Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

Pine wood parts

from

SAVIA - FINANCIERA MADERERA S.A.

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Programme information

Programme:	The International EPD® System
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): ***PCR 2019:14 VERSION 1.3.2*** *CONSTRUCTION PRODUCTS 2023-12-08. c-PCR-006 Wood and wood-based products for use in construction (EN 16485)* *Based on CEN standard EN 15804. ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR).*
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.
Life Cycle Assessment (LCA)
LCA accountability: *Ecómetro Mediciones, SL*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Itxaso Trabudua, IK Ingeniería* Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third-party verifier: ☒ Yes ☐ No

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data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see ISO 14025.

Company information

Owner of the EPD:
Financiera Maderera S.A.

Contact:
Patricia Lopez Cacheiro (Sustainability product) p.lopez@Finsa.es

Description of the organisation:
Tradition and innovation
Finsa is a pioneering company in manufacturing particle chipboards 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.

Name and location of production site:
FINANCIERA MADERERA S.A.
Carretera N-550 km. 57, Aptdo. 127
15707 Santiago de Compostela
A Coruña, Spain

Product information

Product identification: Pine wood parts

Product description: Pine wood parts to be used in different applications.

Pine wood parts constitute the base material for different applications. Some possible uses are indicated below:

- Packaging components (wine bottle packaging, food product packaging)
- Food holders

Product is manufactured of wood of pinus radiata, pinus pinaster and/or pinus sylvestris from Galicia (Spain).

The mains characteristics and chemical composition of products are shown below.

UN CPC code: 314 – Board and panels.

Geographical scope: Global. Products under study are produced in Spain but can be used at a global scale.

Characteristic	Value, units	Standard
Density at 12% humidity	540 +/- 50 Kg/m^3	UNE-EN 408:2011+A1:2012; UNE-56-531
Humidity	10-14%	UNE-EN 408:2011+A1:2012; UNE-EN 13183-1:2002
Tangential shrinkage coefficient	7,0%	UNE-EN 56533:1977
Radial shrinkage coefficient	4,0%	UNE-EN 56533:1977
Average shrinkage ratio	1,8%, estable	
Use class (untreated)	1	UNE-EN 335 2013
Durability against xylophagous fungi (untreated)	4-5	UNE-EN 350:2016

Note: see updated information at www.finsa.es

Product-related or management system-related certifications:

- Certification of chain of custody PEFC (PEFC/14-35-00006),
- Certification of chain of custody FSC® (FSC-C041397).
- Certification ISO 38200.
- EN ISO 14001 – IQNet & AENOR.

Manufacturing process. Key processes (Core Business)

Local and general availability of raw materials

Wood comes predominantly from regional forest areas. The forest areas where wood is collected can be areas owned by the company or private forest areas situated within a radius of approx. 100 km from the production site. Wood selection includes green timber from forest clearing and from forestry. But preference is given to woods certified according to the FSC or PEFC standards.

The following operations are carried out at Finsa's facilities:

1. Reception of roundwood
2. Debarking
3. Sawing

4. Green sorting
5. Drying
6. Grading
7. Machining of wooden planks
8. Packaging of machined parts

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

Functional unit / declared unit:
The declared unit is 1m^3 of solid pinewood, cut, dried, and machined for Pine wood parts.

The average density is 540 kg/m^3 (± 50 Kg), relative humidity of 10-14%.

Reference service life: not applicable.

Description of system boundaries:
According to the standard EN 15804:2012+A2:2019 and PCR 2019:14 CONSTRUCTION PRODUCTS 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.

The aggregation of the modules A1, A2 and A3 is allowed by EN 15804. This rule is applied in this EPD and denoted by A1-3.

This stage covers the extraction and processing of raw materials, such as forestry operations as well as additives production (A1) and the transportation to the sawmill (A2). This stage also covers the production of Pine wood parts and co-products, and final disposal of generated residues (A3). Electricity production (A1); the production (A1) and use (A3) of fuels is also included.

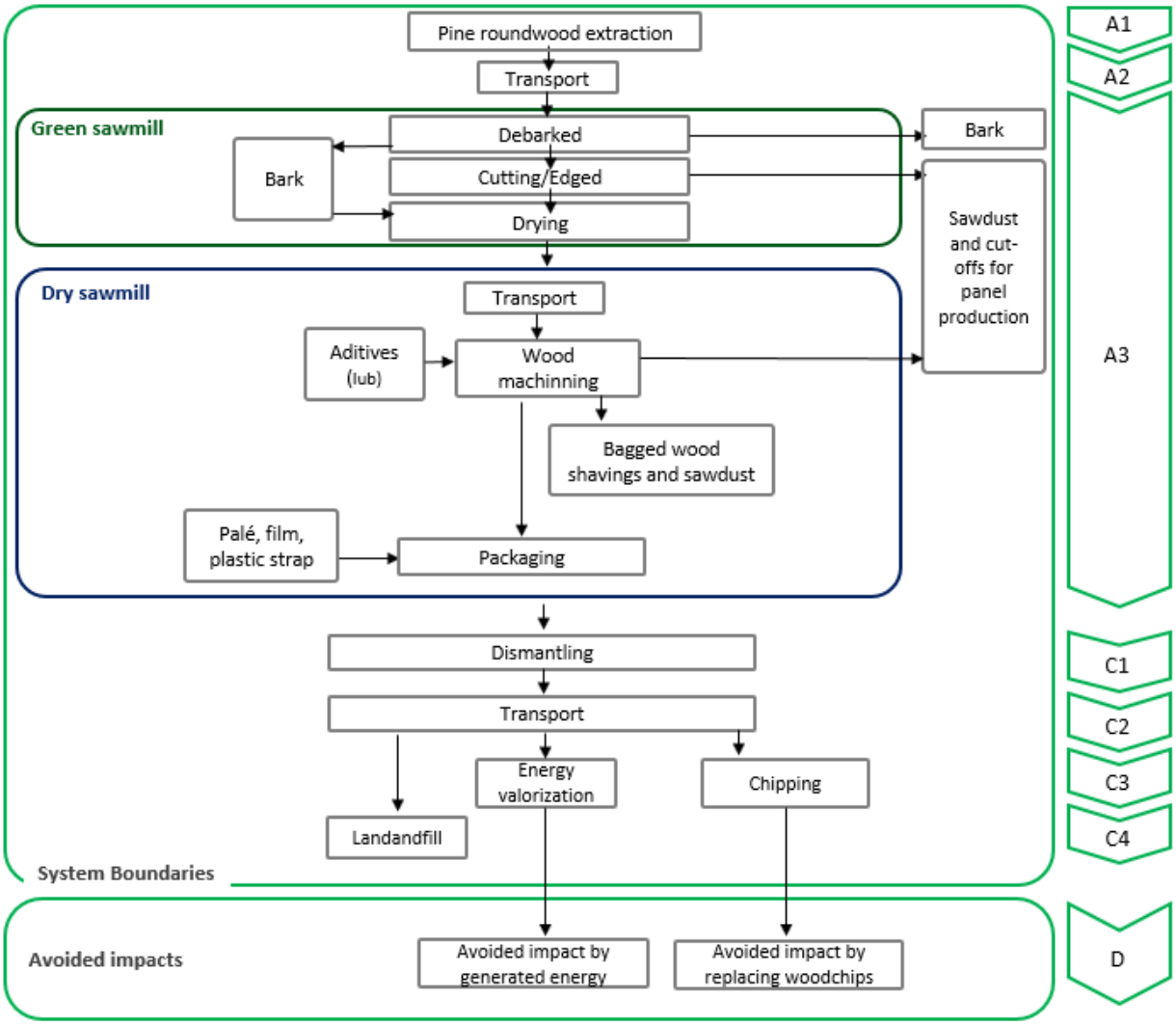
The following table shows the scenarios considered at the end of the product's useful life. The Pine wood parts does not require any practice for disassembly in the final stage of the product. For this reason, the contribution of module C1 is considered null.

Module D has been calculated using the formulas indicated in EN 15804:2012+A2:2019 – Annex D. This module contains credits from the recycling and energy recovery of Machined parts in module C3.
For the recycling process, it is considered that the product is recycled to replace primary wood chips (functional equivalence point); and the energy generated in the combustion of the Machined parts replaces the production of electricity.

Parameters	Unit
Collection, module C1	540 kg collected without disassembly
Reuse and recycling (2), module C3	0% - 0 kg for reuse
	30% - 162 kg for recycling
Incineration (2), module C3	35% - 189 kg for energy recovery
Landfill (2), module C4	35% - 189 kg of product for final disposal
Assumptions for the development of scenarios	
Transport by road, module C2	Transport, freight, lorry 16-32 t
Diesel consumption(1), module C2	0.037 kg/tkm
Distance to treatment, recycling, EoL, module C2	150 km
Recycling (2) (electricity for wood chipping)(1), module C3	0.02 kWh/kg
Substitution of electricity generated in incineration, module D	Electricity, high voltage {ES} – 484kWh
Efficiency in energy recovery, module D	60%

(1) Ecoinvent database

(2) European Comission (2016)



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Time representativeness:

First-hand data provided directly by Finsa on its production process was used in all cases where this information was available. The data provided by the company corresponds to production during 2022.

Database(s) and LCA software used:

The LCA modelling was carried out using an excel spreadsheet. All background LCI datasets were sourced from the Ecoinvent database v3.8. In certain cases, the original Ecoinvent datasets were adapted to the specific conditions of Finsa processes. The environmental information of background processes was generated by LCA software SimaPro 9.3 and were entered into the spreadsheet. The impact assessment results were calculated using characterization factors of EN 15804+A2 standard (based on EF 3.0).

Allocation:

In addition to the Pine wood parts production, several wooden flows are produced during debarking, cutting, and machining of wood. Some of these wooden flows are used as raw material for the generation of woodchips in the manufacture of particleboard, therefore, it has been considered as a co-product that leaves the facilities under study. An economic allocation has been applied to obtain the life cycle inventory of products and co-products.

Data quality:

In order to achieve precision, consistency and representativeness and to ensure reliable results, firsthand data from Finsa activities were used. The activity data provided by Finsa are less than 2 years old. All information comes from operational data and from calculations, so the quality of these data can be described as very good.

By other hand, regionally specific datasets were used to model the energy consumption. For the processes of transport and production of raw materials, datasets were chosen according to their technological and geographical representation of the actual process.

In accordance with Annex E of the EN 15804 + A2, a data quality assessment was performed. For technical representativeness, processes with a quality level of "very good" account for 99% of the value for climate change indicator. For geographical and time representativeness, processes with a quality level of "very good" account for 95% and 100% respectively.

Cut-off rules:

All the environmental aspects provided by Finsa's management have been included in the study, i.e., all raw materials and packaging as well as the energy for manufacturing. In the same way, all manufacturing waste and air emissions are accounted for.

Main assumptions:

- Wooden flows generated during the production process that cannot be reused for the production of other wooden products (particleboard), as bark and sawdust, are reused internally for heat production for wood drying.

- The biogenic carbon content of wood is the result of the CO2 that has been absorbed from the atmosphere by the photosynthesis of the trees during their growth. The biogenic carbon in Pine wood parts and packaging has been calculated according to EN 16485 and 16449. A carbon content of 50% of the dry mass of the wood was assumed for the wood species used (pinus radiata, pinus pinaster and/or pinus sylvestris). Biogenic carbon enters the product system in the forest (module A1) and, for calculation purposes, is assumed to leave the product system at the end-of-life stage (module C). This assumption can be made when wood originates from sustainably managed forests.

- Infrastructure or capital goods have not been included in the analysis

Greenhouse gas emission from the use of electricity in the manufacturing phase

The electricity mix used to produce Machined parts is based in the year 2022. Residual electricity mix of the electricity supplier has been taken into consideration in the LCA model with a carbon footprint (GWPGHG) of 0.378 Kg CO2-eqkWh.

More information
Author of the Life Cycle Assessment:
Ecómetro Mediciones SL. Ferraz 56
28008 Madrid (Spain)

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

	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	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

The following table presents information regarding the content of Pine wood parts.

Product components	**Weight, kg**	**Post-consumer material, weight%**	**Renewable material, weight-%**	**Biogenic material, weight-% and kg C/kg**
Wood (pinus radiata, pinus pinaster and/or pinus sylvestris)	486	0	100%	100% - 0.5 kg C/kg
Water	54	0	0%	0
TOTAL	540	0	90%	90% - 0.45 C/kg
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Renewable material, weight-%**	**Weight biogenic carbon, kg C/kg**
Pallet	1.963	0.36%	100%	0.5 kg C/kg
Plastic strap	0.002	0%	0%	0
Plastic film	0.34	0.063%	0%	0
TOTAL	2.305	0.43%	85,1%	0.426 kg C/kg

Products do not contain any of the substances listed on the “Candidate List of Substances of Very High Concern (SVHC) for authorization".

Results of the environmental performance indicators

The use of the results of modules A1-A3 without considering the results of module C is discouraged.

Mandatory impact category indicators according to EN 15804 (1)

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,44E+02	0,00E+00	1,32E+01	3,08E+00	1,56E+00	-1,59E+02
GWP-biogenic	kg CO_2 eq.	-9,76E+02	0,00E+00	5,48E-03	6,44E+02	3,63E+02	0,00E+00
GWP- luluc	kg CO_2 eq.	4,46E+00	0,00E+00	4,71E-03	3,63E-03	3,95E-04	-1,83E+00
GWP- total	kg CO_2 eq.	-7,27E+02	0,00E+00	1,32E+01	6,47E+02	3,64E+02	-1,61E+02
ODP	kg CFC 11 eq.	4,82E-05	0,00E+00	3,01E-06	3,31E-07	5,88E-07	-1,83E-05
AP	mol H^+ eq.	1,33E+00	0,00E+00	3,80E-02	6,68E-02	1,40E-02	-1,37E+00
EP-freshwater	kg P eq.	3,11E-02	0,00E+00	1,06E-04	1,80E-04	2,43E-05	-9,53E-03
EP- marine	kg N eq.	3,89E-01	0,00E+00	7,52E-03	2,85E-02	1,06E-02	-2,07E-01
EP-terrestrial	mol N eq.	4,42E+00	0,00E+00	8,42E-02	3,28E-01	5,70E-02	-2,30E+00
POCP	kg NMVOC eq.	2,15E+00	0,00E+00	3,22E-02	8,57E-02	2,07E-02	-7,18E-01
ADP-minerals&metals*	kg Sb eq.	2,88E-03	0,00E+00	3,65E-04	1,56E-05	1,41E-05	-3,78E-04
ADP-fossil*	MJ	5,47E+03	0,00E+00	2,00E+02	4,59E+01	4,29E+01	-3,69E+03
WDP*	m^3 world eq. deprived	7,63E+01	0,00E+00	5,66E-01	9,28E-01	1,97E-01	-1,07E+02
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						

(1) The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

** 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.*

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2,63E+02	0,00E+00	1,32E+01	3,20E+00	1,76E+01	-1,61E+02

Resource use indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3** (2)	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,88E+04	0,00E+00	2,86E+00	5,58E+00	1,69E+00	-4,15E+03
PERM	MJ	8,33E+03	0,00E+00	0,00E+00	-5,40E+03	0,00E+00	0,00E+00
PERT	MJ	4,88E+04	0,00E+00	2,87E+00	5,58E+00	1,69E+00	-4,15E+03
PENRE	MJ	5,78E+03	0,00E+00	2,12E+02	4,86E+01	4,55E+01	-3,82E+03
PENRM	MJ	1,54E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,78E+03	0,00E+00	2,12E+02	4,86E+01	4,55E+01	-3,82E+03
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	3,10E+02	0,00E+00	1,14E+01	2,11E+01	8,95E+00	-2,88E+03
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						

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators (optional)

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	**1,15E-02**	0,00E+00	**5,24E-04**	**6,12E-05**	**5,24E-05**	**-1,91E-03**
Nonhazardous waste disposed	kg	**8,02E+01**	0,00E+00	**9,73E+00**	**1,39E+00**	**1,89E+02**	**-1,43E+01**
Radioactive waste disposed	kg	**3,99E-02**	0,00E+00	**1,36E-03**	**2,54E-04**	**2,81E-04**	**-2,84E-02**

Output flow indicators

Results per functional or declared unit							
Indicator	**Unit**	**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	2,89E+03	0,00E+00	0,00E+00	1,62E+02	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	1,89E+02	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	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Other information

Environmental performance indicators of the declared unit (expressed as indicator/m^3) can be converted to environmental performance indicators of a specific bottle packaging components using the following conversion factors. These are some examples:

Product	Bottles number	Volume (m^3/unit)	Weight (kg/unit)
12 GUILLOTINES	12	0,0061	3,29
12 KEYES PC 10	12	0,0053	2,84
6 GUILLOTINES	12	0,004	2,16
6 KEYES	6	0,0032	1,74
6 PLAT GUI PC 10	6	0,0048	2,59
3 GUILLOTINES	3	0,0028	1,49
3 KEYES	3	0,0023	1,24
1 MAGNUM	1	0,0019	1,01

Information related to Sector EPD

This is a specific EPD

Differences versus previous versions

This is the first version of the EPD

References

- General Programme Instructions of the International EPD® System. Version 4.0. 2021-03-28,
- UNE-EN 15804:2012+A2:2020. Sostenibilidad en la construcción. Declaraciones ambientales de producto. Reglas de categoría de productos básicas para productos de construcción. Madrid; 2014.
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- c-PCR-006 Wood and wood-based products for use in construction (EN 16485)
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