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ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025

Owner of the declaration	Flokk AS
Program holder and publisher	The Norwegian EPD Foundation
Declaration number	NEPD-468-328-EN
Issue date	29.06.2016
Valid to	29.06.2021

HÅG Futu 1020

Product

HÅG • RH • BMA • OFFECCT • RBM

Flokk AS

Manufacturer

General information

Product
Office chair HÅG Futu 1020

Owner of the declaration:
Flokk AS
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Manufacturer
Flokk AS

Declaration number:
NEPD-468-328-EN

Place of production:
Sundveien 7374 Røros, Norway

This declaration is based on Product Category Rules:
PCR for Seating Solution, NPCR 003 extended version 2013, in accordance with recommendations by the Norwegian EPD Foundation.

Management system:
ISO 14001, Certificate No.151496-2014-AE-NOR-NA
From the accredited unit: DNV Certification As, Norway.
ISO 9001, Certificate No.151495-2014-AQ-NOR-NA
From the accredited unit: DNV Certification As, Norway.

Declared unit:
One office chair: HÅG Futu 1020

Org. No:
No 928 902 749

Declared unit with option:
No option

Issue date:
29.06.2016

Functional unit:
Production of one seating solution provided and maintained for a period of 15 years.

Valid to:
29.06.2021

This EPD has been worked out by:
The declaration has been developed using Furniture EPD Tool Version 1.2.1, Approval: NEPDT04
Company specific data collected and registered by:
Laura Fouilland
Company specific data audited by:
Carl Peter Aaser

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

Year of study:
2016

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.

Approved

externally

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

Håkon Hauan
Managing Director of EPD-Norway

Key environmental indicators	Unit	Cradle to Gate A1-A3
Global warming	kg CO_2	53,7
Total energy use	MJ	913
Amount of recycled materials	%	35,9 %

Product

Product Description and Application

HÅG Futu has an adjustable lumbar support, seat height and seat-depth setting. The chair is delivered with the specially designed FutuKnit textile on the backrest and your choice of FutuKnit or HTC on the seat. The chair features HÅG in Balance® technology which ensures more subconscious movement and energy throughout the workday. Tilt resistance is adjustable and lockable. Height and width-adjustable armrests are optional.
HÅG Futu has received the Council's Sustainability Design Award in 2009.
The chair analysed in this declaration - HÅG Futu 1020 - features a black powder coated footbase and a 165mm gaslift.

Technical Data

Total Weight: 15,36 kg (packaging excluded)
EN 1335 and ANSI BIFMA tested & approved
GREENGUARD and Möbelfakta certified

Market

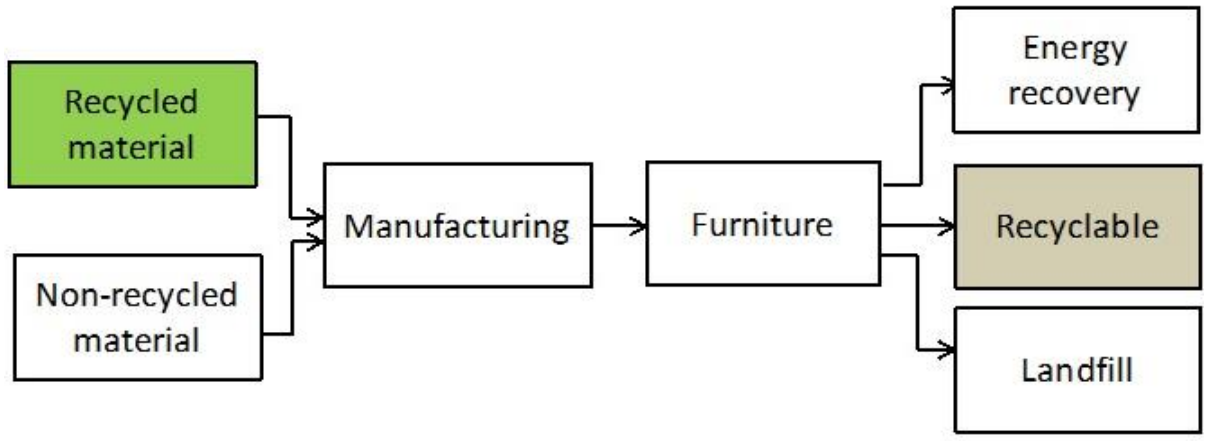
Worldwide

Reference Service Life

15 years

Materials				Recycled material in manufactured product		Recyclable material at end of product life	
Unit		*g*	*%*	*%*	*g*	*%*	*g*
Metal	Steel	5815	38 %	33 %	1 912	100 %	5 815
Plastic	Polypropylene (PP)	3560	23 %	0 %	0	100 %	3 560
Metal	Aluminium	3266	21 %	90 %	2 939	100 %	3 266
Padding	Polyurehtane (PUR)	815	5 %	0 %	0	0 %	0
Plastic	Polyamide (Nylon)	619	4 %	0 %	0	100 %	619
Textile	Polyester (PE)	412	3 %	0 %	0	100 %	412
Plastic	Polyoxymethylene (POM)	387	3 %	0 %	0	100 %	387
Plastic	Rubber	250	2 %	0 %	0	100 %	250
Plastic	Polyetheylene (HDPE)	194	1 %	0 %	0	100 %	194
Plastic	Polyamide with glass fiber (PA-GF)	45	0 %	0 %	0	100 %	45
Total product		**15 363**	100 %	**32 %**	**4 851**	**95 %**	**14 548**

Packaging	Cardboard	1732		76 %	1 316	100 %	1 732
Packaging	Polyethylene bag	106				100 %	106
Total product with packaging		**17 201**		**36 %**	**6 168**	**95 %**	**16 386**

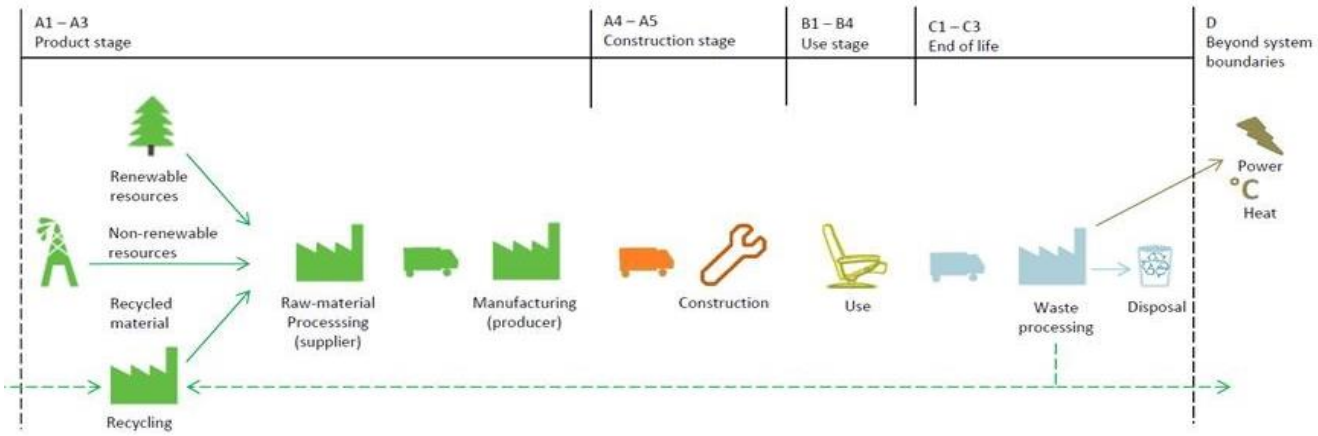


Product manufactured from 36% recycled material (packaging included)
At end of life product contains 95% recyclable material (packaging included)

LCA: Calculation rules

Declared unit:
Production of one seating solution provided and maintained for a period of 15 years.

System boundary:
Life cycle stages included are described in figure and through the corresponding letter and number designations in the declaration (see figure below)



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 materials 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 the general Norwegian treatment of industrial waste (see the table below). This calculation includes only CO_2 emissions (GWP) in the C-modules. The transport distance to reuse, recovery or recycling is 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	52,5	1,2	9,5E-03	53,7	1,4	6,1E-03	1,4	14,6	0,1	16,1	-10,2
ODP	3,3E-06	2,2E-07	2,4E-10	3,5E-06	2,7E-07	1,9E-10	INA	INA	INA	INA	-2,0E-07
POCP	1,9E-02	2,7E-04	4,7E-06	1,9E-02	2,5E-04	1,2E-06	INA	INA	INA	INA	-9,8E-03
AP	0,1	1,2E-03	1,1E-04	0,1	1,3E-03	5,0E-06	INA	INA	INA	INA	-6,8E-03
EP	0,3	6,6E-03	1,0E-04	0,3	5,9E-03	3,4E-05	INA	INA	INA	INA	-3,5E-02
ADPM*	1,4E-03	2,5E-06	8,3E-07	1,4E-03	3,2E-06	2,0E-08	INA	INA	INA	INA	-3,2E-05
ADPE	853,4	18,1	0,1	871,6	22,2	8,2E-02	INA	INA	INA	INA	-251,8

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*	102,1	0,3	4,1	106,5	0,3	9,3E-02	INA	INA	INA	INA	-1,4
RPEM*	22,3	0,1	5,4E-03	22,4	0,1	0,0	INA	INA	INA	INA	-3,2
TPE*	124,4	0,4	4,1	128,9	0,4	9,3E-02	INA	INA	INA	INA	-4,6
NRPE	788,1	18,8	0,1	807,0	23,0	7,9E-02	INA	INA	INA	INA	-248,2
NRPM	224,9	0,0	4,2E-04	224,9	0,0	0,0	INA	INA	INA	INA	0,0
TNRPE	1013,0	18,8	0,1	1031,9	23,0	8,8E-02	INA	INA	INA	INA	-248,2
SM	6,5	0,0	1,6E-13	6,5	0,0	0,0	INA	INA	INA	INA	-4,4
RSF	0,0	0,0	1,9E-06	1,9E-06	0,0	0,0	INA	INA	INA	INA	0,0
NRSF	0,0	0,0	0,0	0,0	0,0	4,0E-02	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	2,4E-02	1,1E-05	1,7E-06	2,4E-02	1,3E-05	5,8E-06	INA	INA	INA	INA	-0,1
NHW	28,6	1,7	1,5E-02	30,3	2,2	7,6E-04	INA	INA	INA	INA	-1,0
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	2,5E-03	0,0	1,5E-04	2,6E-03	0,0	0,0	INA	INA	INA	INA	0,0
MER	0,0	0,0	2,3E-06	2,3E-06	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
Electricity purchased by Flokk for its production sites in Sweden and Norway comes with a guarantee of origin for Nordic Hydropower.
Therefore the electricity mix used in this EPD is: Energy, electricity, hydro, Nordic average.
This gives following greenhouse gas emissions: 2,8 g CO_2-eqv/kWh

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) substances on the Norwegian Priority list (published 04.12.2014) 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 Regulations.

Indoor environment
Greenguard certificate

Climate declaration
Not relevant

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[5] Raadal, H. L., Modahl, I. S., Lyng, K. A. (2009). Klimaregnskap for avfallshåndtering, Fase I og II. OR 18.09.
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