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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025

Owner of the declaration	Helland Møbler AS
Program holder and publisher	The Norwegian EPD Foundation
Declaration number	NEPD-1413-464-EN
Issue date	24.10.2017
Valid to	24.10.2022

Pan Highback Chair

Product

Helland Møbler AS

Manufacturer

General information

Product

Pan Highback chair with decorative buttons. We delivery without buttons. And stepless adjustment of the backrest and removable neck cushion.

General Information

The Norwegian EPD Foundation
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Declaration number: NEPD-1413-464-EN

This declaration is based on Product Category Rules:

NPCR 003: 2015 Version 2.1 seating
Norwegian EPD Foundation
PCR Description Line 3

Declared unit:

Pan Highback chair with decorative buttons. We delivery without buttons. And stepless adjustment of the backrest and removable neck cushion.

Declared unit with option:

Without regulation and adjustment

Functional unit:

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

This EPD has been worked out by:

The declaration has been developed using Furniture EPD Tool Version 1.3.1, Approval: NEPDT04
Company specific data collected and registered by:
Oddrun Aunet Innselset
Company specific data audited by:
Øyvind Tafjord

Verification:

Independent verification of data, other environmental information and EPD has been carried out in accordance with ISO14024, 8.1.3. and 8.1.4.

externally

Mie Vold, Senior Research Scientist
(Independent verifier approved by EPD Norway)

Owner of the declaration:

Helland Møbler AS
Contact person: Øyvind Tafjord
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Manufacturer

Helland Møbler AS

Place of production:

90437 Läännemaa + Kadaka Tee 179B, Tallinn, Estonia

Management system:

ISO 14001: 2014 Certificate no. 901085
From the accredited unit: Nemko AS, Norway

Org. No:

NO 94 35 11 128 MVA

Issue date: 24.10.2017

Valid to: 24.10.2022

Comparability:

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

Year of study:

Approved

Håkon Hauan
Managing Director of EPD-Norway

Key environmental indicators	Unit	Cradle to Gate A1-A3
Global warming	kg CO_2	15
Total energy use	MJ	390
Amount of recycled materials	%	53 %

Product

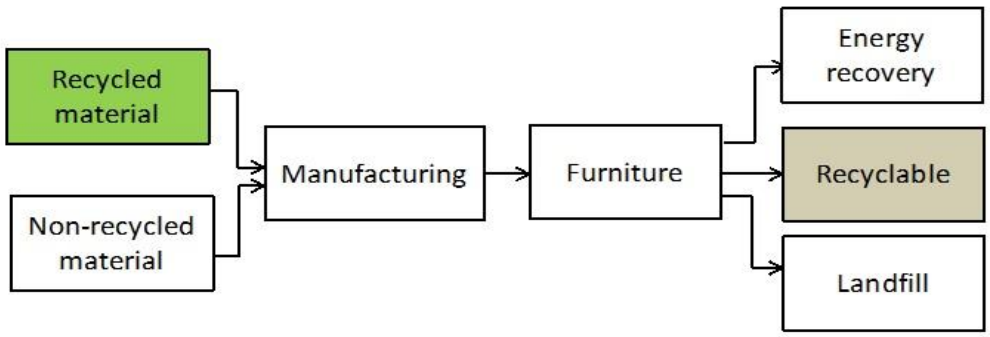
Product Description and Application
Pan Highback chair with decorative buttons. We delivery without buttons. And stepless adjustment of the backrest and removable neck cushion. Design: Helge Taraldsen.

Technical Data
Total weigth: 15,59 kg Dimensions: H108, W63, D76. Seat height: 45 cm

Market
Europe and USA

Reference Service Life
15 years

Materials			Recycled material in manufactured product		Recyclable material at end of product life	
Unit	kg	%	%	kg	%	kg
Wood	5,40	35 %	0 %	0,00	0 %	0,00
Polypropylene	3,60	23 %	100 %	3,60	100 %	3,60
Packaging	3,05	20 %	76 %	2,32	100 %	3,05
Steel	2,80	18 %	82 %	2,30	100 %	2,80
Textiles	0,63	4 %	0 %	0,00	0 %	0,00
Polyurethane	0,10	1 %	0 %	0,00	100 %	0,10
Paint	0,01	0 %	0 %	0,00	100 %	0,01
Polyethylene	0,01	0 %	0 %	0,00	100 %	0,01
Total	15,59		53 %		61 %	



Product manufactured from 53% recycled material
At end of life product contains 61% recyclable material

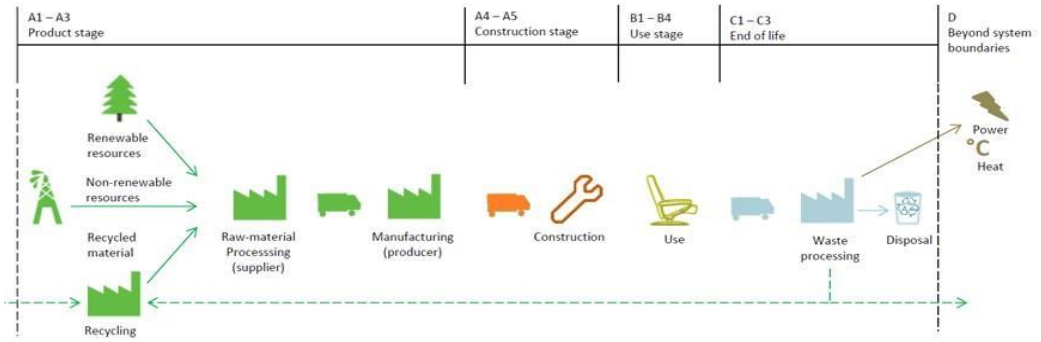
LCA: Calculation rules

Declared Unit

Pan Highback chair with decorative buttons. We delivery without buttons. And stepless adjustment of the backrest and removable neck cushion.

System Boundary

Life cycle stages included are described in figure and through the corresponding letter and number designations in the



Data quality

Specific manufacturing data from 2014 are used. Data from Ecoinvent 3.0.1. and Østfoldforskning databases are used as the basis for raw marerials and energy carrier production. See (6)

Cut-off criteria

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances

Allocation

Where virgin materials are used, emissions and energy consumption connected with extraction and production are included.
Where recycled materials are used in the product, emissions and energy consumption related to the recycling process are included.
Emissions from incineration are allocated to the product system that uses the recovered energy.
Emissions from incineration of waste are allocated to the product system that uses the recovered energy.

LCA: Scenarios and 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].

	Material recovery	Energy recovery	Disposal
Aluminium	70,1 %	0,0 %	30 %
Steel	70,1 %	0,0 %	30 %
Plastic	64,3 %	30,8 %	5 %
Cardboard	94,5 %	5,5 %	0 %

LCA: Results

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

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

Product stage			Construction stage		Use stage				End of life			Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Construction	Maintenance	Repair	Replacement	Operational energy use	Transport	Waste Processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	D
x	x	x	x	MNR	x	MNR	MNR	MNR	x	x	x	x

Environmental impact (INA = Indicator Not Assessed)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
GWP	14,0	0,6	0,2	14,7	0,0	0,0	1,2	11,0	1,3	13,5	-8,2
ODP	9,3E-07	1,1E-07	2,9E-08	1,1E-06	0,0	0,0	INA	INA	INA	INA	-2,9E-07
POCP	4,6E-03	1,0E-04	2,8E-05	4,7E-03	0,0	0,0	INA	INA	INA	INA	-7,5E-03
AP	2,9E-02	5,3E-04	1,4E-04	3,0E-02	0,0	0,0	INA	INA	INA	INA	-7,2E-03
EP	0,1	2,3E-03	6,6E-04	0,1	0,0	0,0	INA	INA	INA	INA	-2,6E-02
ADPM*	3,9E-05	2,1E-06	4,6E-07	4,2E-05	0,0	0,0	INA	INA	INA	INA	-2,5E-05
ADPE	191,3	8,7	2,3	202,4	0,0	0,0	INA	INA	INA	INA	-198,1

GWP Global warming potential (kg CO2-eqv.); ODP Depletion potential of the stratospheric ozone layer (kg CFC11-eqv.); POCP Formation potential of tropospheric photochemical oxidants (kg C2H4-eqv.); AP Acidification potential of land and water (kg SO2-eqv.); EP Eutrophication potential (kg PO4-3-eqv.); ADPM Abiotic depletion potential for non fossil resources (kg Sb -eqv.); ADPE Abiotic depletion potential for fossil resources (MJ);

* Some processes use Ecoinvent 3.0.1. and thus data on renewable resources is omitted. The true ADPM, RPEE, RPEM and TPE may be higher than indicated. This issue will be addressed in a new version of Ecoinvent 3, data from which was not available when this declaration was prepared.

Resource use (INA = Indicator Not Assessed)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
RPEE*	149,0	0,1	3,2E-02	149,1	0,0	0,0	INA	INA	INA	INA	-1,2
RPEM*	149,2	3,9E-02	1,0E-02	149,2	0,0	0,0	INA	INA	INA	INA	-4,4
TPE*	298,2	0,2	4,2E-02	298,4	0,0	0,0	INA	INA	INA	INA	-5,5
NRPE	230,1	8,9	2,4	241,3	0,0	0,0	INA	INA	INA	INA	-194,6
NRPM	1,9	0,0	0,0	1,9	0,0	0,0	INA	INA	INA	INA	0,0
TNRPE	232,0	8,9	2,4	243,2	0,0	0,0	INA	INA	INA	INA	-194,6
SM	5,1	0,0	0,0	5,1	0,0	0,0	INA	INA	INA	INA	-2,1
RSF	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
NRSF	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
W	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0

RPEE Renewable primary energy resources used as energy carrier (MJ); RPEM Renwable primary energy resources used as raw materials (MJ); TPE Total use of renewable primary energy resources (MJ); NRPE Non renewable primary energy resources used as energy carrier (MJ); NRPM Non renewable primary energy resources used as materials (MJ); TNRPE Total use of non renewable primary energy resources (MJ); SM Use of secondary materials (kg); RSF Use of renewable secondary fuels (MJ); NRSF Use of non renewable secondary fuels (MJ); W Use of net fresh water (m3);

End of life - Waste and Output flow (INA = Indicator Not Assessed)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
HW	1,5E-03	5,9E-06	1,5E-06	1,5E-03	0,0	0,0	INA	INA	INA	INA	0,0
NHW	4,8	0,4	0,1	5,3	0,0	0,0	INA	INA	INA	INA	-0,5
RW	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
CR	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
MR	3,0E-03	0,0	0,0	3,0E-03	0,0	0,0	INA	INA	INA	INA	0,0
MER	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
EEE	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
ETE	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0

HW Hazardous waste disposed (kg); NHW Non hazardous waste disposed (kg); RW Radioactive waste disposed (kg); CR Components for reuse (kg); MR Materials for recycling (kg); MER Materials for energy recovery (kg); EEE Exported electric energy (MJ); ETE Exported thermal energy (MJ);

Specific Norwegian requirements

Electricity
The electricity consumed is assumed to be from East pool mix in the East European countries. European mix and energy mix in Estonia is based on data from the Woid bank. (Based on data 2011)
Electricity mix: 0,053 kg CO2 eqv / MJ (East Europen mix)

Dangerous Substances
None of the following substances have been added to the product: Substances on the REACH Candidate list of substances of very high concern (of 17.12.2014) and substances that lead to the product being classified as hazardous waste.
The chemical content of the product complies with regulatory levels as given in the Norwegian Product Requlations.
REACH = Registration - Evalution - Authorisation - Chermicals - Restriction

Indoor Environment
Our furniture does not contian any substances that affects indoor climate

Climate Declaration

Not relevant

Additional environmental information

Key environmental indicators for variants : Cradle to gate analyse from A1 to A3 (packaging included)

Variant model addition option:	Global warming (kg CO2)	Total energy use (MJ)	Share of recycled material in product
Pan Highback chair with fully upholstered arm	24,00	839	43 %
Pan Rocking chair. (with Medley fabric)	16,00	486	47 %

Bibliography

[1] NS-EN ISO 14025:2006, Environmental labels and declarations-Type III environmental declarations - Principles and procedures.

[2] NS-EN ISO 14044:2006, Environmental management - Life cycle assessment - Requirements and guidelines

[3] EN 15804:2012 + A1:2013 Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

[4] Product category rules (PCR) for preparing an environmental product declaration for: Product Group Seating Solution NPCR 003: 2015; Product Group Plate Furniture NPCR 021: 2012

[5] Raadal, H. L., Modahl, I. S., Lyng, K. A. (2009). Klimaregnskap for avfallshåndtering, Fase I og II. OR 18.09. ISBN : 978-82-7520-611-2, 82-7520-611-1

[6] Brekke, A., Møller, H., Baxter, J., Askham, C. (2014). Verktøy - miljødeklarasjon for møbel Dokumentasjon som grunnlag for verifisering, Ostfold Research

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