Implicit melamine

Environmental Product Declaration

- An environmental declaration according to the objectives of ISO/TR 14025.
- A presentation of the Life Cycle Assessment results (ISO 14040 / 14044) based on the 2010 recommendations of the European Commission.

ENVIRONMENTAL PRODUCT DECLARATION

EPD

Product Description

Implicit is the new generation of personal storage which respond to all storage needs!

The materials (steel, melamine and veneer) of the carcass, the top and the fronts can be chosen and mixed together in the Standard and Premium version.

Mobile pedestals provide flexibility, juxtaposed pedestals create an extension of the worksurface and supporting replaces a leg of the desk.

The model chosen for analysis is the most frequently ordered one (reference 785 M23 003) from the **Implicit melamine** range.

Standard features on this model include:
- Width 419 mm / height 566 mm / depth 788 mm
- Storage space: 0.097 m^3
- Fours drawers thus a pen tray
- Melamine boards and fronts
- A lock system with a key

Producer

Designed by Steelcase, **Implicit melamine** is made by Steelcase in Durlangen (DE).

Steelcase has management systems for quality (ISO 9001), for the environment (ISO 14001 and/or EMAS III) and for health and safety (OHSAS 18001), ensuring that customers are guaranteed the same level of product performance wherever it is made in Europe.

Steelcase has a multi-site PEFC (Program for the Endorsement of Forest Certification schemes) certification for all its production facilities in Europe. This certification acknowledges that the wood used in the products has been sourced from forests managed in a sustainable way.

To show continuous improvements, Steelcase communicates the environmental performance of its products through voluntary environmental labels and declarations. Sustainability related actions and results are annually communicated in the annual Steelcase Corporate Responsibility report.

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

Steelcase

ENVIRONMENTAL PRODUCT DECLARATION **EPD**

Material Declaration

Implicit melamine consists of the materials listed below. The total weight is 35.298 kg including packaging.

Metals	kg	%
Steel	12.404	35.1
Zamak	0.598	1.7

Plastics	kg	%
ABS – acrylonitrile butadiene styrene	0.539	1.5
PA 6 – polyamide 6	0.339	1.0
PC - polycarbonate	0.090	0.2
LDPE – low density polyethylene (for packaging)	0.090	0.2
PET – Polyethylene terephthalate (for packaging)	0.050	0.1
POM – Polyoxymethylene	0.057	0.2
PP – Polypropylene	0.334	0.9
PS - Polystyrene	0.023	0.1

Other materials	kg	%
Particleboard	19.194	54.4
Cardboard (for packaging)	1.254	3.6
Glue	0.055	0.2
Melamine face board	0.263	0.7
Wood beech	0.008	<0.1

Environmental Product Declaration

The potential environmental impacts of **Implicit melamine** (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 / 14044) in February, 2012. This product declaration is valid for the product made in Durlangen (DE). Those measurements are the starting point for the continuous improvement of our product. Both method and product may have been subject to modifications since then. Different Environmental Product Declarations 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 flexible office personal storage in a building office – 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. Benefits of recycled materials are considered.

Production

This stage comprises all production and assembly processes taking place at Steelcase or at their suppliers and sub-suppliers.

Transport

The following transports are considered: transport from sub-suppliers to Steelcase production site(s), from Steelcase to the EMEA market (Europe, Middle East and Africa) and transport for end-of life treatments.

Use

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

End of life

End-of-life products treatments are included: based on current European averages and the specific abilities for disassembly of this product, it was assumed that about 0,6% of the products are sent to landfill, 53.2% are incinerated and 46.2% are recycled at the end of their useful life. Benefits from recycling are considered as neutral to avoid double counting.

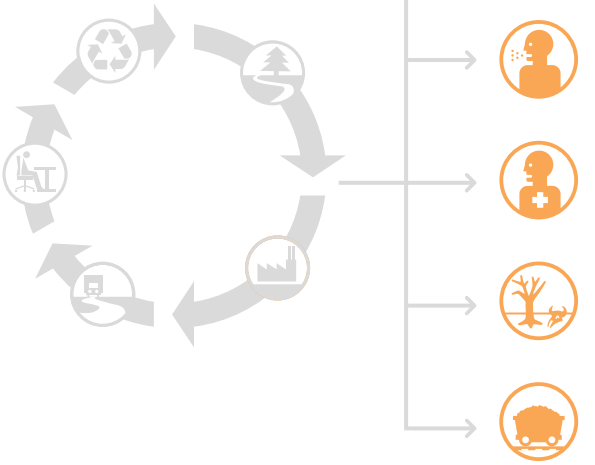
Distribution of the environmental impacts for the relevant life cycle stages

	Category	Unit	Total	Materials	Production	Transport	Use	End of life
	Global warming	[kg CO_2-eq.]	98	35	54	6.0	No relevant environmental impacts occur	2.9
	Respiratory inorganics	[kg PM2.5-eq.]	0.081	0.042	0.030	0.0078	No relevant environmental impacts occur	0.0015
	Carcinogens	[kg C_2H_3Cl-eq.]	4.3	3.1	0.88	0.044	No relevant environmental impacts occur	0.25
	Terrestrial ecotoxicity	[kg TEG soil]	3900	2400	1200	230	No relevant environmental impacts occur	14
	Non renewable energy	[MJ primary]	1700	670	960	100	No relevant environmental impacts occur	9.0

In this table, the figures are rounded up to two significant digits because the potential uncertainties do not justify the use of more.

Life Cycle Assessment

Environmental impact categories.



Global warming

is due to emissions of greenhouse gases, causing the rise of the global temperature.
[kg CO_2-eq.]

Respiratory inorganics

is due to small particles or dust that causes respiratory problems (and death) for humans with asthma or respiratory diseases.
[kg PM2.5*-eq.]
**Particulate Matter Smaller than 2.5 Micrometers in Diameter*

Carcinogens

describes substances or agents which may contribute to cause cancer.
[kg C_2H_3Cl-eq.]

Terrestrial ecotoxicity

measures the ecotoxicological factor for terrestrial ecosystems.
[kg TEG* soil]
** Triethylene Glycol*

Non renewable energy

describes finite resources that will eventually dwindle, becoming too expensive or too environmentally damaging to retrieve.
[MJ primary]

Environmental aspects of Implicit melamine's life cycle

The contributions of inventory parameters to different impact categories throughout the entire life cycle of **Implicit melamine** are listed below.

Category		Inventory parameter*	Inventory value**	Unit	Characterised impact value		Unit
Global warming					**Total**	**98**	**kg CO_2-eq.**
	CO_2	Carbon dioxide, fossil	94 497	g		96.3	%
	CH_4	Methane, fossil	250	g		1.8	%
	N_2O	Dinitrogen monoxide	6	g		0.9	%
Respiratory inorganics					**Total**	**0.081**	**kg PM2.5-eq.**
	PM 2.5	Particulates, < 2.5 um	36.9	g		36.9	%
	NO_x	Nitrogen oxides	232.7	g		36.5	%
	SO_2	Sulfur dioxide	176.5	g		16.9	%
Carcinogens					**Total**	**4.3**	**kg C_2H_3Cl-eq.**
	HC	Hydrocarbons, aromatic	1.15	g		78.7	%
		Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	3.02×10^{-07}	g		12.1	%
	As	Arsenic, ion	0.456	g		3.0	%
Terrestrial ecotoxicity					**Total**	**3 900**	**kg TEG soil**
	Zn	Zinc	1.502	g		46.2	%
	Al	Aluminium	6.906	g		28.6	%
	Cr	Chromium	0.998	g		9.9	%
Non renewable energy					**Total**	**1 700**	**MJ primary**
		Gas, natural, in ground	14.6	m^3		33.7	%
		Oil, crude, in ground	8.2	kg		21.6	%
		Coal, hard, unspecified, in ground	18.6	kg		20.3	%

* In each category, we considered the three most important inventory parameters.
** The inventory value represents the total emissions of a substance or resource input.

Additional environmental information

Life cycle

During our products development process we consider each stage of the life cycle: from materials extraction, production, transport, use and reuse, until the end of its life.

Materials
- 51% recycled materials*, by weight (31% pre-consumer + 20% post-consumer).
- Wood from European sustainably managed forests.
- Packaging with 100% recycled cardboard.

Production
- Assembled in Durlangen (Germany) by Steelcase.

Transport
- Assembled in Europe, close to customers.

Use
- Designed for a long product life, with replaceable parts.
- Limited substances harmful to health and indoor air quality.
- Maintenance information available on Steelcase.com

End of life
- 99% theoretically recyclable by weight. According to the current waste disposal schemes, we assume that 96% can be effectively recycled.
- 100% theoretically recyclable cardboard and LDPE film for packaging.
- Quick and easy disassembly.
- Plastic parts clearly labelled for easy sorting and effective recycling.
- Designed to ensure responsible end of use strategies - refurbishing, charitable donation or recycling.

** Calculations of recycled content are based on data provided by professional organizations, suppliers and other available information. Steelcase makes conservative assumptions when compiling this information to provide the most accurate recycled content calculations possible but variability in market conditions or manufacturing processes may result in higher or lower content. This document will be reviewed and updated periodically and is subject to change without notice.*

Certifications

We communicate our products' environmental performance through voluntary environmental labels and declarations.

On products

This product is currently going through the **NF Environnement** certification process, according to the ISO 14024.

This product is currently going through the **NF OEC (Office Excellence Certifié)** certification process.

This product is currently going through the **Indoor Advantage** Certification process, according to indoor air quality emission requirements.

On materials

The wooden components of this product are labeled with **PEFC** (Programme for the Endorsement of Forest Certification), ensuring that wood originates from sustainably managed forests.

The particle board of this product complies with the **E1 standard**, guaranteeing a low concentration of formaldehyde.

On plants

ISO 14001 Environmental management system.

EMAS European Eco-Management and Audit Scheme.

Compilation and Verification Process

- The LCA study of Implicit melamine (code: 785 M23 003) was carried out by Steelcase, according to ISO 14040 / 14044 and based on previous collaboration with Quantis (located in Lausanne, Switzerland and Boston, USA). It was then critically reviewed by Michael Hauschild from the Department of Management Engineering of the DTU (Technical University of Denmark) in Copenhagen.
- The independent verification of the environmental declaration (EPD – ISO/TR 14025) was carried out by the Department of Management Engineering of the DTU (Technical University of Denmark).

References

Related ISO standards
- ISO/TR 14025 Environmental labels and declarations – Type III environmental declarations.
- ISO 14040:2006 Environmental management -- Life cycle assessment -- Principles and framework
- ISO 14044:2006 Environmental management -- Life cycle assessment -- Requirements and guidelines

LCIA method and LCI database
- ILCD HANDBOOK, European Commission, Joint Research Centre, Institute for Environment and Sustainability. ILCD Handbook: General guide for Life Cycle Assessment – Detailed Guidance. European Union, March 2010, 394p.
- IMPACT 2002+ method: JOLLIET, O., MARGNI, M., CHARLES, R., HUMBERT, S., PAYET, J., REBITZER, G. et ROSENBAUM, R. (2003). IMPACT 2002+: A New Life Cycle Impact Assessment Methodology. International Journal of Life Cycle Assessment 8(6) p.324-330.
- Eco-Invent v2.2 LCI database: Swiss Centre for Life Cycle Inventories, Duebendorf, CH - www.ecoinvent.ch

End-of-life scenario
- Mainly based on Eurostat data for the European market - http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/data/wastemanagement/waste_treatment
- Mainly based on EPA data for the American market - http://www.epa.gov/osw/nonhaz/municipal/pubs/msw_2010_rev_factsheet.pdf

Contact

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