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

Product Description

FlipTop Twin is a clever and flexible table for meeting or training rooms. It is very intuitive: the top can be flipped from both sides, to both sides. Once the top is flipped, the tables can be stored in a space saving way.

The model chosen for analysis is the most frequently ordered one (reference W4D1C600) from the **FlipTop Twin** range.

Standard features on this model include:

- Top dimensions: 1400 mm x 700 mm
- Melamine top
- Steel leg and frame
- Height: 740 mm



Producer

Designed by Steelcase, FlipTop Twin is made by Steelcase in Rosenheim (DE) for the EMEA (Europe, Middle East and Africa) market.

Steelcase has management systems for quality (ISO 9001), for the environment (ISO 14001 and/or EMAS II) 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.



Material Declaration

FlipTop Twin consists of the materials listed below. The total weight is 32.916 kg including packaging.

Metals	kg	%
Steel	9.559	29.0
Die casting aluminium	5.331	16.2

Plastics	kg	%
EPP – expanded polypropylene	0.504	1.5
PA6 – polyamide 6	0.355	1.1
PP – polypropylene	0.310	0.9
LDPE – low density polyethylene (for packaging)	0.254	0.8
PA6 GB – polyamide 6 with glass beads	0.246	0.7
PUR – polyurethane, rigid	0.155	0.5
PA6 GF – polyamide 6 with glass fibre	0.039	0.1
POM – polyoxymethylene	0.039	0.1

Other materials	kg	%
Particleboard	15.008	45.6
Cardboard (for packaging)	0.670	2.0
Coating powder	0.271	0.8
Melamine faceboard	0.145	0.4
Glue	0.019	0.1
Rubber	0.011	<0.1

Environmental Product Declaration

The potential environmental impacts of **FlipTop Twin** (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 January 2013. This product declaration is valid for the product made in Rosenheim (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 comfortable office working as conferencing table – with the features stated in the product description – over varying periods of time, 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.



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 39% of the products are sent to landfill, 36% are incinerated and 25% 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
							(LI)	
	Global warming	[kg CO ₂ -eq.]	94	46	40	6.1	No relevant environmental impacts occur	2.4
	Respiratory inorganics	[kg PM2.5-eq.]	0.083	0.048	0.026	0.0069	No relevant environmental impacts occur	0.0014
3	Carcinogens	[kg C ₂ H ₃ Cl-eq.]	3.1	2.4	0.52	0.049	No relevant environmental impacts occur	0.17
(¥.)	Terrestrial ecotoxicity	[kg TEG soil]	3800	1800	1800	240	No relevant environmental impacts occur	27
	Non-renewable energy	[MJ primary]	1600	810	650	110	No relevant environmental impacts occur	12

The figures in this table are rounded up because the potential uncertainties don't justify the use of more than two digits.



Life Cycle Assessment

Environmental impact categories.



Global warming

is due to emissions of greenhouse gases, causing the rise of the global temperature. [kg $\rm CO_2$ -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 $\rm C_2H_3Cl\text{-eq.}]$

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 FlipTop Twin's life cycle

The contributions of inventory parameters to different impact categories throughout the entire life cycle of FlipTop Twin are listed below.

Category	Inventory parameter*	Inventory value**	Unit Characteris	ed impact value	Unit
Global warming	CO ₂ Carbon dioxide, fossil CFC-14 Methane, tetrafluoro-, CFC- CH4 Methane, fossil	87 14 0.29 0.23	kg g kg	Total 9 4 92.3 2.7 1.7	I kg CO₂-eq.) % 7 % 7 %
Respiratory inorganics	PM 2.5 Particulates, < 2.5 μm NO _x Nitrogen oxides SO ₂ Sulfur dioxide	0.039 0.21 0.19	kg kg	Total 0.083 47.7 32.8 18.3 32.8	8 kg PM2.5-eq. 7 % 8 % 8 %
Carcinogens	HC Hydrocarbons, aromatic PAH PAH, polycyclic aromatic hy Dioxin, 2,3,7,8 Tetrachlorodibenzo-p-	0.78 0.12 2.0x10 ⁻⁷	g g	Total 3. 65. 12.7 10.8	k g C₂H₃Cl-eq. 3 % 7 % ∂ %
Terrestrial ecotoxicity	Al Aluminium Zn Zinc Cu Copper	3.8 0.67 0.16	kg g g	Total 3800 52.5 26.4 9.8) kg TEG soil 5 % 4 % 3 %
Non-renewable energy	Gas, natural Oil, crude Coal, hard	13 8.8 16	m³ kg kg	Total 1600 32.2 25.6 19.8	 MJ primary % % % %

* 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

- 57% recycled materials*, by weight (33% pre-consumer + 24% post-consumer).
- Wood from European sustainably managed forests.
- Materials chemistry assessment throughout the materials lifecycle.
- Packaging with 80% recycled cardboard, 0% recycled EPP and 0% recycled LDPE film.

Production

- Made in Rosenheim (DE) by Steelcase.
- Uses powder-coat paints: VOC-free and free of heavy metals. Unused paint that does not attach to the product can be directly reused in the process.
- Uses water based glue to attach edges on the table.
- Wood wastes coming from the table-tops cutting are directly re-used to heat the production building. A filter avoids VOC emissions.

Transport

- Made 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

- 98% theoretically recyclable by weight. According to the current waste disposal schemes, we assume that 95% can be effectively recycled.
- 100% theoretically recyclable cardboard and LDPE film for packaging.
- 35 to 40% of the Expanded PP corners are returned to be reused.
- 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.

Compilation and Verification Process

The LCA study of FlipTop Twin (code: W4D1C600) 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 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

Contact

Certifications

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

On products



This product is **Blauer Engel** certified, meaning it complies with environmental and heath requirements.



In Europe this product is **Indoor Advantage Gold** certified, meaning it complies with indoor air quality emission requirements.

On materials



The wooden components of this product are labelled 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.
- **"E0,5"** The particle board of this product complies with the so told **"E0,5"** standard guaranteeing very low emissions of formaldehyde.

On plant



ISO 14001 Environmental management system.



EMAS European Eco-Management and Audit Scheme.