

Environmental Product Declaration



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

Construction plywood from pine

from

Saint-Gobain Building Distribution (SGDS)



Program:	The International EPD® System, www.environdec.com
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EPD of multiple products, based on the average results of the product group. This EPD covers a product which can be sold in a range of sizes. However, as density, raw materials, and manufacturing methods remains constant results are identical per m³.

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

Program information

Program:	The International EPD® System
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CEN standard EN 15804:2012 +A2 (2019) v1.3.4 serves as the Core Product Category Rules (PCR), supplemented with C-PCR-006 Wood and Wood Based Products for Use in Construction 2019

PCR review was conducted by: *The Technical Committee of the International EPD® System. Chair: Claudia A. Peña. Contact via info@environdec.com. The review panel may be contacted via the Secretariat <https://www.environdec.com/contact-us>.*

LCA accountability: Amy Stockwell, Carbonzero AB, Amy.Stockwell@carbonzero.se

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☐ EPD process certification ☒ EPD verification

Third-party individual verifier: Matt Fishwick, Fishwick Environmental Ltd.
matt@fishwickenvironmental.com

The 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 registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of 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 EN 15804 and ISO 14025.

Company information

Owner of the EPD	Saint-Gobain Distribution Sweden (SGDS)
Contact	SGDS - Beriar Maroof (beriar.maroof@sgdsgruppen.se) Optimera - Henrik Björk (henrik.bjork@optimera.se)
Description of the organisation	SGDS Gruppen - specialists in collaboration for more efficient business in construction and installation. SGDS Gruppen AB is the head company of some of Sweden's leading trading companies in construction, sheet metal, tiles and installation. All the companies have a long and solid industry experience and provide most of Sweden's craftsmen with materials for various projects. Customers in different companies can also buy support items from the sister companies in the group. In selected cases, we take joint projects to facilitate the logistics of the supply of goods, which is then often critical for a smooth construction project. • Optimera – construction trade for professional carpenters • Dahl – heat, plumbing and sanitary specialist • Bevego – building sheet metal, ventilation and technical insulation • Kakelspecialisten and Konradsson's Tiles - tiles, tiling and bathroom fittings The company focuses on sales and services, with direct contact with about 150,000 customers regularly. SGDS group is owned by Saint-Gobain with a presence in 64 countries and over 190 000 employees worldwide.
Location of production site	Brazil



Product information

Product name	K-plywood CE2+		
	Currently sold in the following sizes (mm):		
	12 x 900 x 2500	12 x 1200 x 2500	12 x 900 x 2500
	15 x 900 x 2500	15 x 1200 x 2500	18 x 1200 x 2500
Product identification	Uncoated and untreated pine plywood.		
Product description	Optimera's plywood product is made of pine and is excellent as construction panels, mostly used indoor behind gypsum walls making the wall stronger. Optimera's plywood consists of thin sheets of pine wood which are laid crosswise and glued. Then they are heat-treated and pressed under high pressure and finally the surface is brushed and the plywood is cut into the right size. The plywood is certified (CE) and classed with the standard CE2+.		
UN CPC code	HS, 2012 - Code 441239		
Use	K-plywood CE2+ is for example excellent as construction panels with applications behind gypsum walls in purpose of making the wall stronger, or for use in roof or floor structures.		

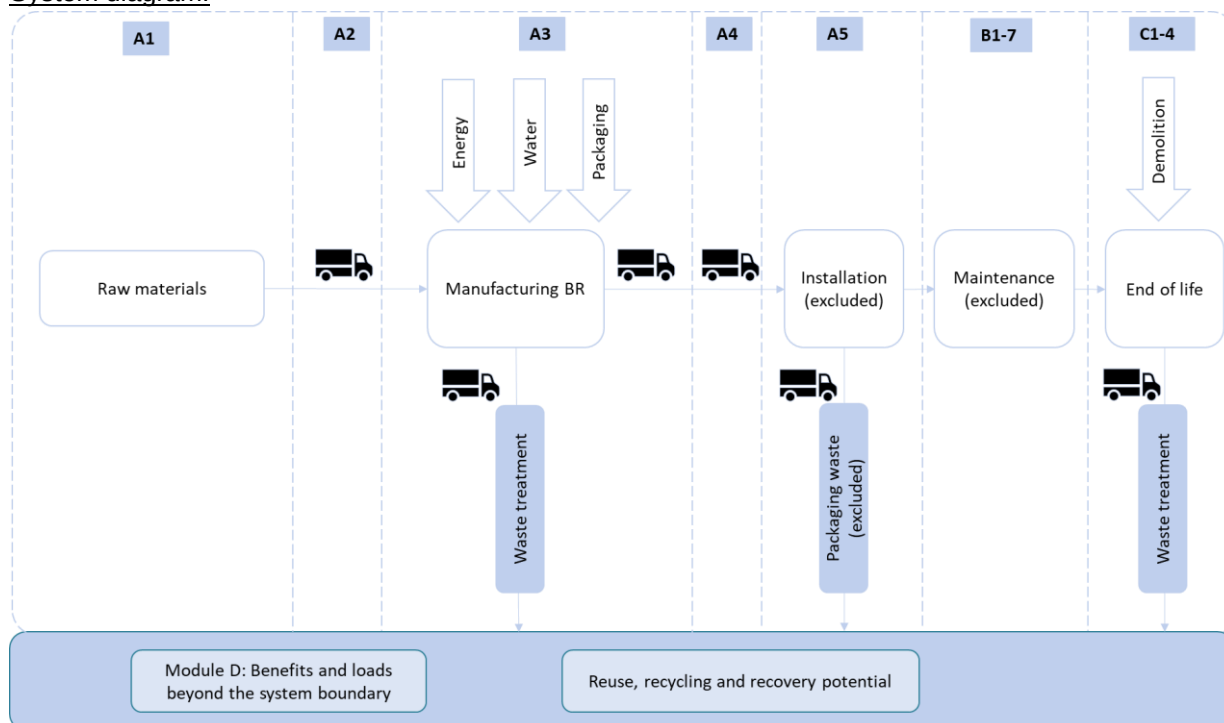
Technical Specification

Properties	Specified performance	Technical specification
Formaldehyde class	E1	EN13986 annex B note 2
Glue class	Class 3	314-1/2 type testing
Reaction in case of fire	D-s2, d0	EN 13986 table 8
Water vapour permeability	Wet - 70µ; Dry - 200 µ	EN 13986 table 9
Air sound insulation	$R = 13 \times \lg(mA) + 14$	EN 13986 section 5.10
Sound absorption coefficient	0.10 / 0.30	EN 13986 table 10
Thermal conductivity	0.13 W/(m.K)	EN 13986 table 11
Pentachlorophenol (PCP) content	< 5ppm	EN 13986 section 5.18
Biological stability	Class 2	EN 335 / EN 1099
Dimensional tolerances	Length/width: +0/-3.0 mm Squareness: ±1.0mm Straightness: ±1.0mm	EN 324-2

LCA information

Functional unit	1 m ³ of plywood This is equivalent to 470 kg
Reference service life	Not applicable
Geographic scope of the EPD	Brazil (A1-A3) and Sweden (A4, C1-C4)
Database(s) and LCA software used	Calculation completed in Sphera LCA for Experts (formerly GaBi) v10.7 with an integrated ecoinvent database v3.8 (cut-off) and Sphera Managed LCA Content (2023)
System boundaries	Cradle to gate with options (A1-A3, A4, C1-C4, D).

System diagram:



The product is manufactured in Brazil and sold in Sweden. Therefore, A3 includes transport to the warehouse in Sweden.

A4 transport to customer was assumed to be within Sweden, using the data below.

A4 scenario information	
Transportation	GLO: Truck-trailer, Euro 0 - 6 mix, 34 - 40t gross weight 27t payload capacity
Fuel type	RER: Diesel (6.35% bio-content)
Fuel consumption	0.0167 kg/tkm
Distance	500 km
Capacity utilisation (including returns)	61%
Bulk density of transported products	470 kg/m ³
Volume capacity utilisation factor	1

Swedish government statistics from 2020, show that 98% of wood waste is incinerated with energy recovery. Therefore, it seemed reasonable to assume that this product would be incinerated with energy recovery as per table below.

C and D scenario information	
Collection process	470 kg collected as wood
Recovery system	470 kg for energy recovery
Disposal	0 kg for final deposition
Assumptions	Transport assumed to be 100 km by truck
Benefits beyond the system	1064 MJ (Sphera 2023) Swedish electricity grid mix 1917 MJ (Sphera 2023) Thermal energy from natural gas

Modules declared

X = modules included, ND = not declared, Specific data used and variations are based on the GWP-GHG indicator.

	Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
	Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	BR	BR	BR	EU	-	-	-	-	-	-	-	-	SE	EU	EU	EU	EU
Specific data used	<10%			-													
Variation-Products	0%			-													
Variation-Sites	0%			-													

Data

Quantitative and qualitative data were collected for all processes within the system boundary and these data were used to compile the LCI. These comprised specific data (primary data) and generic data (secondary data). Generic database data from Sphera and ecoinvent were used for the production of raw materials, energy, transportation, packaging and end-of-life. Specific data were collected from the factory manufacturing this product.

Time representativeness

The site-specific data used for the product manufacturing corresponds to 2022.

Data quality

All datasets used came from reputable databases Sphera and ecoinvent, with good technological representativeness. Secondary/generic data were chosen to be as geographically specific as possible, however, this was not always possible. In these cases, a geography was selected to match the technology, feedstock source etc., as closely as possible.

Allocation

In this study, allocation procedures for multi-product processes followed the approach prescribed in the PCR, whereby mass allocation was used at the manufacturer. In terms of co-product allocation of generic data, the main databases used, ecoinvent v3.8 (cut-off) and Sphera Manged LCA Content, defaults to an economic allocation for most processes. However, in some cases a mass-based allocation is used, where there is a direct physical relationship.

In this study a “cut-off” method was applied to all cases of end-of-life allocation, including in the case of generic data, where the ecoinvent v3.8 with a cut-off by classification end-of-life allocation method was used. In this approach, environmental burdens and benefits of recycled / reused materials and recovered energy are given to the product system consuming them, rather than the system providing them and are quantified based on recycling content of the material under investigation. The cut-off point is where an end-of-waste state is reached, including any sorting, cleaning, and processing of waste prior to recycling, reuse, or energy recovery, following the “polluter pays principle”.

This EPD covers a range of sizes of product. As density, raw materials, and manufacturing methods remain the same, there is no difference in impact per m³.

Cut-off criteria

The general rules for the exclusion of inputs and outputs follow the requirements in EN 15804, whereby a process can be excluded if it contributes to <1% of the total mass or energy input of a unit process, up to a maximum of the total mass or energy of the lifecycle. The plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the potential environmental impacts through the life cycle of the product, as well as flows related to human activities, such as employee transport.

Content declaration

Product components	Weight kg/m ³	Post-consumer materials weight %	Biogenic materials weight % and kg C/m ³
Wood	420 – 440	0	37%, 175 kg
Adhesive	30 – 50	0	1%, 5 kg
Total	470	0	38%, 180 kg
Packaging materials	Weight kg/m ³	Weight-% (versus the product)	Weight biogenic carbon, kg C/m ³
Steel	0.4	0.1%	0
Plastic	0.9	0.2%	0
Total	1.2	0.3%	0

No substances that appear in the REACH candidate list of SVHC (Candidate List of Substances of Very High Concern) are present or used in the product concerning this EPD.

Information on the biogenic carbon content

Biogenic carbon content	Unit per FU	Amount
Biogenic carbon content in the product	kg C	1.8E+02
Biogenic carbon content in packaging	kg C	0

1 kg biogenic carbon is equivalent to 44/12 kg CO₂.

Information on energy content

Energy content	Unit per FU	Amount
Energy content in the product	MJ	2.5E+04

Manufacturing electricity grid mix

Sphera Managed LCA Content data for Brazil grid electricity (2019) was used, with a GWP-GHG intensity of 0.284 kg CO₂e per kWh. The dataset does not document the mix used and could not be adjusted to reflect the residual mix. However, it was established that due to the minor contribution of electricity to A1-A3 results, the choice of the grid or residual mix makes an immaterial contribution.

Disclaimers

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.

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

ILCD classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted	2
	water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 – 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.		
Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.		

Results of the environmental performance indicators

Potential environmental impact – indicators according to EN 15804+A2 EF3.1

Results per functional unit: 1 m ³								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	-3.16E+02	1.82E+01	3.10E-01	3.61E+00	7.04E+02	0	-1.33E+02
GWP-fossil	kg CO ₂ eq	3.73E+02	1.79E+01	3.06E-01	3.55E+00	1.30E+01	0	-1.33E+02
GWP-biogenic	kg CO ₂ eq	-6.91E+02	0	0	0	6.91E+02	0	0
GWP-luluc	kg CO ₂ eq	1.93E+00	2.95E-01	4.94E-03	5.88E-02	7.33E-03	0	-1.03E-02
ODP	kg CFC-11 eq	5.90E-06	1.77E-12	4.32E-14	3.53E-13	8.46E-11	0	-3.11E-10
AP	mole H ⁺ eq	6.44E+00	3.28E-02	1.51E-03	6.53E-03	1.27E-01	0	-8.84E-02
EP-freshwater	kg P eq	3.78E-02	7.47E-05	1.25E-06	1.49E-05	2.18E-05	0	-2.28E-04
EP-marine	kg N eq	1.64E+00	1.36E-02	7.14E-04	2.71E-03	3.71E-02	0	-3.60E-02
EP-terrestrial	mole N eq	1.74E+01	1.55E-01	7.94E-03	3.10E-02	5.31E-01	0	-3.72E-01
POCP	kg NMVOC eq	4.64E+00	3.10E-02	2.02E-03	6.16E-03	1.02E-01	0	-9.87E-02
ADP-minerals & metals	kg Sb eq	1.32E-03	1.49E-06	2.56E-08	2.98E-07	9.02E-07	0	-9.02E-06
ADP-fossil	MJ	6.10E+03	2.29E+02	3.87E+00	4.57E+01	1.87E+02	0	-3.08E+03
WDP	m ³	2.17E+02	2.61E-01	4.54E-03	5.22E-02	8.41E+01	0	-1.05E+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							

Use of resources

		Results per functional unit: 1 m ³						
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
PERE	MJ	-3.60E+03	1.94E+01	3.33E-01	3.86E+00	5.26E+01	0	-1.41E+03
PERM	MJ	1.22E+04	0	0	0	0	0	0
PERT	MJ	8.54E+03	1.94E+01	3.33E-01	3.86E+00	5.26E+01	0	-1.41E+03
PENRE	MJ	5.09E+03	2.29E+02	3.87E+00	4.57E+01	1.87E+02	0	-3.08E+03
PENRM	MJ	1.02E+03	0	0	0	0	0	0
PENRT	MJ	6.10E+03	2.29E+02	3.87E+00	4.57E+01	1.87E+02	0	-3.08E+03
SM	kg	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0
FW	m3	5.26E+00	2.18E-02	3.71E-04	4.33E-03	1.98E+00	0	-1.87E+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							

Waste and output flows

Waste

		Results per functional unit: 1 m ³						
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
HWD	kg	1.08E-06	7.43E-09	1.48E-10	1.48E-09	1.10E-07	0	-2.23E-06
NHWD	kg	1.81E+00	3.56E-02	6.30E-04	7.10E-03	1.50E+01	0	-1.94E+00
RWD	kg	4.21E-02	2.96E-04	7.05E-06	5.92E-05	1.01E-02	0	-3.47E-01
Acronyms	HW Hazardous waste disposed; NHW Non-hazardous waste disposed; RW Radioactive waste disposed							

Output flows

		Results per functional unit: 1 m ²						
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
CRU	kg	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	1.06E+03	0	0
EET	MJ	0	0	0	0	1.92E+03	0	0
Acronyms	CRU Components for reuse; MFR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy							

Additional mandatory and voluntary indicators

		Results per functional unit: 1 m ³						
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq	3.76E+02	1.82E+01	3.11E-01	3.62E+00	1.31E+01	0	-1.33E+02
Acronyms	GWP-GHG global warming potential - greenhouse gases;							

¹This 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 CO₂ is set to zero.

References

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ISO 14020:2022	International Standard ISO 14020 – Environmental statements and programmes for products – Principles and general requirements
ISO 14025:2006	International Standard ISO 14025 – Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040:2006	International Standard ISO 14040: Environmental Management – Life cycle assessment – Principles and framework. Second edition 2006-07-01.
ISO 14044:2006	International Standard ISO 14044: Environmental Management – Life cycle assessment – Requirements and Guidelines.
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