ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

PLANED WOOD (PAINTED)

VALBO TRÄ AB

Programme: The International EPD® System, www.environdec.com	*Programme operator: EPD International AB*	*EPD registration number: S-P-08619*	*Publication date: 2023-03-15*	*Valid until: 2028-03-13*	*Geographical scope: Sweden*

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Valbo Trä AB
Address	Box 1023, 818 21 Valbo, Sweden
Contact details	info@valbotra.se
Website	https://www.valbotra.se/

PRODUCT IDENTIFICATION

Product name	Planed Wood (Painted)
Additional label(s)	Not applicable
Product number / reference	Not applicable
Place(s) of production	Sweden
CPC code	CPC 311 (Wood, sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6 mm)

The International EPD System

EPDs within the same product category but from different programmes may not be comparable.

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction product EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	The International EPD System
EPD standards	This EPD is in accordance with EN 15804:2012 +A2:2019/AC:2021 and ISO 14025:2010 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the Int'l EPD System PCR 2019:14 Construction products, version 1.11 (05.02.2021) is used, as well as c-PCR-006 Wood and wood-based products for use in construction (EN 16485) (2019-12-20)).
EPD author	Felix Meyer, Gidås Sustainability Agency
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification ☐ EPD Process certification ☑ EPD Verification
EPD verifier	Elisabet Amat, GREENIZE
EPD number	S-P-08619
Publication date	2023-03-13
EPD valid until	2028-03-15

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Planed and painted wood products of varying dimensions manufactured from spruce timber extracted in Sweden. The wood is treated with water-based paints. The data in this EPD represents a weighted average of the two locations (Edsbyn and Skutskär) in which the products are manufactured.

PRODUCT APPLICATION

The product is used for construction and joinery with a wide range of specific applications, such as window and door manufacturing and interior products.

TECHNICAL SPECIFICATIONS

The reference service life of the product is highly dependent on the conditions of use, average lifespan under normal conditions is minimum 50 years. This is an estimated value based on experience and scientific facts about planed wood products.

PRODUCT STANDARDS

The product is manufactured using sustainably sourced wood which is ensured through chain of custody certification.

The painted wood products are certified according to the Swedish CMP system.

PHYSICAL PROPERTIES OF THE PRODUCT

The raw material which is used in the production is Swedish sawn and dried spruce, with an average density of 469 kg/m^3 and a moisture content of approximately 16 %.

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at https://www.valbotra.se/.

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Spruce timber	469	0	100	SE
Paint	9,70	0	0	DE
Polyethylene film	0,75	0	0	SE
Plastic straps	0,09	0	0	DE
Wooden packaging	2,64	0	100	SE
Total mass Product	479			
Total mass Packaging	3,47			

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Relevant upstream material, transport and processes of the product components were primarily acquired from generic EcoInvent data or product specific EPD data. EPDs not fulfilled according to the standards EN 15804+A1 and +A2 received further modelling with generic data for A1+A2 compliance and representation.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

Plastic and wooden waste from the packaging is assumed to be incinerated with energy recovery.

Due to large variations in transport distances to customers, it was deemed unfeasible to estimate an average transport distance, which is why module A4 has been excluded in this EPD.

Due to the large variation in applications of this product, the consumption of energy and resources used for installation in module A5 was not deemed feasible, which is why module A5 has been excluded in this EPD.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end-of-life stage C1-C4 & D includes:

- Deconstruction/demolition (C1)
- Transport to waste management facility (C2)
- Waste processing for reuse, recovery and/or recycling (C3)
- Waste disposal (C4)

Waste processing and disposal credits are assigned to module D.

Module D includes reuse, recovery and/or recycling potentials conveyed as benefits and net impacts.

After dismantling or demolition of the product at the end of its service life, it is assumed to be transported by truck to a waste treatment facility where the wood is incinerated for energy recovery.

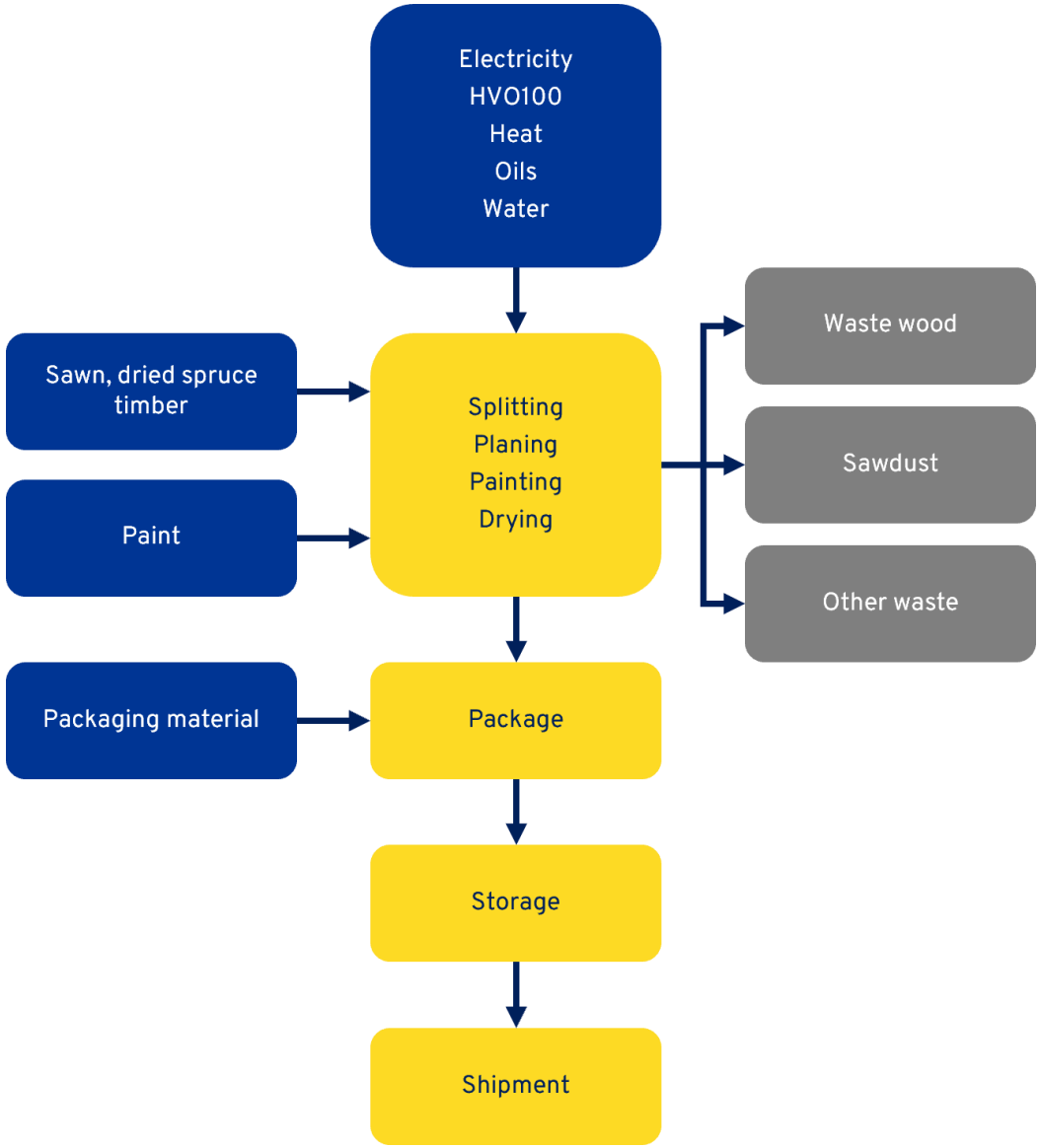
MANUFACTURING PROCESS

The sawn and dried timber is delivered to each manufacturing facility by truck, after which it is put on conveyor belts leading to an industrial wood planing machine. This process consumes electricity and uses lubricating oils which are exchanged on a regular basis. The planed wood is then put into stacks using loaders running on HVO100 (Hydrotreated vegetable oil).

During the planing process, saw dust and pieces of wood are produced as waste and sent off for incineration with energy recovery. However, a large majority of the waste wood (87 %) is sold and re-used as stable litter.

After the planing process, the wood is brought to a separate facility where it is spray-painted with water-based paints and then dried using district heating or heat produced at the facility by burning waste saw dust from the planing process.

The product is then put into stacks using loaders running on HVO100 (Hydrotreated vegetable oil). Small pieces of wood are put in between the product to reduce any damages. Lastly, a plastic film is wrapped around the stacks for weather protection and the product is stored before it is shipped to the customer.



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2021

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 m^3
Mass per declared unit	479 kg
Reference service life	50 years

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	235 kg
Biogenic carbon content in packaging, kg C	1,32 kg

SYSTEM BOUNDARY

This EPD covers the cradle to gate with modules scope, with the following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

	Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
Declared	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x	x	x
Geography	EU	EU	SE	-	-	-	-	-	-	-	-	-	SE	SE	SE	SE	SE		
	Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling
Specific data used	96 %																		
Variation - sites	19.6 %																		

Modules not declared = ND. Modules not relevant = MNR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.

The study includes all major raw materials and energy consumption. All inputs and outputs of the unit processes, for which data is available ~~for~~, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.

2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.

3. Allocation should be based on economic values.

Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 - standard.

In this study, allocation was applied to most inputs as the product is manufactured in three separate locations in which other wood based products are produced as well. The allocation is exclusively based on mass.

ASSUMPTIONS AND VARIABILITY

Site-specific data from the reference year acted as the primary source of collection. If inputs or outputs were unknown or unavailable, industry-based and/or similar product EPD datasets were utilized for full compliance with EN15804 +A1 and +A2.

Modelling of data was primarily based on data from Ecoinvent. However, where manufacturer specific data was available, product-specific EPDs were used. Ecoinvent was however the primary source due to lack of supplier specific data for EN15803+A2 datasets. When generic data was used, a systematic assessment was carried out.

Variation between +A1 impact results and +A2 is 5,7 % which is below the 10 % limit set by the programme operator.

Large truck (EURO 6, >32 tons) has been adopted within most transport modules in the analysis, though lighter trucks and freight by rail and sea were used as well based on data from the manufacturer. The waste fractions are assumed to go directly to the nearest facility for final disposal, which is assumed to 15 km as a representative distance in Sweden according to Liljenström (2015). The efficiency of the process for energy recovery is assumed to 73 %.

Transport distances of product materials, ancillary and packaging materials were calculated as a weighted average based on the share of product produced in each of the three manufacturing facilities.

Additionally, internal transports of the product occur due to varying capacities within the three facilities. As the data on transported volume only exists on factory level, allocation was applied in order to determine the impact from this particular product.

The density of hydraulic and lubricating oil was assumed to 870 kg/m^3. Due to a lack of datapoints in the Ecoinvent database, emissions from the use of HVO100 (Hydrotreated vegetable oil) was modelled as conventional Diesel, but with the addition of a conversion factor of 0,1683. This factor was used to decrease the impact to levels thought to be more representative of HVO100 based on emission data from the Swedish Energy Agency (2022).

In order to receive more accurate results, a conversion factor of 0,79 between the generic Ecoinvent datapoint for district heating and the

emission factor provided by the manufacturer's heating supplier was used.

The assumed consumption of diesel and electricity used for deconstruction in module C1 is based on a study on the environmental impact of the Swedish building sector conducted by the Swedish Environmental Research Institute (Larsson, et al., 2016). The estimate was made by multiplying the assumed consumption of electricity and diesel for deconstructing a Swedish building by the share of the total environmental impact which wood products represent in a building per square meter. An estimate was made on how many cubic meters of wood are needed for one square meter of building, which led to the assumption that 0,072 MJ of electricity and 0,082 MJ of diesel are consumed per declared unit.

The biogenic carbon content of wood was calculated according to the EN 16485 and 16449 standards. The carbon content of dry mass of wood is assumed to be 50 %, and each kg of stored biogenic carbon is equal to approximately 3.67 (44/12) kg of CO2, which is effectively removed from the atmosphere. This assumption can be made when wood is sourced from sustainably managed forests.

As this product is being produced in two different manufacturing facilities, the data presented in this EPD is a weighted average of data from these two locations. Therefore, an analysis was performed in accordance with data quality requirements outlined in ISO 21930:2017 where the difference in GWP-GHG between products manufactured in each facility is studied. The results (16,7%) can also be seen in the table below.

There are several main reasons for such a large variance between the manufacturing facilities. Firstly, the emission factor for district heating is approximately 3,6 times larger than the emission factor for the data point used to represent the burning of saw dust. District heating is only used in Skutskär, whereas saw dust is burned to create the necessary heat for drying the product in Edsbyn. Secondly, using the data provided by the manufacturer, more packaging material is used, more waste is produced, and 24 % more paint is used per DU in Skutskär compared to Edsbyn. The reason for this may purely be due to mass allocation which has been performed at relatively large scale throughout this study, as data was mostly available on factory level only.

It is not considered practical to publish two separate EPDs for these two facilities as the product is not sold separately depending on its origin.

The International EPD System additional data requirements

Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	96 %
Variation in GWP-GHG between products	Not relevant
Variation in GWP-GHG between sites	19,6 %

ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO_2e	-8,01E+02	4,07E+00	4,04E+00	-7,93E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	8,50E-03	1,18E+00	6,37E+02	2,34E+02	-2,17E+01
GWP – fossil	kg CO_2e	5,43E+01	4,07E+00	8,75E+00	6,71E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	8,44E-03	1,18E+00	5,67E+00	1,40E+00	-2,17E+01
GWP – biogenic	kg CO_2e	-8,60E+02	0,00E+00	-4,83E+00	-8,65E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,31E+02	2,33E+02	0,00E+00
GWP – LULUC	kg CO_2e	4,44E+00	1,28E-03	1,15E-01	4,55E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,32E-05	4,26E-04	9,49E-03	7,30E-04	-2,72E-02
Ozone depletion pot.	kg CFC_{-11}e	1,17E-05	9,98E-07	1,67E-06	1,44E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,09E-09	2,69E-07	3,56E-07	4,25E-07	-1,38E-06
Acidification potential	mol H^+e	5,30E-01	1,35E-02	1,01E-01	6,44E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	8,30E-05	3,39E-03	2,35E-02	1,19E-02	-1,81E-01
EP-freshwater[3]	kg Pe	9,02E-03	3,45E-05	1,27E-03	1,03E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,96E-08	1,00E-05	4,40E-04	2,98E-05	-7,34E-04
EP-marine	kg Ne	1,11E-01	2,97E-03	2,46E-02	1,38E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,57E-05	6,74E-04	3,25E-03	7,80E-03	-4,20E-02
EP-terrestrial	mol Ne	1,37E+00	3,30E-02	3,58E-01	1,76E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,93E-04	7,51E-03	3,95E-02	4,41E-02	-4,62E-01
POCP (“smog”)	kg NMVOCe	4,59E-01	1,28E-02	7,46E-02	5,46E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,07E-04	2,88E-03	1,03E-02	1,58E-02	-1,19E-01
ADP-minerals & metals	kg Sbe	1,15E-03	7,61E-05	8,51E-05	1,31E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,70E-08	3,26E-05	1,68E-05	1,48E-05	-8,73E-05
ADP-fossil resources	MJ	9,89E+02	6,94E+01	2,59E+02	1,32E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,16E-01	1,79E+01	8,55E+01	3,25E+01	-2,22E+02
Water use[2]	m^3e depr.	2,38E+01	2,45E-01	3,64E+00	2,77E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,64E-03	5,84E-02	1,07E+00	1,45E+00	2,46E+00

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. 3) Required characterisation method and data are in kg P-e. Multiply by 3,07 to get PO_4e.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	8,92E-07	3,56E-07	1,30E-06	2,55E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,12E-09	7,52E-08	7,59E-08	2,26E-07	-1,70E-06
Ionizing radiation[5)]	kBq U235e	5,63E-01	2,88E-01	6,05E+00	6,90E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,32E-03	7,80E-02	7,34E-01	1,27E-01	-1,76E+00
Ecotoxicity (freshwater)	CTUe	3,73E+02	5,04E+01	6,77E+02	1,10E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,02E-01	1,39E+01	5,21E+01	3,20E+01	-4,36E+02
Human toxicity, cancer	CTUh	1,05E-08	1,27E-09	1,09E-08	2,26E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,08E-02	3,99E-00	2,22E-09	8,95E-00	-1,90E-08
Human tox. non-cancer	CTUh	3,71E-07	5,75E-08	3,29E-07	7,58E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	7,42E-01	1,51E-08	5,04E-08	3,53E-08	-9,37E-07
SQP	-	1,34E+02	9,93E+01	2,29E+01	2,56E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,33E-03	1,51E+01	4,14E+00	1,15E+02	-2,54E+01

4) SQP = Land use related impacts/soil quality. 5) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	8,41E+02	8,73E-01	5,14E+02	1,36E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,47E-02	2,56E-01	1,43E+01	5,72E-01	-6,29E+01
Renew. PER as material	MJ	9,05E+03	0,00E+00	4,13E+01	9,09E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	9,89E+03	8,73E-01	5,56E+02	1,04E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,47E-02	2,56E-01	1,43E+01	5,72E-01	-6,29E+01
Non-re. PER as energy	MJ	1,14E+03	6,94E+01	2,56E+02	1,47E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,16E-01	1,79E+01	8,55E+01	3,25E+01	-2,22E+02
Non-re. PER as material	MJ	3,86E+01	0,00E+00	2,92E+00	4,15E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,18E+03	6,94E+01	2,59E+02	1,51E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,16E-01	1,79E+01	8,55E+01	3,25E+01	-2,22E+02
Secondary materials	kg	8,83E-02	0,00E+00	7,55E-01	8,43E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renew. secondary fuels	MJ	2,00E-02	0,00E+00	0,00E+00	2,00E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-ren. secondary fuels	MJ	1,63E-03	0,00E+00	0,00E+00	1,63E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	2,17E+01	1,44E-02	6,85E-02	2,18E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,84E-05	3,08E-03	2,71E-02	3,64E-02	-1,26E-01

6) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,36E-01	6,74E-02	5,62E-01	9,65E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,96E-04	1,84E-02	0,00E+00	5,90E-02	-3,14E+00
Non-hazardous waste	kg	2,42E+00	7,45E+00	1,46E+01	2,45E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,63E-03	1,27E+00	0,00E+00	1,30E+02	-3,82E+02
Radioactive waste	kg	9,94E-04	4,77E-04	2,74E-03	4,21E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,31E-06	1,22E-04	0,00E+00	1,94E-04	-1,05E-03

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	6,59E-04	0,00E+00	0,00E+00	6,59E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	5,33E-01	0,00E+00	5,90E-03	5,39E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	1,96E-01	0,00E+00	7,90E+00	8,10E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,34E+02	0,00E+00	0,00E+00
Exported energy	MJ	4,98E-04	0,00E+00	0,00E+00	4,98E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO_2e	5,43E+01	4,07E+00	8,75E+00	6,71E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	8,44E-03	1,18E+00	5,67E+00	1,40E+00	-2,17E+01

8) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator Is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

BIBLIOGRAPHY

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Planed Wood (Painted) LCA background report 10.03.2023

ABOUT THE MANUFACTURER

Valbo Trä AB is a Swedish manufacturer of planed, painted and impregnated wood products, roof trusses and frameworks, as well as custom wooden solutions. Valbo Trä delivers both large-scale and small-scale solutions with quality, security of supply and personal service at heart.

The company Valbo Trä was formed in 2011, but connected operations already started in 1870. Since 2011, Valbo Trä has established three planing mills throughout Sweden with a variety of specialized production lines in place.

The main office is found in Valbo, in addition to five production lines and some impregnation. The facility in Skutskär is primarily producing impregnated products, but also painted and other planed options. Edsbyn, situated further in the north, is responsible for most of the painted products.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Valbo Trä AB
EPD author	Felix Meyer, Gidås Sustainability Agency
EPD verifier	Elisabet Amat, GREENIZE
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Construction products

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

Why does verification transparency matter? Read more online.

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Elisabet Amat, GREENIZE
EPD verification started on	2023-02-09
EPD verification completed on	2023-03-13
Supply-chain specific data %	96 %
Approver of the EPD verifier	The International EPD System
Author & tool verification	**Answer**
EPD author	Felix Meyer, Gidås Sustainability Agency
EPD Generator module	Construction products
Independent software verifier	Ugo Pretato, Studio Fieschi & soci Srl
Software verification date	2021-05-11

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of:

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present.

With respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Elisabet Amat, GREENIZE

VERIFICATION AND REGISTRATION (ENVIRONDEC)

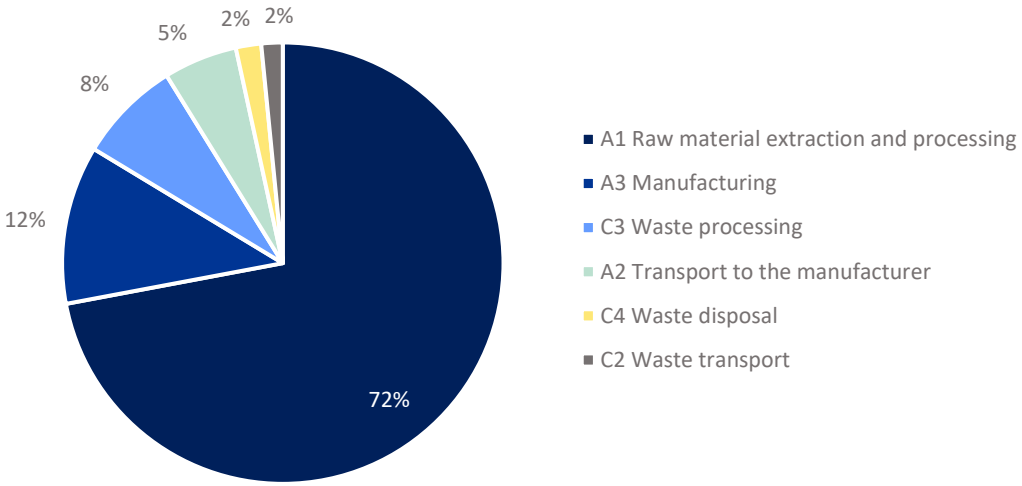
ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.11
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Third party verifier	Elisabet Amat, GREENIZE
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	☐ yes ☑ no

EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, E-mail: info@environdec.com

ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

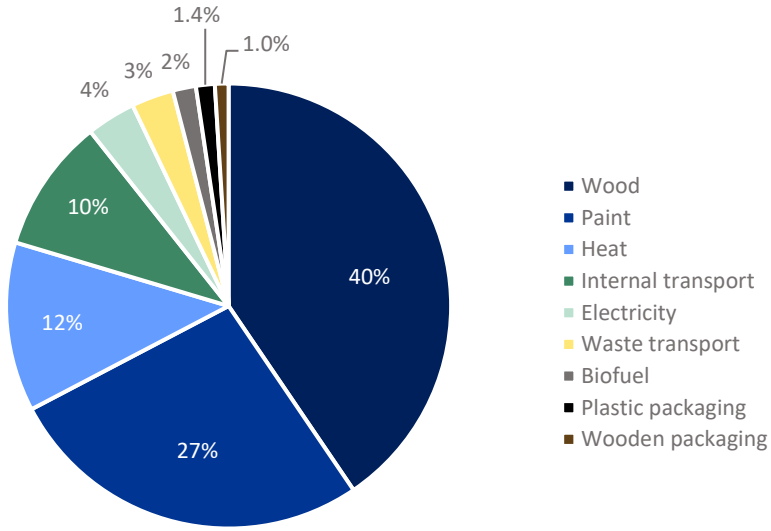
Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	5,82E+01	4,23E+00	8,69E+00	7,12E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	8,43E-03	1,17E+00	5,58E+00	7,37E+00	-2,12E+01
Ozone depletion Pot.	kg $CFC_{-11}e$	1,20E-05	8,34E-07	1,98E-06	1,49E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,04E-09	2,14E-07	4,18E-07	3,39E-07	-1,27E-06
Acidification	kg SO_2e	3,93E-01	9,08E-03	6,82E-02	4,71E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,44E-05	2,38E-03	2,01E-02	7,52E-03	-1,48E-01
Eutrophication	kg PO_4^3e	1,26E-01	1,83E-03	2,22E-02	1,50E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,98E-06	4,93E-04	1,80E-02	3,38E-01	-6,66E-02
POCP (“smog”)	kg C_2H_4e	5,04E-02	5,23E-04	2,98E-03	5,39E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,29E-06	1,43E-04	8,61E-04	2,16E-03	-5,23E-03
ADP-elements	kg Sbe	1,15E-03	7,61E-05	8,51E-05	1,31E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,70E-08	3,26E-05	1,68E-05	1,48E-05	-8,73E-05
ADP-fossil	MJ	9,89E+02	6,94E+01	2,59E+02	1,32E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,16E-01	1,79E+01	8,55E+01	3,25E+01	-2,22E+02

ANNEX 2 : GLOBAL WARMING POTENTIAL – LIFE CYCLE STAGES



ANNEX 2. Visualisation of GWP per life cycle stage, or module. Module C1 has been excluded from the chart as it represents less than 0,5 % of GWP and would thus not be visible in the chart. See more detailed results on page 10.

ANNEX 3: GLOBAL WARMING POTENTIAL FOSSIL $kgCO_2e$ – CLASSIFICATIONS



ANNEX 3. Visualisation of fossil GWP per classification formulated by the EPD author. The legend is ranked in accordance with each share.