epd-norge.no
The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Helland Møbler AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-3113-1772-EN
Registration number:	NEPD-3113-1772-EN
ECO Platform reference number:	-
Issue date:	17.09.2021
Valid to:	17.09.2026

BO Chair with armrests

Helland Møbler AS

HELLAND®

www.epd-norge.no

General information

Product:

BO Chair with armrests

Owner of the declaration:

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

Program operator:

The Norwegian EPD Foundation
Pb. 5250 Majorstuen, 0303 Oslo
Phone: +47 23 08 80 00
e-mail: post@epd-norge.no

Manufacturer:

Helland Møbler AS
Postboks 10 6259 Stordal
Norway

Declaration number:

NEPD-3113-1772-EN

Place of production:

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

ECO Platform reference number:

Management system:

ISO 14001:2015, sertifikat nr 901085

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR
NPCR 026:2018 Part B for furniture

Organisation no:

943 511 128

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.

Issue date: 17.09.2021

Valid to: 17.09.2026

Declared unit:

1 Pcs BO Chair with armrests

Year of study:

2020

Declared unit with option:

A1,A2,A3,A4

Comparability:

EPDs from programmes other than the Norwegian EPD Foundation may not be comparable

Functional unit:

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

Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

Developer of EPD:

Oddrun Innselset

Reviewer of company-specific input data and EPD:

Pawel Sosinski

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. Individual third party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the proccess is reviewed annualy. 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.

Erik Svanes, Norsus AS

(no signature required)

Approved:

Sign

Håkon Hauan, CEO EPD-Norge

Key environmental indicators	Unit	Cradle to gate A1 - A3
Global warming	kg CO2 eqv	26,51
Total energy use	MJ	513,16
Amount of recycled materials	%	3,45

Product

Market:

Europa and USA

Product description:

The BO chair is delivered with or without armrests, woodwork in solid birch or oak, or stained in Hellands standard range of stains.
The product is Nordic Swan certified.

Product specification

Optional removable seat and back cover, wheels on front legs.

Technical data:

Width: 58cm
Depth: 56cm
Sitting height: 46/51cm
Armrest height: 64cm
Seat depth: 43 cm
Weight: 8kg (without cardboard)

Reference service life, product

15 years

Reference service life, building

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Metal - Steel	0,03	0,33	0,01	20,00
Textile - Polyester (PE)	0,33	4,14	0,33	100,00
Plastic - Polyurethane (PUR)	0,70	8,78	0,00	0,00
Wood - Solid beech/birch	5,20	65,20	0,00	0,00
Wood - Plywood	1,20	15,05	0,00	0,00
Paint, solvent-based	0,50	6,27	0,00	0,00
Plastic - Nylon (PA)	0,02	0,25	0,00	0,00

Packaging	kg		Recycled share in material (kg)	Recycled share in material (%)
Packaging - Cardboard	1,74		0,00	0,00

LCA: Calculation rules

Declared unit:

1 Pcs BO Chair with armrests

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:

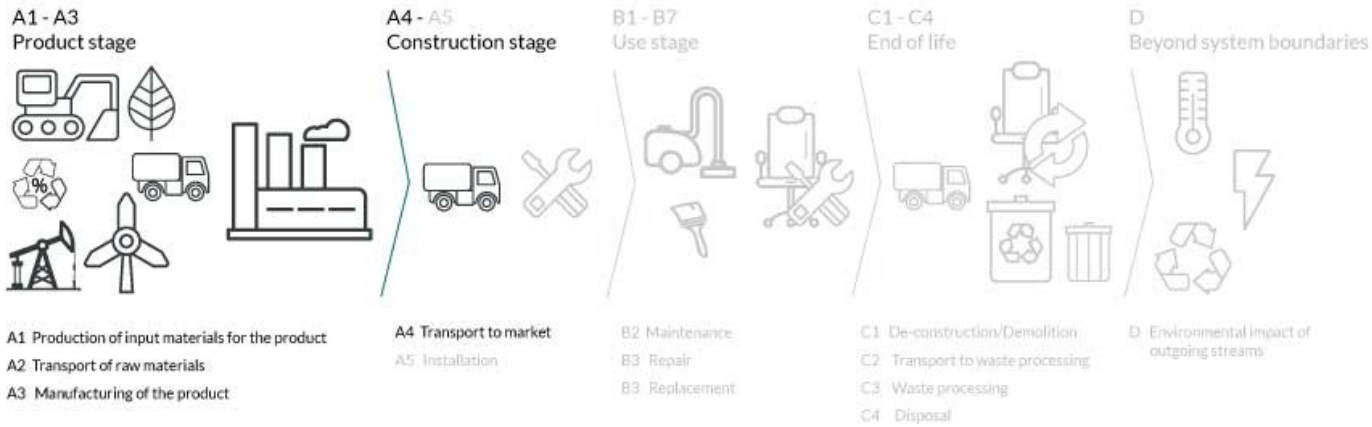
The allocation is made in accordance with the provisions of EN 15804. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

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
Plastic - Polyurethane (PUR)	ecoinvent 3.4	Database	2015
Metal - Steel	ecoinvent 3.3	Database	2016
Paint, solvent-based	ecoinvent 3.4	Database	2017
Textile - Polyester (PE)	ecoinvent 3.4	Database	2017
Wood - Plywood	ecoinvent 3.4	Database	2017
Wood - Solid beech/birch	ecoinvent 3.4	Database	2017
Packaging - Cardboard	Ecoinvent 3.6	Database	2019
Plastic - Nylon (PA)	ecoinvent 3.6	Database	2019

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].

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

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)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	38,8 %	Truck, 16-32 tonnes, EURO 5	942	0,044606	l/tkm	42,02
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
Output materials fr…ste treatment	kg	
Dust in the air	kg	
VOC emissions	kg	

Use (B1)

.	Unit	Value

Maintenance (B2)/Repair (B3)

.	Unit	Value
Maintenance cycle*		
Auxiliary		
Other resources		
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
VOC emissions	kg	

Replacement (B4)/Refurbishment (B5)

.	Unit	Value
Replacement cycle*		
Electricity consumption	kWh	
Replacement of worn parts		

* Described above if relevant

Operational energy (B6) and water consumption (B7)

.	Unit	Value
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Power output of equipment	kW	

End of Life (C1, C…

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction wa…	kg	
Reuse	kg	
Recycling		
Energy recovery		
To landfill	kg	

Scenarios after A1-A4 are not included

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck					l/tkm	
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

LCA: Results

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

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

Product stage			Construction installation stage	User stage								End of life stage				.	Beyond the system bondaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal		Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	.	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	.	MND

Environmental impact

Parameter	Unit	A1	A2	A3	A4
GWP	kg CO_2 -eq	1,50E+01	6,67E-01	1,09E+01	1,49E+00
ODP	kg CFC11 -eq	6,46E-07	1,23E-07	5,19E-07	2,75E-07
POCP	kg C_2H_4-eq	4,88E-03	1,09E-04	2,04E-03	2,43E-04
AP	kg SO_2 -eq	6,38E-02	2,18E-03	5,03E-02	4,75E-03
EP	kg PO_4^{3-} -eq	9,56E-03	3,86E-04	6,69E-03	7,88E-04
ADPM	kg Sb -eq	5,36E-05	2,13E-06	1,62E-05	4,54E-06
ADPE	MJ	1,39E+02	1,00E+01	1,16E+02	2,24E+01

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

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

Resource use

Parameter	Unit	A1	A2	A3	A4
RPEE	MJ	1,10E+02	1,47E-01	1,84E+01	3,27E-01
RPEM	MJ	1,62E+02	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	2,72E+02	1,47E-01	1,84E+01	3,27E-01
NRPE	MJ	1,72E+02	1,03E+01	2,03E+02	2,30E+01
NRPM	MJ	1,41E+01	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	1,86E+02	1,03E+01	2,03E+02	2,30E+01
SM	kg	3,35E-01	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	6,91E-02	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	-2,25E-03	0,00E+00	0,00E+00	0,00E+00
W	m^3	1,66E-01	1,92E-03	1,04E-01	4,30E-03

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

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

End of life - Waste

Parameter	Unit	A1	A2	A3	A4
HW	kg	1,69E-02	6,12E-06	3,08E-02	1,34E-05
NHW	kg	3,49E+00	5,31E-01	2,77E+00	1,21E+00
RW	kg	INA*	INA*	INA*	INA*

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

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

End of life - Output flow

Parameter	Unit	A1	A2	A3	A4
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	2,16E-03	0,00E+00	4,88E-01	0,00E+00
MER	kg	9,14E-02	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	INA*	INA*	INA*	INA*
ETE	MJ	INA*	INA*	INA*	INA*

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

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

Additional Norwegian 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).

Dangerous substances

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

Indoor environment

Our Furniture does not contain any substances that affects indoor climate.

Additional environmental information

Bibliography

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.
EN 15804:2012+A1:2013 Environmental product declaration - Core rules for the product category of construction products.
ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.
Iversen et al., (2018) eEPD v3.0 - Background information for EPD generator system. LCA.no report number 04.18
Vold et al., (2019) EPD generator for Norsk Industri, Background information for industry application and LCA data, LCA.no report number 06.19.
NPCR Part A: Construction products and services. Ver. 1.0. April 2017, EPD-Norge.
NPCR 026 Part B for Furniture. Ver. 2.0 October 2018, EPD-Norge.

epd-norge.no The Norwegian EPD Foundation	**Program operator and publisher** The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo,Norway	Phone: e-mail: web:	+47 23 08 80 00 post@epd-norge.no www.epd-norge.no
HELLAND®	**Owner of the declaration** Helland Møbler AS Postboks 10 6259 Stordal	Phone: e-mail: web:	+47 958 09 013 joakim.helland@helland.no www.helland.no
LCA.no	**Author of the Life Cycle Assessment** LCA.no AS Dokka 1C 1671 Kråkerøy	Phone: e-mail: web:	+47 916 50 916 post@lca.no www.lca.no
LCA.no	**Developer of EPD generator** LCA.no AS Dokka 1C 1671 Kråkerøy	Phone: e-mail: web:	+47 916 50 916 post@lca.no www.lca.no