

## ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 <sup>[1]</sup>

Owner of the declaration	Flokk AS
Program holder and publisher	The Norwegian EPD Foundation
Declaration number	ÞÓÚÓËÍ FÆÍ HJËÐ
Issue date	€ËË ËËFÍ
Valid to	€ËË ËËGH

### HÅG Futu mesh 1100

Including variants, page 6

Product



HÅG • RH • GIROFLEX • BMA • OFFECCT • RBM

Flokk AS

Manufacturer



## General information

### Product

HÅG Futu mesh 1100  
with black plastic adjustable armrests

### General Information

The Norwegian EPD Foundation  
Post Box 5250 Majorstuen, 0303 Oslo  
Phone: +47 22 00 00 00  
e-mail: post@epd-norge.no

### Declaration number:

POUØEÏ FËÏ HJËD

### This declaration is based on Product Category Rules:

PCR for Seating Solution, NPCR 003:2015  
in accordance with recommendations by the  
Norwegian EPD Foundation. See [3]

### Declared unit:

One office chair: HÅG Futu mesh 1100

### Declared unit with option:

Black plastic adjustable armrests

### Functional unit:

Production of one seating solution 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 1.4.3, Approval: NEPDT04  
Company specific data collected and registered by:

**Laura Fouilland**

Company specific data audited by:

**Carl Peter Aaser**

### 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. See [2]

externally

Mie Vold, Senior Research Scientist

(Independent verifier approved by EPD Norway)

### Owner of the declaration:

Flokk AS  
Contact person: Atle Thiis-Messel  
Phone: + 47 982 56 830  
E-mail: atle.messel@flokk.com

### Manufacturer

Flokk AS

### Place of production:

Sundveien 7374 Røros, Norway

### 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.

### Org. No:

No 928 902 749

### Issue date:

2018-03-01

### Valid to:

2020-03-01

### Comparability:

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

### Year of study:

2018

Approved

Håkon Hauan  
Managing Director of EPD-Norway

Key environmental indicators for HÅG Futu Mesh 1100	Unit	Cradle to Gate A1-A3
Global warming	kg CO <sub>2</sub>	54,5
Total energy use	MJ	975
Amount of recycled materials	%	40%

## Product

### Product Description and Application

The HÅG Futu mesh 1100 has a breathable transparent backrest, keeping user back cool via constant ventilation. It features our latest HÅG in Balance® movement mechanism, which keeps user in continuous balanced movement. The tilt resistance is adjustable and lockable, and the seat height and depth are easy to adjust. A fully functional lumbar support is optional, as are height and width-adjustable armrests. Our uniquely designed FutuKnit™ mesh fabrics have been technically developed to retain their tautness and are available in seven appealing colours. In this declaration, HÅG Futu mesh 1100 is studied with its black plastic adjustable armrests.

### Technical Data

Total Weight: 16,2kg (packaging excluded)  
GREENGUARD certified

### Market

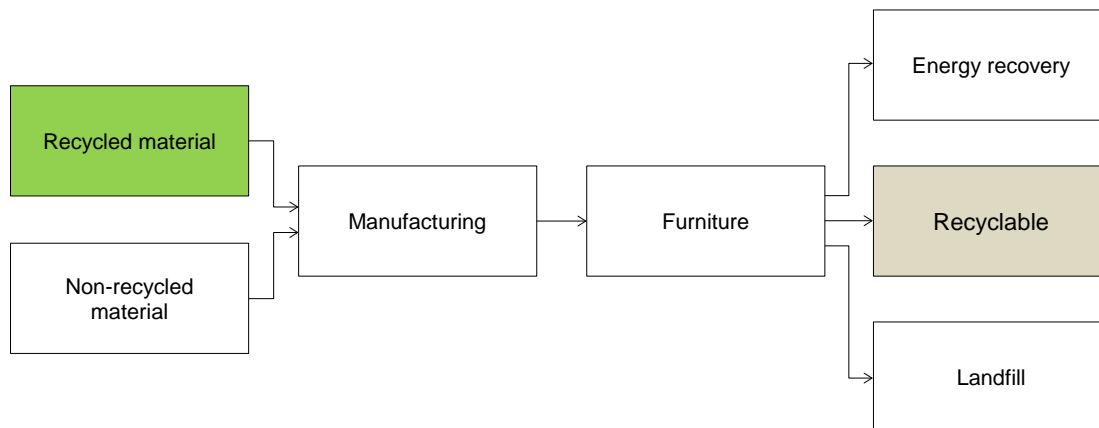
Worldwide

### Reference Service Life

15 years

Materials			Recycled share in product		Recyclable potential of product		
Unit		g	%	g	%	g	%
Metal	Steel	6 126	38%	1 991	32%	6 126	100%
Metal	Polypropylene (PP)	4 206	26%	901	21%	4 206	100%
Plastic	Aluminium	3 266	20%	2 939	90%	3 266	100%
Padding	Polyurethane (PUR)	815	5%	0	0%	0	0%
Plastic	Polyamide (Nylon)	640	4%	0	0%	640	100%
Textile	Polyester	396	2%	0	0%	396	100%
Plastic	Polyoxymethylene (POM)	374	2%	0	0%	374	100%
Plastic	Rubber	250	2%	0	0%	250	100%
Plastic	Polyethylene (HD/LD-PE)	106	1%	0	0%	106	100%
Plastic	Polyamide with glass fiber (PA-GF)	45	0%	0	0%	45	100%
Metal	Zinc	10	0%	0	0%	10	100%
<b>Total product</b>		<b>16 234</b>	<b>100%</b>	<b>5 831</b>	<b>36%</b>	<b>15 419</b>	<b>95%</b>

Packaging	Cardboard	1 732		1 316	75%	1 732	100%
Packaging	Polyethylene bag (plastic bag)	0		0	0%	0	100%
<b>Total product with packaging</b>		<b>17 966</b>		<b>7 147</b>	<b>40%</b>	<b>17 151</b>	<b>95%</b>



Product manufactured from 40% recycled material (packaging included)  
At end of life product contains 95% recyclable material (packaging included)

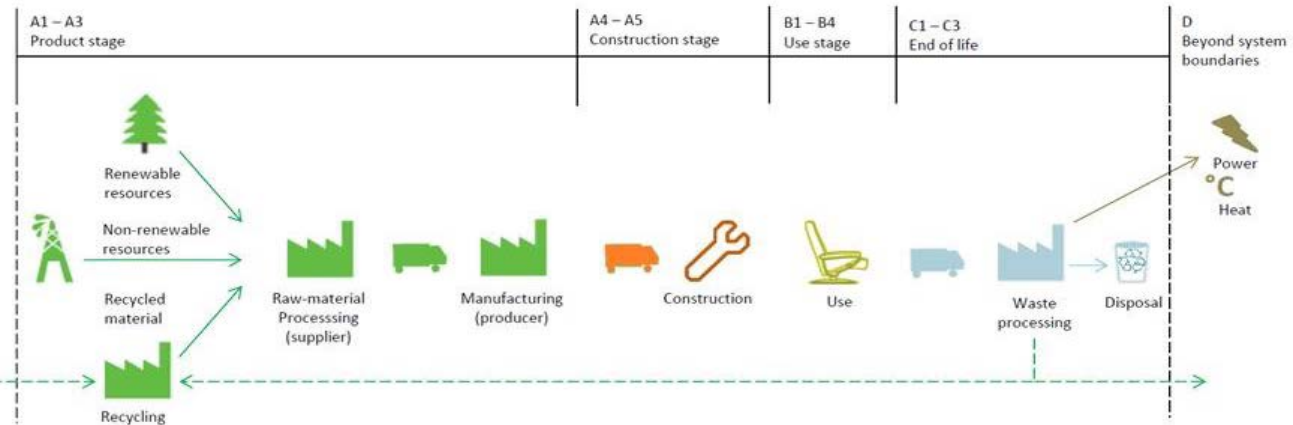
## LCA: Calculation rules

### 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 [5].

### 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 is represented by a scenario and includes vacuum cleaning of textile once a month. The PCR [3] 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). The transport distance to reuse, recovery or recycling is varying for each material, but the average distance is 373 km. The vehicles used and associated data are described in detail in [4].

	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 scenarios 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	53,0	1,4	3,4E-02	54,5	1,5	6,1E-03	1,5	15,5	0,1	17,1	-10,8
ODP	3,1E-06	2,7E-07	8,7E-10	3,4E-06	3,1E-07	1,9E-10	INA	INA	INA	INA	0,0E+00
POCP	1,8E-02	2,9E-04	1,7E-05	1,8E-02	2,5E-04	1,2E-06	INA	INA	INA	INA	0,0E+00
AP	0,2	7,2E-03	3,7E-04	0,2	6,0E-03	5,0E-06	INA	INA	INA	INA	0,0E+00
EP	0,1	1,4E-03	3,9E-04	0,1	1,3E-03	3,4E-05	INA	INA	INA	INA	0,0E+00
ADPM*	1,4E-03	2,6E-06	3,0E-06	1,4E-03	3,0E-06	2,0E-08	INA	INA	INA	INA	0,0E+00
ADPE	837,2	23,2	0,2	860,6	25,9	8,2E-02	INA	INA	INA	INA	-270,2

**GWP** Global warming potential (kg CO<sub>2</sub>-eqv.); **ODP** Depletion potential of the stratospheric ozone layer (kg CFC11-eqv.); **POCP** Formation potential of tropospheric photochemical oxidants (kg C<sub>2</sub>H<sub>4</sub>-eqv.); **AP** Acidification potential of land and water (kg SO<sub>2</sub>-eqv.); **EP** Eutrophication potential (kg PO<sub>4</sub>-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*	109,7	0,4	14,8	124,9	0,4	9,3E-02	INA	INA	INA	INA	0,0
RPEM*	24,5	0,1	2,0E-02	24,6	0,1	0,0	INA	INA	INA	INA	0,0
TPE*	134,1	0,5	14,8	149,4	0,5	9,3E-02	INA	INA	INA	INA	0,0
NRPE	825,9	23,9	0,3	850,1	26,7	7,9E-02	INA	INA	INA	INA	0,0
NRPM	190,4	0,0	1,5E-03	190,4	0,0	0,0	INA	INA	INA	INA	0,0
TNRPE	1016,4	23,9	0,3	1040,6	26,7	8,8E-02	INA	INA	INA	INA	0,0
SM	6,6	0,0	5,9E-13	6,6	0,0	0,0	INA	INA	INA	INA	0,0
RSF	0,0	0,0	6,7E-06	6,7E-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** Renewable 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 (m<sup>3</sup>);

### 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	2,5E-02	1,2E-05	6,2E-06	2,5E-02	1,3E-05	5,8E-06	INA	INA	INA	INA	0,0
NHW	29,0	1,9	0,1	31,0	2,3	7,6E-04	INA	INA	INA	INA	0,0
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	2,6E-03	0,0	5,5E-04	3,1E-03	0,0	0,0	INA	INA	INA	INA	0,0
MER	0,0	0,0	6,4E-06	6,4E-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<sub>2</sub>-eq/kWh

### Dangerous Substances

None of the following substances have been added to the product: Substances on the Candidate list of substances of very high concern (published in accordance with Article 59(10) of the REACH Regulation), substances on the Norwegian Priority list 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

## Additional environmental information

Key environmental indicators for all variants in the HÅG Futu Mesh collection: Cradle to Gate analyse from A1 to A3

Variant model number	Global warming (kg CO <sub>2</sub> )	Total energy use (MJ)	Share of recycled material in product
HÅG Futu Mesh Communication 1102	52,1	939,8	40,5%

## Bibliography

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

[2] ISO 14024:1999, Environmental labels and declarations - Type I environmental labelling - Principles and procedures

[3] PCR for seating solution: PRODUCT-CATEGORY RULES(PCR) for preparing an environmental product declaration (EPD) for Product Group "Seating solution", NPCR 003: 2015

[4] 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

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

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