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The Norwegian EPD Foundation

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-465-325-EN
Issue date	29.06.2016
Valid to	29.06.2021

RH Activ 220 Swivel chair

Product

HÅG • RH • BMA • OFFECCT • RBM

Flokk AS

Manufacturer

General information

Product
Office chair RH Activ 220

Owner of the declaration:
Flokk AS
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Manufacturer
Flokk AB

Declaration number:
NEPD-465-325-EN

Place of production:
Vallgatan 1, 571 23 Nässjö, Sweden

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: RH Activ 220

Org. No:
No 928 902 749

Declared unit with option:
▪ High back

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	55,9
Total energy use	MJ	979
Amount of recycled materials	%	30,6 %

Product

Product Description and Application

RH Activ follows your slightest body movement – comfortably as well as ergonomically. The RH Activ's unique movements, based on our 2PP™ philosophy of active sitting, encourage core muscle activity, essentially benefiting the user with increased alertness and wellbeing. Furthermore, the Activ's simplicity and ease of use makes it the preferred product for most office set-ups, including desk sharing. RH Activ can also be specified as a clean-room or ESD chair, which opens up a myriad of possibilities for this truly unique product. RH Activ is a range of chairs that function equally well as work chairs or office chairs. The chair analysed in this declaration – RH Activ 220 – features a large backrest, medium seat, black aluminium footbase and no armrests.

Technical Data

Total Weight: 13,4 kg (packaging excluded)
EN 1335 and BS5459 tested & approved
GREENGUARD and Möbelfakta certified

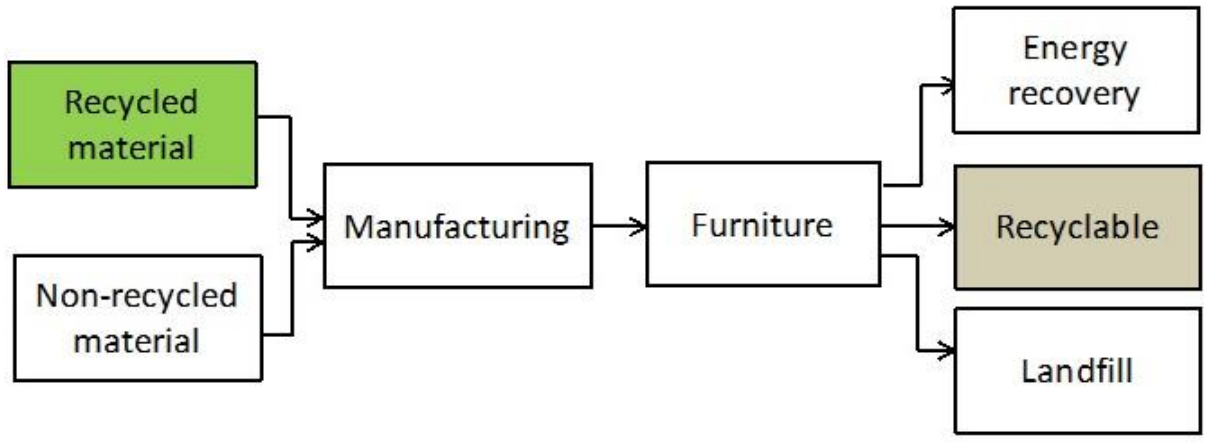
Market

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	5854	44 %	14 %	813	100 %	5 854
Plastic	Polypropylene (PP)	2801	21 %	0 %	0	100 %	2 801
Metal	Aluminium	1996	15 %	89 %	1 777	100 %	1 996
Padding	Polyurehtane (PUR)	1025	8 %	0 %	0	0 %	0
Plastic	Polyamide with glass fiber (PA-GF)	917	7 %	0 %	0	100 %	917
Plastic	Polyamide (Nylon)	310	2 %	0 %	0	100 %	310
Plastic	Polyoxymethylene (POM)	256	2 %	0 %	0	100 %	256
Textile	Polyester 100% recycled (PE)	253	2 %	100 %	253	100 %	253
Plastic	Acrylonitrile Butadiene Styrene (ABS)	16	0 %	0 %	0	100 %	16
Total product		**13 428**	100 %	**21 %**	**2 843**	**92 %**	**12 403**
Packaging	Cardboard	2852		76 %	2 168	100 %	2 852
Packaging	Polyethylene bag	80				100 %	80
Total product with packaging		**16 360**		**31 %**	**5 010**	**94 %**	**15 335**

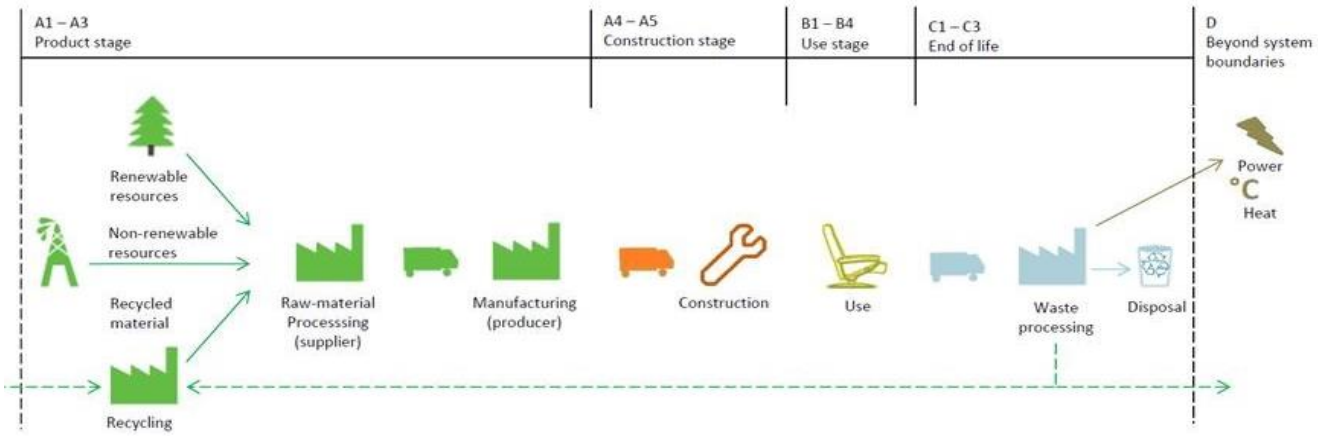


Product manufactured from 31% recycled material (packaging included)
At end of life product contains 94% recyclable material (packaging included)

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 360 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	55,5	0,4	9,5E-03	55,9	0,5	6,1E-03	1,4	13,7	3,0E-02	15,1	-11,0
ODP	3,5E-06	7,9E-08	2,4E-10	3,6E-06	9,4E-08	1,9E-10	INA	INA	INA	INA	-2,9E-07
POCP	2,6E-02	1,4E-04	4,7E-06	2,6E-02	8,6E-05	1,2E-06	INA	INA	INA	INA	-1,0E-02
AP	0,1	5,0E-04	1,1E-04	0,1	4,3E-04	5,0E-06	INA	INA	INA	INA	-8,5E-03
EP	0,3	3,4E-03	1,0E-04	0,3	2,0E-03	3,4E-05	INA	INA	INA	INA	-3,7E-02
ADPM*	9,5E-04	7,9E-07	8,3E-07	9,5E-04	1,1E-06	2,0E-08	INA	INA	INA	INA	-3,4E-05
ADPE	817,2	6,5	0,1	823,8	7,6	8,2E-02	INA	INA	INA	INA	-264,6

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*	126,7	0,1	4,1	130,9	0,1	9,3E-02	INA	INA	INA	INA	-1,5
RPEM*	31,1	2,8E-02	5,4E-03	31,2	3,6E-02	0,0	INA	INA	INA	INA	-4,5
TPE*	157,8	0,1	4,1	162,1	0,2	9,3E-02	INA	INA	INA	INA	-6,0
NRPE	838,6	6,7	0,1	845,4	7,9	7,9E-02	INA	INA	INA	INA	-260,5
NRPM	176,9	0,0	4,2E-04	176,9	0,0	0,0	INA	INA	INA	INA	0,0
TNRPE	1015,5	6,7	0,1	1022,3	7,9	8,8E-02	INA	INA	INA	INA	-260,5
SM	5,2	0,0	1,6E-13	5,2	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	1,5E-02	3,8E-06	1,7E-06	1,5E-02	4,5E-06	5,8E-06	INA	INA	INA	INA	-0,1
NHW	30,2	0,6	1,5E-02	30,7	0,8	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	1,1E-03	0,0	1,5E-04	1,2E-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

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] 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

[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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[6] Brekke, A., Møller, H., Baxter, J., Askham, C. (2014). Verktøy - miljødeklarasjon for møbel
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