


LIFE CYCLE ASSESSMENT (LCA) FOR SOLID WOOD WORKTOPS FROM HERNING MASSIVTRÆ A/S: SUMMARY

LCA owner: Herning Massivtræ A/S
Valid from: 2025-08-20
Valid to: 2030-08-20

The LCA calculations have been carried out as prescribed in EN 15804:2012+A2:2019
This document and the background report have been critically reviewed by Stefan Emil Danielsson



General information	
LCA owner	Herning Massivtræ A/S Cedervej 6, 7400 Herning, Danmark DK25449363 www.hmt.net
Type of LCA	<input type="checkbox"/> Industry-specific LCA <input checked="" type="checkbox"/> Product specific LCA
Scope	Cradle-to-gate with options (module A1-A5, C1-C4, and D)
Valid from	2025-08-20
Valid to	2030-08-20
Version	Version 1
Validity and updates	This LCA is valid for 5 years from the date of publication. It is the LCA owner's responsibility to update the LCA during the validity period if there are changes (e.g. in the company's supply chain, production or products) that affect this LCA.
Standard	The LCA calculations have been carried out as prescribed in EN 15804:2012+A2:2019. This LCA is not registered with an Environmental Product Declaration Programme Operator.
Comparability	LCA's may not be comparable if they are not calculated in accordance with the same standards, background system, databases and model choices.
Intended use	The intended use of this LCA is to present scientifically sound environmental data for the declared products to professionals in the interior and construction sector.
LCA developer	Better Green ApS Virumvej 64 2830 Virum, Denmark
Review type	<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External
Reviewer	Stefan Emil Danielsson
Reviewer statement	Through the independent review of the LCA, it has been found that the LCA calculations have been carried out as prescribed in EN 15804:2012+A2:2019:  Stefan Emil Danielsson



Life cycle assessment information	
Products covered	Solid wood worktop from European hardwood: <ul style="list-style-type: none"> • Finger jointed (FJ) • Continuous lamellas (CL)
Year of production data	2023
Production sites	Cedervej 6, 7400 Herning, Danmark
Guarantees of Origin	No guarantees of origin for renewable electricity or biogas are used in A3.
Functional unit	No functional unit because module B (use stage) is not declared.
Declared unit	1 m ³ of solid wood worktop

System boundary according to EN 15804:2012+A2:2019:

System boundary (X = included in LCA; ND = not declared)																
A					B							C				D
Product			Con- struction		Use							End of life				Outside scope
Raw materials	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy	Operational water	De-construction	Waste 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
X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X



Product information

Product description

The main product components are shown in the table below for finger jointed (FJ) and continuous lamella (CL) solid wood worktops.

Material	Weight-% of declared product	
	FJ	CL
Wood	99,6%	99,7%
Glue	0,4%	0,3%
Total	100,0%	100,0%
Total kg	672,4	672,1

Product packaging

The composition of the sales- and transport packaging of the product is shown in the table below for 1 m³ of finger jointed (FJ) and continuous lamella (CL) solid wood worktops.

Material	Weight of packaging material (kg)	Weight-% of packaging
Wood	4,9	62%
Plastic	1,6	20%
Cardboard	1,4	18%
Total	7,9	100%

Pictures of products



Use of the products

High-quality solid wood panels with finger-jointed or continuous staves/lamella. The products are used in the kitchen, furniture, interior design, window, and staircase industries — both as tabletops, steps, and for other interior applications.

Essential characteristics

Technical information regarding the declared products can be obtained by contacting the manufacturer or on the manufacturer's website: www.hmt.net

Hazardous substances

Solid wood worktops from European hardwood produced by Herring Massivtræ do not contain substances listed on the "[Candidate List of Substances of Very High Concern for authorisation](#)".

LCA background

Declared and functional unit

The LCI and LCIA results in this LCA relate to 1 m³ of solid wood worktops from European hardwood.

Parameter	Value	Unit
Declared unit	1	m ³

LCA software and background database

SimaPro 9.6 (ecoinvent 3.10)

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of solid wood worktops from European hardwood on the production site located in Herning, Denmark. Product specific data are based on average values collected in the calendar year 2023. Background data are based on ecoinvent 3.10 and are less than 10 years old. Generally, the used background datasets are of high quality.

Reference Service Life (RSL)

No RSL defined because module B (use phase) is not declared.

Product Category Rules

The LCA calculations have been carried out as prescribed in EN 15804:2012+A2:2019 and the cPCR EN 16485:2014 for wood and wood-based products for use in construction.

Energy modelling principles

Foreground system:

The product is produced using residual electricity mix in the production in Denmark. Remaining energy processes are modelled using average grid mix for the relevant geographies.

Information about the energy mix in the foreground system:

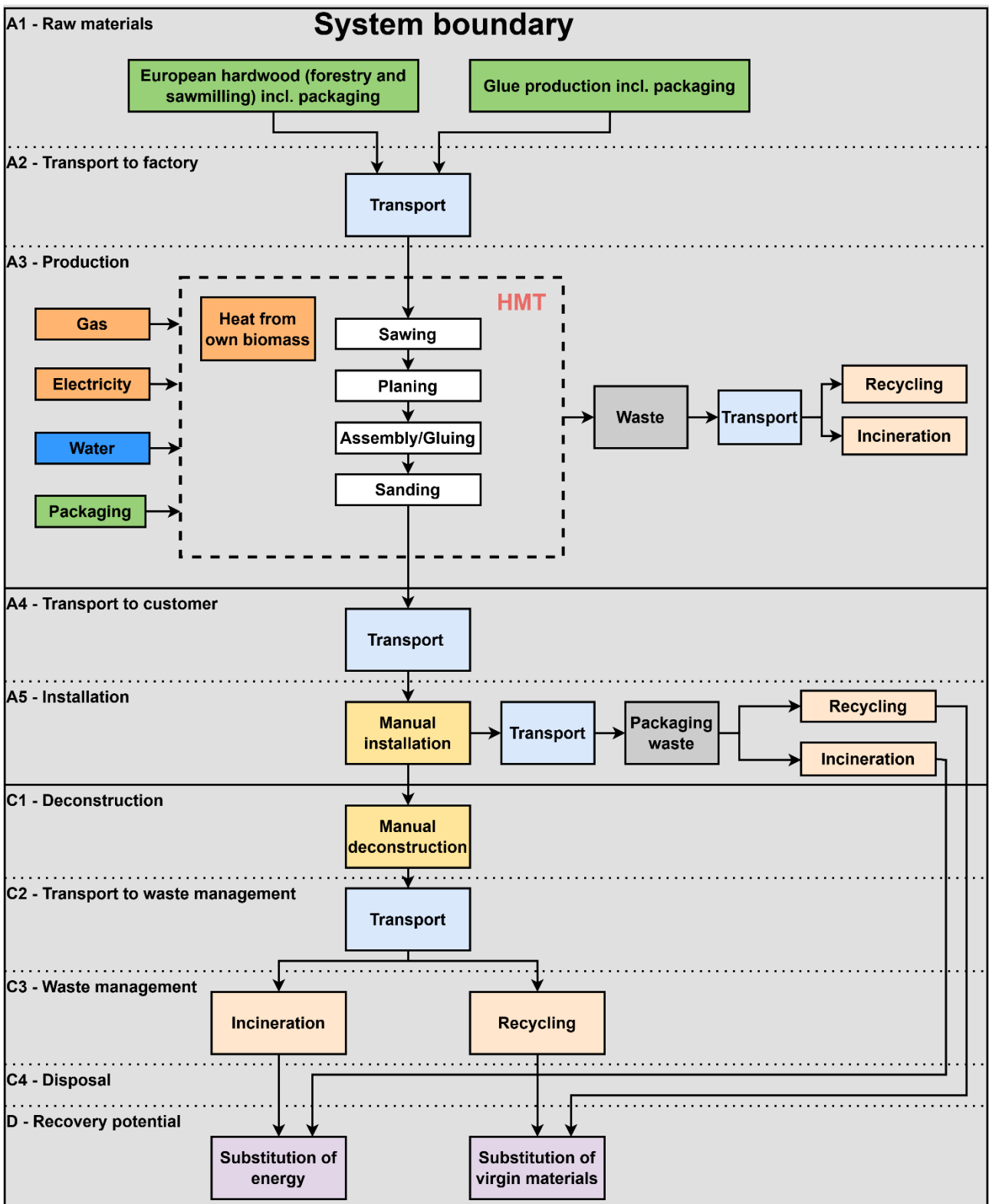
Energy mix	EF	Unit
Residual grid mix Denmark	0,65	kg CO ₂ e/kWh

Background system:

Upstream processes are modelled using average grid mix for the relevant geographies. Downstream processes are modelled using average grid mix for the relevant geographies.



System boundary and flow diagram



Life cycle stages

This LCA covers the following scope: cradle-to-gate with options, modules C1-C4 and D. In the LCA 100% weight has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials:

- Forestry, sawing and drying of European hardwood incl. packaging
- Production of glue incl. packaging

A2 – Transport to the production site:

- Transport of wood and glue to the production site in Herning, Denmark

A3 – Manufacturing processes:

- The solid wood products go through sawing, planing, assembling, glueing, sanding and packaging
- The input of energy, auxiliary materials and packaging is included in A3.
- The output of waste materials and their processing up to the "end-of-waste" state or final disposal is included in A3.

The LCA results are declared in aggregated form for the product stage, which means that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

Construction process stage (A4-A5) includes:

A4 – Transport to construction site:

The transport distance to the customer is based on a standard scenario of 100 km by truck.

A5 – Installation:

The installation phase includes the output of product packaging waste and its processing up to the "end-of-waste" state or final disposal.

No energy or materials for installation of the product.

Use stage (B1-B7) includes:

Not declared.



End of Life (C1-C4) includes:

C1 – Deconstruction:

No energy or materials for deconstruction of the product.

C2 – Transport to waste treatment:

Transport to waste treatment is included based on a standard distance of 41,5 km to waste treatment in Denmark.

C3 – Waste treatment:

Two waste treatment scenarios are declared: 100% incineration and 100% recycling.

C4 – Disposal:

No products are sent to landfill.

Re-use, recovery and recycling potential (D) includes:

Packaging sent to waste treatment in module A5 replaces virgin materials through recycling and energy through incineration.

Solid wood products sent to waste treatment in module C3 replace virgin materials through recycling (in the 100% recycling scenario) and energy through incineration (in the 100% incineration scenario).

Materials that enter the system as recycled materials and not carrying an environmental burden, are not considered in Modul D to avoid double counting of the benefits related to the use of recycled materials.

LCA results

LCA results for finger jointed (FJ) solid wood worktops (1 m³)

ENVIRONMENTAL IMPACTS PER M ³ FJ									
Parameter	Unit	A1-A3	A4	A5	C2	C3 recycling	C3 incineration	D recycling	D incineration
GWP-total	[kg CO ₂ eq.]	-6,96E+02	7,25E+00	1,33E+01	4,27E+00	1,10E+03	1,11E+03	-3,72E+01	-5,53E+01
GWP-fossil	[kg CO ₂ eq.]	4,03E+02	7,25E+00	3,93E+00	4,27E+00	1,04E+01	1,50E+01	-3,70E+01	-5,50E+01
GWP-biogenic	[kg CO ₂ eq.]	-1,10E+03	0,00E+00	9,32E+00	0,00E+00	1,09E+03	1,09E+03	0,00E+00	0,00E+00
GWP-luluc	[kg CO ₂ eq.]	2,26E+00	2,50E-03	1,96E-04	1,45E-03	1,47E-02	1,43E-03	-2,16E-01	-2,71E-01
ODP	[kg CFC 11 eq.]	9,52E-06	1,47E-07	4,47E-09	8,59E-08	1,92E-07	1,24E-07	-7,75E-07	-1,93E-06
AP	[mol H ⁺ eq.]	2,10E+00	2,89E-02	1,64E-03	1,92E-02	5,00E-02	1,04E-01	-2,56E-01	-4,43E-01
EP-freshwater	[kg P eq.]	1,22E-01	4,96E-04	5,77E-05	2,93E-04	4,10E-03	3,21E-03	-1,55E-02	-3,31E-02
EP-marine	[kg N eq.]	7,45E-01	1,08E-02	7,17E-04	7,54E-03	1,49E-02	5,64E-02	-8,89E-02	-1,15E-01
EP-terrestrial	[mol N eq.]	7,99E+00	1,18E-01	6,81E-03	8,22E-02	1,56E-01	5,40E-01	-9,70E-01	-1,69E+00
POCP	[kg NMVOC eq.]	3,19E+00	4,56E-02	2,12E-03	2,95E-02	5,42E-02	1,35E-01	-3,37E-01	-3,37E-01
ADPm ¹	[kg Sb eq.]	1,30E-03	1,97E-05	1,14E-06	1,33E-05	3,02E-05	1,45E-05	-1,60E-04	-4,56E-04
ADPf ¹	[MJ]	6,18E+03	1,06E+02	3,69E+00	6,11E+01	1,84E+02	7,24E+01	-6,52E+02	-8,79E+02
WDP ¹	[m ³ world eq. deprived]	7,56E+01	5,04E-01	3,91E-02	2,67E-01	4,74E-01	1,47E+00	-2,39E+01	-1,12E+01
Caption	GWP-total = Global Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication - aquatic freshwater; EP-marine = Eutrophication - aquatic marine; EP-terrestrial = Eutrophication - terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential - minerals and metals; ADPf = Abiotic Depletion Potential - fossil fuels; WDP = water depletion potential The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

ADDITIONAL ENVIRONMENTAL IMPACTS PER M ³ FJ									
Parameter	Unit	A1-A3	A4	A5	C2	C3 recycling	C3 incineration	D recycling	D incineration
PM	[Disease incidence]	8,92E-05	7,37E-07	2,11E-08	4,14E-07	7,00E-07	1,13E-06	-1,05E-05	-4,87E-06
IRP ²	[kBq U235 eq.]	4,10E+01	1,28E-01	2,46E-02	8,09E-02	2,75E+00	1,39E-01	-7,48E+00	-1,88E+01
ETP-fw ¹	[CTUe]	2,07E+03	2,50E+01	3,29E+00	1,59E+01	4,56E+01	1,19E+02	-2,42E+02	-3,05E+02
HTP-c ¹	[CTUh]	2,92E-06	4,51E-08	3,03E-09	2,88E-08	8,08E-08	1,77E-07	-4,01E-07	-2,80E-07
HTP-nc ¹	[CTUh]	4,35E-06	6,82E-08	8,07E-09	4,25E-08	1,01E-07	1,09E-06	-4,67E-07	-1,35E-06
SQP ¹	-	1,94E+05	1,06E+02	1,96E+00	4,57E+01	8,77E+01	1,88E+01	-2,06E+04	-6,22E+03
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation - human health; ETP-fw = Eco toxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP-nc = Human toxicity - non cancer effects; SQP = Soil Quality (dimensionless) The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. ² 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.								



LIFE CYCLE ASSESSMENT (LCA) FOR SOLID WOOD WORKTOPS FROM HERNING MASSIVTRÆ A/S

RESOURCE USE PER M ³ FJ									
Parameter	Unit	A1-A3	A4	A5	C2	C3 recycling	C3 incineration	D recycling	D incineration
PERE	[MJ]	3,83E+04	1,68E+00	2,63E-01	1,06E+00	2,39E+01	2,50E+00	-3,78E+03	-2,35E+03
PERM	[MJ]	1,14E+04	0,00E+00	-9,16E+01	0,00E+00	-1,13E+04	-1,13E+04	0,00E+00	0,00E+00
PERT	[MJ]	4,97E+04	1,68E+00	-9,14E+01	1,06E+00	-1,13E+04	-1,13E+04	-3,78E+03	-2,35E+03
PENRE	[MJ]	1,76E+03	8,70E+00	9,59E-01	5,08E+00	7,74E+01	1,53E+01	-2,40E+02	-6,01E+02
PENRM	[MJ]	1,01E+02	0,00E+00	-6,29E+01	0,00E+00	-3,76E+01	-3,76E+01	0,00E+00	0,00E+00
PENRT	[MJ]	1,86E+03	8,70E+00	-6,20E+01	5,08E+00	3,98E+01	-2,22E+01	-2,40E+02	-6,01E+02
SM	[kg]	9,60E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m ³]	2,51E+00	2,33E-05	8,72E-03	1,31E-05	1,41E-04	6,79E-04	-1,09E-03	-2,95E-02
Caption	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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

WASTE CATEGORIES AND OUTPUT FLOWS PER M ³ FJ									
Parameter	Unit	A1-A3	A4	A5	C2	C3 recycling	C3 incineration	D recycling	D incineration
HWD	[kg]	1,82E+00	2,27E-03	4,92E-02	1,18E-03	1,68E-02	6,96E+00	-8,77E-02	-3,16E-01
NHWD	[kg]	2,67E+02	9,04E+00	1,34E-01	3,76E+00	5,68E+00	2,56E+00	-1,17E+01	-7,35E+00
RWD	[kg]	1,04E-02	3,18E-05	6,28E-06	2,01E-05	7,05E-04	3,47E-05	-1,92E-03	-4,29E-03
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	1,78E+00	0,00E+00	5,68E+00	0,00E+00	6,72E+02	0,00E+00	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	8,27E+00	0,00E+00	7,68E+00	0,00E+00	0,00E+00	1,17E+03	0,00E+00	0,00E+00
EET	[MJ]	1,45E+00	0,00E+00	1,50E+01	0,00E+00	0,00E+00	2,35E+03	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								
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BIOGENIC CARBON CONTENT PER M ³ FJ		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	297,8
Biogenic carbon content in accompanying packaging	[kg C]	2,5
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	



LCA results for continuous lamellas (CL) solid wood worktops (1 m³)

ENVIRONMENTAL IMPACTS PER M ³ CL									
Parameter	Unit	A1-A3	A4	A5	C2	C3 recycling	C3 incineration	D recycling	D incineration
GWP-total	[kg CO ₂ eq.]	-6,57E+02	7,25E+00	1,33E+01	4,27E+00	1,10E+03	1,11E+03	-3,72E+01	-5,52E+01
GWP-fossil	[kg CO ₂ eq.]	4,42E+02	7,25E+00	3,93E+00	4,27E+00	1,04E+01	1,43E+01	-3,70E+01	-5,50E+01
GWP-biogenic	[kg CO ₂ eq.]	-1,10E+03	0,00E+00	9,32E+00	0,00E+00	1,09E+03	1,09E+03	0,00E+00	0,00E+00
GWP-luluc	[kg CO ₂ eq.]	2,26E+00	2,50E-03	1,96E-04	1,45E-03	1,47E-02	1,43E-03	-2,16E-01	-2,71E-01
ODP	[kg CFC 11 eq.]	9,96E-06	1,47E-07	4,47E-09	8,58E-08	1,92E-07	1,24E-07	-7,75E-07	-1,93E-06
AP	[mol H ⁺ eq.]	2,21E+00	2,89E-02	1,64E-03	1,92E-02	5,00E-02	1,04E-01	-2,56E-01	-4,43E-01
EP-freshwater	[kg P eq.]	1,36E-01	4,96E-04	5,77E-05	2,93E-04	4,10E-03	3,20E-03	-1,55E-02	-3,31E-02
EP-marine	[kg N eq.]	7,73E-01	1,08E-02	7,17E-04	7,54E-03	1,49E-02	5,64E-02	-8,89E-02	-1,15E-01
EP-terrestrial	[mol N eq.]	8,24E+00	1,18E-01	6,81E-03	8,22E-02	1,56E-01	5,40E-01	-9,69E-01	-1,69E+00
POCP	[kg NMVOC eq.]	3,26E+00	4,56E-02	2,12E-03	2,95E-02	5,42E-02	1,35E-01	-3,37E-01	-3,37E-01
ADPm ¹	[kg Sb eq.]	1,35E-03	1,97E-05	1,14E-06	1,33E-05	3,02E-05	1,45E-05	-1,60E-04	-4,56E-04
ADPf ¹	[MJ]	6,65E+03	1,06E+02	3,69E+00	6,10E+01	1,84E+02	7,23E+01	-6,52E+02	-8,78E+02
WDP ¹	[m ³ world eq. deprived]	7,94E+01	5,03E-01	3,91E-02	2,67E-01	4,74E-01	1,47E+00	-2,39E+01	-1,12E+01
Caption	GWP-total = Globale Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential								
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Parameter	Unit	A1-A3	A4	A5	C2	C3 recycling	C3 incineration	D recycling	D incineration
PM	[Disease incidence]	8,96E-05	7,37E-07	2,11E-08	4,14E-07	7,00E-07	1,13E-06	-1,05E-05	-4,87E-06
IRP ²	[kBq U235 eq.]	4,55E+01	1,28E-01	2,46E-02	8,08E-02	2,75E+00	1,39E-01	-7,48E+00	-1,88E+01
ETP-fw ¹	[CTUe]	2,16E+03	2,50E+01	3,29E+00	1,59E+01	4,56E+01	1,19E+02	-2,42E+02	-3,05E+02
HTP-c ¹	[CTUh]	2,97E-06	4,51E-08	3,03E-09	2,88E-08	8,08E-08	1,77E-07	-4,00E-07	-2,80E-07
HTP-nc ¹	[CTUh]	4,61E-06	6,81E-08	8,07E-09	4,24E-08	1,01E-07	1,09E-06	-4,66E-07	-1,35E-06
SQP ¹	-	1,94E+05	1,06E+02	1,96E+00	4,57E+01	8,76E+01	1,88E+01	-2,06E+04	-6,22E+03
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
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RESOURCE USE PER M ³ CL									
Parameter	Unit	A1-A3	A4	A5	C2	C3 recycling	C3 incineration	D recycling	D incineration
PERE	[MJ]	3,84E+04	1,68E+00	2,63E-01	1,05E+00	2,39E+01	2,50E+00	-3,78E+03	-2,35E+03
PERM	[MJ]	1,14E+04	0,00E+00	-9,16E+01	0,00E+00	-1,13E+04	-1,13E+04	0,00E+00	0,00E+00
PERT	[MJ]	4,98E+04	1,68E+00	-9,14E+01	1,05E+00	-1,13E+04	-1,13E+04	-3,78E+03	-2,35E+03
PENRE	[MJ]	2,11E+03	8,69E+00	9,59E-01	5,08E+00	7,74E+01	1,53E+01	-2,40E+02	-6,01E+02
PENRM	[MJ]	9,65E+01	0,00E+00	-6,29E+01	0,00E+00	-3,35E+01	-3,35E+01	0,00E+00	0,00E+00
PENRT	[MJ]	2,20E+03	8,69E+00	-6,20E+01	5,08E+00	4,38E+01	-1,82E+01	-2,40E+02	-6,01E+02
SM	[kg]	9,60E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m ³]	2,51E+00	2,33E-05	8,72E-03	1,31E-05	1,41E-04	6,79E-04	-1,09E-03	-2,95E-02
Caption	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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

WASTE CATEGORIES AND OUTPUT FLOWS PER M ³ CL									
Parameter	Unit	A1-A3	A4	A5	C2	C3 recycling	C3 incineration	D recycling	D incineration
HWD	[kg]	2,72E+00	2,26E-03	4,92E-02	1,18E-03	1,68E-02	6,95E+00	-8,77E-02	-3,15E-01
NHWD	[kg]	2,68E+02	9,03E+00	1,34E-01	3,76E+00	5,68E+00	2,55E+00	-1,17E+01	-7,35E+00
RWD	[kg]	1,15E-02	3,18E-05	6,28E-06	2,01E-05	7,05E-04	3,47E-05	-1,92E-03	-4,29E-03
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	3,08E+00	0,00E+00	5,68E+00	0,00E+00	6,72E+02	0,00E+00	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	1,43E+01	0,00E+00	7,68E+00	0,00E+00	0,00E+00	1,17E+03	0,00E+00	0,00E+00
EET	[MJ]	2,51E+00	0,00E+00	1,50E+01	0,00E+00	0,00E+00	2,35E+03	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

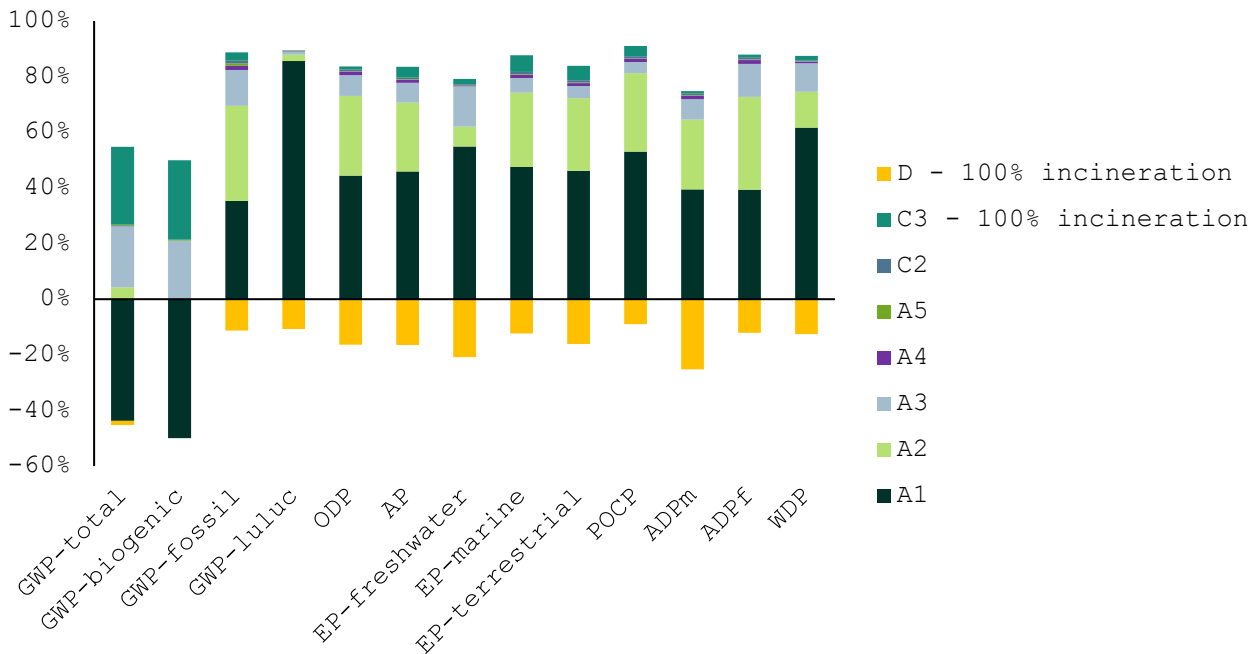
BIOGENIC CARBON CONTENT PER M ³ CL		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	297,8
Biogenic carbon content in accompanying packaging	[kg C]	2,5
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	



Additional information

LCA interpretation

The relative contribution of each life cycle phase to the total footprint per environmental impact category is shown in the figure below for finger jointed solid wood worktops (FJ). The graph for continuous lamella solid wood worktops (CL) looks almost identical. From the figure it can be seen that A1 – Raw materials has the highest contribution in all environmental impact categories, which is largely due to forestry and sawmill activities. A2 – Transportation of raw materials also has a significant contribution to all environmental impact categories except GWP-total, GWP-biogenic, GWP-luluc and EP-freshwater. A3 – production has a visible contribution to GWP total, GWP biogenic and GWP fossil, which is largely due to energy production from biomass and fossil sources.



This graph shows C3 according to the 100% incineration scenario.

Technical information on scenarios

Transport to the building site (A4)

Scenario information	Value	Unit
Fuel type	Diesel	-
Vehicle type	>32 ton lorry (EURO4)	-
Transport distance	100	km
Capacity utilisation (including empty runs)	59	%
Gross density of products transported	680	kg/m ³
Capacity utilisation volume factor	Ecoinvent v. 3.10 standard	-

Installation of the product in the building (A5)

Scenario information	Value	Unit
Ancillary materials	-	kg
Water use	-	m ³
Other resource use	-	kg
Energy type and consumption	-	kWh
Waste materials	8	kg
Output materials	-	kg
Direct emissions to air, soil or water	-	kg

End of life (C1-C4)

Scenario information	Scenario 1: 100% recycling	Scenario 2: 100% incineration	Unit
Collected separately	672	672	kg
Collected with mixed waste	-	-	kg
For reuse	-	-	kg
For recycling	672	-	kg
For energy recovery	-	672	kg
For final disposal	-	-	kg
Assumptions for scenario development	100% scenario	100% scenario	-

Re-use, recovery and recycling potential (D)

Scenario information/Material	FJ	CL	Unit
Displaced material – wood chips	607	607	kg
Displaced material – LDPE granulate	0,5	0,5	kg
Energy recovery from waste incineration – electrical	1176	1176	MJ
Energy recovery from waste incineration – thermal	2362	2362	MJ

Indoor air

The LCA does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available.

Soil and water

The LCA does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available.



References

Owner and publisher	Herning Massivtræ A/S
Programme operator	No programme operator
LCA-practitioner	Better Green ApS Virumvej 64 2830 Virum Danmark
LCA software/background data	SimaPro 9.6 (ecoinvent 3.10)
Reviewer	Stefan Emil Danielsson

EN 15804

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

EN 16485

DS/EN 16485:2014 – ”Round and sawn timber – Environmental Product Declarations – Product category rules for wood and wood-based products for use in construction”