

## Environmental Product Declaration

A presentation of the environmental performance of **Kalidro**.  
An environmental declaration according to the objectives  
of ISO/TR 14025, based on Life Cycle Assessment (ISO 14044).



### Product Description

Simplicity and intelligence is the success of Kalidro.

The 4 leg desk system offers a complete range that is easy to install and to configure. The comfortable height adjustment and the smart cable management fulfil customers' demands.

The model chosen for analysis is the most popular model (reference W3812700). It is equipped as follows:

- Top dimensions: 1600 x 800
- Top type 10
- Top thickness: 19 mm
- Top colour: crystal
- Corner element + frame: snow
- Leg: silver
- Features: cable brackets



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### Manufacturer

The selected product **Kalidro** is manufactured in Rosenheim, Germany, 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.

Steelcase has a multi-site PEFC certification; for its production facilities at four European sites. The certification acknowledges that Steelcase has gone to great lengths to ensure that the wood used in its products has been sourced from environmentally friendly suppliers.

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](http://www.steelcase.com)

## Material Declaration

**Kalidro** consists of the materials listed below. The total weight is 37 kg including packaging.

metals	kg	%	plastics	kg	%	other materials	kg	%
Steel	15.240	40.1	LDPE film (low density polyethylene) for packaging	0.511	1.4	Particle board	16.885	45.7
Aluminium	3.468	9.1	Expanded PP (polypropylene for packaging)	0.243	0.7	Cardboard for packaging	1.245	3.4
			PA 6 GF 30% (polyamide 6 with 30% glass fibre)	0.188	0.5			
			PP (polypropylene)	0.139	0.4			
			PA 6 (polyamide 6)	0.129	0.3			

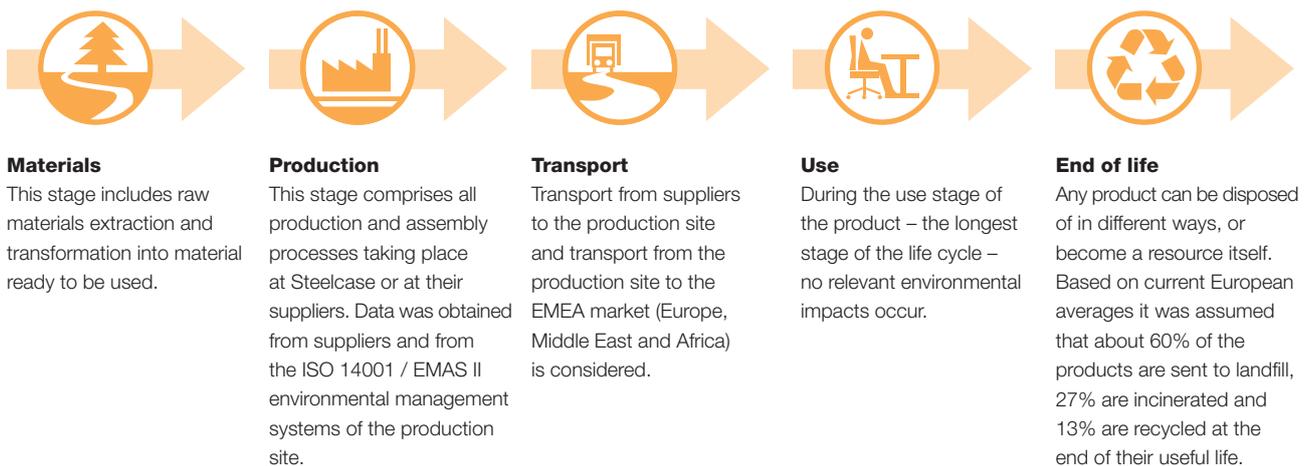
## Environmental Product Declaration

The potential environmental impacts of **Kalidro** (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 14044) in December 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 working – 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.



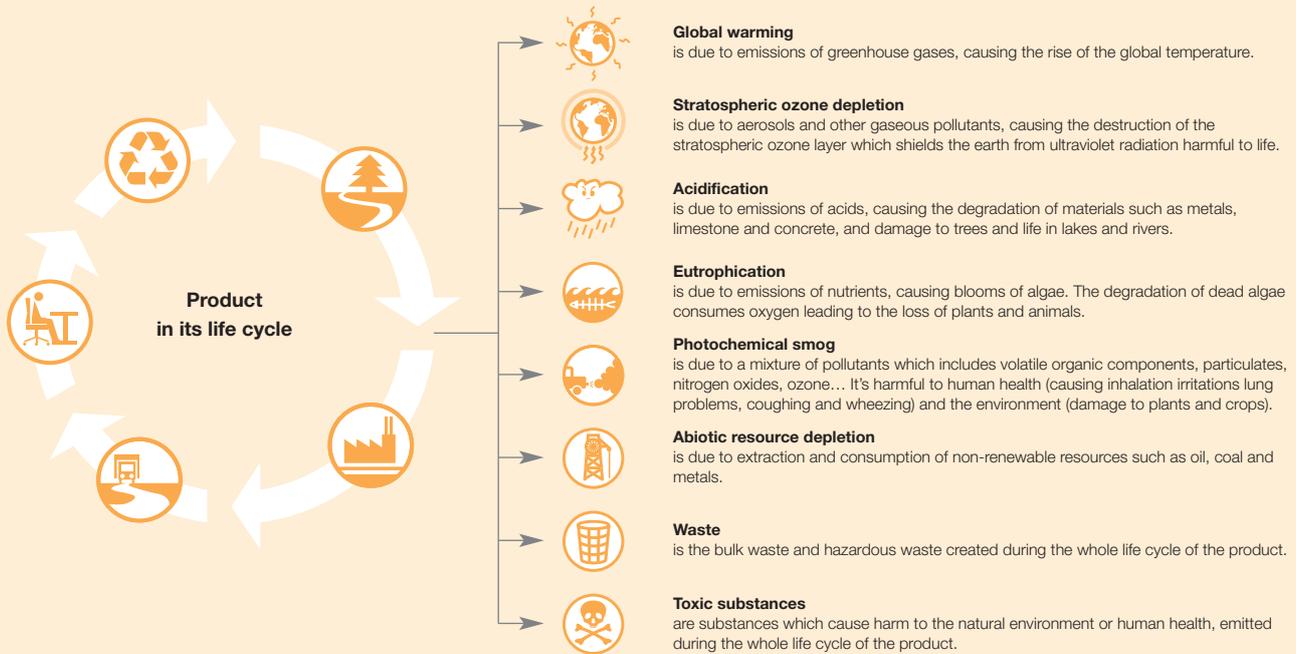
### Distribution of the environmental impacts for the relevant life cycle stages

Category	Unit	Total	Materials	Production	Transport	Use	End of life
<b>Global warming</b>	[g CO <sub>2</sub> -eq.]	51 500	50 100	17 500	2 550	No relevant environmental impacts occur	- 18 600
<b>Stratospheric Ozone depletion</b>	[g CFC11-eq.]	0.0152	5 910	7.25 x 10 <sup>-7</sup> *	5.39 x 10 <sup>-19</sup> *	No relevant environmental impacts occur	- 0.00306
<b>Acidification</b>	[g SO <sub>2</sub> -eq.]	263	343	88	23	No relevant environmental impacts occur	- 191
<b>Eutrophication</b>	[g NO <sub>3</sub> -eq.]	401	277	186	39	No relevant environmental impacts occur	- 100
<b>Photochemical smog</b>	[g C <sub>2</sub> H <sub>4</sub> -eq.]	26	30	1	4	No relevant environmental impacts occur	- 8

\* This value is extremely lower than 0,0001 g CFC11-eq (Chloro-Fluoro-Carbon 11 equivalent).

# Life Cycle Assessment

Environmental impact categories



## Environmental aspects of Kalidro

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

Contributions to Stratospheric Ozone Depletion are tracked but not mentioned below due to extremely low values.

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
	CO <sub>2</sub>	(carbon dioxide)	43 200 g	<b>Total 51 500 g CO<sub>2</sub>-eq.</b>	83.9 %
	HCs	(hydrocarbons)	18 g		10.5 %
	CH <sub>4</sub>	(methane)	67.9 g		3.3 %
	CO	(carbon monoxide)	363.3 g		1.4 %
	NO <sub>x</sub>	(nitrogen oxides)	178.5 g	<b>Total 263 g SO<sub>2</sub>-eq.</b>	47.5 %
	SO <sub>x</sub>	(sulphur oxides)	99.3 g		37.8 %
	NO <sub>x</sub>	(nitrogen oxides)	178.5 g	<b>Total 401 g NO<sub>3</sub>-eq.</b>	60.1 %
	phosphates		11.7 g		30.4 %
	NO <sub>2</sub> -N	(nitrogen oxide)	15.1 g		5.1 %
	CO	(carbon monoxide)	363.3 g	<b>Total 26.2 g C<sub>2</sub>H<sub>4</sub>-eq.</b>	41.6 %
	toluene		13.8 g		31.6 %
	NMVOCS*	(from diesel engines)	6.73 g		15.4 %
	ethene		0.9 g		3.8 %
	CH <sub>4</sub>	(methane)	67.9 g		1.8 %
	Iron		11 200 g		–
	Crude oil, fuel (in ore)		7 660 g		–
	Coal, fuel		6 230 g		–
	Lignite, fuel		5 140 g		–
	Natural gas		3 540 g		–
	Bulk waste		3 440 g		–
	Hazardous waste		34.2 g		–
	Toxic substances		21.8 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



**Kalidro** complies with the German environmental certification "Blauer Engel"

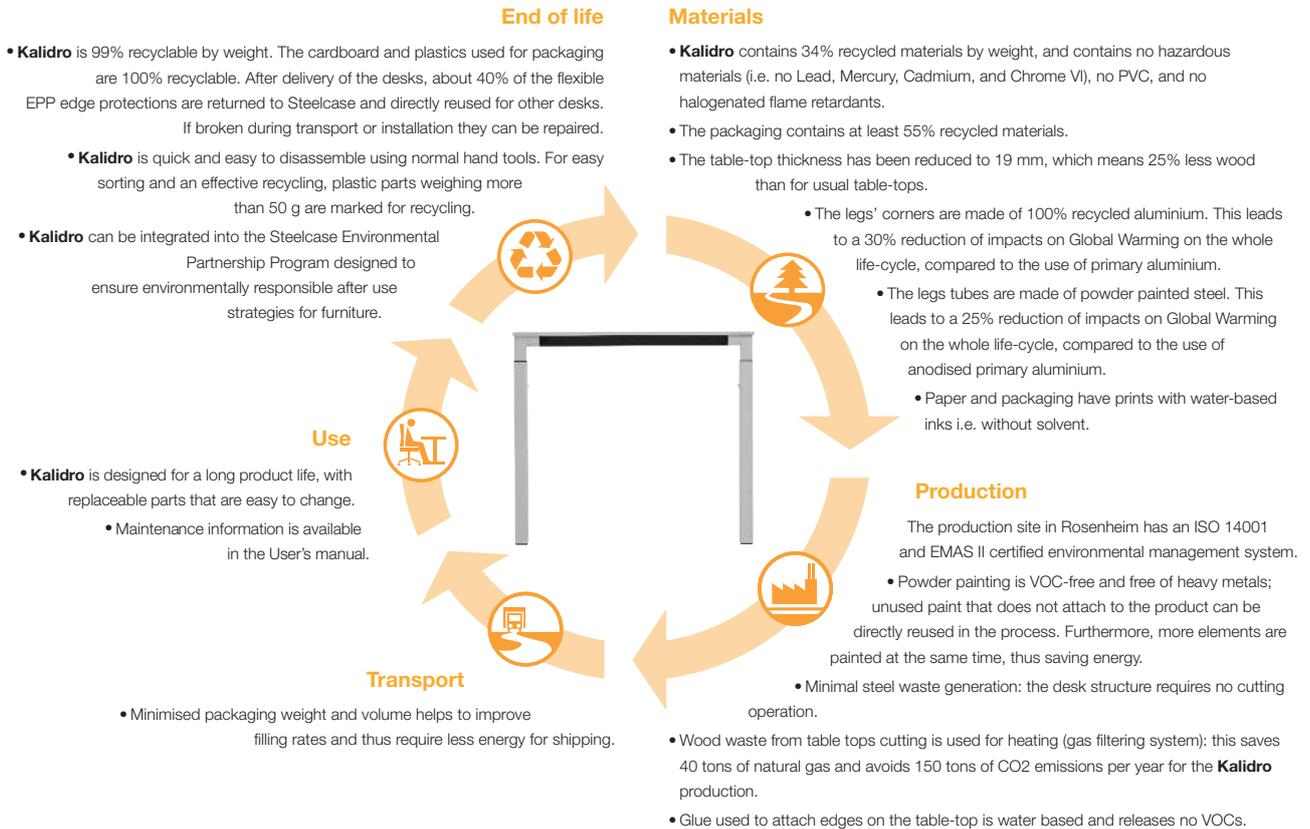


The wooden components of **Kalidro** are labelled with PEFC (Programme for the Endorsement of Forest Certification)

E1

The particle boards comply with the low emission E1 standard (EN13986)

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



## Compilation and Verification Process

- The LCA study of **Kalidro** (reference W3812700) was carried out by Steelcase, according to ISO 14044, 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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