directly connected with the SDGs.

Product transparency-DECLARE

Voluntary outreach program that aims to transform the building materials industry towards heathier products through the transparency of it ingredients. All Declare-stamped materials have 99.99% ingredient declarations.

HPD-Health Assesssment

A Heath Product Declaration is a document shared by manufacturers to disclose a product´s ingredients and associated health hazards.

The Material Health Certificate

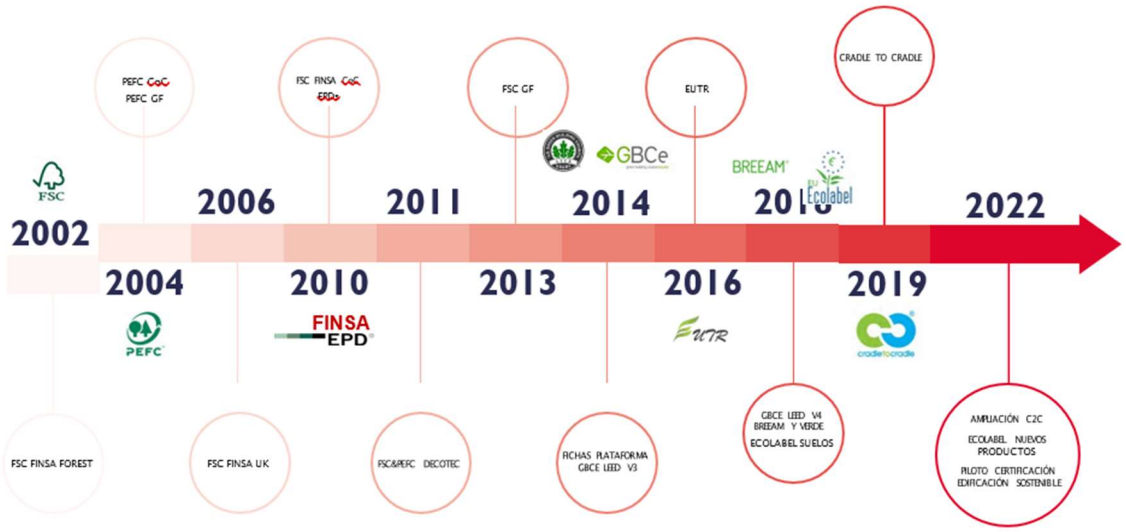
Based on the rigorous health evaluation methodology of the Cradle to Cradle standard, the materials are evaluated promoting healthier and safer products.

Ecolabel

Voluntary seal created by the EU in 1992 of environmental excellence for products/services that meet high ecological standards throughout their life cycle. We currently have our laminate floors certified.

Sustainable building certifications

- BREEM, LEED, VERDE, WELL y LBC
  FINSA materials help meet the requirements of sustainable building certifications. Our products are validated by the GBCe and can be consulted on their materials platform.



Local and general availability of raw materials:

The wood used in the production of particleboards is obtained, first and mainly, from sustainably managed forests. The forest areas where wood is collected can be areas owned by the company or private forest areas situated close to the wood board production facilities. Wood selection includes green timber from forest clearing and from forestry, as well as waste from sawmills (wood chips), and a percentage is recycled wood from the recovery of packages, waste from industrial processes and from contaminant-free wood finishings.

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

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

Manufacturing process. Key processes (Core Business)

The different stages of the manufacturing process:

Manufacture of particleboards:

1. Debarking the wood trunks.
2. Splinting and grinding the wood.
3. Chipping.
4. Sifting.
5. Drying – generation of the wood mix.
6. Classification, sieving.
7. Refining mills.
8. Bonding.
9. Formation of the wood sheet.
10. Pressing.
11. Mechanical cooling.

12. Cut to size.
13. Sanding of the upper and lower surfaces.

Manufacture of Melamine faced particleboards:

1. Placing the impregnated paper upon the upper / lower sides of the board surfaces (Forming the "Sandwich").
2. Hot pressing.
3. Trimming the extra paper on the edges after pressing.
4. Classification and pilling.
5. Packing the product and preparing for shipping.

All the 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, are, with no exceptions, forwarded to a thermal reusing process.

Health and safety during production:
Measures for preventing health risks during the manufacturing process:

Due to the conditions of the production process, it is not necessary to adopt safety and health measures beyond those required by the regulations in force.

Regarding control of emissions, in all cases the measurements obtained are well below the limit values that are established.

Environmental protection throughout the process:
Air: The exhaust air resulting from the production processes is cleansed according to the legal requirements. All emissions are well below the limits.

Water / soil: No water or soil contaminants are produced. All waste is collected by type and is managed and transported by duly authorized waste management operators. Waste waters from the production process are processed internally and are re-circulated into the production line or diverted into the municipal water collector, in compliance with legal requirements.

Noise protection measurements show that all readings, both within and outside the production plant, are below the required limit levels.

LCA information

Declared unit:

For this EPD, the concept of "unit declared" applies instead of "functional unit", following the guidelines established in the reference PCR.

The present declaration refers to the manufacture of 1 m^3 of particleboards and 1 m^2 of melamine faced particleboards, with average characteristics.

The average density is 680 kg/m^3 (± 20 Kg, with relative humidity of around 7 %).

System limits:
The limits that have been selected for the system cover the manufacture of melamine faced particleboards, including the production of raw materials up to the point of the final packed product at the factory gate (life cycle designated from cradle to gate with C1-C4 and D).

The Ecoinvent 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.
- Transportation of all relevant raw materials for the process.
- Manufacturing process of plain boards and melamine-coated boards.
- Packaging and thermal use as the final closure of the life cycle.
- Infrastructure processes fall outside the scope of the system.

The stage related to the use of particleboards and melamine faced boards has not been researched in the present declaration. The end of the life cycle scenarios are explained in detail in the point *"LCA Scenarios and additional technical information"*.

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.

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.
Time representativeness:
The data used refers to actual production processes during the fiscal year 01/01/2020 to 31/12/2020. The life cycle evaluation was prepared for Spain and Portugal as the areas of reference.

Database(s) and LCA software used:
All the data used to model the process and obtain the Life Cycle Inventory are specific data and have been obtained by measurements made during the year 2020. They are representative of the different processes implemented during the manufacturing process. The data has been measured directly at production factories. In addition, the most complete and highest quality European life cycle inventory database, Ecoinvent 3.6, has been used, as this database contains the most extensive and updated information and its scope coincides with the geographical, technological and temporal area of the project. The LCA was modelled with Simapro 9.1.1.1. Characterization factors from EN15804: 2012 + A2:2019. The geographical coverage is international. Technological coverage is typical or average.
Description of system boundaries:
According to the standard EN 15804:2012+A2:2019 UNE-EN 15804_2012+A2_2020 (MARCH 2020) and PCR 2019:14 CONSTRUCTION PRODUCTS (version 1.11) the system boundary is cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). The life cycle stages A4-A5, B1-B7 were excluded from the LCA study.

System diagram:

Author of the Life Cycle Assessment:

IK Ingenieria
Av. Cervantes 51,Edif. 10, panta 5, dpto. 7
48970 Basauri, Bizkaia (Spain)

Data quality:

The data used are less than 5 years old. All data were obtained directly from the FINSA facilities where particleboards and melamine faced particleboards are produced. All input and output data from Finsa were made available. Thus, it can be assumed that the data are fairly representative. 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.

Assumptions:

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

- ✓ It does not include the manufacturing processes of the capital goods or spare parts and/or maintenance with a life of more than three years.
- ✓ The environmental impact of infrastructure for general management, office, and headquarters operations is not included.
- ✓ The impact caused by people (common activities, travel for work...) will not be considered.
- ✓ The processes associated with fuel production are intrinsically included in the indicators in ECOINVENT's database used in carrying out the LCA.
- ✓ Transportation of all raw materials and / or secondary materials is calculated according to the means of transportation that were used, using data from Ecoinvent 3.6. 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.
- ✓ It is assumed that the closure of the life cycle is the thermal use of waste at a biomass generation plant.

Cut-off rules:
ISO 14025:2006 and specifically the PCR -"2019:14 CONSTRUCTION PRODUCTS", indicate the possibility of applying a criterion of cut to the inventoried data. Although PCR 2019:14 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.

Allocation.
Where necessary, such us auxiliary materials, water, waste generation, emissions and energy consumption, an allocation based in mass has been used.

Greenhouse gas emission from the use of electricity in the manufacturing phase
The electricity mix used to produce certain raw materials and the in−factory production process is based in the year 2020. Specific supplier electricity mix, high voltage (direct emissions and losses in grid) electricity is considered for the manufacturing process.

Electricity mix	Amount	Units
Supplier pecific electricity	2,10E-01	Kg CO2-eqv/kWh

LCA Scenarios and additional technical information

Dismantling/demolition (module C1):
Since they are not products with a structural use, the energy consumption of this phase is considered not relevant.

Transport (module C2):
With a collection rate of 100%, the transports are carried out by lorry (EURO 6) over 50 km.

Waste processing (modules C3 and C4):
A recycling ratio of 80,4 %, energy recovery ratio of 6,1 %, incineration ratio of 12,0 % and a landfilled ratio of 0,9% is considered in accordance with the publication of the H2020 project" Absorbing the Potential of Wood Waste in EU Regions and Industrial Bio-based Ecosystems — BioReg" document" D1.1 EUROPEAN WOOD WASTE STATISTICS REPORT FOR RECIPIENT AND MODEL REGIONS" for europe (https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5bf1792ce&appId=PPGMS). These percentages are representative of the areas where the product is marketed.

In module C3 the boards waste treatment (chipping) is considered. In module C4 the impact of incineration process and the landfilling.

Recyclability potentials (module D):
Module D contains credits from the recycling and energy recovery of the boards in module C3. For the recycling process is considered that the board is collected and recycled for use in substitution of virgin wood chips. For energy recovery, use in substitution of natural gas, to produce heat and electricity.

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	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
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	**X**	**X**	**X**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**X**	**X**	**X**	**X**	**X**
Geography	**ES**	**ES**	**ES**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ES**	**ES**	**ES**	**ES**	**ES**
Specific data used	>90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	No applicable					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	No applicable					-	-	-	-	-	-	-	-	-	-	-	-

Content information

Particleboards with thicknesses ranging from 4 mm to 50 mm, and with an average density of 680 kg/m^3 have the following composition:

- Wood: pine and eucalyptus wood are used for manufacturing particleboards; a small percentage consists of recycled material from recuperated packages (wooden pallets), waste from industrial processes and from contaminant- free wood finishings (80-88%).
- Recycled material is identified under the standard EN 14021.
- Resin: melamine-urea-formaldehyde (or others): board and impregnating decorative paper (6-10%).
- Water: 5-9%.
- Paraffin emulsion: added to the formulation during the bonding process, thus enhancing water resistance (0.2-0.6 %).
- Impregnated paper with MUF resins: 160 g/m^2.

During the board-pressing process, resin fully hardens and produces a hard and resistant surface.

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

The content information per 1m^3 is as follows:

Product components	**Weight, kg**	**Post-consumer material, weight-%**	**Renewable material, weight-%**
Wood	544,00-598,40	22,30%	100,00%
Melamine-urea-formaldehyde resin	40,80-68,00	0,00%	0,00%
Water	34,00-61,20	0,00%	0,00%
Paraffin emulsion	1,36-4,08	0,00%	0,00%
Impregnated paper	0,00-13,60	0,00%	0,00%
TOTAL	680	7,38%	84,00%
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	
Cardboard	0,54	0,08%	
strap	0,01	0,00%	
TOTAL	0,55	0,08%	

Packaging: The product is transported to the customers protected carboard and straps.

No substances included in the Candidate List of Substances of Very High Concern for authorization under REACH Regulations are present in the Particleboards and for melamine faced particleboards manufactured by FINSA, either above the threshold for registration with the European Chemicals Agency or above 0,1% (wt/wt).

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804:2012+A2:2019

The following tables show the environmental impact for manufacturing 1 m^3 of particleboard and 1 m^2 of melamine faced particleboard:

Results per declared unit-1 m^3 of particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,17E+02	0,00E+00	5,92E+00	5,86E+00	7,99E-01	-1,37E+02
GWP-biogenic	kg CO_2 eq.	-9,44E+02	0,00E+00	4,49E-03	1,76E-01	1,20E+02	3,34E+01
GWP-luluc	kg CO_2 eq.	4,03E-01	0,00E+00	1,80E-03	1,32E-02	2,14E-04	-2,74E-01
GWP-total	kg CO_2 eq.	-7,27E+02	0,00E+00	5,93E+00	6,05E+00	1,21E+02	-1,04E+02
ODP	kg CFC 11 eq.	6,96E-05	0,00E+00	1,45E-06	4,90E-07	1,22E-07	-1,72E-05
AP	mol H^+ eq.	1,58E+00	0,00E+00	1,91E-02	3,24E-02	2,62E-02	-1,70E+00
EP-freshwater	kg PO_4^{3-} eq.	3,31E-03	0,00E+00	4,71E-05	6,04E-04	1,59E-05	-4,33E-03
EP-freshwater	kg P eq.	1,02E-02	0,00E+00	1,45E-04	1,85E-03	4,88E-05	-1,33E-02
EP-marine	kg N eq.	9,67E-01	0,00E+00	4,18E-03	4,33E-03	1,24E-02	-1,88E-01
EP-terrestrial	mol N eq.	5,09E+00	0,00E+00	4,66E-02	5,31E-02	1,39E-01	-6,40E+00
POCP	kg NMVOC eq.	2,68E+00	0,00E+00	1,83E-02	1,38E-02	3,66E-02	-7,68E-01
ADP-minerals&metals*	kg Sb eq.	3,53E-03	0,00E+00	1,05E-04	2,26E-05	5,09E-06	-1,66E-03
ADP-fossil*	MJ	6,23E+03	0,00E+00	9,62E+01	1,19E+02	9,65E+00	-2,16E+03
WDP	m^3	3,20E+02	0,00E+00	3,12E-01	1,33E+00	2,72E-01	-8,38E+01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Results per declared unit- 1 m^2 melamine faced particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	4,28E+00	0,00E+00	9,89E-02	9,79E-02	1,33E-02	-2,28E+00
GWP-biogenic	kg CO_2 eq.	-1,60E+01	0,00E+00	7,50E-05	2,94E-03	2,01E+00	5,58E-01
GWP-luluc	kg CO_2 eq.	8,74E-03	0,00E+00	3,01E-05	2,20E-04	3,57E-06	-4,57E-03
GWP-total	kg CO_2 eq.	-1,17E+01	0,00E+00	9,90E-02	1,01E-01	2,02E+00	-1,73E+00
ODP	kg CFC 11 eq.	1,27E-06	0,00E+00	2,43E-08	8,19E-09	2,04E-09	-2,87E-07
AP	mol H^+ eq.	3,12E-02	0,00E+00	3,18E-04	5,41E-04	4,37E-04	-2,85E-02
EP-freshwater	kg PO_4^{3-} eq.	8,26E-05	0,00E+00	7,87E-07	1,01E-05	2,65E-07	-7,24E-05
EP-freshwater	kg P eq.	2,53E-04	0,00E+00	2,42E-06	3,10E-05	8,14E-07	-2,22E-04
EP-marine	kg N eq.	1,68E-02	0,00E+00	6,97E-05	7,23E-05	2,07E-04	-3,14E-03
EP-terrestrial	mol N eq.	9,76E-02	0,00E+00	7,78E-04	8,86E-04	2,32E-03	-1,07E-01
POCP	kg NMVOC eq.	4,66E-02	0,00E+00	3,05E-04	2,31E-04	6,12E-04	-1,28E-02
ADP-minerals&metals*	kg Sb eq.	7,23E-05	0,00E+00	1,76E-06	3,77E-07	8,50E-08	-2,77E-05
ADP-fossil*	MJ	1,17E+02	0,00E+00	1,61E+00	1,98E+00	1,61E-01	-3,60E+01
WDP	m^3	6,63E+00	0,00E+00	5,22E-03	2,23E-02	4,54E-03	-1,40E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per declared unit-1 m³ of particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2,14E+02	0,00E+00	5,87E+00	5,82E+00	1,42E+00	-1,56E+02

Results per declared unit- 1 m² melamine faced particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG(1)	kg CO_2 eq.	4,22E+00	0,00E+00	9,81E-02	9,72E-02	2,38E-02	-2,61E+00

Disclaimers shall be added, if required by EN 15804:2012+A2:2019.

Use of resources

The following table shows the use of resources per m³ of particleboard and per m² of melamine faced particleboard:

Results per declared unit-1 m³ of particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3,81E+02	0,00E+00	1,21E+00	1,99E+01	4,18E-01	-3,49E+03
PERM	MJ	1,06E+04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,10E+04	0,00E+00	1,21E+00	1,99E+01	4,18E-01	-3,49E+03
PENRE	MJ	3,56E+03	0,00E+00	9,62E+01	1,19E+02	9,64E+00	-2,16E+03
PENRM	MJ.	2,67E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	6,23E+03	0,00E+00	9,62E+01	1,19E+02	9,64E+00	-2,16E+03
SM	kg	5,36E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,15E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,76E+01
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m³	7,39E+00	0,00E+00	1,09E-02	9,92E-02	4,24E-02	-2,20E+00
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Results per declared unit- 1 m² melamine faced particleboard

[1] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
PERE	MJ	1,03E+01	0,00E+00	2,02E-02	3,33E-01	6,98E-03	-5,83E+01
PERM	MJ	1,80E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,90E+02	0,00E+00	2,02E-02	3,33E-01	6,98E-03	-5,83E+01
PENRE	MJ	6,95E+01	0,00E+00	1,61E+00	1,98E+00	1,61E-01	-3,60E+01
PENRM	MJ.	4,71E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,17E+02	0,00E+00	1,61E+00	1,98E+00	1,61E-01	-3,60E+01
SM	kg	8,95E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,92E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-4,61E-01
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,54E-01	0,00E+00	1,83E-04	1,66E-03	7,08E-04	-3,67E-02
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste production and output flows

Waste production

Results per declared unit-1 m³ of particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4,16E-01	0,00E+00	2,33E-04	5,30E-05	2,36E-05	-2,56E-03
Non-hazardous waste disposed	kg	4,17E+01	0,00E+00	8,37E+00	6,61E-01	1,08E+01	-1,42E+01
Radioactive waste disposed	kg	3,06E-02	0,00E+00	6,57E-04	8,36E-04	3,71E-05	-5,20E-03

Results per declared unit- 1 m² melamine faced particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6,96E-03	0,00E+00	3,90E-06	8,84E-07	3,95E-07	-4,28E-05
Non-hazardous waste disposed	kg	7,57E-01	0,00E+00	1,40E-01	1,10E-02	1,80E-01	-2,37E-01
Radioactive waste disposed	kg	5,55E-04	0,00E+00	1,10E-05	1,40E-05	6,19E-07	-8,68E-05

Output flows

Results per declared unit-1 m³ of particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	3,26E+00	0,00E+00	0,00E+00	5,47E+02	0,00E+00	0,00E+00
Materials for energy recovery	kg	1,36E-01	0,00E+00	0,00E+00	4,16E+01	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,50E+02
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,14E+03

Results per declared unit- 1 m² melamine faced particleboard							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	5,45E-02	0,00E+00	0,00E+00	9,13E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	2,27E-03	0,00E+00	0,00E+00	6,95E-01	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,59E+01
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,90E+01

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

Information on biogenic carbon content

Results per declared unit-1 m³ of particleboard		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	2,55E+02
Biogenic carbon content in packaging	kg C	2,45E-01

Results per declared unit- 1 m² melamine faced particleboard		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	4,26E+00
Biogenic carbon content in packaging	kg C	4,10E-03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Additional information

Conditions for use

Components:

The components of particleboards and melamine faced boards and their fractions correspond to those in the makeup of the material as "raw material". The bonding agents are chemically inert and are strongly bonded to the wood. Formaldehyde emissions are negligible (at least all boards manufactured by FINSA comply with class E1).

Environment–Health interactions:

Environmental protection:

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

Health protection:

- Health aspects: No damage or limitations are expected to health under normal conditions of use corresponding to the use expected for melamine particleboards. Natural substances present in natural wood could be released in small amounts. With the exception of small amounts of formaldehyde, which are harmless to health, no emissions of contaminants are detected.

Useful life:

Useful life under conditions of common use is defined through the application class (P1 –P7) according to standard EN 312.

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.

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 20 ºC of temperature, and either more humid or drier environments should be avoided.
- Avoid the exposure to UV rays.
- 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:

- Particleboards and melamine faced particleboards are not dangerous. Dust generated in cutting, sanding, drawmilling and other processes must be extracted from the working environment with the usual procedures in the wood industry as industrial vacuum systems and IPEs use must be observed according to law. Home use: They can be normally sawn and perforated using common tools. Adequate ergonomic techniques and IPEs must be used when handling and cutting.

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.

Uncommon effects

Fire:

- Fire reaction.
- Fire reaction of board or melamine faced boards with thickness > 9mm and density > 600 kg/m^3.
- 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 of Fire-resistant 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).

Technical features and Standard Formats

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

Annexes

Product pictures

Figure 1: Finished product in Stock

Figure 2: Fimapan/Superpan

Figure 3: Fimaplast/Superpan Decor

Information related to Sector EPD

This is an individual EPD®.

Differences versus previous versions

Version 7 (pag 11)

LCA information

Declared unit:

For this EPD, the concept of "unit declared" applies instead of "functional unit", following the guidelines established in the reference PCR, since the use phase and end of life are not included within the scope of this environmental product declaration.

Change because it was a mistake. Now end of life for example, is included.

Version 9 (pag 11)

For this EPD, the concept of "unit declared" applies instead of "functional unit", following the guidelines established in the reference PCR.

Version 7 (pag 11)

System limits:

The limits that have been selected for the system cover the manufacture of melamine faced particleboards, including the production of raw materials up to the point of the final packed product at the factory gate (life cycle designated from cradle to gate).

Change, it is the same mistake. Now it is with C1-C4 and D:

Version 9 (pag 11)

System limits:

The limits that have been selected for the system cover the manufacture of melamine faced particleboards, including the production of raw materials up to the point of the final packed product at the factory gate (life cycle designated from cradle to gate with C1-C4 and D).

Version 7 (pag 11)

The stage related to the use of particleboards and melamine faced boards has not been researched in the present declaration. It is assumed that the end of the life cycle is energy recovery at a biomass plant (considered as the closure of the cycle: from cradle to grave).

Change. Now we consider all end of life:

Version 9 (pag 11)

The stage related to the use of particleboards and melamine faced boards has not been researched in the present declaration. The end of the life cycle scenarios are explained in detail in the point *"LCA Scenarios and additional technical information"*.

Pag 23: Included this additional information

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.

Update to General Programme Instruction of the International EPD®System. Version 3.01 and to PCR 2019:14 Construction products, version 1.11

References

- General Programme Instruction of the International EPD®System. Version 3.01.
- ISO 14020:2000 Environmental labels and declarations-General principles.
- EN 14021: 2017 Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling)
- ISO 14025:2006 Environmental labels and declarations-Type III Environmental DeclarationsPrinciples and procedures.
- ISO 14040:2006 Environmental Management-Life Cycle Assessment-Principles and framework.
- ISO 14044:2006 Environmental Management-Life Cycle Assessment-Requirements and guidelines.
- PCR 2019:14 Construction products. version 1.11
- EN 15804:2012+A2:2019 Sustainability of construction works-Environmental Product Declarations-Core rules for the product category of construction products
- EN 312:2010 Particleboards. Specifications
- EN 14322:2017 Wood-based panels. Melamine faced boards for interior uses. Definition, requirements and classification.
- EN 13501-1:2019 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests
- 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.
- EN ISO 14001:2015 Environmental Management Systems. Requirements with instructions for use.
- En 12460-5:2016 Wood-based panels - Determination of formaldehyde release - Part 5: Extraction method (called the perforator method)
- ASTM E 1333-96 (2002) Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber
- EU 995/2010
- ISO 38200:2018 Chain of custody of wood and wood-based products.
- Non-financial information statement (Spanish version EINF)

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