

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

Smart and elegant, **Qivi** is the new meeting energizer!

Qivi allows users to move and to change postures easily, bringing more comfort to meetings thanks to its automatic adjustments. The combination of the sliding seat and pivoting backrest makes Qivi unique and comfort immediate.

Qivi offers a wide range of versions and finishes: 4 leg, sled, conference, with and without armrests; plain, upholstered or knitted back available in two different aesthetics, as well as several accessories that make the range even more complete!

The model chosen for analysis is the most frequently ordered one (reference 428 LUG ET) from the **Qivi** range. Standard features on this model include:

- Sled frame – stackable version
- Sliding seat
- Pivoting backrest
- Fixed arms
- Back upholstery: “net”
- Seat upholstery: “Atlantic”
- Back frames eat shell and arm caps: white



Producer

Designed by Steelcase, **Qivi** is made by Steelcase in Sarrebourg (FR) 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 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.

Material Declaration

Qivi consists of the materials listed below. The total weight is 11.868 kg including packaging.

Metals	kg	%
Steel	6.440	54.3
Aluminium	0.221	1.9

Other materials	kg	%
Cardboard (for packaging)	1.400	11.8
Powder coating	0.080	0.7
Lacquer based PU	0.036	0.3

Plastics	kg	%
PP – polypropylene	1.879	15.8
PA6 – polyamide 6	0.680	5.7
PU foam – polyurethane foam	0.545	4.6
PA fabric – polyamide fabric	0.122	1.0
PET fabric - Polyethylene terephthalate fabric	0.109	0.9
ABS – acrylonitrile butadiene styrene	0.104	0.9

Plastics	kg	%
POM – polyoxymethylene	0.073	0.6
LDPE – low density polyethylene (for packaging)	0.065	0.5
PA66 – polyamide 66	0.059	0.5
PP/EPDM – polypropylene/ethylene propylene diene monomer	0.034	0.3
Rubber	0.021	0.2

Environmental Product Declaration

The potential environmental impacts of **Qivi** (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 May, 2012. This product declaration is valid for the product made in Sarrebourg (FR).

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 seating – 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.



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 54.90% of the products are sent to landfill, 25.70% are incinerated and 19.40% are recycled at the end of their useful life. Benefits from recycling are considered as neutral to avoid double counting.

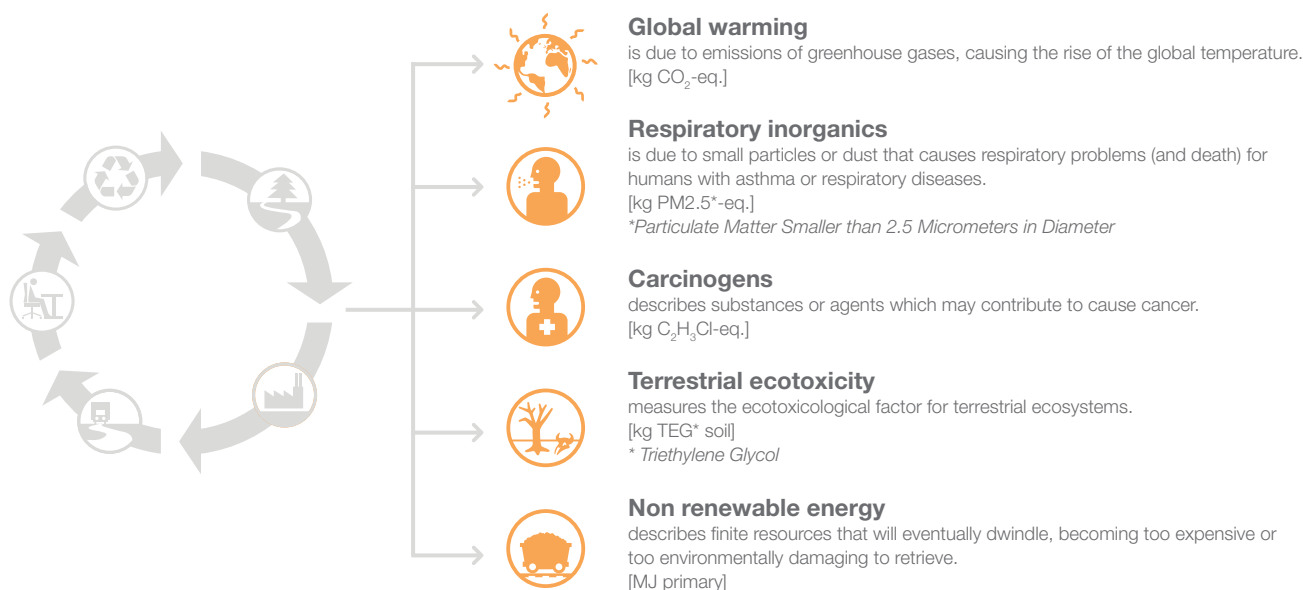
Distribution of the environmental impacts for the relevant life cycle stages

Category	Unit	Total	Materials	Production	Transport	Use	End of life
Global warming	[kg CO ₂ -eq.]	56	29	14	9.9	No relevant environmental impacts occur	2.5
Respiratory inorganics	[kg PM2.5-eq.]	0.046	0.029	0.0073	0.0090	No relevant environmental impacts occur	0.00049
Carcinogens	[kg C ₂ H ₃ Cl-eq.]	2.7	2.3	0.31	0.033	No relevant environmental impacts occur	0.043
Terrestrial ecotoxicity	[kg TEG soil]	1300	640	190	460	No relevant environmental impacts occur	6.2
Non renewable energy	[MJ primary]	1100	580	330	150	No relevant environmental impacts occur	4.4

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.



Environmental aspects of QiVi's life cycle

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

Category	Inventory parameter*		Inventory value**	Unit	Characterised impact value	Unit
Global warming 	CO ₂	Carbon dioxide, fossil	50 414	g	Total	56 kg CO₂-eq.
	CO ₂	Carbon dioxide	1 822	g		90.4 %
	N ₂ O	Dinitrogen monoxide	11	g		3.3 %
						3.1 %
Respiratory inorganics 	NO _x	Nitrogen oxides	156	g	Total	0.046 kg PM_{2.5}-eq.
	PM 2.5	Particulates, < 2.5 µm	16	g		43.4 %
	SO ₂	Sulfur dioxide	97	g		35.5 %
						16.5 %
Carcinogens 	HC	Hydrocarbons, aromatic	0.83	g	Total	2.7 kg C₂H₃Cl-eq.
		Dioxin, 2,3,7,8				89.9 %
		Tetrachlorodibenzo-p-	7.65x10 ⁻⁰⁸	g		4.8 %
	Cr	Chromium	0.44	g		2.0 %
Terrestrial ecotoxicity 	Zn	Zinc	0.233	g	Total	1 300 kg TEG soil
	Al	Aluminium	1.983	g		44.8 %
	Cr	Chromium	0.444	g		26.3 %
						13.2 %
Non renewable energy 	Oil, crude, in ground		8.7	kg	Total	1 100 MJ primary
	Gas, natural, in ground		7.8	m ³		37.6 %
	Uranium, in ground		0.3	kg		29.6 %
						16.7 %

* 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

- 17% recycled materials*, by weight (6% pre-consumer + 11% post-consumer).
- Packaging with 100% recycled cardboard

Production

- Assembled in Sarrebourg (FR) 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 urethane foam.
- No gluing processes in the assembly.

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

- 93% theoretically recyclable by weight. According to the current waste disposal schemes, we assume that 92% 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 **NF Environnement** certified, meaning it complies with the 20 product lifecycle criteria set by the ISO 14024.



This product is **NF OEC (Office Excellence Certifié)** certified, meaning it complies with safety, ergonomic, environmental and social requirements.



This product is **Indoor Advantage Gold** certified (#02138), meaning it complies with indoor air quality emission requirements.

On materials



A selection of pure wool and polyester fabrics are labelled with the **Oeko-Tex 100** "Confidence in textiles" Standard, guaranteeing that limit values in substances are respected.



A selection of pure wool fabric are labelled with the **European Ecolabel**, guaranteeing that the textile meets stringent quality and environmental performance criteria.



A selection of textiles complies with the **C2C** certification, delivered by MBDC.

On plants



ISO 14001 Environmental management system.



OHSAS Occupational Health and Safety Assessment Series management system.

Compilation and Verification Process

- The LCA study of QiVi (code: 428 LUG ET) 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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