

Expiry date: 07. Aug - 2027

Pioneer family: 6830_Pioneer Stool, Oak lacquer.

by Fredericia Furniture

Total estimated
climate emission:

22.9
kg CO₂eq



VERIFIED
BY MÅLBAR

This LCA screening follows the Product Environmental Footprint (PEF) method developed by the European Commission. Please see the DISCLAIMER in this report for clarification on its relation to other environmental accounting methods and guidance documents. The results are not intended for comparison with assessments based on non-PEF methodologies. This report is suitable for B2B communication and company reporting (GHG, CSRD). It is not a 3rd party verified report.

Disclaimer

Purpose

Quantify the climate impact of the screened product using the Product Environmental Footprint (PEF) methodology for corporate reporting purposes. The results may also support business-to-business (B2B) communication. The assessment covers the product's full life cycle from raw material extraction to End-of-Life. Results are not comparable with studies based on non-PEF methodologies.

This report presents only the total and disaggregated results related to climate impact.

Standard for calculation

This verification report is calculated according to EU's rules for Product Environmental Footprint (PEF). When data was not available from Fredericia Furniture, average values have been applied. All phases of the product lifecycle are included in the calculation. For two phases after factory-gate; Use Phase and Disposal average values are applied, built from the PEF rules. The data sources behind these calculations are EF 3.1 PEF and Ecoinvent 3.11 data as well as PEF compliant LCA data. (read more here: maalbar.dk/transparency)

Relationship to other methods and standards

Each requirement specified in the PEF method is developed taking into consideration the recommendations of recognised product environmental accounting methods and guidance documents. Specifically, the methodological guides considered are:

A. EN ISO 14040:2006	E. EN ISO 14020:2001	J. ISO 17024:2012	N. Greenhouse Gas Protocol
B. EN ISO 14044:2006	F. EN ISO 14021:2016	K. PEF Guide	O. BP X30-323-0:2015
C. EN ISO 14067:2018	G. EN ISO 14025:2010	L. ILCD	P. PAS 2050:2011
D. ISO 14046:2014	H. ISO 14050:2020	M. Ecological Footprint Standard	Q. ENVIFOOD Protocol
	I. CEN ISO/TS 14071:2016		R. FAO:2016

Method of data application

This report has been generated by using MÅLBAR LCA with Fredericia Furniture first performing a self-assessment followed by the verification process conducted by MÅLBAR (Verified by MÅLBAR) (Read more here: maalbar.dk/verification). This is not a 3rd party verification.

Responsibility of data

It is the sole responsibility of Fredericia Furniture concerning all user-input data (including: material weights, packaging weight and dimensions, origins of production, origins of material, transport information and warehouse and retail information). With the verification of this report, MÅLBAR has controlled these data towards the normal field of data for this product type and questioned Fredericia Furniture for outliers before completing this report.

The results in this report, is not intended for communication towards the private consumer (B2C) but only for professional customers (B2B).

LCA Information

Declared unit

Declared Unit: Stool

Including packaging materials

Reference Service Life (time): 15 years

Total weight: 5.5 kg

Method

Product Environmental Footprint (PEF) by the EU Commission Attributional approach

Databases

EF 3.1 and Ecoinvent 3.11

Data acquisition

Data provided by: Fredericia Furniture

Process data specific to this product is calculated using secondary data from databases. Non-provided data is estimated on an average basis.

System boundaries

Cradle to Grave, including all life cycle stages.

Time representativeness/frame

Data collection: 2026

Date of report issue: 07. Aug - 2026

Date of report expiry: 07. Aug - 2027

Geographical representativeness

Distribution and End-of-Life scenarios are based on the countries in which the product is sold, considering the country share reported by the owner of declaration.

Average data was used when country-specific data were not available.

Technological representativeness

Average data representing an average level of manufacturing processes within the selected geographical regions in the time frame of the product verification have been considered.

When a process has not a specific match a proxy was chosen to represent the activity.

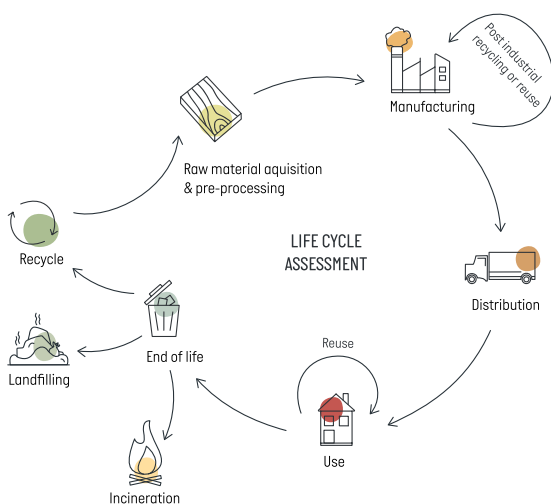


Figure 1 Break down of life cycle stages in this LCA and their chronological relation to each other

Data qualification

This LCA-screening is based on user-input data from Fredericia Furniture, along with average data in conformity with PEF. Where no user-input has been applied, average assumptions have been used following PEF guidance.

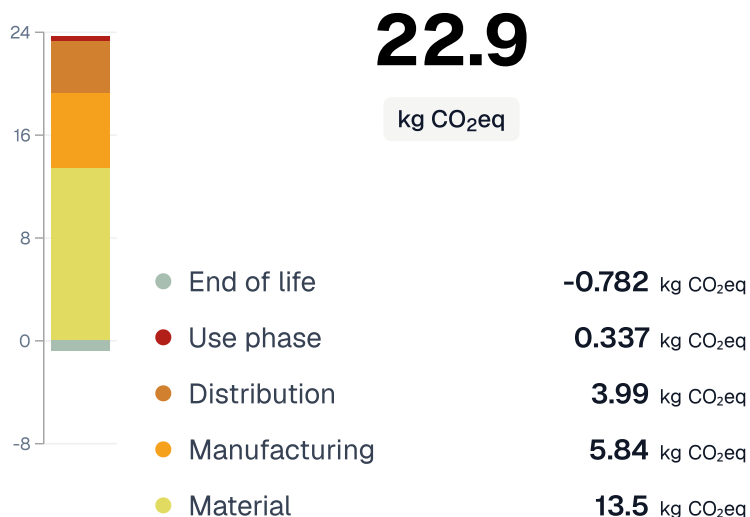
Assumptions may include

- Origin of materials
- Origin of component production
- Additional material information
- Production waste amounts
- Transportation types and distances
- Waste handling of the product at End-of-Life

Any recycled or certified sustainable schemes affecting the result in each material will only be included when sufficient documentation has been provided during the verification process at MÅLBAR.

Life cycle impact assessment

This LCA-screening (cradle-to-grave) includes the total climate impact (kg CO₂eq) for the full life cycle of the declared unit. All life-cycle stages have been declared, and their contributions are presented in the graph.



What is included in each life cycles stage:

● **Material**

This stage is the sum of all happening before final manufacturing. This included raw material acquisition, preprocessing activities, associated waste generated and handling of these, and material transportation based on where the activity is located. If the product is built using components, component distribution will be included in this life cycle stage. Packaging used in the product will be included in this life cycle stage along with pallet usage.

● **Manufacturing**

This stage includes manufacturing activity of the final product and packaging and the associated manufacturing waste of both. The waste generated in this stage is disposed of at the chosen supplier location, following the material type dictated by PEF in Annex C.

● **Distribution**

Based on the selected country share, distribution of the final product is calculated here. This includes PEF default scenarios for the product to reach the final consumer based on sales channels defined by Fredericia Furniture. If there are distribution losses, those rates are included here, based on the specific product.

● **Use phase**

If there is an energy consumption in the product, this is calculated here. It follows the country share of the product. If there is a reclaim rate connected to the specific product, it is added here.

● **End of life**

The disposal of final product and final packaging. Depending on the country share*, a specific country is sending the materials to incineration, landfilling and recycling following the allocation for that country by PEF in Annex C**. The recycling ratio is dictated by the product type.

** (Country share) relates to the sales mix of the product. It includes distribution from the final supplier to the end consumer*

*** (Annex C) Refers to end of life data developed by the European Commission to handle both specific material- and country data*

Emissions breakdown

The table below presents the input materials and packaging included in the product, along with their respective mass contributions to the total mass of the product and packaging (content declaration), and their estimated contributions to the product's total climate emissions.

The table also includes the emissions associated with downstream transport and logistics (distribution), as well as the product's use phase and End of life.

Material	Input	kg	Material	Manufacturing	Total	Contribution
High resilience polyurethane block foam Pioneer_seat_foam		0.52	2.38	0.33	2.71	11.83%
Lacquer/paint water-based (kg) WB lacquer_Pioneer wood frame		0.21	0.76	1.44	2.2	9.63%
MDF board Pioneer_seat_woodshell		0.495	0.45	0.54	0.98	4.3%
Oak Pioneer_Wood frame		1.68	0.29	1.29	1.58	6.88%
Plywood board Pioneer_seat_woodshell		0.515	0.3	0.54	0.85	3.7%
Polyester wadding (PET) Wadding - Master Box inlay		0.013	0.07	0.01	0.08	0.36%
Steel screw/bolt Pioneer_seat_Tee nut		0.001	0	0	0	0.02%
Steel tube/profile Bracket for Pioneer wood frame		0.135	0.41	0.22	0.63	2.75%
Thermoplastic component - pure polymers and ready-made composites Glider		0.004	0.01	0	0.01	0.06%
Polyethylene (PE-LD) granulate		0.004	0.01	0	0.01	0.04%
Wood glue (PVA) water-based Glue Plywood/MDF		0.01	0.03	0.01	0.04	0.18%
Wood glue (PVA) water-based Pioneer_Wood frame		0.02	0.05	0.02	0.08	0.33%
Zipper with puller in metal Zipper		0.1	1.01	0.16	1.16	5.08%
Foamed polyethylene (PE-LD) sheets and tubes Foam for packaging_Pioneer Stool	Packaging	0.05	0.14	0.04	0.18	0.78%
Foamed polyethylene (PE-LD) sheets and tubes cut foams between seats	Packaging	0.02	0.05	0.02	0.07	0.31%
Foamed polyethylene (PE-LD) sheets and tubes ben beskytter	Packaging	0.034	0.09	0.01	0.11	0.47%
Polystyrene foam (EPS) foam inlay	Packaging	0.005	0.01	0	0.02	0.07%
Materials and Manufacturing		5.77	8.23	5.84	14.07	61.49%
Component distribution (inbound)					5.27	23.01%
Distribution					3.99	17.45%
Use phase					0.34	1.47%
End of life					-0.78	-3.41%
TOTAL					22.89	100%

Material	Input	kg	● Material	● Manufacturing	Total	Contribution
Corrugated cardboard box printed Master box Master box_Pioneer Stool		1.5	1.61	0.92	2.53	11.06%
Corrugated cardboard box printed Master box Cardboard for Pioneer seats		0.167	0.19	0.15	0.34	1.51%
Corrugated cardboard box printed Master box Master Box		0.292	0.36	0.14	0.5	2.17%
Materials and Manufacturing		5.77	8.23	5.84	14.07	61.49%
Component distribution (inbound)					5.27	23.01%
Distribution					3.99	17.45%
Use phase					0.34	1.47%
End of life					-0.78	-3.41%
TOTAL					22.89	100%

All emission values are in kg CO₂eq. Mass values (kg) are user-input material mass.



Owner of the declaration:
Fredericia Furniture

Date of report issue: 07. Aug - 2026
Date of report expiry: 07. Aug - 2027