Please

Environmental Product Declaration

A presentation of quantified environmental life cycle product information for the **Please** task chair.

ENVIRONMENTAL PRODUCT DECLARATION EPD

Product Description

The model chosen for analysis is the most popular model **Please** task chair (reference 468 200 MP).
The task chair is a new generation of **Please** launched in June 1998.
It is a highly adjustable ergonomic chair equipped as follows:

1. *LTC² (Lumbar-Thoracic-Cervical) mechanism*
2. *height adjustable backrest*
3. *lumbar tension adjustment*
4. *tilt tension adjustment*
5. *seat height adjustment by gaslift*
6. *3D adjustable armrests (height, depth and pivot)*
7. *variable back stop / tilt limiter*
8. *seat depth adjustment*
9. *seat impact absorber*

Manufacturer

The selected product **Please** task chair is manufactured in Sarrebourg, France by Steelcase.

Steelcase, which was founded in 1912, has been dedicated to creating innovative products and helping people work more effectively for almost a century. Steelcase has management systems for Quality (ISO 9001) and for the Environment (ISO 14001), ensuring that our customers are guaranteed the same level of product quality and environmental performance, wherever they are in the world.

Steelcase is committed to continually reducing environmental impacts of its products and activities on a global scale.

For further information see www.steelcase.com.

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Material Declaration

The **Please** task chair consists of the materials listed below. The total weight is 23,623 kg including packaging.

metals	kg	%
Steel	8.939	37.8
Aluminium	4.386	18.6

plastics	kg	%
ABS	0.161	0.7
LDPE (hereof 0.1 kg for packaging)	0.108	0.5
PA	0.664	2.8
PP	1.504	6.4
POM	0.075	0.3
PU	1.429	6.0
Fibre-reinforced plastics	2.286	9.7

other materials	kg	%
Cardboard (for packaging)	3.800	16.1
Synthetic textiles	0.218	0.9
Other	0.053	0.2

Environmental Product Declaration

The environmental impacts of the task chair, **Please** task chair throughout its entire life cycle – including raw materials extraction, production, transport, use, and disposal – were assessed using Life Cycle Assessment (LCA), in early 2004.
The **functional unit** used in the LCA was chosen as *"Provision of comfortable office seating – with the features stated in the product description – for an average person (45 – 110 kg) for 8 hours a day, 5 days a week over a lifetime period of 15 years".*

Life Cycle Inventory Analysis

The Life Cycle Inventory Analysis covers all life cycle stages as shown below.

Disposal
It was assumed that on average about 60% of the chairs are landfilled, 27% incinerated and 13% recycled at the end of their useful life.

Materials
This stage includes raw materials extraction and transformation, as well as supply with parts and semi-manufactured parts up to and including delivery to the manufacturing site at Sarrebourg.

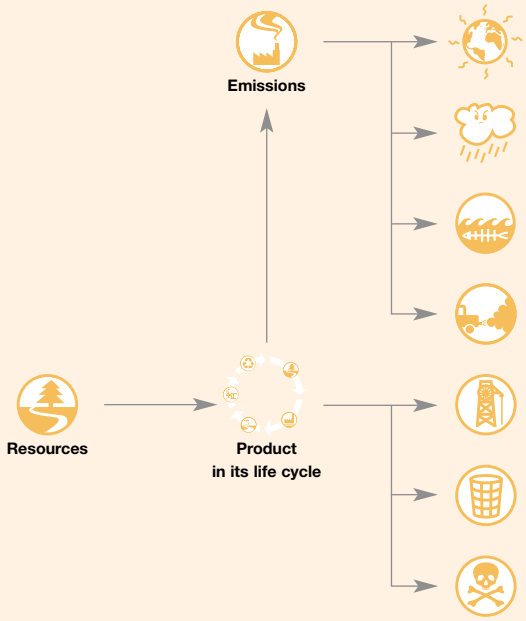
Use
No relevant environmental exchanges occur during use of the product.

Transport
Transport from suppliers to Sarrebourg and transport from Sarrebourg to major European markets is considered.

Production
This stage comprises all production and assembly processes. Data was obtained from the ISO 14001 environmental management system of the production site in Sarrebourg and allocated to the product.

Life Cycle Assessment

Environmental impact categories



Global warming
is the rising of global temperature due to emissions of greenhouse gases.

Acidification
is the damage to trees and life in lakes and rivers, as well as accelerated degradation of materials such as metals, limestone and concrete, both due to acid emissions.

Eutrophication
is the loss of plants and animals in aquatic ecosystems due to oxygen depletion following blooms of algae, stimulated by high nutrient concentrations.

Photochemical smog
is a type of air pollution harmful to the environment and human health caused by emissions of nitrogen oxides and volatile organic components.

Abiotic resource depletion
is the depletion of non-renewable resources such as oil, coal and metals due to their extraction and consumption.

Waste
is the bulk waste and hazardous waste created during the whole life cycle of the product.

Toxic substances
are substances which cause harm to the natural environment or human health.

Environmental aspects of Please – 468 200 MP

The contributions of inventory parameters to different impact categories throughout the entire life cycle of **Please** task chair are listed below. Life cycle inventory parameters are considered only if they contribute more than 1% of the total impact in that impact category.

Category	Parameter		Inventory value	*Unit*	Characterised impact value	*Unit*
Global warming					**Total 90 880.0**	**g CO_2-eq.**
	CO_2	(carbon dioxide)	72 820	g	80.1	%
	N_2O	(nitrous oxide)	23	g	8.1	%
	HCs	(hydro carbons)	20	g	6.5	%
	CH_4	(methane)	153	g	4.2	%
	CO	(carbon monoxide)	443	g	1.0	%
Acidification					**Total 543.8**	**g SO_2-eq.**
	SO_x	(sulphur oxides)	296	g	54.5	%
	NO_x	(nitrogen oxides)	346	g	44.5	%
Eutrophication					**Total 584.8**	**g NO_3-eq.**
	NO_x	(nitrogen oxides)	346	g	79.9	%
	N_2O	(nitrous oxide)	23	g	11.1	%
	NH_4+	(ammonium)	4	g	2.7	%
	NO_3-N	(nitrate)	16	g	2.7	%
	PO_4--	(phosphate)	1	g	1.9	%
	NH_3	(ammonia)	2	g	1.1	%
Photochemical smog					**Total 75.0**	**g C_2H_4-eq.**
	C_5H_{12}	(n-pentane)	110	g	58.5	%
	CO	(carbon monoxide)	443	g	17.7	%
	VOCs *	(from power plants)	20	g	13.3	%
	NMVOCs*	(from diesel engines)	9	g	7.0	%
	CH_4	(methane)	153	g	1.4	%
Abiotic resource depletion						
	Brown coal (lignite)		3 441	g	-	-
	Coal		10 350	g	-	-
	Crude oil		11 064	g	-	-
	Iron		8 208	g	-	-
	Natural gas		9 493	g	-	-
Waste						
	Bulk waste		6 234	g	-	-
	Hazardous waste		49	g	-	-
Toxic substances						
	Toxic substances		321	g	-	-

No characterised impacts were calculated for Abiotic resource depletion, Solid waste and Toxic substances due to lack of credible, internationally agreed characterisation factors.
**VOCs = Volatile Organic Compounds, NMVOCs = Non-Methane VOCs*

Distribution of the environmental impacts for the relevant life cycle stages

	Category	Unit	Total	Materials	Production	Transport	Disposal
	Global warming	[g CO_2-eq.]	90 880.0	73 500.0	12 900.0	5 700.0	-1 220.0
	Acidification	[g SO_2-eq.]	543.8	548.0	29.6	48.5	-82.3
	Eutrophication	[g NO_2-eq.]	584.8	491.0	34.8	79.5	-20.5
	Photochemical smog	[g C_2H_4-eq.]	75.0	59.2	10.7	5.5	-0.5

no relevant environmental exchanges occur during the use stage of the product

Additional environmental information

Certification

Please officially complies with the French environmental certification "NF – Environnement", awarded by the CTBA (Centre Technique du Bois et de l'Ameublement) / www.marque-nf.com.

Evolutions

The new generation of **Please** task chair is easy to assemble and disassemble, and easy to transport thanks to a smaller version of packaging.
To achieve those results we decided to reduce the material input (no PVC, no glue on seat and less zinc), the weight of the seat (- 4 kg), the number of components (- 30%), and the volume of the packaging (- 30%) with the Ready to Assemble version of Please.

Materials

- **Please** is made from 32% recycled materials.
- The packaging consists of cardboard (manufactured from recycled material) and LDPE film (Low Density Polyethylene) that contains 30% recycled material. Both materials are suitable for recycling.
- Paper and packaging use water-based inks without solvent.
- Plastic parts weighing more than 50 g are marked for recycling, as well as those big enough to be marked.

Use

- The following maintenance information will ensure an appropriate lifetime of the product (except from user's manual):
  - Use spray stain remover on large upholstery stains.
  - Do not use a shampoo or vacuum cleaner with a brush attachment. Shampoo may remain on the upholstery and alter its flammability rating.

End of Life

- **Please** is 99% recyclable by weight.
- The disassembly of the chair can be done using normal hand tools. Note: For safety reasons, disassembly of the spring mechanism and pneumatic cylinder should be carried out only by properly trained maintenance personnel.

Compilation and Verification Process

- The LCA study and the EPD of the task chair **Please** task chair (reference 468 200 MP) were carried out by Steelcase together with:
  - Institute for Product Development - Denmark (Instituttet for Produktudvikling, IPU)
  - Institute for Engineering Design, Vienna University of Technology - Austria (Institut für Konstruktionslehre, Ecodesign, Technische Universität Wien, TUW).
- The LCA study was verified through a critical review by Institute of Chambéry - France (Ecole Nationale Supérieure des Arts et Métiers, ENSAM).

References

Form of document

- ISO/TR 14025: Environmental labels and declarations – Type III environmental declarations,15-03-2000
- Lee, K. M., Park, P.; "Application of Life-Cycle Assessment to Type III Environmental Declarations", Environmental Management, Vol. 28, No. 4, 2001, pp. 533-546

LCA method and characterisation factors

- EDIP method: Wenzel, Hausschild, Alting; "Environmental Assessment of Products" Volume 1 (Methodology, tools and case studies in product development), Chapman and Hall, 1997, ISBN 0 412 80800 5
- Intergovernmental Panel on Climate Change (IPCC), Status report, 1994
- World Meteorological Organization (WMO), Status report on global ozone research and monitoring project, 1992/1995
- Nordic LCA guideline, 1995
- UNECE report, 1990/1992

Disposal scenario

- European Topic Centre on Waste and Material Flows, Copenhagen, Denmark, Sept. 2002, http://waste.eionet.eu.int

Contact

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