Eastside

Environmental Product Declaration

A presentation of the environmental performance of **Eastside**.
An environmental declaration according to the objectives
of ISO/TR 14025, based on Life Cycle Assessment (ISO 14040-43).

ENVIRONMENTAL PRODUCT DECLARATION

Product Description

Eastside is a stackable visitor chair, with no sharp edges. It is easy to reconfigure – ideal for conferencing, impromptu meeting and teaming tasks. As extra options, it can have armrests, a writing tablet and castors.

The model chosen for analysis is the **Eastside** chair reference 412 450 MH:

- Chair without armrest
- Back and seat upholstered with Lucia fabric
- Width: 550mm
- Depth: 580mm
- Height: 850mm

Manufacturer

The selected product **Eastside** chair is manufactured in Sarrebourg, France, by Steelcase, for the EMEA market (Europe, Middle East and Africa).

Since 1912, Steelcase has been committed to continually reducing the environmental impacts of its products and activities on a global scale, by constantly seeking more effective ways to conserve resources, prevent pollution and nurture environmental consciousness in its people every day. Sustainable development is embedded in everything we do.

Steelcase has management systems for quality (ISO 9001) and for the environment (ISO 14001 and/or EMAS II), ensuring that our customers are guaranteed the same level of product performance, wherever they are in the world.

To show continuous improvements, Steelcase communicates the environmental performance of its products through voluntary environmental labels and declarations. The Steelcase Environmental report looks at things that have helped spur our environmental thinking and commitment and the subsequent actions and results.

For further information see **www.steelcase.com**

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Material Declaration

The **Eastside** chair consists of the materials listed below. The total weight is 6.554 kg, including packaging.

metals	kg	%
Steel	3.162	48.2

plastics	kg	%
PP (polypropylene)	2.081	31.7
PU foam (polyurethane)	0.652	9.9
Polyester textile	0.249	3.8
LDPE film (low density polyethylene) for packaging	0.211	3.2
PA (polyamide)	0.105	1.6
PE foam (polyethylene) for packaging	0.015	0.2

other materials	kg	%
Cardboard	0.065	1.0
Cardboard for packaging	0.015	0.2

Environmental Product Declaration

The potential environmental impacts of the **Eastside** chair (incl. packaging) throughout its entire life cycle – including raw materials extraction, production, transport, use, and end of life – were assessed using Life Cycle Assessment (LCA – ISO 14040-43) in spring 2006. Both method and product may have been subject to improvements since then. Environmental declarations from different programmes may not be comparable.
The **functional unit** – i.e. the quantified performance of the product for use as a reference unit – used in the Life Cycle Assessment was chosen as "Provision of comfortable office seating – with the features stated in the product description – for 8 hours a day, 5 days a week over 15 years".

Life Cycle Inventory Analysis

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

Materials
This stage includes raw materials extraction and transformation into material ready to be used.

Production
This stage comprises all production and assembly processes taking place at Steelcase or at their suppliers. Data was obtained from suppliers and from the ISO 14001 environmental management system of the production site.

Transport
Transport from suppliers to the production site and transport from the production site to the EMEA market (Europe, Middle East and Africa) is considered.

Use
During the use stage of the product – the longest stage of the life cycle – no relevant environmental impacts occur.

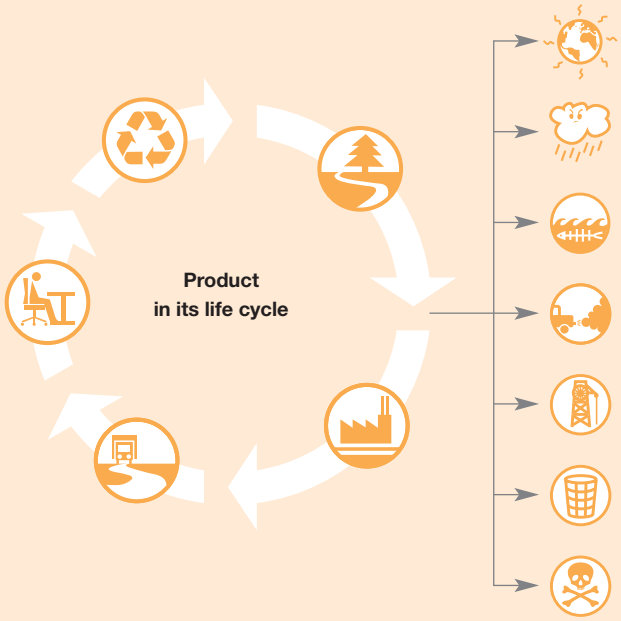
End of life
Any product can be disposed of in different ways, or become a resource itself. Based on current European averages it was assumed that about 60% of the products are sent to landfill, 27% are incinerated and 13% are recycled at the end of their useful life.

Distribution of the environmental impacts for the relevant life cycle stages

	Category	Unit	Total	Materials	Production	Transport	Use	End of life
	Global warming	[g CO_2-eq.]	29 986	15 100	11 000	3 040	No relevant environmental impacts occur	846
	Acidification	[g SO_2-eq.]	267	154	90	27	No relevant environmental impacts occur	- 4
	Eutrophication	[g NO_3-eq.]	249	141	66	45	No relevant environmental impacts occur	- 4
	Photochemical smog	[g C_2H_4-eq.]	28	24	0	4	No relevant environmental impacts occur	0

Life Cycle Assessment

Environmental impact categories



Global warming
is due to emissions of greenhouse gases, causing the rise of the global temperature.

Acidification
is due to emissions of acids, causing the degradation of materials such as metals, limestone and concrete, and damage to trees and life in lakes and rivers.

Eutrophication
is due to emissions of nutrients, causing blooms of algae. The degradation of dead algae consumes oxygen leading to the loss of plants and animals.

Photochemical smog
is due to a mixture of pollutants which includes volatile organic components, particulates, nitrogen oxides, ozone… It's harmful to human health (causing inhalation irritations lung problems, coughing and wheezing) and the environment (damage to plants and crops).

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

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, emitted during the whole life cycle of the product.

Environmental aspects of the Eastside chair

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

Category	Parameter		Inventory value *Unit*	Characterized impact value *Unit*
Global warming				**Total 29 986 g CO_2-eq.**
	CO_2	(carbon dioxide)	27 038 g	90.3 %
	HC	(hydrocarbons)	5 g	5.1 %
	CO	(carbon monoxide)	32 g	2.6 %
	N_2O	(dinitrogen oxide)	1 g	1.1 %
Acidification				**Total 267 g SO_2-eq.**
	SO_x	(sulphur oxides)	144 g	54.0 %
	NO_x	(nitrogen oxides)	178 g	46.5 %
Eutrophication				**Total 249 g NO_3-eq.**
	NO_x	(nitrogen oxides)	175 g	96.4 %
	PO_4^{3-}	(phosphate)	0.4 g	1.9 %
	NO_3-N	(nitrate)	3.0 g	1.2 %
	N_2O	(dinitrogen oxide)	1.0 g	1.2 %
Photochemical smog				**Total 28 g C_2H_4-eq.**
	C_5H_{12}	(pentane)	49 g	69.5 %
	CO	(carbon monoxide)	141 g	15.0 %
	NMVOC*	(from diesel engines)	6 g	13.6 %
Abiotic resource depletion				
	Coal		3 528 g	–
	Oil		5 419 g	–
	Iron	(in ore)	2 404 g	–
	Lignite	(Brown coal)	469 g	–
	Natural gas		3 983 g	–
	Manganese	(in ore)	15 g	–
Waste				
	Bulk waste		1 043 g	–
	Hazardous waste		2 g	–
Toxic substances				
	Toxic substances		102 g	–

No characterized 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*

Additional environmental information

Environmental labels and declarations on products and materials

Eastside complies with the French environmental certification “NF Environnement” (ISO 14024)

The polyester fabric is labelled with the “Oeko-Tex 100 Standard”

The pure wool fabric is labelled with the “European Flower”

Actions for reducing the environmental impacts at each stage of the environmental life cycle

End of life

• **Eastside** is **98%** recyclable by weight. The cardboard, PE foam and LDPE film used for packaging are 100% recyclable.

• **Eastside** is quick and easy to disassemble using normal hand tools. It contains only a few different materials, making sorting for recycling easy. Plastic parts are clearly labelled for easy sorting and an effective recycling.

• **Eastside** can be integrated into the Steelcase Environmental Partnership Program designed to ensure environmentally responsible after use strategies for furniture.

Materials

• **Eastside** contains no hazardous materials (i.e. no Lead, Mercury, Cadmium, Chrome VI, (seating) or CFC or HCFC in the foam, no dangerous materials such as PVC, and no hazardous flame retardants such as halogenated flame retardants.

• **Eastside** contains **16%** recycled materials, by weight.

• The packaging consists of cardboard, PE foam and LDPE film (Low Density Polyethylene), both containing at least 30% recycled material.

• To reduce overall material usage, **Eastside** weighs only 6.3 kg and is made with a minimum number of low energy materials.

• Paper and packaging use water based inks without solvent.

Use

• **Eastside** was designed for a long product life, with replaceable parts and textiles that are easy to change.

• Maintenance information is available in the User’s manual.

Production

• The production site in Sarrebourg has an ISO 14001 certified environmental management system.

• **Eastside** was designed to be made with minimal waste, energy consumption and environmental impact.

• Powder-coat painting is VOC-free and free of heavy metals; unused paint that does not attach to the product can be directly reused in the process.

• No gluing processes are used in assembly, and all urethane foam is water-based.

Transport

• **Eastside** is lightweight and delivered stacked. Minimised packaging weight and volume help us improve filling rates and thus require less energy for shipping.

Compilation and Verification Process

- The LCA study of the **Eastside** chair (reference 412 450 MH) was carried out by Steelcase, according to ISO 14040-43, together with the ENSAM of Chambéry - France (Ecole Nationale Supérieure des Arts et Métiers). It was then critically reviewed by the IPU Product Development - Denmark.
- The independent verification of the environmental declaration (EPD – ISO/TR 14025) was carried out by IPU Product Development - Denmark.

References

Form of document

- ISO/TR 14025: Environmental labels and declarations – Type III environmental declarations.
- 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, Hauschild, 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 reports, 1995 and 2001.

End of life scenario

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

Contact

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