

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Robin chair with wooden legs M





The Norwegian EPD Foundation

This declaration is based on Product Category Rules: CEN Standard EN 15804:2012+A2:2019 serves as core PCR OUTDATED NPCR 026:2018 Part B for furniture

Owner of the declaration:

Robin chair with wooden legs M

Helland Møbler AS

Declared unit:

Product:

1 pcs

Program operator: The Norwegian EPD Foundation

Declaration number:

NEPD-8769-8443

Registration number:

NEPD-8769-8443

Issue date: 20.01.2025

Valid to: 20.01.2030

EPD software: LCAno EPD generator ID: 758725

General information

Product

Robin chair with wooden legs M

Program operator:

The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway Phone: +47 977 22 020 web: www.epd-norge.no

Declaration number:

NEPD-8769-8443

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR OUTDATED NPCR 026:2018 Part B for furniture

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit:

1 pcs Robin chair with wooden legs M

Declared unit (cradle to gate) with option:

A1-A3,A4,A5,B2,B3,B4,C1,C2,C3,C4,D

Functional unit:

Production of one chair provided and maintained for a period of 15 years.

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Owner of the declaration:

Helland Møbler AS Contact person: Joakim Helland Phone: +47 958 09 013 e-mail: joakim.helland@helland.no

Manufacturer:

Helland Møbler AS Postboks 10 6259 Stordal, Norway

Place of production:

Helland Baltic ÖU Hapvali, Nõmme küla, Haapsalu linn EE-90439 Läänemaa, Estonia

Management system:

ISO 14001:2015, sertifikat nr 901085

Organisation no:

943 511 128

Issue date:

20.01.2025

Valid to:

20.01.2030

Year of study:

2023

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD: Oddrun Aunet Innselset

Reviewer of company-specific input data and EPD: Pawel Sosinski

Approved:

Håkon Hauan Managing Director of EPD-Norway

Product

Product description:

Robin Chair – Timeless Elegance with Modern Wooden Legs

Experience the best of both classic design and modern style with the Robin chair. This timeless chair, now with stylish steel legs or base, is perfect for any home or office. With its compact size and superior seating comfort, it fits perfectly into both small and large rooms.

Good Seating Comfort: Despite its neat shape, the Robin chair provides fantastic seating comfort. The ergonomic design ensures that you sit well, whether you use the chair for work, meals or relaxation.

High Quality: The Robin chair is built to last, with materials of the highest quality and solid construction. The durable steel legs or base provide both stability and a modern expression, ensuring that the chair will remain just as beautiful for many years to come.

Let the Robin chair become a stylish feature in your home or office - a chair that combines timeless elegance with high functionality.

Product specification

Removable and waterproof seat cover Plinth with tilt function Armrest protectors (pair)

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Paint, water-based	0,50	3,76	0,00	0,00
Wood - Fibreboard	0,30	2,26	0,00	0,00
Metal - Steel	0,62	4,63	0,12	20,00
Plastic - Polyurethane (PUR)	1,70	12,78	0,00	0,00
Textile - Polyester	0,50	3,76	0,00	0,00
Wood - Plywood	9,68	72,81	0,00	0,00
Total	13,30	100,00	0,12	

Packaging	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Packaging - Plastic	0,10	5,26	0,00	0,00
Recycled cardboard	1,80	94,74	1,80	100,00
Total incl. packaging	15,20	100,00	1,92	

Technical data:

Width: 63cm, Height: 83cm, Depth: 73cm, Seat height 46cm, Weight: 13,30kg (without cardboard)

Market:

Europa and USA

Reference service life, product

15 years

Reference service life, building

LCA: Calculation rules

Declared unit:

1 pcs Robin chair with wooden legs M

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.



Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Metal - Steel	ecoinvent 3.6	Database	2019
Packaging - Plastic	ecoinvent 3.6	Database	2019
Paint, water-based	ecoinvent 3.6	Database	2019
Plastic - Polyurethane (PUR)	ecoinvent 3.6	Database	2019
Recycled cardboard	Modified ecoinvent 3.6	Database	2019
Textile - Polyester	ecoinvent 3.6	Database	2019
Wood - Fibreboard	modified ecoinvent 3.6	Database	2019
Wood - Plywood	modified ecoinvent 3.6	Database	2019

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System boundaries (X=included, MND=module not declared, MNR=module not relevant)

System boundary:



Additional technical information:

Transportation to an average customer in Copenhagen is 1000 km (A4: average European lorry > 32 tonnes) The use stage (B1) is represented by a scenario and includes vacuum cleaning of textile once a month. The PCR does not provide detailed guidelines for what should be included in the use stage. In the end of life stage, the transport distance for waste to waste processing is 72 km (C1). The reuse, recovery and recycling stage is beyond the system boundaries (D). It is assumed that the solution is dismantled and the materials recycled or combusted according to general Norwegian treatment of industrial waste (see the table below). This calculation includes only CO2 emissions (GWP) in the C-modules. The transport distance to reuse, recovery or recycling varies for each material, but the average distance is 373 km. The vehicles used and associated data are described in detail in [5].

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transportation to an average customer in Copenhagen is 1000 km (A4: average European lorry > 32 tonnes) The use stage (B1) is represented by a scenario and includes vacuum cleaning of textile once a month. The PCR does not provide detailed guidelines for what should be included in the use stage. In the end of life stage, the transport distance for waste to waste processing is 72 km (C1). The reuse, recovery and recycling stage is beyond the system boundaries (D). It is assumed that the solution is dismantled and the materials recycled or combusted according to general Norwegian treatment of industrial waste (see the table below). This calculation includes only CO2 emissions (GWP) in the C-modules. The transport distance to reuse, recovery or recycling varies for each material, but the average distance is 373 km. The vehicles used and associated data are described in detail in [5].

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, HVO, EURO 6 (kgkm)	36,7 %	1000	0,043	l/tkm	43,00
Truck, 7.5-16 tonnes, HVO, EURO 6 (kgkm)	35,4 %	300	0,056	l/tkm	16,80
Assembly (A5)	Unit	Value			
Waste, packaging, plastic film (LDPE), to average treatment - A5 (kg)	kg	0,10			
Waste, packaging, cardboard, 100 % recycled, to average treatment (kg)	kg	0,45			
Assembly (A5)	Unit	Value			
Waste, Packaging, Plastic film(LDPE), to avergae treatment-A5 (kg)	kg	0,75			
Waste, Packaging, Cardboard, 100% recyled, to average treatment (kg)	kg	5			
Waste, Packaging, Corrugated board box, 0& recycled, to average treatment (kg)	kg	0,245			
Maintenance (B2)	Unit	Value			
Electricity, European average (kWh)	kWh/DU	11,70			
Water, tap water (m3)	m3/DU	0,78			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, HVO, EURO 6 (kgkm)	36,7 %	85	0,043	l/tkm	3,66
Waste processing (C3)	Unit	Value			
Waste treatment per kg Wood, incineration with fly ash extraction (kg)	kg	9,98			
Waste treatment per kg Textile, incineration with fly ash extraction (kg)	kg	0,50			
Waste treatment per kg Polyurethane (PU), incineration (kg)	kg	1,70			
Waste, materials to recycling (kg)	kg	0,20			
Waste treatment per kg Scrap steel, incineration with fly ash extraction (kg)	kg	0,61			
Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Wood, process per kg ashes and residues (kg)	kg	0,11			
Landfilling of ashes from incineration of Textile, soiled, process per kg ashes and residues (kg)	kg	0,025			
Landfilling of ashes from incineration of Polyurethane (PU), process per kg ashes and residues - C4 (kg)	kg	0,064			
Landfilling of ashes and residues from incineration of Scrap steel (kg)	kg	0,40			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	148,051			
Substitution of electricity, in Norway (MJ)	MJ	9,78			
Substitution of primary steel with net scrap (kg)	kg	0,16			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact									
	Indicator		Unit		A1-A3	A4	A5	B2	B3
(f)	GWP-total		kg CO ₂ -e	eq	2,06E+01	8,31E-01	7,79E-01	5,28E+00	0
P	GWP-fossil		kg CO ₂ -eq		3,91E+01	8,29E-01	1,52E-02	5,23E+00	0
P	GWP-biogenic		kg CO ₂ -e	eq	-1,92E+01	1,44E-03	7,64E-01	3,66E-02	0
P	GWP-luluc		kg CO ₂ -e	eq	6,64E-01	1,36E-03	3,01E-06	1,20E-02	0
Ò	ODP		kg CFC11 -	-eq	4,46E-06	1,63E-07	2,01E-09	4,44E-07	0
(E	AP		mol H+ -e	eq	2,93E-01	5,78E-03	4,42E-05	3,05E-02	0
÷	EP-FreshWater		kg P -ec	1	1,71E-03	3,13E-05	7,61E-08	5,51E-04	0
÷	EP-Marine		kg N -ec	1	5,38E-02	1,50E-03	2,03E-05	3,92E-03	0
÷	EP-Terrestial		mol N -e	q	5,60E-01	1,68E-02	1,58E-04	4,82E-02	0
	POCP		kg NMVOC	-eq	1,75E-01	6,15E-03	4,70E-05	1,24E-02	0
e fa	ADP-minerals&metals ¹		kg Sb-eo	7	6,52E-04	1,08E-04	2,19E-07	4,39E-05	0
B	ADP-fossil ¹		MJ		6,24E+02	1,74E+01	1,34E-01	1,07E+02	0
6			m ³		3.41E+03	5,46E+01	2,45E-01	1,62E+03	0
C.	1101				-,		·		
	Indicator		Unit	B4	C1	C2	C3	C4	D
P	Indicator GWP-total		Unit kg CO ₂ -eq	B4 0	C1 0	C2 5,03E-02	C3 2,21E+01	C4 1,48E-02	D -1,07E+00
P P	Indicator GWP-total GWP-fossil		Unit kg CO ₂ -eq kg CO ₂ -eq	B4 0 0	C1 0 0	C2 5,03E-02 5,01E-02	C3 2,21E+01 4,70E+00	C4 1,48E-02 1,48E-02	D -1,07E+00 -1,04E+00
P P P	Indicator GWP-total GWP-fossil GWP-biogenic		Unit kg CO2 - eq kg CO2 - eq kg CO2 - eq	B4 0 0 0	C1 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05	C3 2,21E+01 4,70E+00 1,74E+01	C4 1,48E-02 1,48E-02 1,19E-05	D -1,07E+00 -1,04E+00 -1,87E-03
© \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc		Unit kg CO2 - eq	B4 0 0 0	C1 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02
©	Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP		Unit kg CO2 - eq	B4 0 0 0 0 0	C1 0 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05 1,03E-08	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05 3,31E-08	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06 2,46E-09	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02 -6,25E-02
	Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP		Unit kg CO2 - eq mol H+ - eq	B4 0 0 0 0 0 0	C1 0 0 0 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05 1,03E-08 3,51E-04	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05 3,31E-08 5,56E-03	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06 2,46E-09 6,74E-05	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02 -6,25E-02 -7,99E-03
	Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater		Unit kg CO2 - eq mol H+ - eq kg P - eq	B4 0 0 0 0 0 0 0 0	C1 0 0 0 0 0 0 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05 1,03E-08 3,51E-04 1,84E-06	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05 3,31E-08 5,56E-03 3,47E-06	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06 2,46E-09 6,74E-05 1,85E-07	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02 -6,25E-02 -7,99E-03 -8,76E-05
	Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater EP-Marine		Unit kg CO2 - eq kg P - eq kg N - eq	B4 0 0 0 0 0 0 0 0 0 0	C1 0 0 0 0 0 0 0 0 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05 1,03E-08 3,51E-04 1,84E-06 9,30E-05	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05 3,31E-08 5,56E-03 3,47E-06 2,99E-03	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06 2,46E-09 6,74E-05 1,85E-07 2,24E-05	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02 -6,25E-02 -7,99E-03 -8,76E-05 -2,50E-03
	Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater EP-Marine EP-Terrestial		Unit kg CO2 - eq kg P - eq kg N - eq mol N - eq	B4 0 0 0 0 0 0 0 0 0 0 0 0	C1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05 1,03E-08 3,51E-04 1,84E-06 9,30E-05 1,04E-03	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05 3,31E-08 5,56E-03 3,47E-06 2,99E-03 2,94E-02	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06 2,46E-09 6,74E-05 1,85E-07 2,24E-05 2,51E-04	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02 -6,25E-02 -3,799E-03 -8,76E-05 -2,50E-03 -2,69E-02
	Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater EP-Marine EP-Terrestial POCP	k	Unit kg CO2 - eq kg P - eq kg N - eq mol N - eq g NMVOC - eq	B4 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05 1,03E-08 3,51E-04 1,84E-06 9,30E-05 1,04E-03 3,80E-04	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05 3,31E-08 5,56E-03 3,47E-06 2,99E-03 2,94E-02 7,03E-03	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06 2,46E-09 6,74E-05 1,85E-07 2,24E-05 2,51E-04 7,08E-05	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02 -6,25E-02 -7,99E-03 -2,50E-03 -2,50E-03 -2,69E-02 -7,82E-03
	Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater EP-Marine EP-Terrestial POCP ADP-minerals&metals ¹	k	Unit kg CO2 - eq kg P - eq kg N - eq mol N - eq g NMVOC - eq kg Sb-eq	B4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05 1,03E-08 3,51E-04 1,84E-06 9,30E-05 1,04E-03 3,80E-04 6,09E-06	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05 3,31E-08 5,56E-03 3,47E-06 2,99E-03 2,94E-02 7,03E-03 1,32E-06	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06 2,46E-09 6,74E-05 1,85E-07 2,24E-05 2,51E-04 7,08E-05 1,33E-07	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02 -6,25E-02 -7,99E-03 -2,50E-03 -2,50E-03 -2,69E-02 -7,82E-03 -7,82E-03
	Indicator Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater EP-Terrestial EP-Terrestial POCP ADP-minerals&metals ¹ ADP-fossil ¹	k	Unit kg CO2 - eq kg P - eq kg N - eq mol N - eq g NMVOC - eq kg Sb-eq MJ	B4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C2 5,03E-02 5,01E-02 8,49E-05 7,81E-05 1,03E-08 3,51E-04 1,84E-06 9,30E-05 1,04E-03 3,80E-04 6,09E-06 1,06E+00	C3 2,21E+01 4,70E+00 1,74E+01 4,53E-05 3,31E-08 5,56E-03 3,47E-06 2,99E-03 2,94E-02 7,03E-03 1,32E-06 2,85E+00	C4 1,48E-02 1,48E-02 1,19E-05 2,91E-06 2,46E-09 6,74E-05 1,85E-07 2,24E-05 2,51E-04 7,08E-05 1,33E-07 1,34E-01	D -1,07E+00 -1,04E+00 -1,87E-03 -2,97E-02 -6,25E-02 -7,99E-03 -2,50E-03 -2,69E-02 -7,82E-03 -1,17E-05 -1,17E-05

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 = 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

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009" *INA Indicator Not Assessed

1. 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

Remarks to environmental impacts

Additional environmental impact indicators								
	Indicator	Unit		A1-A3	A4	A5	B2	B3
	PM	Disease incidence		5,46E-06	1,82E-07	6,85E-10	8,90E-08	0
(**) E	IRP ²	kgBq U235 -eq		2,46E+00	5,68E-02	5,83E-04	9,28E-01	0
AD	ETP-fw ¹	CTUe		1,32E+03	2,59E+01	1,67E-01	7,67E+01	0
~~* ****	HTP-c ¹	CTUh		9,04E-08	0,00E+00	5,00E-12	2,74E-09	0
82 E	HTP-nc ¹	CTUh	CTUh		4,41E-08	2,00E-10	8,55E-08	0
è	SQP ¹	dimensionless	dimensionless		3,08E+01	1,25E-01	2,60E+01	0
lı	ndicator	Unit	B4	C1	C2	C3	C4	D
	PM	Disease incidence	0	0	1,16E-08	3,01E-08	1,02E-09	-4,44E-07
(ini) B	IRP ²	kgBq U235 -eq	0	0	3,46E-03	4,72E-03	8,47E-04	-7,77E-02
	ETP-fw ¹	CTUe	0	0	1,55E+00	1,39E+01	2,34E-01	-7,70E+01
40.* ****	HTP-c ¹	CTUh	0	0	0,00E+00	6,79E-10	1,10E-11	-2,11E-09
4 <u>6</u>	HTP-nc ¹	CTUh	0	0	2,58E-09	3,05E-08	3,80E-10	-4,48E-08
è	SQP ¹	dimensionless	0	0	1,98E+00	3,48E-01	5,06E-01	-8,22E+01

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)

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009" *INA Indicator Not Assessed

1. 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

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.

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Resource use								
	Indicator		Unit	A1-A3	A4	A5	B2	B3
î, î S	PERE		MJ	4,72E+02	8,24E-01	2,50E-03	2,05E+01	0
	PERM		MJ		0,00E+00	-2,63E+00	0,00E+00	0
°F:	PERT		MJ	6,22E+02	8,24E-01	-2,63E+00	2,05E+01	0
Ð	PENRE		MJ	5,59E+02	1,74E+01	1,35E-01	1,07E+02	0
Å	PENRM		MJ	6,84E+01	0,00E+00	-4,25E+00	0,00E+00	0
IA Am	PENRT		MJ	6,27E+02	1,74E+01	-4,11E+00	1,07E+02	0
	SM		kg	1,92E+00	0,00E+00	0,00E+00	0,00E+00	0
E	RSF		MJ	6,97E-01	2,70E-02	7,72E-05	1,50E+00	0
Ū.	NRSF		MJ	3,82E-01	9,37E-02	2,86E-04	3,93E-01	0
٢	FW		m ³		7,26E-03	6,53E-05	8,71E-01	0
I	ndicator	Unit	B4	C1	C2	C3	C4	D
î, G	PERE	MJ	0	0	4,80E-02	8,30E-02	7,41E-03	-7,59E+01
T.	PERM	MJ	0	0	0,00E+00	-1,40E+02	0,00E+00	0,00E+00
°F.	PERT	MJ	0	0	4,80E-02	-1,40E+02	7,41E-03	-7,59E+01
Ð	PENRE	MJ	0	0	1,06E+00	2,86E+00	1,94E-01	-1,38E+01
<u>Å</u> a	PENRM	MJ	0	0	0,00E+00	-6,41E+01	0,00E+00	0,00E+00
IA	PENRT	MJ	0	0	1,06E+00	-6,13E+01	1,94E-01	-1,38E+01
	SM	kg	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	0	0	1,56E-03	1,97E-03	1,87E-04	-6,63E-03
1.	NRSF	MJ	0	0	5,38E-03	0,00E+00	4,44E-02	-4,30E+00
\$	FW	m ³	0	0	4,34E-04	8,87E-03	1,76E-04	-9,17E-02

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; SENRE = Use of non renewable primary energy excluding non-renewable primary energy resources; SENRE = Use of secondary materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009" *INA Indicator Not Assessed

HELLAND[®]

End of life - Waste									
	Indicator		U	nit	A1-A3	A4	A5	B2	B3
A	HWD		kg		2,94E-01	2,49E-03	0,00E+00	1,63E-02	0
Ū	NHWD		k	g	4,97E+00	2,44E+00	5,50E-01	4,02E-01	0
æ	RWD		kg		2,52E-03	6,88E-05	0,00E+00	7,59E-04	0
Ir	ndicator		Unit	B4	C1	C2	C3	C4	D
A	HWD		kg	0	0	1,49E-04	0,00E+00	5,37E-01	-1,53E-03
Ū	NHWD		kg	0	0	1,58E-01	0,00E+00	8,35E-02	-3,65E-01
R	RWD		kg	0	0	4,25E-06	0,00E+00	1,13E-06	-6,37E-05

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009" *INA Indicator Not Assessed

End of life - Output flow								
Ind	icator	U	nit	A1-A3	A4	A5	B2	B3
Ôþ	CRU	kg		0,00E+00	0,00E+00	0,00E+00	0,00E+00	0
\$\$D	MFR	k	g	5,31E-02	0,00E+00	4,70E-01	0,00E+00	0
DF3	MER	k	g	6,02E-01	0,00E+00	5,61E-06	0,00E+00	0
50	EEE	N	MJ		0,00E+00	2,57E-02	0,00E+00	0
DB	EET	N	MJ		0,00E+00	3,90E-01	0,00E+00	0
Indicato	r	Unit	B4	C1	C2	C3	C4	D
$\otimes \triangleright$	CRU	kg	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
\$	MFR	kg	0	0	0,00E+00	2,09E-01	0,00E+00	0,00E+00
D₽	MER	kg	0	0	0,00E+00	1,28E+01	0,00E+00	0,00E+00
₹Þ	EEE	MJ	0	0	0,00E+00	9,70E+00	0,00E+00	0,00E+00
	EET	MJ	0	0	0,00E+00	1,47E+02	0,00E+00	0,00E+00

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009" *INA Indicator Not Assessed

Biogenic Carbon Content

biogenie europhiene		
Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	4,54E+00
Biogenic carbon content in accompanying packaging	kg C	8,33E-01

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Source	Amount	Unit
Electricity, Estonia (kWh)	ecoinvent 3.6	926,93	g CO2-eq/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Our Furniture not contain any substances that affects indoor climate.

Additional Environmental Information

Key Environmental Indicators

Key environmental indicators	Unit	A1-A3	A4	A1-C4	A1-D
GWPtotal	kg CO ₂ -eq	20,62	0,83	49,64	48,57
Total energy consumption	MJ	1031,34	18,32	1183,56	1089,50
Amount of recycled materials	%	12,65			

Additional environmental impact indicators required in NPCR Part A for construction products									
Indicator	Unit		A1-A3	A4	A5	B2	B3		
GWPIOBC	kg CO ₂ -eq	kg CO ₂ -eq		8,31E-01	1,52E-02	5,64E+00	0		
Indicator	Unit	B4	C1	C2	C3	C4	D		
GWPIOBC	kg CO ₂ -eq	0	0	5,03E-02	5,52E+00	1,68E-02	-1,15E+00		

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Variants and Options

Key environmental indicators (A1-A3) for variants of this EPD							
Variants	Weight (kg)	GWPtotal (kg CO ₂ -eq)	Total energy consumption (MJ)	Amount of recycled materials (%)			
Robin chair with steel leg U	15,20	24,75	1051,56	13,68			
Robin chair with cross legs F7	18,80	37,63	1225,68	14,89			

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NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge. NPCR 026 Part B for Furniture. Ver. 2.0 March 2022, EPD-Norge.

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