Environmental Product Declaration

Steelcase Karman™

AMERICAS, APAC

About this product

Steelcase Karman™ goes beyond leading mesh office chairs with 21st century design that naturally responds to a body's movement, delivering industry-leading comfort, ergonomics and sustainability.

One chair is required to meet the functional unit of seating one individual for a 10-year period.

Date of Issue: June 6, 2025
Date of Expiration: June 6, 2030

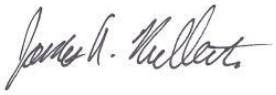
About this document

This declaration describes the Life Cycle Assessment of the Steelcase Karman™ office chair produced for the Americas and APAC market by Steelcase Inc. in Reynosa, Mexico. The assessment is performed according to the ISO standards 14040 (2006), 14044 (2006) and 14025 (2006), and BIFMA PCR for Seating: UNCPC 3811 (2020) to generate an EPD for business-to-business communication.

Learn more

- Explore Steelcase environmental philosophy and commitments overview.
- Find product details and sustainability certifications on Americas product page and APAC product page at steelcase.com.
- See our product warranty.
- Contact epd@steelcase.com for any EPD-related questions or inquiries.

ASSESSMENT OVERVIEW

EPD commissioner	Steelcase® Inc
Corporate Address	901 44th Street SE Grand Rapids, Michigan 49508-7594 United States
Product group	Seating
Product name	Steelcase Karman™
Product intended use	Office Chair
Product reference service life	10 years
Reference standards	ISO 14025, ISO 14040, ISO 14044
EPD scope	Cradle to grave
EPD number	EPD11090
Date of issuance	June 6, 2025
Date of expiration	June 6, 2030
EPD type	Product specific
EPD Product Coverage	Steelcase Karman™ for products made in Americas and sold in Americas and APAC, including the following codes: all products beginning with 419-
Intended audience	Business to business
Year of reported manufacturer data	2023
Functional unit	One unit of seating to seat one individual for a reference service life of 10 years
Applicable markets/regions	Americas, APAC
LCA software and database version	GaBi 10.6.2.9; GaBi database, 2022.2
LCIA methodology and version number	TRACI 2.1
Program administrator	NSF Certification LLC 789 N. Dixboro, Ann Arbor, MI 48105 www.nsf.org
Reference PCR and version number	BIFMA PCR for Seating: UNCPC 3811 (BIFMA PCR, 2020)
PCR reviewer	Review Panel Chaired by Dr. Thomas Gloria
EPD reviewer	External review conducted by:  Jim Mellentine, Thrive ESG This declaration and its Life Cycle Assessment was independently verified in accordance with ISO standards 14040 (2006), 14044 (2006), 14025 (2006), and BIFMA PCR for Seating UNCPC 3811 (2020) V3.
LCA reviewer	External review conducted by: Jack Geibig, jgeibig@ecoform.com  This declaration and its Life Cycle Assessment was independently verified in accordance with ISO standards 14040 (2006), 14044 (2006), 14025 (2006), and BIFMA PCR for Seating UNCPC 3811 (2020) V3.
Disclaimer	The PCR this EPD was based on was written to determine the potential environmental impacts of a seating product from cradle to grave. It was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.

ASSESSMENT PARAMETERS

Functional unit

One unit of seating to seat one individual for a reference service life of 10 years. One product is required to fulfill the functional unit under ANSI/BIFMA X5.4 2020.

Product scope

One Karman chair (product numbers 419A000 [task chair] and one 419B000 [stool]) consisting of hard casters, 4D arms, Intermix fabric back, plastic base for the chair and aluminum base for the stool were modeled for this EPD. Karman is produced in the Americas and sold in the Americas and APAC regions.

Assessment goal and scope

The potential environmental impacts of Karman and its packaging throughout its entire life cycle – including raw materials extraction, production, transport, use, and end of life – were assessed. The distribution from AMER to APAC was included in the assessment with the shipment by boat and truck. APAC distance distribution is considered conservative and worst-case for all the assessed products. In the absence of primary information, the GaBi database was used for secondary data.

The life cycle stages included in this assessment follow the BIFMA PCR for Seating: UNCPC 3811 V3. Material acquisition and pre-processing (including transportation), production, distribution, use and end-of-life are assessed for the seating product.

Assessment boundary

The Life Cycle Assessment considers the full life cycle of the product as described here, cradle to grave. Life cycle stages and phase included in this assessment follow the BIFMA PCR for Seating and are presented in the following table.

		Stage	Status
	***Cradle to inbound gate*** **MATERIALS ACQUISITION** Raw material extraction, pre-processing and transportation.	**A1.** Raw material supply	✓
	Transportation up to the factory gate and internal transport	**A2.** Transport	✓
	***Gate to gate*** **PRODUCTION PROCESS** External and internal manufacturing of products, ancillary materials, parts, packaging.	**A3.** Manufacturing	✓
	***Gate to grave*** **DISTRIBUTION, USE AND END OF LIFE** Distribution of products, installation, use and end of life.	**A4.** Transport	✓
		A5. Installation	✓
		B1. Use	✓
		B2. Maintenance/cleaning	✓
		B3. Repair	✓
		B4. Replacement	✓
		B5. Refurbishment	✓
		B6. Operational energy use	✓
		B7. Operational water use	✓
		C1. Disassembly	✓
		C2. Transport	✓
		C3. Waste processing	✓
		C4. Disposal	✓
	Beyond the boundary	**D.** Reuse/recovery	

TASK CHAIR RESULTS

The product composition, packaging composition, recycled content, and recyclability visuals below relate specifically to the task chair 419A000 with hard casters, 4D arms, intermix fabric, upholstered seat, adjustable lumbar and plastic base.

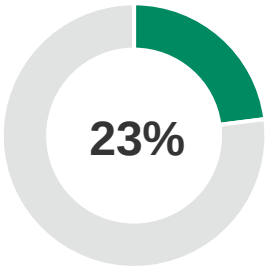
Product composition

Material	Weight (kg)	Weight (%)	Resource Type
Nylon (PA6 and PA66)	7.005	56.04%	Virgin non-renewable
Aluminum	0.526	4.20%	Recycled, Virgin non-renewable
Steel	2.845	22.76%	Recycled, Virgin non-renewable
Polypropylene (PP)	0.640	5.12%	Virgin non-renewable
Thermoplastic Elastomer (TPU/TPE/TPV)	1.179	9.43%	Virgin non-renewable
PU Foam	0.130	1.04%	Virgin non-renewable
Polyoxymethy-lene (POM)	0.121	0.97%	Virgin non-renewable
Other	0.054	0.43%	Virgin non-renewable
Total	12.500	100%	

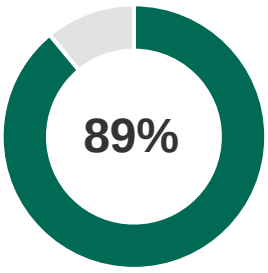
Product packaging composition

Material	Weight (kg)	Weight (%)	Resource Type
Cardboard	3.703	90.60%	Renewable
Paper	0.294	7.19%	Non-renewable
Polyethylene (PE)	0.045	1.10%	Non-renewable
PP	0.04	0.98%	Non-renewable
HDPE	0.0041	0.10%	Non-renewable
Total	4.087	100%	

Product recycled content* and recyclability** summary



TOTAL RECYCLED CONTENT*



RECYCLABILITY BY WEIGHT**

*Total recycled content based on supplier's data. The source of recycled content of various materials could be either post-industrial or post-consumer based on market availability. Excluding packaging.

**Recyclability: this recyclability rate is the maximum amount of the product that is recyclable, based on the availability of recycling facilities in the specified regions and the ability of the product to be disassembled. Note that, per the requirements of the PCR, the end-of-life results presented in this EPD were calculated using the US EPA's recycling rates within the 2020 Municipal Solid Waste Report for parts that can be disassembled. Excluding packaging.

RESULTS

Results for one Karman task chair with hard casters, 4D arms, intermix fabric back, plastic base on the subsequent pages.

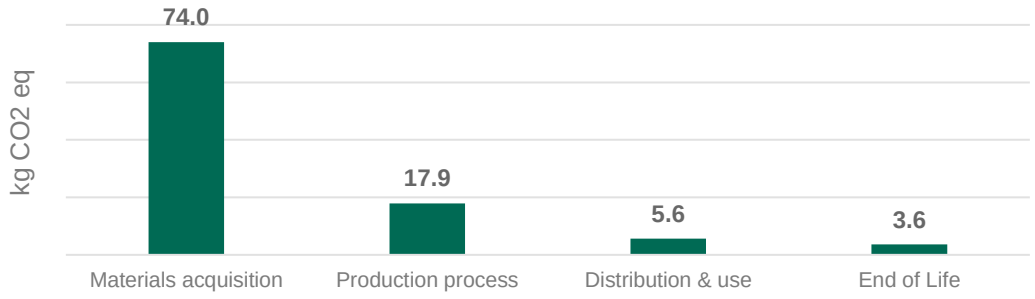
Life cycle impact by category and stage

Environmental impacts were calculated using the GaBi software platform. Impact results according to the BIFMA PCR have been calculated using TRACI 2.1 characterization factors, as well as LCI indicators for primary energy and water usage. Results presented in this report are for one seat maintained for one individual for 10 years. Additionally, the results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

		Life cycle stages				
	Unit	**Materials acquisition**	**Production process**	**Distribution & Use**	**End of life**	***Totals***
***Global warming potential** excluding biogenic carbon (100 years) Warming of the atmosphere caused by the global release of greenhouse gases.	kg CO2 eq	7.40E+01	1.79E+01	5.59E+00	3.62E+00	**1.01E+02**
***Acidification** Emissions that increase the acidity of the environment due to various chemical reactions and/or biological activity, or by natural circumstances.	kg SO2 eq	2.27E-01	5.01E-02	3.62E-02	6.59E-03	**3.20E-01**
***Photochemical ozone creation (Smog)** Through various chemical reactions, which occur between nitrogen oxides (NOx) and volatile organic compounds (VOCs) in sunlight.	kg O3 eq	3.21E+00	6.51E-01	7.41E-01	1.83E-01	**4.78E+00**
***Eutrophication** Enrichment of an aquatic ecosystem with nutrients (nitrates, phosphates) that accelerate biological productivity and an undesirable accumulation of algal biomass.	kg N eq	1.50E-02	8.71E-03	2.72E-03	1.53E-03	**2.80E-02**
***Ozone depletion** Reduction of the stratospheric ozone layer due to anthropogenic emissions of ozone depleting substances.	kg CFC-11 eq	1.37E-08	4.41E+02	1.65E-14	6.26E-13	**4.41E+02**
Primary energy demand Energy consumption at the source.	MJ	1.47E+03	4.99E-11	7.48E+01	9.94E+00	**1.56E+03**
Net freshwater usage Freshwater used and otherwise not recoverable.	kg	1.08E+03	1.20E+02	1.10E+01	1.03E+01	**1.23E+03**

*Methods: TRACI 2.1

Global warming potential summary



101 kg total CO_2-eq footprint

STOOL RESULTS

The product and packaging composition, recycled content, and recyclability visuals below relate specifically to the 419B000 stool configuration consisting of the stool with hard casters, 4D arms, upholstered seat, Intermix fabric and an aluminum base.

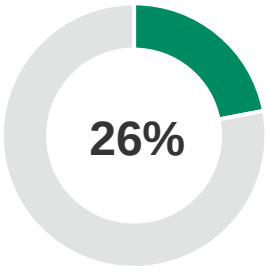
Product composition

Material	Weight (kg)	Weight (%)	Resource Type
Nylon (PA6 and PA66)	6.220	36.00%	Virgin non-renewable
Aluminum	5.124	29.34%	Recycled, Virgin non-renewable
Steel	3.447	19.74%	Recycled, Virgin non-renewable
Polypropylene (PP)	1.022	5.85%	Virgin non-renewable
Thermoplastic Polyurethane/ Thermoplastic Elastomer (TPU/TPE)	0.726	4.16%	Virgin non-renewable
Polyoxymethy-lene (POM)	0.665	3.81%	Virgin non-renewable
Other	0.258	1.10%	Virgin non-renewable
Total	17.467	100%	

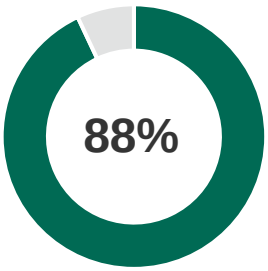
Product packaging composition

Material	Weight (kg)	Weight (%)	Resource Type
Cardboard	3.703	90.61%	Renewable
Paper	0.294	7.21%%	Renewable
Polyethylene Foam	0.045	1.11%	Non-renewable
PP	0.040	0.98%	Non-renewable
HDPE	0.004	0.10%	Non-renewable
Total	4.087	100%	

Product recycled content* and recyclability** summary



TOTAL RECYCLED CONTENT*



RECYCLABILITY BY WEIGHT**

*Total recycled content based on supplier's data. The source of recycled content of various materials could be either post-industrial or post-consumer based on market availability. Excluding packaging.

**Recyclability: this recyclability rate is the maximum amount of the product that is recyclable, based on the availability of recycling facilities in the specified regions and the ability of the product to be disassembled. Note that, per the requirements of the PCR, the end-of-life results presented in this EPD were calculated using the US EPA's recycling rates within the 2020 Municipal Solid Waste Report for parts that can be disassembled. Excluding packaging.

RESULTS

Results for one Karman stool with hard casters, 4D arms, and a powder-finished aluminum base is shown on the subsequent pages.

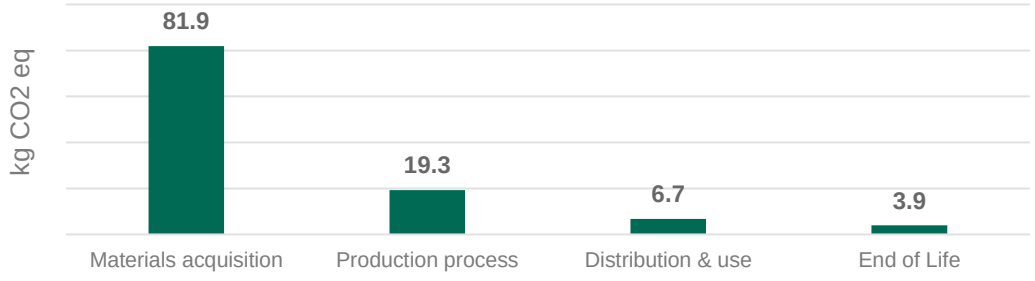
Life cycle impact by category and stage

Environmental impacts were calculated using the GaBi software platform. Impact results according to the BIFMA PCR have been calculated using TRACI 2.1 characterization factors, as well as LCI indicators for primary energy and water usage. Results presented in this report are for one seat maintained for one individual for 10 years. Additionally, the results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

		Life cycle stages				
	Unit	**Materials acquisition**	**Production process**	**Distribution & Use**	**End of life**	*Totals*
***Global warming potential** excluding biogenic carbon (100 years) Warming of the atmosphere caused by the global release of greenhouse gases.	kg CO2 eq	8.19E+01	1.93E+01	6.67E+00	3.93E+00	**1.12E+02**
***Acidification** Emissions that increase the acidity of the environment due to various chemical reactions and/or biological activity, or by natural circumstances.	kg SO2 eq	2.83E-01	0.051598303	0.043456379	8.53E-03	**3.87E-01**
***Photochemical ozone creation (Smog)** Through various chemical reactions, which occur between nitrogen oxides (NOx) and volatile organic compounds (VOCs) in sunlight.	kg O3 eq	3.91E+00	6.76E-01	8.98E-01	1.79E-01	**5.66E+00**
***Eutrophication** Enrichment of an aquatic ecosystem with nutrients (nitrates, phosphates) that accelerate biological productivity and an undesirable accumulation of algal biomass.	kg N eq	1.47E-02	0.0087988	0.00323128	1.41E-03	**2.81E-02**
***Ozone depletion** Reduction of the stratospheric ozone layer due to anthropogenic emissions of ozone depleting substances.	kg CFC-11 eq	1.32E-08	1.01E-10	1.96E-14	3.38E-12	**1.33E-08**
Primary energy demand Energy consumption at the source.	MJ	1.50E+03	4.47E+02	8.46E+01	1.64E+01	**2.05E+03**
Net freshwater usage Freshwater used and otherwise not recoverable.	kg	1.71E+03	1.26E+02	1.21E+01	1.41E+01	**1.86E+03**

*Methods: TRACI 2.1

Global warming potential summary



112 kg total CO_2-eq footprint

ADDITIONAL ENVIRONMENTAL INFORMATION

Indoor air: Steelcase seating products are certified with SCS's Indoor Advantage Gold™ program, conforming to the ANSI/BIFMA Furniture Emissions Standard (M7.1/X7.1-2011 R2021) and CDPH/EHLB Standard Method (CA 01350) v1.2-2017 for seating. The certification can be found here.

REFERENCES

Life Cycle Assessment, LCA Report for Steelcase. WAP Sustainability Consulting. August 2023.

NSF Certification Policies for Environmental Product Declarations (EPD). November 1, 2022.

BIFMA PCR for Seating UNCPC 3811 (2020)

ISO 14025:2006 Environmental Labels and Declarations – Type III Environmental Declarations – Principles and Procedures.

ISO 14040:2006 Environmental Management – Life Cycle Assessment – Principles and Framework, Requirements and Guidelines.

ISO 14044:2006 Environmental Management – Life cycle assessment – Requirements and Guidelines.

ISO 14044: 2006/ Amd 1:2017 Environmental Management – Life cycle assessment – Requirements and Guidelines – Amendment 1.

Product Category Rule for Environmental Product Declarations, BIFMA PCR for Seating: UNCPC 3811 (ext. 2020-111)

Contact
For further questions, please contact:
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