

ENVIRONMENTAL PRODUCT DECLARATION

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RH Mereo 220 with armrests

Product



SCANDINAVIAN
BUSINESS SEATING

Scandinavian Business Seating AS

Manufacturer



Product

Product Description and Application

RH Mereo is a task chair crafted to improve your performance as well as the performance of the whole workplace. It is easily fitted for everyone, whatever your physical assets. This makes it a one-person chair as well as a chair for the landscaped office. In RH Mereo the 2PP™ dynamics bring active sitting to one and to all. An easy adjustment is all it takes. RH Mereo fuses innovation, functionality, usability and design impact. RH Mereo 220 has a large back and comes as standard with castors for carpeted floors and base in grey or black lacquered aluminium. In this declaration, RH Mereo 220 with armrests is studied.

Technical Data

Total Weight: 21,3kg

EN-1335 approved

Greenguard and Möbelfakta certified

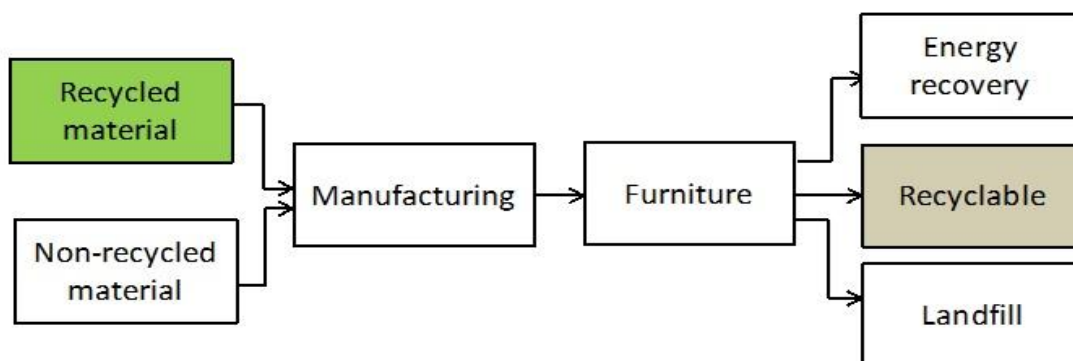
Market

Worldwide

Reference Service Life

15 years

Materials	kg	%
Aluminium	7,8	37%
Steel	6,1	28%
Plastic	6,0	28%
Polyurethane (PUR foam)	1,2	6%
Textiles	0,3	1%
Total product	21,3	100%
Packaging	3,8	
Total product with packaging	25,1	



Materials	Recycled	Recycled amount	Recycled materials	Recyclable	Recyclable amount	Recyclable materials
Unit	%	kg	%	%	kg	%
Aluminium	95%	7,4	65%	100%	7,8	33%
Steel	21%	1,3	11%	100%	6,1	26%
Plastic	0%	0,0	0%	100%	6,0	25%
Polyurethane (PUR foam)	0%	0,0	0%	0%	0,0	0%
Textiles	0%	0,0	0%	100%	0,3	1%
Packaging (EPS)	0%	0,0	0%	0%	0,0	0%
Packaging (cardboard)	76%	2,7	24%	100%	3,5	15%
Total product	45%	11,3		94%	23,6	

Product manufactured from 45% recycled material (packaging included)

At end of life product contains 94% recyclable material

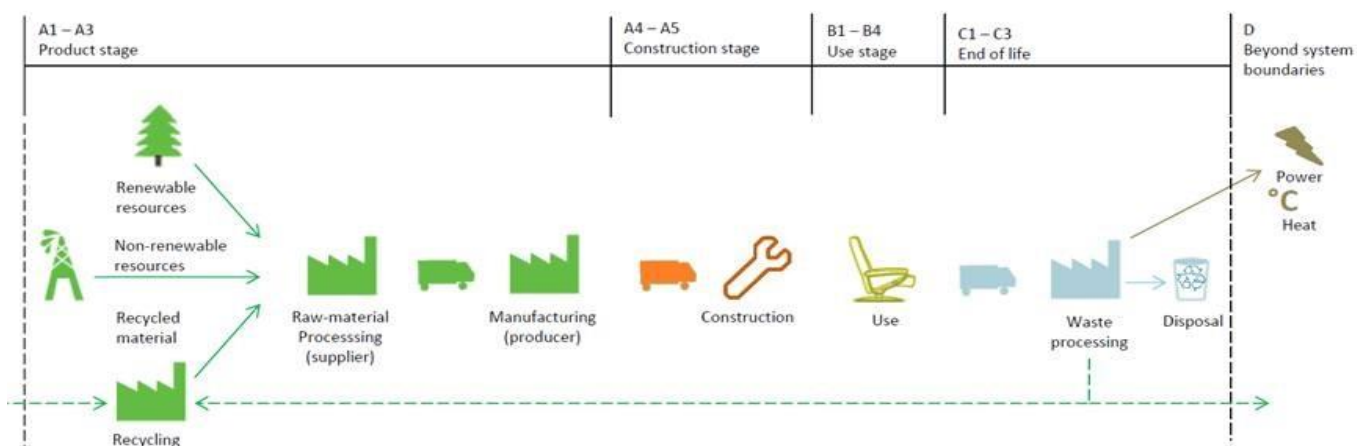
LCA: Calculation rules

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 [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 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). 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 [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 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

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
GWP	72,2	1,8	2,0	76,1	0,9	6,1E-03	2,1	19,3	0,1	21,5	-14,8
ODP	5,5E-05	1,3E-07	9,9E-08	5,6E-05	6,8E-08	1,9E-10	0,0	0,0	0,0	0,0	0,0
POCP	2,4E-02	3,4E-04	3,9E-04	2,5E-02	1,3E-04	1,2E-06	0,0	0,0	0,0	0,0	0,0
AP	0,1	2,1E-03	7,0E-03	0,1	9,3E-04	5,0E-06	0,0	0,0	0,0	0,0	0,0
EP	0,3	7,7E-03	9,7E-03	0,4	3,8E-03	3,4E-05	0,0	0,0	0,0	0,0	0,0
ADPM*	8,8E-04	5,3E-06	3,1E-06	8,8E-04	2,9E-06	2,0E-08	0,0	0,0	0,0	0,0	0,0
ADPE	1126,7	27,3	24,4	1178,4	14,2	8,2E-02	33,1	89,2	1,9	124,2	-350,7

* 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.

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);

Resource use

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
RPEE*	8,6	0,0	2,7	11,3	0,0	9,3E-02	0,0	0,0	0,0	0,0	-2,3
RPEM*	33,5	0,2	0,4	34,0	0,1	0,0	0,0	0,0	0,0	0,0	-6,2
TPE*	42,1	0,2	3,1	45,3	0,1	9,3E-02	0,0	0,0	0,0	0,0	-8,5
NRPE	1612,3	28,2	28,4	1668,9	14,3	7,9E-02	0,0	0,0	0,0	0,0	-345,9
NRPM	338,1	0,0	0,0	338,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0
TNRPE	1950,4	28,2	28,4	2007,0	14,3	8,8E-02	0,0	0,0	0,0	0,0	-345,9
SM	11,8	0,0	0,0	11,8	0,0	0,0	0,0	0,0	0,0	0,0	-4,6
RSF	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
NRSF	-12,9	0,0	0,0	-12,9	0,0	4,0E-02	0,0	0,0	0,0	0,0	0,0
W	8,8	7,8E-05	14,9	23,7	3,8E-05	0,0	0,0	0,0	0,0	0,0	-43,7

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 (m³);

End of life - Waste and Output flow

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
HW	0,3	4,4E-05	4,7E-05	0,3	1,8E-05	5,8E-06	0,0	0,0	0,0	0,0	-0,3
NHW	34,6	2,3	0,5	37,4	1,2	7,6E-04	0,0	0,0	4,2	4,2	-2,0
RW	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
CR	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
MR	1,9E-03	0,0	0,0	1,9E-03	0,0	0,0	0,0	17,0	0,0	17,0	0,0
MER	0,0	0,0	0,0	0,0	0,0	0,0	0,0	3,9	0,0	3,9	0,0
EEE	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
ETE	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	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 following data from ecoinvent v3 (June 2012) for Norwegian production mix included import, low voltage is used; Energy/Electricity country mix/Low voltage/Market: Electricity, low voltage {NO}| market for | Alloc Def, U. Production of transmission lines, in addition to direct emissions and loss in grid are included. Characterisation factors stated in EN 15804:2012+A1:2013 are used. This gives following greenhouse gas emissions: 24 g CO₂-eq/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. 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

 epd-norge.no The Norwegian EPD Foundation	Program holder and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo Norge	Phone: +47 23 08 8613 email: post@epd-norge.no web: www.epd-norge.no
 SCANDINAVIAN BUSINESS SEATING	Owner of the declaration Scandinavian Business Seating Fridtjof Nansens vei 12, 0303 Oslo Contact person: Laura Fouilland	Phone: +47 40 41 56 13 email: laura.fouilland@sbseating.com web: www.sbseating.com
 Østfoldforskning	Author of the Life Cycle Assessment Østfoldforskning AS Stadion 4 1671 Kråkerøy, Norway	Phone: +47 69 35 11 00 email: post@ostfoldforskning.no web: www.ostfoldforskning.no