Environmental Product Declaration
RH Extend 120
S-P-00295

This declaration has been compiled by:
IVL Swedish Environmental Research Institute Ltd.

Product description
The model chosen for analysis is the office chair RH Extend

The RH Extend is a user friendly, ergonomic and durable chair range. Because the RH Extend is easy to adjust, it is ideal for workplaces where several people use the same chair or where it is necessary to make quick adjustments. All controls are conveniently located on the right while all adjustable parts of the chair are clearly marked. The design of RH Extend is based on 2PP, our philosophy of ergonomics. Two versions of the RH Extend are available, along with a range of accessories.

Manufacturer
RH Chairs is one of northern Europe's leading manufacturers of ergonomic seating. RH Chairs was established in 1977 in Bodafors, in the Swedish province of Småland. Our plant is now located in nearby Nässjö. Today we are established in Norway, Denmark, Finland, the United Kingdom, France and the Netherlands, in addition to Sweden. RH's manufacturing plant in Nässjö is certified in accordance with ISO 9001 and ISO 14001.

SB Seating AB
Box 294
571 23 Nässjö
Orgnr: 556411-5672
Contact: Carl Peter Aaser, tel. +47 22 59 59 00, carl.aaser@sbseating.com

RH Environment
RH's environmental work is based on our goal of creating a sustainable society. Our work chairs offer a high level of quality and a long lifetime and are externally tested in accordance with EN 1335 and BS 5459:2. Parts that have become worn out can easily be exchanged, including the seat and back pad. Already at the design stage, we take steps to ensure that future disassembly, sorting of materials and recycling are as simple and complete as possible. The plastic parts are labelled in accordance with ISO 11469.

RH has reviewed energy consumption in production to help lessen the greenhouse effect. We have been able to reduce energy consumption and have switched to a more sustainable method of heating our premises – district heat. We also save resources by using consumable materials, transport and packaging more efficiently. RH imposes environmental requirements on suppliers concerning chemical substances with the purpose of minimising harmful effects to customer health and to the environment from RH's products. The plastics do not, for example, contain PVC, mercury, cadmium, lead,or brominated or chlorinated flame retardants such as PBB or PBDE. No chair parts contain Chromium VI.

Scope of assessment:	Module declaration: from extraction of raw materials to complete seating solutions, including user phase.
Functional unit:	Seating solution manufactured and maintained for 15 years.
Year of study:	2008, with updates 2010.
Data:	Production data from 2007-2008. Site specific data from suppliers of main parts and from RH Chairs manufacturing.
Expected market area:	Europe.

Key environmental indicators per chair

RH Extend

GWP – Global warming potential	67	kg CO_2 equiv.
Recycled material in RH Extend	21	%

Recycling is divided into:

Energy recovery	10.6	%
Material recycling	89.4	%
Total	100	%

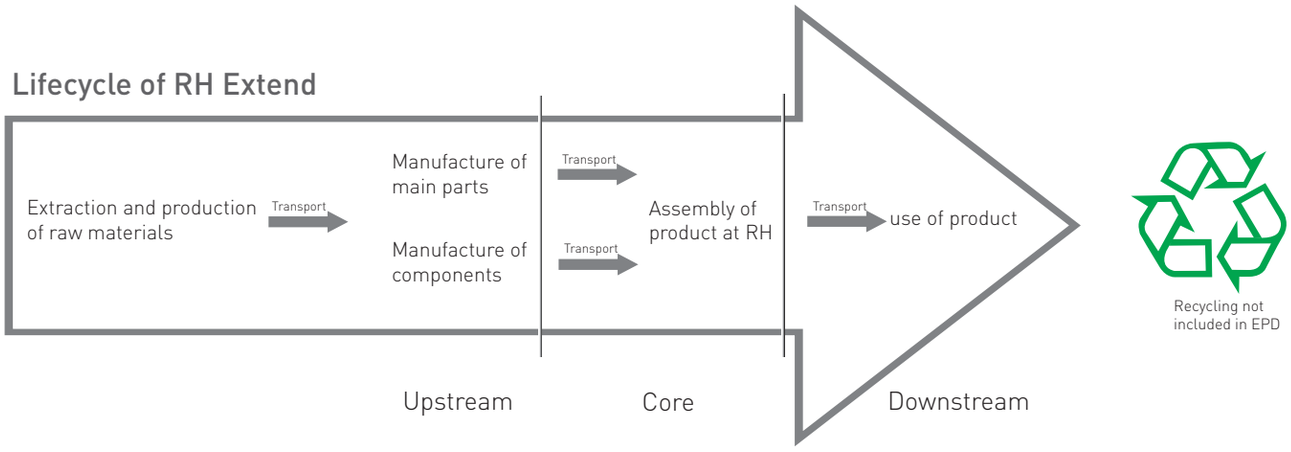
Material declaration
The RH Extend office chair consists of the materials listed below. The total weight is 20.5 kg (packaging not included in weight).

Metals	Weight g	%	Plastics	Weight g	%	Other materials	Weight g	%
Steel	8807	43	PP	4519	22	Other materials	761	3.7
Aluminium	4032	20	PUR	1418	6.9	Packaging	3828	
			PA6	418	2.0			
			POM	409	2.0			
			Other plastics	97	0.47			

Environmental performance profile

System boundaries

Presented below is a simplified process chart that shows the studied system and the main system boundaries for the calculation of the environmental performance profiles. The studied system includes production of materials and parts, assembly, transport to retail and the use phase. Transport between the processes and packaging production is also included. The studied system also includes waste from the different lifecycle phases.



Upstream	Core	Downstream	Use of product
- Production of Material and Parts The environmental impact from materials extraction and the production of raw materials for all main parts and components is considered. The environmental impact of the manufacturing process for main parts is also included. The environmental impact from the transport of raw materials is included.	*- Assembly* All production and assembly processes at RH are considered. The environmental impact from the transport of parts to assembly is included.	*- Transport to customer* The transport of the product to the customer is calculated as a 1,000 km transport by heavy truck.	No relevant environmental impact occurs during the use of the product.

Material resources

The table below shows the resources used for the manufacturing of RH Extend

Resource use in kg	kg
Non-renewable resources	
With energy content	
Crude oil	12
Hard coal	13
Natural gas	7,4
Uranium in ore	4,0E-04
Lignite	0,29
Without energy content	
Bauxite	0,29
Dolomite	0,19
Iron in ore	0,54
Iron oxides	19
Limestone	3,5
Sodium chloride	2,2
Copper in ore	2,1E-04
Zinc in ore	0,13
Other	0,95
Renewable resources with energy content	
Wood	0,56
Hydropower	82 MJ
Windpower	0.097 MJ
Water use	
Water, total aggregated*	990000

* Includes water used for hydro power, but included for the sake of completeness.

Environmental impact potential

Emissions to air, water and soil

	Upstream	Core	Downstream	Total
Global warming (kg CO_2 equivalents)	61,0	5,3	0,99	67
Acidification (mol H+)	6,2	0,75	0,12	7,1
Ozone depletion (kg CFC-11 equivalents)	3,5E-05	3,3E-08	0	3,5E-05
Photochemical oxidant formation (kg ethene equivalents)	0,048	0,0029	0,0011	0,053
Eutrophication (kg O_2)	1,3	0,16	0,037	1,5
Alternative units for acidification and eutrophication, included for comparability:				
Acidification (kg SO_2 equivalents)	0,20	0,024	0,0037	0,23
Eutrophication (kg PO43 equivalents)	0,028	0,0035	0,00080	0,032

Non-hazardous and hazardous waste from cradle to gate

The recycling of the product is not included depending on local and national rules.

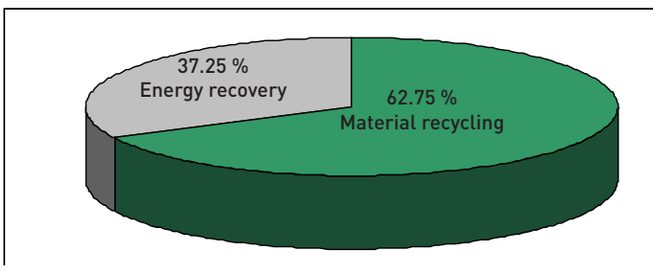
Hazardous waste	Non-hazardous waste
2.1 kg	37 kg

Maintenance

RH Chairs are built for long and problem-free usage. Normal use and cleaning means that the chair will achieve its maximum lifetime and maintain its proper ergonomic properties. The seat and back pad can be exchanged if they become worn or damaged. For stain guide, see www.rhchairs.com.

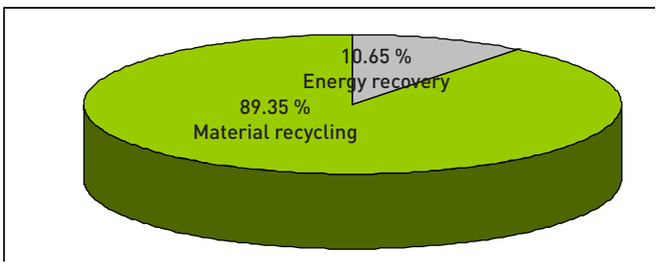
Recovery declaration

The RH Extend chair is 100-percent suited for recovery, divided into material recycling and incineration with energy recovery. The chairs are easily disassembled with all major components bearing clear material labels, enabling them to be sorted correctly for recycling. Packaging is also kept to a minimum and designed to be recycled. Plastics can be material recycled where systems for this exists.



Incineration with energy recovery	Material recycling
Plastic	Steel
Other materials	Aluminium

Corrugated cardboard used for packaging is suitable for material recycling



Incineration with energy recovery	Material recycling
PUR	Steel
Other materials	Aluminium
	Platics

Corrugated cardboard used for packaging is suitable for material recycling

Other environmental information

- The metals in our chairs can be recycled several times and then the total environment influence is decreasing.

- Exchangeable pads
  The seat and backrest pads are easily exchangeable so it is no need to replace the chair just because the upholstery needs to be changed.
  This benefits the environment and gives the chair a long lifetime.

- The cardboard packaging is made of 50% recycled material.

Certification

EPD Certification S-P-00295
This certification is valid until 6 November 2014.
According to the requirements of the international EPD system, General Programme Instructions, version 1 – www.environdec.com.

The PCR for RH Extend (Product Category rules (PCR) for Environmental Product Declaration (EPD): UN CPC Class 3811 Seats. Draft version dated 2008-10-31). Rewiew was conducted by the Swedish Environmental Management Council (SEMCO) by an LCA expert panel (www.environdec.com) chaired by Sven-Olof Ryding (sven-olof@miljostyrning.se)

Independent verification of the declaration, according to ISO 14025:
☐ internal ☒ external

The third party verifier, Bureau Veritas, has been accredited by the Swedish Authority for Conformity and Control (SWEDAC)
EPDs within the same product category but from different programmes may not be comparable.

References

Niklasson, K. et al. (2008): LCA of RH Chairs' office chairs Ambio, Extend and Logic. (Updated 2010 by Almemark M., Jelse K. och Eriksson E.) IVL Swedish Environmental Research Institute. IVL Report no. U2366.

Swedish Environmental Management Council (2008), Product Category Rules (PCR) for Environmental Product Declaration (EPD): UN CPC Class 3811 Seats. Dated 01 August 2009.

IEC (2008), General Programme Instructions for Environmental Product Declarations, EPD. The International EPD Corporation. Document version 1.0 dated 29 February 2008. Available at www.environdec.com.

IEC (2008), Supporting Annexes for Environmental Product Declarations, EPD. The International EPD Corporation. Document version 1.0 dated 29 February 2008. Available at www.environdec.com.