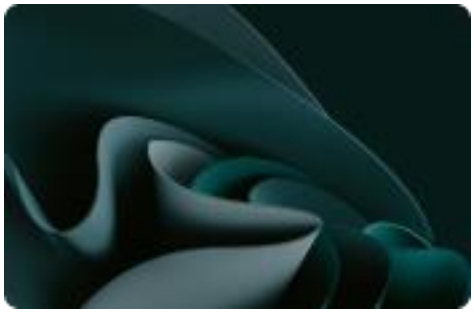
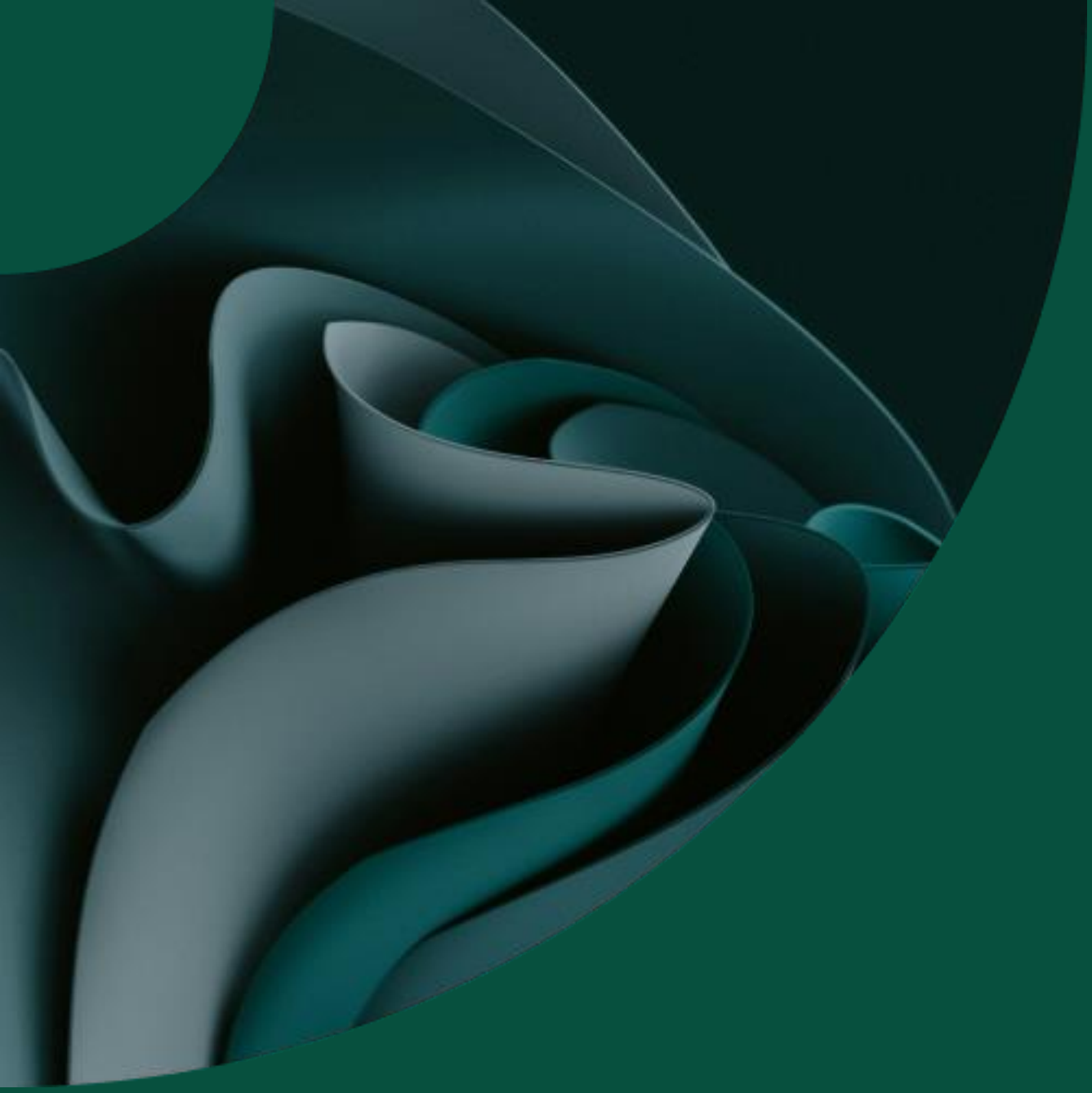
Life Cycle Analyses

HIZIAP1

Summary





01 Methodology

greenly

Environmental Impact Assessment

Functional unit	The functional unit is a quantified performance of a product system for use as a reference unit. One of the primary purposes of a functional unit is to provide a reference to which the input and output data are normalized (in a mathematical sense). Therefore, the functional unit shall be clearly defined and measurable.
Impact Indicator	The impact is measured through the "IPCC 2021 GWP100" method
Electricity impact calculation method	Following guidelines from the GHG Protocol, the impact of electricity is calculated using the location-based approach. This means that the emission factors used represent the average annual carbon intensity of the power grid in the country the processes take place in.
Life Cycle Analyses	Cradle to grave

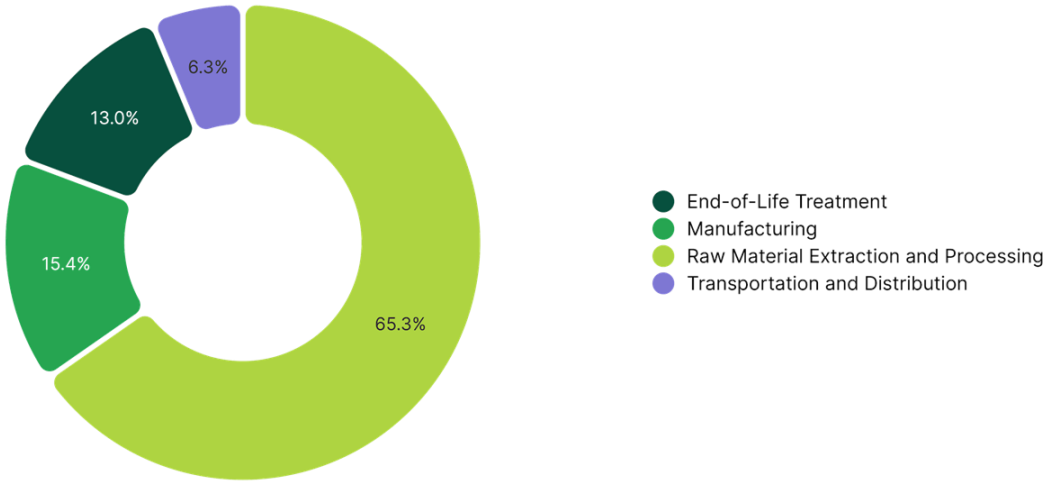
Emission Factor Inventory

Num	Emission Factor	Source	Value	Unit
1	Steel, chromium steel 18/8 | Ordinary transforming activity	ECOINVENT 3.10	4.730394052	kg
2	Polyethylene, linear low density, granulate | Ordinary transforming activity	ECOINVENT 3.10	3.073907294	kg
3	Polyurethane, rigid foam | Ordinary transforming activity	ECOINVENT 3.10	4.602684501	kg
4	Polyester filament | finished | at plant | 100% polyester	BASE EMPREINTE ADEME 3.0	10.0285	kg
5	Hardwood lumber | 1 inch | sustainable forestry | 1kg | RER	BASE EMPREINTE ADEME 3.0	0.531144	kg
6	Electricity | Total (Scope 2 & 3) | People's Republic of China	IEA 2023	0.7231	kWh
7	Freight | Boat | From CN to FR	WELOW EXPERTS 1.0	0.25227278	kg
8	Waste yarn and waste textile | Ordinary transforming activity	ECOINVENT 3.10	0.004657246015	kg
9	Packaging - Wood - Average end of life in the EPR scheme - Impacts	BASE CARBONE ADEME 22.0	0.269	kg
10	Waste reinforcement steel | Ordinary transforming activity	ECOINVENT 3.10	0.062734275595	kg
11	Waste polyethylene/polypropylene product | Ordinary	ECOINVENT 3.10	1.783532575	kg

02 Results

Modular sofa

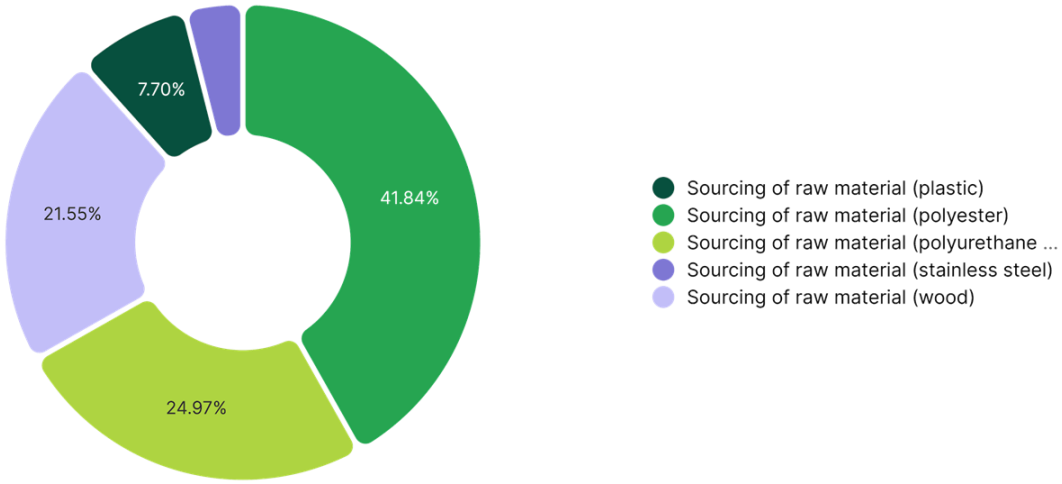
Climate Change



Step	Impact (kg CO_2 eq)	Percentage (%)
Raw Material Extraction and Processing	29	65.33 %
Manufacturing	6.83	15.38 %
End-of-Life Treatment	5.79	13.04 %
Transportation and Distribution	2.78	6.25 %
TOTAL	**44.39**	**100.00 %**

Modular sofa

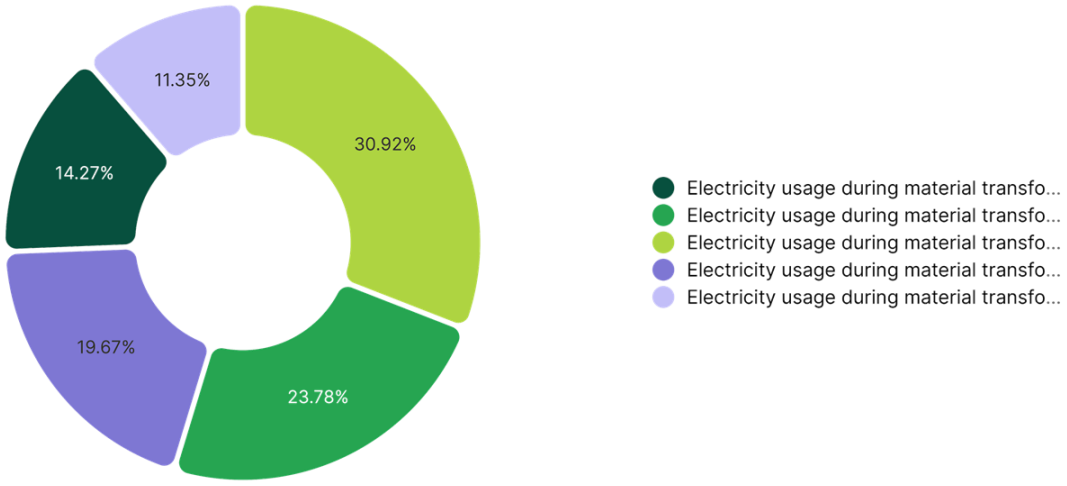
Climate Change - Raw Material Extraction and Processing



Activity	Emission Factor Num	Quantity	Impact (kg CO_2 eq)	Percentage (%)
Sourcing of raw material (polyester)	4	1.21	12.13	41.84 %
Sourcing of raw material (polyurethane foam)	3	1.57	7.24	24.97 %
Sourcing of raw material (wood)	5	11.76	6.25	21.55 %
Sourcing of raw material (plastic)	2	0.73	2.23	7.70 %
Sourcing of raw material (stainless steel)	1	0.24	1.14	3.95 %
TOTAL			29	100.00 %

Modular sofa

Climate Change - Manufacturing



Activity	Emission Factor Num	Quantity	Impact (kg CO_2 eq)	Percentage (%)
Electricity usage during material transformation (polyurethane foam)	6	2.92	2.11	30.92 %
Electricity usage during material transformation (polyester)	6	2.25	1.62	23.78 %
Electricity usage during material transformation (stainless steel)	6	1.86	1.34	19.67 %
Electricity usage during material transformation (plastic)	6	1.35	0.97	14.27 %
Electricity usage during material transformation (wood)	6	1.07	0.78	11.35 %
TOTAL			6.83	100.00 %

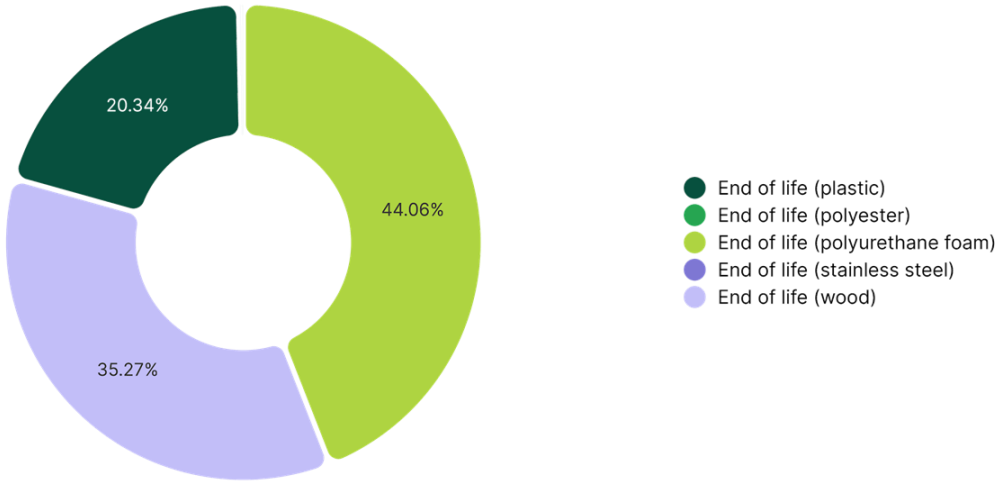
Modular sofa

Climate Change - Transportation and Distribution

Activity	Emission Factor Num	Quantity	Impact (kg CO_2 eq)	Percentage (%)
Freight	7	11	2.78	100.00 %
TOTAL			2.78	100.00 %

Modular sofa

Climate Change - End-of-Life Treatment



Activity	Emission Factor Num	Quantity	Impact (kg CO_2 eq)	Percentage (%)
End of life (polyurethane foam)	11	1.43	2.55	44.06 %
End of life (wood)	9	7.59	2.04	35.27 %
End of life (plastic)	11	0.66	1.18	20.34 %
End of life (stainless steel)	10	0.22	0.01	0.24 %
End of life (polyester)	8	1.1	5.12 · 10^-3	0.09 %
TOTAL			5.79	100.00 %