

# Environmental Product Declaration



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

## ***Oriented Strand Board, OSB***

from

***Norbord Europe Ltd***



Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
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*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](http://www.environdec.com)*



## General information

### Programme information

<b>Programme:</b>	The International EPD® System
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product category rules (PCR):

*Product Category Rules (PCR): Construction products and construction services. PCR 2012:01 Version 2.3 (IEPDS, 2018)*

*SUB-PCR to PCR 2012:01: Wood and wood-based products for use in construction. PCR 2012:01-SUB-PCR-E (IEPDS, 2018)*

PCR review was conducted by: *Claudia A. Peña, info@environdec.com*

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

☐ EPD process certification ☒ EPD verification

Third-party verifier: *Jane Anderson, ConstructionLCA Ltd*



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. For further information about comparability, see EN 15804 and ISO 14025.

## Company information

Owner of the EPD: Norbord Europe Ltd

Contact: alan.kirkpatrick@westfraser.com]

Description of the organisation: Norbord is the UK's largest manufacturer of wood panel boards and have supplied the construction industry for over five decades. Norbord places customers, standards of excellence, control of costs, safety and environmental concerns at the heart of its business. Brands include SterlingOSB Zero, CaberBoard Flooring and CaberWood MDF, and are manufactured to the highest standards. This backed up by a support team which assists customers with product and technical assistance. Norbord supplies more than 70 key items across our three product ranges and is committed to quality and customer service.

Product-related or management system-related certifications: These products conform to the BS EN 5268 standard for structural timber design and hold certifications from the Forestry Stewardship Council (FSC), the British Board of Agrément (BBA) and the Conformité Européen (CE) mark (British Board of Agreement, 2015; BM Trada, 2015; Trada, 2007). These products are also UKCA certified

Name and location of production site(s):

Norbord Europe Ltd, Morayhill, Inverness IV2 7JQ, United Kingdom.

Norbord Europe Ltd, Eikelaarstraat 33, Genk 3600, Belgium.

## Product information

Product name: Oriented strand board (OSB), engineered wood-based panel products.

Product description: Oriented strand board (OSB) is an engineered wood-based panel product. It is made from thin strands of wood that are blended with resins and wax to improve the product's resistance to moisture. These strands are shaped into mats that are superimposed on to each other in specific orientations, which serves to maximise the strength of the finished boards. The mats are pressed at high temperature and pressure before having surface treatments applied and being cut into standard sizes.

OSB is manufactured between 8-30 mm thickness with variable dimensions dependent on the end use. The product's favourable mechanical properties make it suitable for structural use in load bearing and challenging conditions. As such, OSB is widely used in flooring, wall sheathing, roofing, timber frames, furniture and packaging applications

UN CPC code: 31432 Oriented Strand Board (OSB)

Product identification: This EPD relates to OSB products made by Norbord Europe Ltd at their production sites in Inverness, UK and Genk, Belgium, which are supplied to global customers. Separate results have been prepared for each production site. The typical material composition of Norbord OSB is given below:

**Table 1: Typical material composition of Norbord OSB**

Component	Composition
Wood chips	90-92%
Resin	1-2%
Wax	<1%
Water	~7%
Others	<1%

### Technical data

The key technical characteristics of Norbord OSB are provided below.

**Table 2: Key technical characteristics of Norbord OSB**

Technical Properties	Unit	Specification	Relevant EN Standard
Thermal conductivity 'K' Value	W/(m.K)	0.13	EN 13986
Linear expansion (65-85% relative humidity)	%	0.15	
Moisture content	%	2-12	EN 322
Modulus of elasticity in bending – major axis	N/mm <sup>2</sup>	3500	EN 310
Modulus of elasticity in bending – minor axis	N/mm <sup>2</sup>	1400	EN 310
Internal bond (IB)	N/mm <sup>2</sup>	0.29-0.34	EN 319
Thickness swelling (24 hr immersion)	%	15	EN 317
Reaction to fire (BS EN 135 01-1)		D	EN 13986
Formaldehyde	mg/100 g	<8	EN 120

## LCA information

Functional unit / declared unit: The declared unit quantifies and describes the products and is used as the basis for reporting results. This EPD relates to the range of OSB products made by Norbord Europe Ltd that are supplied to global customers.

The declared unit for oriented strand board is typically based on volume, hence the declared unit for OSB made at the Inverness site is: 1 m<sup>3</sup> of oriented strand board with density of 600 kg/m<sup>3</sup>. To convert from 1 m<sup>3</sup> to 1 kg oriented strand board from Inverness, the results in this EPD should be divided by the density of 600 kg/m<sup>3</sup>.

The declared unit for OSB mate at the Genk site is 1 m<sup>3</sup> of oriented strand board with density of 620 kg/m<sup>3</sup>. To convert from 1 m<sup>3</sup> to 1 kg oriented strand board from Genk, the results in this EPD should be divided by the density of 620 kg/m<sup>3</sup>.

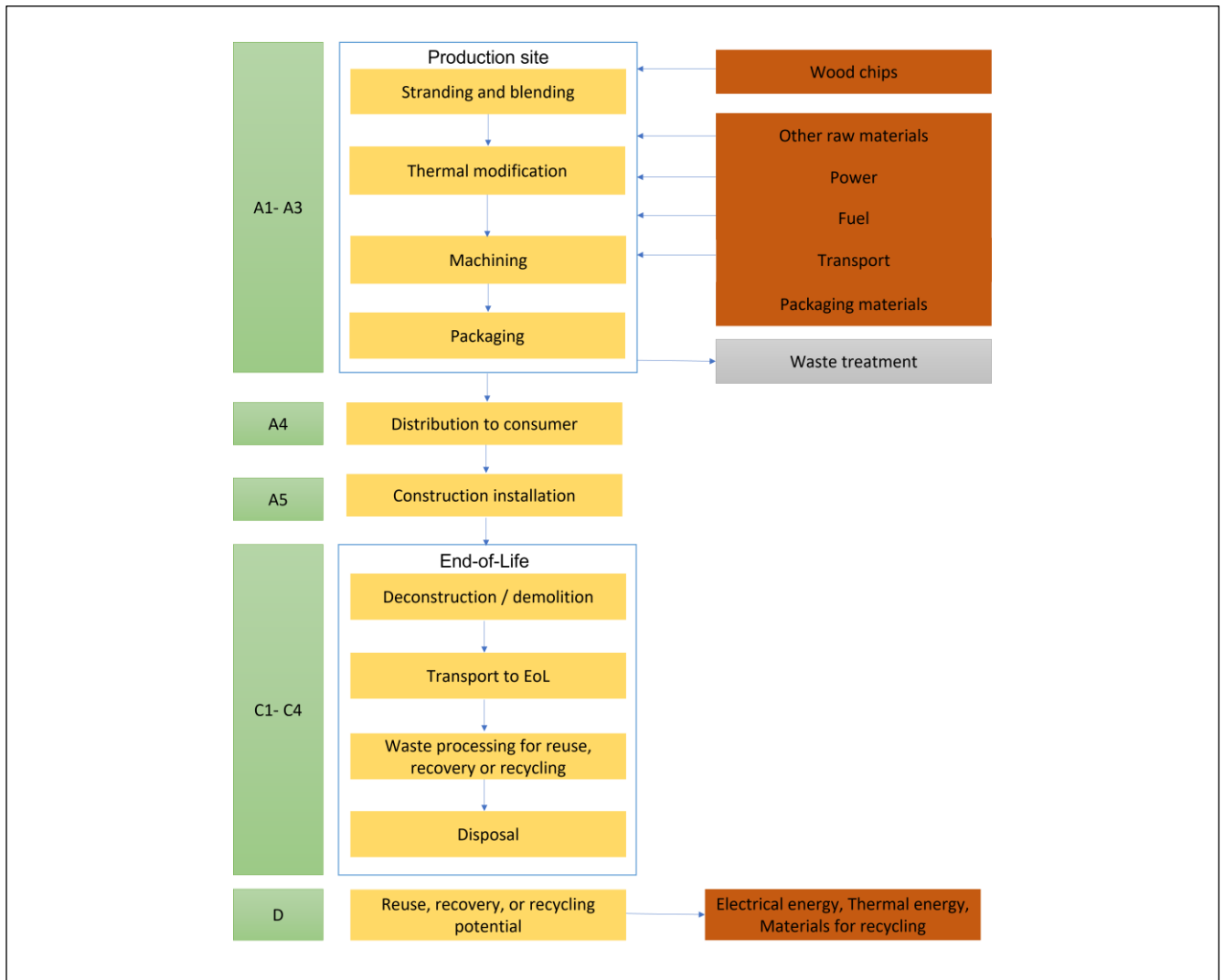
Time representativeness: All primary data were collected for the year 2020. All secondary data come from the GaBi 2021 databases and are representative of the years 2017-2020.

Database(s) and LCA software used: GaBi 2021 database and GaBi 10 Software are used

Description of system boundaries: The scope of this EPD covers the OSB production process and upstream burdens associated with production and transport of raw materials and generation of energy. It also accounts for the burdens associated with distributing the finished product out to customers (761 km for Inverness and 450 km for Genk) and packaging treatment. These activities relate to modules A1-A5, according to EN 15804+A2, as shown in Table 3 below. No reference service life is reported, as the use-stage modules (B1-B5) have not been declared. In the end-of-life stage a manual dismantling (module C1) and transport to the waste treatment facility (module C2) has been accounted for (100 km). Module C3 contains environmental loads related to the thermal treatment of the product. For the incineration process, an efficiency of greater 60% has been assumed (R1 – value > 0.6). For calculating the credits, for the substitution of thermal energy and electricity, European scenario datasets have been used. Module D contains credits for substitution of thermal energy and electricity by energy generation from thermal treatment of product (Module C3) and packaging (Module A5). The EPD type is “cradle-to-gate with options”.

Figure 2 shows the process steps and activities included within the system boundaries of the EPD study.

System diagram:



**Figure 2: Process flow diagram showing the production and distribution of Norbord OSB**

**Table 3: Modules of the production life cycle included in the EPD (X = declared module; MND = module not declared)**

	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	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	MND	X
Geography	EU-28	GLO	GB	GLO	EU-28	MND	MND	MND	MND	MND	MND	MND	-	GLO	EU-28	MND	EU-28
Specific data used	>90%*			-	-	MND	MND	MND	MND	MND	MND	MND	-	-	-	-	-
Variation-products	Not relevant			-	-	MND	MND	MND	MND	MND	MND	MND	-	-	-	-	-
Variation-sites	<5%			-	-	MND	MND	MND	MND	MND	MND	MND	-	-	-	-	-

\* The value given is based on the fact that all relevant input and output flows of the product system have been collected site specific. This includes transport distances.

## Input information (Inverness)

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Wood chips	552	0%	100%
Polymeric diphenyl methane diisocyanate (PMDI) resin	9.2	0%	0%
Wax	3.7	0%	0%
Release agent	0.1	0%	0%
Water content	35	0%	0%
TOTAL	600	0%	94%
Packaging materials	Weight, kg	Weight-% (versus the product)	
Cardboard	0.15	0.03%	
Plastic	0.11	0.02%	
Battens-Wood	4.8	0.80%	
TOTAL	5.06	0.8%	

## Input information (Genk)

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Wood chips	570.4	0%	100%
Polymeric diphenyl methane diisocyanate (PMDI) resin	10.1	0%	0%
Wax	3.3	0%	0%
Release agent	0.04	0%	0%
Water content	36	0%	0%
TOTAL	620	0%	94%
Packaging materials	Weight, kg	Weight-% (versus the product)	
Cardboard	0.04	0.03%	
Plastic	0.13	0.02%	
Battens-Wood	5.63	0.80%	
TOTAL	5.79	0.8%	



## Environmental Information

### Potential environmental impact – mandatory indicators according to EN 15804

LCA results per 1m <sup>3</sup> OSB board (600kg/m <sup>3</sup> ) produced at Inverness													
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	5.89E+01	6.58E+00	3.57E+01	1.01E+02	2.56E+01	5.12E-01	ND	0.00E+00	4.42E+00	3.21E+02	ND	- 2,86E+02
GWP-biogenic	kg CO <sub>2</sub> eq.	- 1.14E+03	1.46E-01	1.41E+02	- 9.99E+02	6.31E-01	8.20E+00	ND	0.00E+00	1,13E-01	9,88E+02	ND	- 2,33E+00
GWP-luluc	kg CO <sub>2</sub> eq.	1.71E-01	8.41E-04	6.76E-03	1.79E-01	3.60E-03	1.14E-05	ND	0.00E+00	6.44E-04	6.09E-03	ND	- 3.83E-01
GWP-total	kg CO <sub>2</sub> eq.	- 1.08E+03	6.72E+00	1.77E+02	- 8.96E+02	2.62E+01	8.72E+00	ND	0.00E+00	4,53E+00	1,31E+03	ND	- 2,89E+02
ODP	kg CFC 11 eq.	2.32E-13	1.05E-15	4.64E-13	6.97E-13	4.27E-15	2.26E-16	ND	0.00E+00	7.49E-16	2.30E-13	ND	- 6.47E-12
AP	mol H <sup>+</sup> eq.	2.36E-01	3.94E-02	2.00E-01	4.75E-01	5.92E-02	6.60E-04	ND	0.00E+00	3.72E-03	7.49E-01	ND	- 5.72E-01
EP-freshwater	kg P eq.	1.38E-04	2.05E-06	4.72E-05	1.87E-04	8.22E-06	2.07E-08	ND	0.00E+00	1.44E-06	1.64E-05	ND	- 7.25E-04
EP-marine	kg N eq.	1.01E-01	1.07E-02	5.69E-02	1.69E-01	1.69E-02	2.91E-04	ND	0.00E+00	1.21E-03	3.36E-01	ND	- 1.38E-01
EP-terrestrial	mol N eq.	1.10E+00	1.18E-01	6.26E-01	0.00E+00	1.86E-01	3.53E-03	ND	0.00E+00	1.35E-02	4.07E+00	ND	- 1.45E+00
POCP	kg NMVOC eq.	3.20E-01	2.99E-02	1.79E-01	1.84E+00	4.73E-02	7.45E-04	ND	0.00E+00	3.40E-03	8.59E-01	ND	- 3.75E-01
ADP-minerals&metals*	kg Sb eq.	6.60E-06	2.34E-07	4.43E-06	5.29E-01	9.25E-07	2.89E-09	ND	0.00E+00	1.61E-07	2.82E-06	ND	- 8.03E-05
ADP-fossil*	MJ	1.25E+03	8.91E+01	7.35E+02	1.13E-05	3.51E+02	4.11E-01	ND	0.00E+00	6.09E+01	4.27E+02	ND	- 5.08E+03
WDP	m <sup>3</sup>	6.60E+00	7.78E-03	1.16E+00	2.07E+03	2.92E-02	1.45E-01	ND	0.00E+00	4.96E-03	1.47E+02	ND	- 4.33E+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.

## Potential environmental impact – additional mandatory and voluntary indicators

### LCA results per 1m<sup>3</sup> OSB board (600kg/m<sup>3</sup>) produced at Inverness

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	- 1,18E+03	1,69E+01	2,40E+02	2,11E+01	1,02E+01	- 8.92E+02	ND	0.00E+00	4,69E+00	1.36E+03	ND	- 2,99E+02

## Resource use, primary energy

### LCA results per 1m<sup>3</sup> OSB board (600kg/m<sup>3</sup>) produced at Inverness

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	MJ	3.99E+03	1.91E+00	7.57E+01	4.07E+03	8.20E+00	6.46E+01	ND	0.00E+00	1.47E+00	8.17E+03	ND	- 2.21E+03
PERM	MJ	8.10E+03	0.00E+00	6.45E+01	8.16E+03	0.00E+00	- 6.45E+01	ND	0.00E+00	0.00E+00	- 8.10E+03	ND	0.00E+00
PERT	MJ	1.21E+04	1.91E+00	1.40E+02	1.22E+04	8.20E+00	7.36E-02	ND	0.00E+00	1.47E+00	7.58E+01	ND	- 2.21E+03
PENRE	MJ	1.25E+03	8.92E+01	7.30E+02	2.07E+03	3.51E+02	5.09E+00	ND	0.00E+00	6.10E+01	4.28E+02	ND	- 5.08E+03
PENRM	MJ.	0.00E+00	0.00E+00	4.68E+00	4.68E+00	0.00E+00	- 4.68E+00	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
PENRT	MJ	1.25E+03	8.92E+01	7.35E+02	2.07E+03	3.51E+02	4.11E-01	ND	0.00E+00	6.10E+01	4.28E+02	ND	- 5.08E+03
SM	kg	0.00E+00	0.00E+00	1.67E-01	1.67E-01	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
FW	m <sup>3</sup>	2.32E-01	5.39E-04	1.20E-01	3.53E-01	2.14E-03	3.41E-03	ND	0.00E+00	3.72E-04	3.47E+00	ND	- 2.16E+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												

<sup>1</sup> 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.

## Waste production and output flows

### Waste production

LCA results per 1m <sup>3</sup> OSB board (600kg/m <sup>3</sup> ) produced at Inverness													
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	9.32E-07	9.17E-10	8.61E-08	1.02E-06	3.70E-09	6.48E-11	ND	0.00E+00	6.49E-10	6.51E-08	ND	-1.32E-06
Non-hazardous waste disposed	kg	3.81E-01	3.24E-03	2.61E+00	2.99E+00	1.04E-02	1.46E-02	ND	0.00E+00	1.64E-03	9.76E+00	ND	-3.47E+00
Radioactive waste disposed	kg	1.92E-02	1.04E-04	7.30E-02	9.23E-02	4.11E-04	1.81E-05	ND	0.00E+00	7.14E-05	1.83E-02	ND	-7.16E-01

### Output flows

LCA results per 1m <sup>3</sup> OSB board (600kg/m <sup>3</sup> ) produced at Inverness													
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	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	4.32E+00	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	2.30E-01	2.30E-01	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.89E+00	ND	0.00E+00	0.00E+00	2.39E+02	ND	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.14E-01	ND	0.00E+00	0.00E+00	2.44E+03	ND	0.00E+00

### Information on biogenic carbon content

LCA results per 1m <sup>3</sup> OSB board (600kg/m <sup>3</sup> ) produced at Inverness		
BIOTENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	2.69E+02
Biogenic carbon content in packaging	kg C	2.24E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>.

## Potential environmental impact – mandatory indicators according to EN 15804

LCA results per 1m <sup>3</sup> OSB board (620kg/m <sup>3</sup> ) produced at Genk													
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	5.20E+01	1.68E+01	3.35E+01	1.02E+02	2.06E+01	6.96E-01	ND	0.00E+00	4.57E+00	3.32E+02	ND	- 2.96E+02
GWP-biogenic	kg CO <sub>2</sub> eq.	- 1.24E+03	1.24E-01	2.06E+02	- 1.03E+03	5.28E-01	9.50E+00	ND	0.00E+00	1.17E-01	1.03E+03	ND	- 2.40E+00
GWP-luluc	kg CO <sub>2</sub> eq.	6.59E-02	8.69E-04	1.13E-02	7.81E-02	3.00E-03	8.77E-06	ND	0.00E+00	6.66E-04	6.30E-03	ND	- 3.96E-01
GWP-total	kg CO <sub>2</sub> eq.	- 1.18E+03	1.69E+01	2.40E+02	- 9.23E+02	2.11E+01	1.02E+01	ND	0.00E+00	4.69E+00	1.36E+03	ND	- 2.99E+02
ODP	kg CFC 11 eq.	2.66E-13	2.00E-15	3.36E-13	6.04E-13	3.49E-15	2.16E-16	ND	0.00E+00	7.75E-16	2.38E-13	ND	- 6.68E-12
AP	mol H <sup>+</sup> eq.	1.20E-01	4.66E-01	2.91E-01	8.77E-01	1.73E-02	7.03E-04	ND	0.00E+00	3.85E-03	7.74E-01	ND	- 5.91E-01
EP-freshwater	kg P eq.	1.02E-04	4.18E-06	8.95E-05	1.96E-04	6.71E-06	1.54E-08	ND	0.00E+00	1.49E-06	1.70E-05	ND	- 7.50E-04
EP-marine	kg N eq.	4.24E-02	1.23E-01	7.85E-02	2.44E-01	5.63E-03	3.15E-04	ND	0.00E+00	1.25E-03	3.47E-01	ND	- 1.42E-01
EP-terrestrial	mol N eq.	4.55E-01	1.35E+00	8.61E-01	2.67E+00	6.29E-02	3.82E-03	ND	0.00E+00	1.40E-02	4.21E+00	ND	- 1.50E+00
POCP	kg NMVO C eq.	1.45E-01	3.45E-01	2.48E-01	7.38E-01	1.58E-02	8.06E-04	ND	0.00E+00	3.51E-03	8.88E-01	ND	- 3.87E-01
ADP-minerals&metals*	kg Sb eq.	6.53E-06	5.29E-07	3.94E-06	1.10E-05	7.50E-07	2.64E-09	ND	0.00E+00	1.66E-07	2.91E-06	ND	- 8.30E-05
ADP-fossil*	MJ	1.28E+03	2.10E+02	6.42E+02	2.13E+03	2.84E+02	4.01E-01	ND	0.00E+00	6.30E+01	4.42E+02	ND	- 5.25E+03
WDP	m <sup>3</sup>	8.64E+00	2.40E-02	1.03E+01	1.90E+01	2.31E-02	1.38E-01	ND	0.00E+00	5.13E-03	1.52E+02	ND	- 4.48E+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.

## Potential environmental impact – additional mandatory and voluntary indicators

LCA results per 1m <sup>3</sup> OSB board (600kg/m <sup>3</sup> ) produced at Genk													
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-GHG <sup>2</sup>	kg CO <sub>2</sub> eq.	- 1,18 E+0 3	1,69E +01	2,40E +02	2,11E+ 01	1,02 E+01	- 8.92 E+02	ND	0.00 E+00	4,69E +00	1.36E+ 03	ND	- 2,99E +02

## Resource use, primary energy

LCA results per 1m <sup>3</sup> OSB board (600kg/m <sup>3</sup> ) produced at Genk													
Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	MJ	3.59E+ 03	1.91E +00	7.57E+ 01	4.07E +03	8.20E +00	6.46E+ 01	ND	0.00 E+00	1.47 E+00	8.17E +03	ND	- 2.21E+ 03
PERM	MJ	9.45E+ 03	0.00E +00	6.45E+ 01	8.16E +03	0.00E +00	- 6.45E+ 01	ND	0.00 E+00	0.00 E+00	- 8.10E +03	ND	0.00E+ 00
PERT	MJ	1.30E+ 04	1.91E +00	1.40E+ 02	1.22E +04	8.20E +00	7.36E- 02	ND	0.00 E+00	1.47 E+00	7.58E +01	ND	- 2.21E+ 03
PENRE	MJ	1.28E+ 03	8.92E +01	7.30E+ 02	2.07E +03	3.51E +02	5.09E+ 00	ND	0.00 E+00	6.10 E+01	4.28E +02	ND	- 5.08E+ 03
PENRM	MJ.	0.00E+ 00	0.00E +00	4.68E+ 00	4.68E +00	0.00E +00	- 4.68E+ 00	ND	0.00 E+00	0.00 E+00	0.00E +00	ND	0.00E+ 00
PENRT	MJ	1.28E+ 03	8.92E +01	7.35E+ 02	2.07E +03	3.51E +02	4.11E- 01	ND	0.00 E+00	6.10 E+01	4.28E +02	ND	- 5.08E+ 03
SM	kg	0.00E+ 00	0.00E +00	1.67E- 01	1.67E- 01	0.00E +00	0.00E+ 00	ND	0.00 E+00	0.00 E+00	0.00E +00	ND	0.00E+ 00
RSF	MJ	0.00E+ 00	0.00E +00	0.00E+ 00	0.00E +00	0.00E +00	0.00E+ 00	ND	0.00 E+00	0.00 E+00	0.00E +00	ND	0.00E+ 00
NRSF	MJ	0.00E+ 00	0.00E +00	0.00E+ 00	0.00E +00	0.00E +00	0.00E+ 00	ND	0.00 E+00	0.00 E+00	0.00E +00	ND	0.00E+ 00
FW	m <sup>3</sup>	2.63E- 01	5.39E- 04	1.20E- 01	3.53E- 01	2.14E- 03	3.41E- 03	ND	0.00 E+00	3.72 E-04	3.47E +00	ND	- 2.16E+ 00

<sup>2</sup> 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.

## 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

#### LCA results per 1m³ OSB board (600kg/m³) produced at Genk

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	4.04E-07	1.80E-09	9.77E-08	5.04E-07	3.03E-09	6.10E-11	ND	0.00E+00	6.72E-10	6.72E-08	ND	-1.37E-06
Non-hazardous waste disposed	kg	4.18E-01	1.68E-02	3.72E+00	4.15E+00	7.64E-03	9.15E-03	ND	0.00E+00	1.69E-03	1.01E+01	ND	-3.59E+00
Radioactive waste disposed	kg	2.77E-02	2.37E-04	9.12E-02	1.19E-01	3.33E-04	1.72E-05	ND	0.00E+00	7.39E-05	1.89E-02	ND	-7.40E-01

### Output flows

#### LCA results per 1m³ OSB board (600kg/m³) produced at Genk

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	B1-B7	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	5.07E+00	ND	0.00E+00	6.72E-10	6.72E-08	ND	-1.37E-06
Material for recycling	kg	0.00E+00	0.00E+00	3.56E-01	3.56E-01	0.00E+00	0.00E+00	ND	0.00E+00	1.69E-03	1.01E+01	ND	-3.59E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	7.39E-05	1.89E-02	ND	-7.40E-01
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E+03	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E+02	ND	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00

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

#### LCA results per 1m³ OSB board (620kg/m³) produced at Genk

BIOTENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	2.78E+02
Biogenic carbon content in packaging	kg C	2.59E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>.

## Differences versus previous versions

EN standards: This EPD have changed the reference from EN15804 to EN15804:2012+A2:2019. With this change, module C1-C4 and D have been added.

LCA data: Background data for LCA modelling have been updated GaBi 2021 database.

Data update: All primary data were collected for year 2020.

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