Environmental Product Declaration

In accordance with ISO 14025 and EN 15804 for:

Classic Sawn

by

Stora Enso

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-02150
ECO Platform registration number:	00001281
Publication date:	2020-08-03
Revision date:	2021-02-10
Valid until:	2026-02-11

Company information

Owner of the EPD:
Stora Enso
Division Wood Products
E-mail woodproducts@storaenso.com
Tel +358 (0)20 46114
www.storaenso.com

Description of the organisation: Stora Enso is a leading provider of renewable solutions in packaging, biomaterials, wood and paper to global markets. Our customers include the packaging, joinery and construction industries as well as publishers, printing houses and paper merchants. Our aim is to replace non-renewable materials by innovating and developing new products and services based on wood and other renewable materials. Our focus is on fibre-based packaging, plantation-based pulp, innovations in biomaterials, and sustainable building solutions.

Stora Enso's Wood Products division is a market-leading provider of innovative wood-based products for construction and interior usages. Our product range covers all areas of urban construction including massive wood elements, wood components, engineered wood products and pellets. All our mills run an integrated management system, which is certified in accordance with Chain of Custody (FSC® and/or PEFC™), quality management (ISO 9001), environmental management (ISO 14001), health and safety (ISO 45001), and energy management (ISO 50001) requirements.

Locations of production sites:
Sawn timber is produced in our factories in Ala (Sweden), Alytus (Lithuania), Brand (Austria), Bad St. Leonhard (Austria), Gruvön (Sweden), Honkalahti (Finland), Imavere (Estonia), Impilahti (Russia), Launkalne (Latvia), Murow (Poland), Näpi (Estonia), Nebolchi (Russia), Plana (Czech Republic), Uimaharju (Finland), Varkaus (Finland), Veitsiluoto (Finland), Ybbs an der Donau (Austria) and Zdirec (Czech Republic) before being distributed around the globe. These factories have an annual sawing capacity of almost 5,5 million m³ best redwood and whitewood. This EPD covers 100% of the Stora Enso sawn timber production (volume).

Product information

Product name: Classic Sawn by Stora Enso
Product identification: Classic Sawn is placed on the market confirmed by declarations of performance and manufactured according to EN 14081-1:2005+A1:2011
Product description: Classic Sawn is a sawn timber product of standard grades and dimensions for different joinery purposes.

Classic sawn is used for construction, packaging and joinery, such as window and door manufacturing and interior products. Strength graded timber meets the quality for load-bearing structures in construction.
Geographical origin: Austria, Sweden, Estonia, Finland, Czech Republic, Latvia, Lithuania, Poland and Russia

Use applications:



Product examples:

Sawn timber pine, 100x100

Sawn timber pine, 50x200

Sawn timber spruce, 48x48

Sawn timber spruce, 22x100

Sawn timber spruce, 48x148 (C24)

Sawn timber spruce, 50x150

Technical information

Properties	Classic sawn	Sawn timber for construction	Sawn timber for packaging	Strength graded timber
Wood species	spruce *(Picea abies)*, pine *(Pinus sylvestris)*	spruce *(Picea abies)*, pine *(Pinus sylvestris)*	spruce *(Picea abies)*	spruce *(Picea abies)*, pine *(Pinus sylvestris)*
Moisture content	16-18% ± 2% when dispatched from the mill	10-20% ± 2% when dispatched from the mill	20% ± 3% when dispatched from the mill	15-18% ± 2% when dispatched from the mill
Composition	100% wood	100% wood	100% wood	100% wood
Thickness	16-100 mm	20-140 mm	15-50 mm	32-90 mm
Widths	75-275 mm	40-300 mm	60-150 mm	50-300 mm
Lengths	2,5-6 m	2,5-6 m	2,4-6 m	1,2-6 m
Density	460 kg/m³	460 kg/m³	460 kg/m³	460 kg/m³
Visual quality	Rough	Rough	Rough	Rough
Strength class				C14-C40, TR26 (Europe) MGP10, MGP12, F grades (Australia) ALS/WCLIB No.1, No2, 1650F, 2100F (North America)

Biogenic carbon content at the factory gate

Biogenic carbon content	Unit (expressed per declared unit)
Biogenic carbon content in product	733 kg CO_2 eq. / m³ = 199,9 kg C / m³
Biogenic carbon content in accompanying packaging	0 kg CO_2 eq. / m³ = 0 kg C / m³
1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

Product composition

Materials / chemical substances	kg	%	Notes
Wood (Picea abies & Pinus sylvestris)	460	100	Water content 12,7% ± 4,2%
TOTAL	460	100	

The product does not contain any substances or products that are listed in the “Candidate List of Substances of Very High Concern for Authorisation”.

LCA information

Declared unit: 1 m³ of sawn dried timber with a moisture content of 15%

Reference Service Life (RSL): The RSL is understood as the period of time until the sawn timber is replaced, rebuild, renovated or restored. Wood products can reach over 100 years' service life in service classes 1 and 2.

Time representativeness: Data for the study was collected from Stora Enso Wood Products mills and represents the year 2018. This data includes raw material, transport distances, fuels, energy consumption, packaging, produced sawn timber, by-products and waste. Data from ecoinvent 3.5 has been used for generic data. The allocation is performed according to EN15804. Physical, economic and energy allocations have been used.

Database used: Ecoinvent 3.5 (August 2018)

LCA software used: SimaPro 9.0

Description of system boundaries: cradle to gate with modules C1–C4 and module D

More information: Standards EN 15804:2012 + A2:2019, EN 16485:2014 and PCR 2019:14 from The International EPD® System provide the core product category rules for the assessment. Biogenic carbon content of wood is calculated in line with EN 16449:2014 standard.

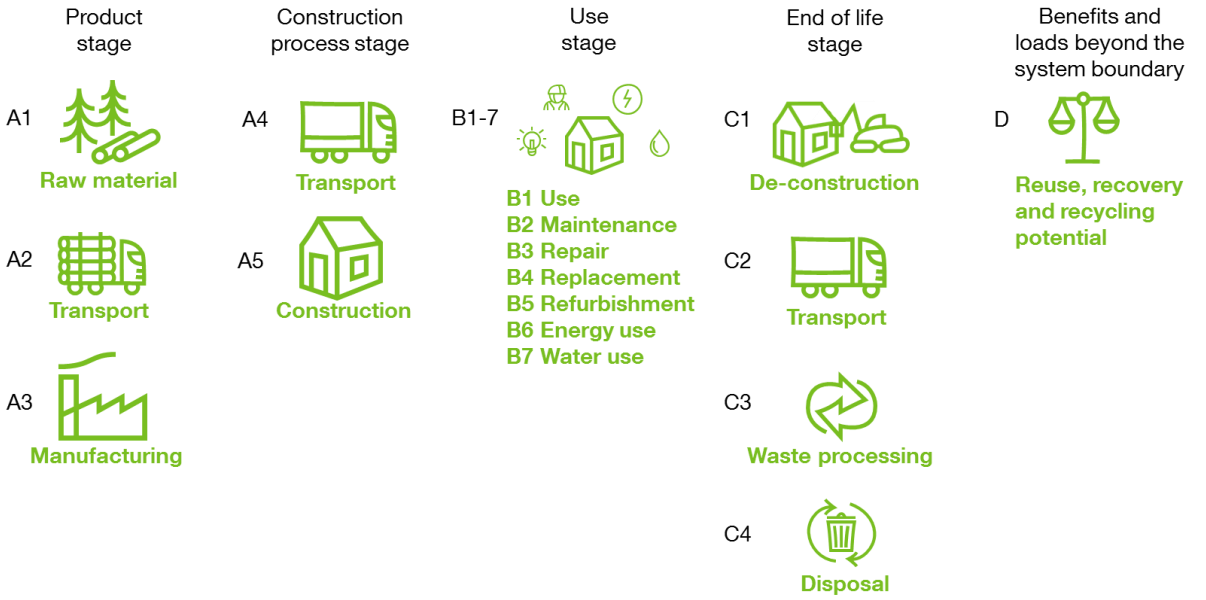
Target group: business to business & business to consumers

Cut-Off Rule: 1%. This rule is based on the assumption that the input flows do not have a major impact on the environmental impacts as a whole.

System boundary:

Production			Con-struction		Use							End of Life				Loads & Benefits
Raw material	Transport supply	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy	Operational water	Deconstruction	Transport	Waste treatment	Disposal	Reuse / Recovery / Recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
x = included			NR = module not relevant					ND = module not declared								

The analyzed system is the complete life cycle of 1 m³ sawn dried timber to be used as structural element in a building or as packaging material. According to the EN 15804 standard all life cycle stages are included in the LCA, assuming that there is no maintenance needed over the reference service life.



Product stage:

A1: This stage covers the extraction and processing of raw materials, such as forestry operations. All Stora Enso's wood raw material is sourced through a third-party certified wood traceability system. Stora Enso traceability system is certified according to FSC® and PEFC™ Chain of Custody systems.[1]

A2: This stage covers the transportation of the raw materials to the mill and the fuels needed for internal transportation. The wood supply operations cover procurement of softwood from regions and countries surrounding the different production mills. Purchased logs are spruce and pine logs transported with trucks and train.

A3: This stage covers the production of sawn timber and by-products. Generation of electricity or heat from primary energy resources are counted. Also packaging materials and the treatment of waste not leaving the factory with the product are counted.

Construction process stage:

A4: This stage shows additional information such as average figures from the transportation to the construction sites. There are no environmental impacts reported in this EPD, since there are multiple applications and usages possible. Specific transport information can be given on request.

A5: Construction process includes such packaging waste, which relates to the delivered product and construction of the product. There are no environmental impacts reported in this EPD, since there are multiple applications and usages possible.

Use stage:

B1–B7: There are no environmental impacts expected in the use phase, and at least no harmful substances are released to air, water or ground during the use of the product.

[1] FSC trademark license nr. C125195

End of life scenarios:

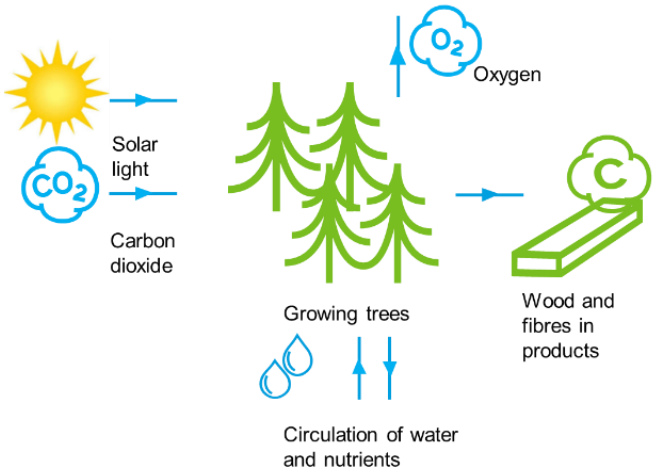
Four alternative scenarios have been developed for the end of life stage (**C1–C4 & D**).

- **Reuse:** Sawn timber is reused in coherent form. C1: demolition of the building, C2: transportation to the sorting 50 km, C3: preparing for reuse, C4: product for reuse, D: reuse of product, substituting virgin material
- **Recycling**: Sawn timber chipping for recycling. C1: demolition of the building, C2: transportation to the sorting 50 km, C3: preparing for recycling, C4: chips to recycling, D: recovery of wood chips, substituting virgin material
- **Incineration:** Sawn timber incineration for energy recovery C1: demolition of the building, C2: transportation to the sorting 50 km, C3: preparing for incineration, C4: chips to incineration (75% efficiency), D: substitution of natural gas in heat production
- **Landfilling:** Sawn timber is landfilled. C1: demolition of the building, C2: transportation to the sorting 50 km, C3: preparing for landfilling, C4: landfilling process, D: the methane uptake from landfill partly substitutes natural gas in heat production

Carbon sequestration and storage:

The sequestration of carbon dioxide (CO_2) is unique to renewable materials. Biogenic carbon content of a renewable material is an outcome of the CO_2 that has effectively been removed from the atmosphere by photosynthesis of growing trees and other plants, and turned into sugars (carbon) and oxygen. The quantity of atmospheric CO_2 has thus been reduced. The longer the CO_2 is not in the atmosphere but stays stored in a material, the greater the environmental benefit.

Biogenic carbon of wood is calculated according to the EN 16485 and 16449 standards. Half of the dry mass of wood is carbon. Each kg of stored biogenic carbon is equal to ~3.67 kg of CO_2, which is effectively removed from the atmosphere. In case of sawn timber the biogenic carbon content is -733 kg CO_2 eq./m³. Biogenic carbon enters the product system in forest (module A1) and for calculation purpose it is assumed to leave latest from the product system in the end-of-life stage (module C). This assumption can be made when wood is sourced from sustainably managed forest.



Sustainable wood

Stora Enso practises and promotes economically, socially, and environmentally sustainable forest management.

The two most significant forest certification systems recognised by Stora Enso are run by the Forest Stewardship Council (FSC®) [1] and the Programme for the Endorsement of Forest Certification (PEFC™).

Storing carbon

Trees absorb carbon dioxide and remove carbon from the atmosphere while growing. Wood products store the captured carbon. This helps reverse the greenhouse effect.

Total carbon storage in the products are increased by re-using and recycling of products. Finally, when biogenic carbon is released back to atmosphere, growing trees will absorb carbon dioxide again.

Recycling

Wood is recyclable and a good resource for new fibre-based products or energy generation to substitute fossil materials and energy.

Collection schemes and recycling rates depend on waste legislation, consumer behaviour, point of consumption, local collection system and infrastructure. EU target for building demolition waste recycling is 70% in 2020.

Environmental performance – product / construction stage

Potential environmental impact – 1m³ sawn dried timber

INDICATOR		UNIT	A1	A2	A3	TOTAL A1-A3	Range A1-A3***
Global warming potential (GWP)	Fossil	kg CO_2 eq.	1,11E+01	1,69E+01	5,86E+00	**3,39E+01**	2,11E+01 - 6,78E+01
	Biogenic *	kg CO_2 eq.	-7,33E+02*	1,02E-02	2,44E-01	**-7,33E+02***	-7,33E+02 - -7,32E+02
	Land use and land transformation	kg CO_2 eq.	6,11E-01	6,65E-03	9,04E-02	**7,08E-01**	2,66E-01 - 1,18E+00
	TOTAL *	kg CO_2 eq.	-7,22E+02*	1,69E+01	6,19E+00	**-6,98E+02***	-7,12E+02 - -6,65E+02
Ozone depletion potential (ODP)		kg CFC 11 eq.	2,26E-06	4,90E-06	1,35E-06	**8,51E-06**	5,43E-06 - 1,71E-05
Acidification potential (AP)		mol H+ eq.	6,08E-02	7,48E-02	1,41E-01	**2,76E-01**	1,82E-01 - 5,19E-01
Eutrophication potential (EP)	freshwater	kg PO_4 eq.	1,33E-03	2,25E-03	3,07E-03	**6,65E-03**	3,49E-03 - 2,36E-02
	marine	kg N eq.	2,19E-02	1,77E-02	3,27E-02	**7,23E-02**	5,00E-02 - 1,36E-01
	terrestrial	mol N eq.	2,23E-01	1,99E-01	5,93E-01	**1,02E+00**	6,66E-01 - 2,11E+00
Formation potential of tropospheric ozone (POCP)		kg NMVOC eq.	1,83E-01	6,67E-02	8,52E-02	**3,35E-01**	1,77E-01 - 4,54E-01
Abiotic depletion potential – Elements **		kg Sb eq.	3,51E-05	3,11E-05	1,35E-05	**7,98E-05**	3,29E-05 - 1,44E-04
Abiotic depletion potential – Fossil resources **		MJ, net calorific value	1,53E+02	3,23E+02	1,09E+02	**5,85E+02**	3,80E+02 - 1,34E+03
Water scarcity potential **		m³ eq.	5,81E+00	2,47E+00	3,03E+00	**1,13E+01**	4,61E+00 - 2,41E+01

Use of resources – 1m³ sawn dried timber

INDICATOR		UNIT	A1	A2	A3	TOTAL A1-A3	Range A1-A3***
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2,18E+00	5,44E+00	6,87E+02	**6,94E+02**	4,57E+02 - 1,60E+03
	Used as raw materials	MJ, net calorific value	7,57E+03	0,00E+00	0,00E+00	**7,57E+03**	7,50E+03 - 7,73E+03
	TOTAL	MJ, net calorific value	7,57E+03	5,44E+00	6,87E+02	**8,26E+03**	8,07E+03 - 9,18E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,58E+02	3,34E+02	2,00E+02	**6,91E+02**	4,51E+02 - 1,49E+03
	Used as raw materials	MJ, net calorific value	2,54E+00	0,00E+00	0,00E+00	**2,54E+00**	0,00E+00 - 9,20E+00
	TOTAL	MJ, net calorific value	1,60E+02	3,34E+02	2,00E+02	**6,94E+02**	4,57E+02 - 1,49E+03
Secondary material		kg	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**	0,00E+00 - 0,00E+00
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**	0,00E+00 - 0,00E+00
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**	0,00E+00 - 0,00E+00
Net use of fresh water		m^3	8,54E-02	0,00E+00	0,00E+00	**8,54E-02**	7,46E-03 - 2,28E-01

Waste production – 1m³ sawn dried timber

INDICATOR	UNIT	A1	A2	A3	TOTAL A1-A3	Range A1-A3***
Hazardous waste disposed	kg	0,00E+00	0,00E+00	8,72E-02	**8,72E-02**	2,69E-03 - 7,03E-01
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	1,27E+00	**1,27E+00**	7,72E-02 - 2,67E+01
Radioactive waste disposed	kg	4,10E-07	9,02E-07	5,79E-07	**1,89E-06**	1,13E-06 - 3,86E-06

Output flow – 1m³ of sawn dried timber

INDICATOR	UNIT	A1	A2	A3	TOTAL A1-A3	Range A1-A3***
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**	0,00E+00 - 0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	3,52E-01	**3,52E-01**	0,00E+00 - 3,63E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**	0,00E+00 - 0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**	0,00E+00 - 0,00E+00

** biogenic carbon content in wood -733 kg CO_2-eq.*

*** 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 experience with the indicator.*

**** The range is between the sawmills that has the lowest and the highest impact*

Environmental performance – End of Life "Re-Use"

Potential environmental impact – 1m³ sawn dried timber

INDICATOR		UNIT	C1	C2	C3	C4	D
Global warming potential (GWP)	Fossil	kg CO_2 eq.	1,16E-05	1,95E+00	0,00E+00	0,00E+00	-3,19E+01
	Biogenic *	kg CO_2 eq.	2,04E-09	6,80E-04	7,33E+02*	0,00E+00	-7,34E+02*
	Land use and land transformation	kg CO_2 eq.	9,86E-10	5,12E-04	0,00E+00	0,00E+00	-7,07E-01
	TOTAL *	kg CO_2 eq.	1,16E-05	1,95E+00	7,33E+02*	0,00E+00	-7,66E+02*
Ozone depletion potential (ODP)		kg CFC 11 eq.	2,62E-12	4,88E-07	0,00E+00	0,00E+00	-8,02E-06
Acidification potential (AP)		mol H+ eq.	1,22E-07	6,30E-03	0,00E+00	0,00E+00	-2,70E-01
Eutrophication potential (EP)	freshwater	kg PO_4 eq.	5,32E-10	1,60E-04	0,00E+00	0,00E+00	-6,49E-03
	marine	kg N eq.	5,28E-08	1,33E-03	0,00E+00	0,00E+00	-7,10E-02
	terrestrial	mol N eq.	5,80E-07	1,48E-02	0,00E+00	0,00E+00	-1,00E+00
Formation potential of tropospheric ozone (POCP)		kg NMVOC eq.	1,59E-07	5,79E-03	0,00E+00	0,00E+00	-3,29E-01
Abiotic depletion potential – Elements **		kg Sb eq.	3,88E-12	3,79E-06	0,00E+00	0,00E+00	-7,60E-05
Abiotic depletion potential – Fossil resources **		MJ, net calorific value	1,66E-04	3,18E+01	0,00E+00	0,00E+00	-5,53E+02
Water scarcity potential **		m³ eq.	9,05E-07	2,40E-01	0,00E+00	0,00E+00	-1,11E+01

Use of resources – 1m³ sawn dried timber

INDICATOR		UNIT	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	9,72E-07	3,42E-01	0,00E+00	0,00E+00	-6,94E+02
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	-7,57E+03	0,00E+00	-7,57E+03
	TOTAL	MJ, net calorific value	9,72E-07	3,42E-01	-7,57E+03	0,00E+00	-8,26E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,68E-04	3,23E+01	0,00E+00	0,00E+00	-6,59E+02
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,54E+00
	TOTAL	MJ, net calorific value	1,68E-04	3,23E+01	0,00E+00	0,00E+00	-6,61E+02
Secondary material		kg	0,00E+00	0,00E+00	4,60E+02	0,00E+00	4,60E+02
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m^3	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-8,54E-02

Waste production – 1m³ sawn dried timber

INDICATOR	UNIT	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-8,72E-02
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,27E+00
Radioactive waste disposed	kg	4,65E-13	8,75E-08	0,00E+00	0,00E+00	-1,80E-06

Output flow – 1m³ sawn dried timber

INDICATOR	UNIT	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	4,60E+02	0,00E+00	-4,60E+02
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,52E-01
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

* *biogenic carbon content in wood -733 kg CO_2-eq.*

*** 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 experience with the indicator.*

Environmental performance – End of Life "Recycling"

Potential environmental impact – 1m³ sawn dried timber

INDICATOR		UNIT	C1	C2	C3	C4	D
Global warming potential (GWP)	Fossil	kg CO_2 eq.	1,16E-05	1,9[illegible]E+00	5,41E+00	0,00E+00	-5,62E+01
	Biogenic *	kg CO_2 eq.	2,04E-09	6,80E-04	7,33E+02*	0,00E+00	-7,34E+02*
	Land use and land transformation	kg CO_2 eq.	9,86E-10	5,12E-04	4,59E-04	0,00E+00	-3,15E-01
	TOTAL *	kg CO_2 eq.	1,16E-05	1,95E+00	7,39E+02*	0,00E+00	-7,90E+02*
Ozone depletion potential (ODP)		kg CFC 11 eq.	2,62E-12	4,88E-07	1,22E-06	0,00E+00	-7,24E-06
Acidification potential (AP)		mol H+ eq.	1,22E-07	6,30E-03	5,67E-02	0,00E+00	-4,53E-01
Eutrophication potential (EP)	freshwater	kg PO_4 eq.	5,32E-10	1,60E-04	2,48E-04	0,00E+00	-2,61E-02
	marine	kg N eq.	5,28E-08	1,33E-03	2,46E-02	0,00E+00	-8,63E-02
	terrestrial	mol N eq.	5,80E-07	1,48E-02	2,70E-01	0,00E+00	-1,37E+00
Formation potential of tropospheric ozone (POCP)		kg NMVOC eq.	1,59E-07	5,79E-03	7,42E-02	0,00E+00	-3,72E-01
Abiotic depletion potential – Elements **		kg Sb eq.	3,88E-12	3,79E-06	1,81E-06	0,00E+00	-2,50E-04
Abiotic depletion potential – Fossil resources **		MJ, net calorific value	1,66E-04	3,18E+01	7,75E+01	0,00E+00	-9,19E+02
Water scarcity potential **		m³ eq.	9,05E-07	2,40E-01	4,21E-01	0,00E+00	-6,22E+01

Use of resources – 1m³ sawn dried timber

INDICATOR		UNIT	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	9,72E-07	3,42E-01	4,53E-01	0,00E+00	-4,08E+03
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	-7,57E+03	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	9,72E-07	3,42E-01	-7,57E+03	0,00E+00	-4,08E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,68E-04	3,23E+01	7,82E+01	0,00E+00	-1,11E+03
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	1,68E-04	3,23E+01	7,82E+01	0,00E+00	-1,11E+03
Secondary material		kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m^3	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Waste production – 1m³ sawn dried timber

INDICATOR	UNIT	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	4,65E-13	8,75E-08	2,17E-07	0,00E+00	-1,60E-06

Output flows – 1m³ sawn dried timber

INDICATOR	UNIT	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	4,60E+02	0,00E+00	-4,60E+02
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

* *biogenic carbon content in wood -733 kg CO_2-eq.*

** *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 experience with the indicator.*

Environmental performance – End of Life "Incineration"

Potential environmental impact – 1m³ sawn dried timber

INDICATOR		UNIT	C1	C2	C3	C4	D
Global warming potential (GWP)	Fossil	kg CO_2 eq.	1,16E-05	1,95E+00	2,07E+01	0,00E+00	-3,74E+02
	Biogenic *	kg CO_2 eq.	2,04E-09	6,80E-04	7,33E+02*	0,00E+00	-2,90E-02*
	Land use and land transformation	kg CO_2 eq.	9,86E-10	5,12E-04	1,37E-02	0,00E+00	-2,59E-04
	TOTAL *	kg CO_2 eq.	1,16E-05	1,95E+00	7,54E+02*	0,00E+00	-3,74E+02*
Ozone depletion potential (ODP)		kg CFC 11 eq.	2,62E-12	4,88E-07	2,53E-06	0,00E+00	-5,30E-05
Acidification potential (AP)		mol H+ eq.	1,22E-07	6,30E-03	1,80E-01	0,00E+00	-1,38E-01
Eutrophication potential (EP)	freshwater	kg PO_4 eq.	5,32E-10	1,60E-04	7,52E-03	0,00E+00	1,93E-03
	marine	kg N eq.	5,28E-08	1,33E-03	7,40E-02	0,00E+00	-1,08E-02
	terrestrial	mol N eq.	5,80E-07	1,48E-02	7,66E-01	0,00E+00	-1,81E-01
Formation potential of tropospheric ozone (POCP)		kg NMVOC eq.	1,59E-07	5,79E-03	1,96E-01	0,00E+00	-1,26E-01
Abiotic depletion potential – Elements **		kg Sb eq.	3,88E-12	3,79E-06	2,25E-05	0,00E+00	5,54E-06
Abiotic depletion potential – Fossil resources **		MJ, net calorific value	1,66E-04	3,18E+01	2,36E+02	0,00E+00	-6,05E+03
Water scarcity potential **		m³ eq.	9,05E-07	2,40E-01	-2,97E+00	0,00E+00	-3,72E+00

Use of resources – 1m³ sawn dried timber

INDICATOR		UNIT	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	9,72E-07	3,42E-01	1,24E+01	0,00E+00	-6,20E+00
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	-7,57E+03	0,00E+00	-7,57E+03
	TOTAL	MJ, net calorific value	9,72E-07	3,42E-01	-7,56E+03	0,00E+00	-7,58E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,68E-04	3,23E+01	2,59E+02	0,00E+00	-6,07E+03
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	1,68E-04	3,23E+01	2,59E+02	0,00E+00	-6,07E+03
Secondary material		kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	7,57E+03	0,00E+00	-7,57E+03
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m^3	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Waste production – 1m³ sawn dried timber

INDICATOR	UNIT	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	4,65E-13	8,75E-08	4,75E-07	0,00E+00	-1,03E-06

Output flows - 1m³ sawn dried timber

INDICATOR	UNIT	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	4,60E+02	0,00E+00	-4,60E+02
Exported energy	MJ	0,00E+00	0,00E+00	7,57E+03	0,00E+00	-7,57E+03

* *biogenic carbon content in wood -733 kg CO_2-eq.*

*** 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 experience with the indicator.*

Environmental performance – End of Life "Landfill"

Potential environmental impact – 1m³ sawn dried timber

INDICATOR		UNIT	C1	C2	C3	C4	D
Global warming potential (GWP)	Fossil	kg CO_2 eq.	1,16E-05	1,95E+00	0,00E+00	9,13E+00	-3,80E+00
	Biogenic *	kg CO_2 eq.	2,04E-09	6,80E-04	0,00E+00	1,06E+03*	-5,87E-04*
	Land use and land transformation	kg CO_2 eq.	9,86E-10	5,12E-04	0,00E+00	1,13E-03	-1,38E-04
	TOTAL *	kg CO_2 eq.	1,16E-05	1,95E+00	0,00E+00	1,07E+03*	-3,80E+00*
Ozone depletion potential (ODP)		kg CFC 11 eq.	2,62E-12	4,88E-07	0,00E+00	2,66E-06	-5,36E-07
Acidification potential (AP)		mol H+ eq.	1,22E-07	6,30E-03	0,00E+00	9,10E-02	-3,10E-03
Eutrophication potential (EP)	freshwater	kg PO_4 eq.	5,32E-10	1,60E-04	0,00E+00	1,03E-03	-5,50E-05
	marine	kg N eq.	5,28E-08	1,33E-03	0,00E+00	1,92E-01	-8,24E-04
	terrestrial	mol N eq.	5,80E-07	1,48E-02	0,00E+00	4,09E-01	-9,21E-03
Formation potential of tropospheric ozone (POCP)		kg NMVOC eq.	1,59E-07	5,79E-03	0,00E+00	2,09E-01	-3,14E-03
Abiotic depletion potential – Elements **		kg Sb eq.	3,88E-12	3,79E-06	0,00E+00	7,15E-06	-1,99E-07
Abiotic depletion potential – Fossil resources **		MJ, net calorific value	1,66E-04	3,18E+01	0,00E+00	1,77E+02	-6,05E+01
Water scarcity potential **		m³ eq.	9,05E-07	2,40E-01	0,00E+00	1,06E+00	-9,43E-03

Use of resources – 1m³ sawn dried timber

INDICATOR		UNIT	C1	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	9,72E-07	3,42E-01	0,00E+00	3,76E+00	-1,81E-01
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	-7,57E+03	7,24E+01
	TOTAL	MJ, net calorific value	9,72E-07	3,42E-01	0,00E+00	-7,57E+03	7,23E+01
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,68E-04	3,23E+01	0,00E+00	1,85E+02	-6,08E+01
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	1,68E-04	3,23E+01	0,00E+00	1,85E+02	-6,08E+01
Secondary material		kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	7,24E+01	0,00E+00
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m^3	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Waste production – 1m³ sawn dried timber

INDICATOR	UNIT	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	4,60E+02	0,00E+00
Radioactive waste disposed	kg	4,65E-13	8,75E-08	0,00E+00	4,98E-07	-1,52E-08

Output flows – 1m³ sawn dried timber

INDICATOR	UNIT	C1	C2	C3	C4	D
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	7,24E+01	-7,24E+01

* *biogenic carbon content in wood -733 kg CO_2-eq.*

** *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 experience with the indicator.*

Additional required impact indicator acc. PCR 2019:14

This indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide emissions and uptake and biogenic carbon stored in the product. This indicator support comparability with EPDs based on the previous version of EN 15804 (EN 15804:2012+A1:2013).

Environmental performance – product / construction stage

INDICATOR	UNIT	A1	A2	A3	TOTAL A1-A3	Range A1-A3***
GWP-GHG (acc. IPPC 2013)	kg CO_2 eq.	1,11E+01	1,67E+01	6,42E+00	**3,42E+01**	2,16E+01 - 6,62E+01

Environmental performance – Re-Use at the End-of-Life

INDICATOR	UNIT	C1	C2	C3	C4	D
GWP-GHG (acc. IPPC 2013)	kg CO_2 eq.	1,13E-05	1,94E+00	0,00E+00	0,00E+00	-3,23E+01

Environmental performance – Recycling at the End-of-Life

INDICATOR	UNIT	C1	C2	C3	C4	D
GWP-GHG (acc. IPPC 2013)	kg CO_2 eq.	1,13E-05	1,94E+00	5,29E+00	0,00E+00	-5,48E+01

Environmental performance – Incineration at the End-of-Life

INDICATOR	UNIT	C1	C2	C3	C4	D
GWP-GHG (acc. IPPC 2013)	kg CO_2 eq.	1,13E-05	1,94E+00	3,55E+00	0,00E+00	-3,86E+02

Environmental performance – Landfill at the End-of-Life

INDICATOR	UNIT	C1	C2	C3	C4	D
GWP-GHG (acc. IPPC 2013)	kg CO_2 eq.	1,13E-05	1,94E+00	0,00E+00	2,75E+02	-3,75E+00

Please note: Contrary to the results shown in the previous tables, the results for the GWP-GHG were calculated with a newer version of the LCA software (SimaPro 9.1) and a newer version of the background database (ecoinvent 3.6) These changes mean that the results due to updated datasets are not same anymore but almost equal to previous calculations with former software and database version.

Additional environmental impact indicators

Information about additional environmental impact indicators for each module is declared in “Environmental Product Declaration. Classic Sawn by Stora Enso – ANNEX A” and available on request:

INDICATOR	Particulate matter emissions	Ionising radiation, human health ***	Ecotoxicity (freshwater) **	Human toxicity, cancer effects **	Human toxicity, non- cancer effects **	Land use related impacts / soil quality **
UNIT	Disease incidence	kBq U235 eq.	CTUe	CTUe	CTUe	dimensionless

*** 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 experience with the indicator.*

**** 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.*

Environmental impact indicators acc. EN15804:2012 + A1:2013

Information about environmental impact for all modules as required in the former EN15804:2012 + A1:2013 are published in “Environmental Product Declaration. Classic Sawn by Stora Enso – ANNEX B” and available on request. This document should allow comparability between EPDs during the transition phase of the amendments to the “Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products” standards.

Programme-related information and verification

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
EPD registration number:	S-P-02150
Published:	03-08-2020
Revision:	10-02-2021
Valid until:	11-02-2026
Reference year for data:	2018
Geographical scope:	Austria, Czech Republic, Estonia, Finland, Latvia, Lithuania, Poland, Russia, Sweden
Product category rules:	PCR 2019:14, v.1.0 Construction products C-PCR-006 (to PCR 2019:14) Wood and wood-based products for use in construction
UN CPC code:	316 – Builders' joinery and carpentry of wood

Independent third-party verification of the declaration and data, according to ISO 14025:2006:	☐ EPD process certification ☒ EPD verification
LCA study conducted by:	Stora Enso – Division Wood Products
Third party verifier:	Dr. Andrew Norton, Renuables 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.

References

General Programme Instructions of the International EPD® System. Version 3.01.
C-PCR-006 (to PCR 2019:14). Wood and wood-based products for use in construction. Version 2019-12-20.

Standards

EN 15804:2012 + A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

EN 16485:2014 Round and sawn timber. Environmental product declarations. Product category rules for wood and wood-based products for use in construction

EN 16449:2014 Wood and wood-based products. Calculation of the biogenic carbon content of wood and conversion to carbon dioxide

EN 15942:2012 Sustainability of construction works - Environmental product declarations - Communication format business-to-business

ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations. Principles and procedures.

ISO 14044:2006 Environmental management. Life Cycle Assessment. Requirements and guidelines.

Tools and databases

SimaPro 9.0 – LCA software by PRé Sustainability http://simapro.com/
Ecoinvent 3.5 database. http://www.ecoinvent.org/

Detailed product information

Classic sawn inspiration
storaenso.com/sawnplaned

EPD owner and LCA author

Stora Enso
Division Wood Products
E-mail woodproducts@storaenso.com
Tel +358 (0)20 46114
www.storaenso.com

EPD®

www.environdec.com