



## 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	NEPD-1242-394-EN
Issue date	25.01.2017
Valid to	25.01.2022

### RH Support 4501

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Product

Flokk AB

Manufacturer

# Flokk

HÅG • RH • BMA • OFFECCT • RBM



## General information

**Product**

RH Support 4501

**General Information**

The Norwegian EPD Foundation  
Post Box 5250 Majorstuen, 0303 Oslo  
Phone: +4723088000  
e-mail: post@epd-norge.no

**Declaration number:**

NEPD-1242-394-EN

**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. See [3]

**Declared unit:**

One office chair: RH support 4501

**Declared unit with option:**

No option

**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 1.2.1, Approval: NEPD04  
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  
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**Manufacturer**

Flokk AB

**Place of production:**

Vallgatan 1, 571 23 Nässjö, Sweden

**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:**

25.01.2017

**Valid to:**

25.01.2022

**Comparability:**

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

**Year of study:**

2016

Approved

Håkon Hauan  
Managing Director of EPD-Norway

Key environmental indicators for RH Support 4501	Unit	Cradle to Gate A1-A3
Global warming	kg CO <sub>2</sub>	39,3
Total energy use	MJ	663,9
Amount of recycled materials	%	34 %

## Product

### Product Description and Application

The RH Support range is designed for people who need the flexibility of easily switching between sitting and standing. They come in five different specifications and some of the range includes an ESD version. The RH Support range offers infinite flexibility in seat and backrest adjustments and its wide range of accessories make it a very adaptable chair for a diversity of individual needs. RH Support 4501 that is studied in this declaration comes as standard with a star footbase in black lacquered aluminium and glides.

### Technical Data

Total Weight: 10,7kg (packaging excluded)  
GREENGUARD certified

### Market

Worldwide

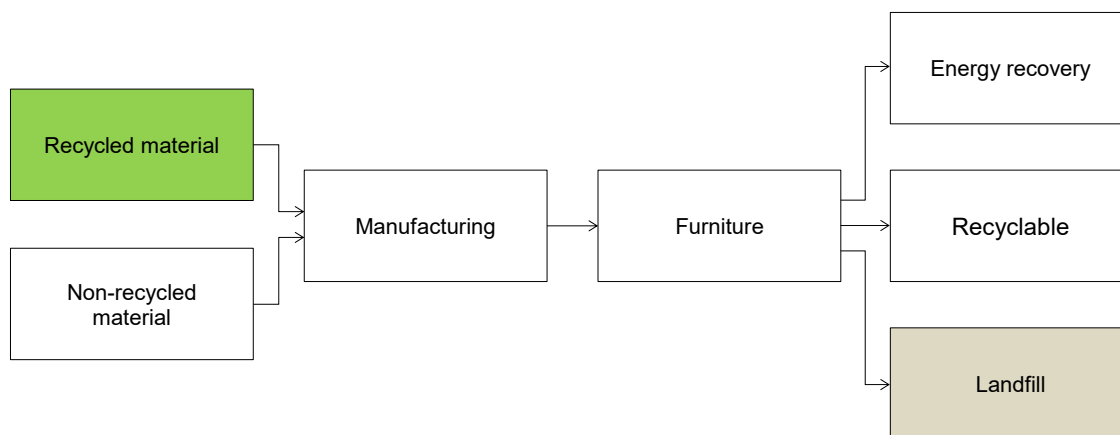
### Reference Service Life

15 years

Materials for RH Support 4501			Recycled share in product		Recyclable potential of product		
Unit		g	%	g	%	g	%
Metal	Steel	5 604	53 %	727	13 %	5 604	100 %
Metal	Aluminium	1 947	18 %	1 752	90 %	1 947	100 %
Plastic	Polypropylene (PP)	793	7 %	0	0 %	793	100 %
Wood	Plywood	696	7 %	0	0 %	0	0 %
Padding	Polyurethane (PUR)	550	5 %	0	0 %	0	0 %
Metal	Zinc	463	4 %	0	0 %	463	100 %
Plastic	Polyamide (Nylon)	218	2 %	0	0 %	218	100 %
Textile	Wool	176	2 %	0	0 %	0	0 %
Plastic	Polyoxymethylene (POM)	173	2 %	0	0 %	173	100 %
Plastic	Thermoplastic polyurethane (TPU)	17	0,2 %	0	0 %	17	100 %
Plastic	Polyamide with glass fiber (PA-GF)	15	0,1 %	0	0 %	15	100 %
Paper	Paper	15	0,1 %	0	0 %	15	100 %
Plastic	Polyethylene (HD/LD-PE)	2	0,02 %	0	0 %	2	100 %
<b>Total product</b>		<b>10 669</b>	<b>100 %</b>	<b>2 479</b>	<b>23 %</b>	<b>9 247</b>	<b>87 %</b>

Packaging	Cardboard	2 852		2 168	76 %	2 852	100 %
Packaging	Polyethylene bag	80		0	0 %	80	100 %
<b>Total product with packaging</b>		<b>13 601</b>		<b>4 646</b>	<b>34 %</b>	<b>12 179</b>	<b>90 %</b>



Product manufactured from 34% recycled material (packaging included)  
At end of life product contains 90% recyclable material

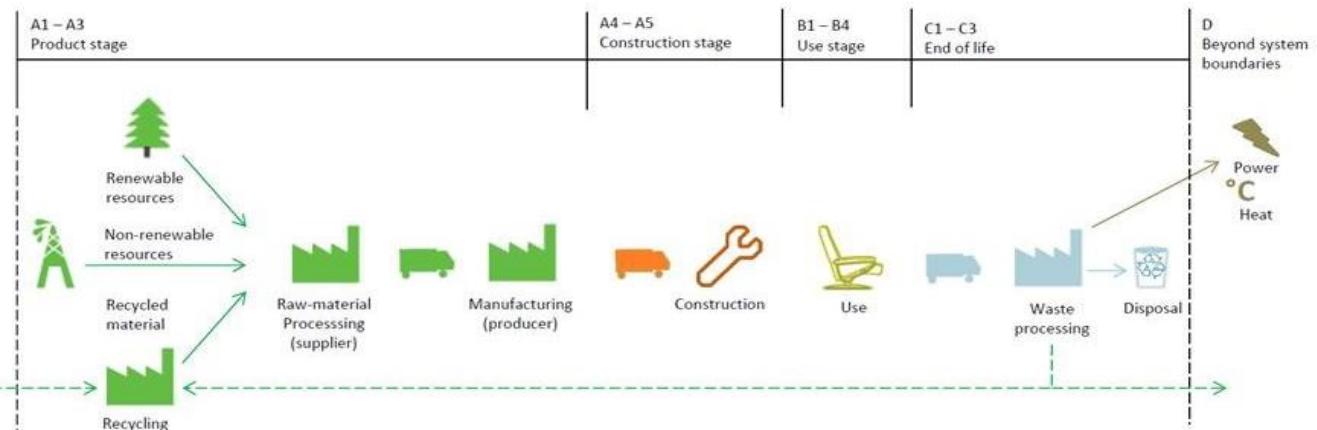
## LCA: Calculation rules

### 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 360 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	39,0	0,3	9,5E-03	39,3	0,4	6,1E-03	1,1	6,4	0,2	7,7	-7,1
ODP	2,5E-06	5,3E-08	2,4E-10	2,6E-06	7,8E-08	1,9E-10	INA	INA	INA	INA	-3,0E-07
POCP	1,7E-02	5,1E-05	4,7E-06	1,7E-02	7,2E-05	1,2E-06	INA	INA	INA	INA	-4,8E-03
AP	0,1	2,5E-04	1,1E-04	0,1	3,6E-04	5,0E-06	INA	INA	INA	INA	-7,2E-03
EP	0,2	1,2E-03	1,0E-04	0,2	1,7E-03	3,4E-05	INA	INA	INA	INA	-2,4E-02
ADPM*	4,4E-03	6,2E-07	8,3E-07	4,4E-03	9,2E-07	2,0E-08	INA	INA	INA	INA	-3,2E-05
ADPE	502,5	4,3	0,1	506,8	6,3	8,2E-02	INA	INA	INA	INA	-128,8

**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*	117,3	0,1	4,1	121,4	0,1	9,3E-02	INA	INA	INA	INA	-0,9
RPEM*	42,5	2,0E-02	5,4E-03	42,6	3,0E-02	0,0	INA	INA	INA	INA	-4,2
TPE*	159,8	0,1	4,1	164,0	0,1	9,3E-02	INA	INA	INA	INA	-5,1
NRPE	537,9	4,4	0,1	542,4	6,5	7,9E-02	INA	INA	INA	INA	-127,0
NRPM	59,3	0,0	4,2E-04	59,3	0,0	0,0	INA	INA	INA	INA	0,0
TNRPE	597,3	4,4	0,1	601,8	6,5	8,8E-02	INA	INA	INA	INA	-127,0
SM	4,8	0,0	1,6E-13	4,8	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** 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	1,5E-02	2,5E-06	1,7E-06	1,5E-02	3,7E-06	5,8E-06	INA	INA	INA	INA	-0,1
NHW	31,1	0,4	1,5E-02	31,5	0,6	7,6E-04	INA	INA	INA	INA	-0,9
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	9,4E-04	0,0	1,5E-04	1,1E-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<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 variants in the RH Support 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
RH Support 4502	30,7	538,2	39 %
RH Support 4503	28,9	501,1	44 %
RH Support 4511	38,7	652,9	35 %
RH Support 4512	30,1	527,3	40 %
RH Support 4513	28,3	490,1	44 %
RH Support 4521	38,6	654,4	34 %
RH Support 4522	30,0	528,7	40 %
RH Support 4523	28,2	491,5	44 %
RH Support 4545	32,3	565,8	38 %

## 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", PCR 2008:NPCR 003, extended version

[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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