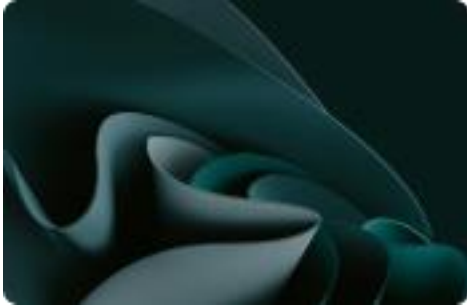


Life Cycle Analyses

ARCHI CH



Summary



01 | Methodology



02 | Results

01

Methodology

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

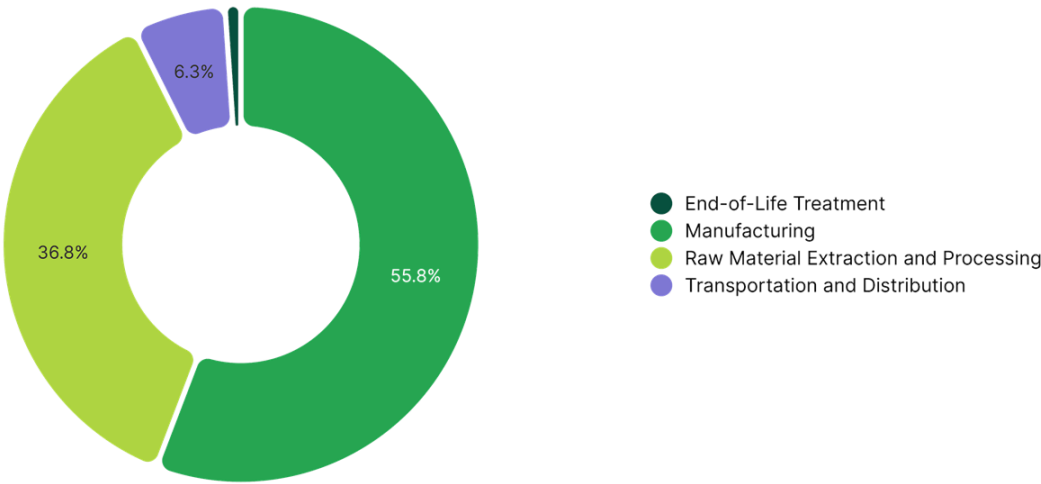
Num	Emission Factor	Source	Value	Unit
1	market for copper, anode	ECOINVENT 3.10	6.2099597 97	kg
2	Natural stone plate, cut Ordinary transforming activity	ECOINVENT 3.10	0.1200093 679	kg
3	Acrylonitrile-butadiene-styrene copolymer Ordinary transforming activity	ECOINVENT 3.10	4.53371834 6	kg
4	market for ceramic tile	ECOINVENT 3.10	0.8243040 65	kg
5	Steel, low-alloyed Ordinary transforming activity	ECOINVENT 3.10	2.20330156 7	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	0.2522727 8	kg
8	market for scrap copper	ECOINVENT 3.10	0.0350776 8	kg
9	Waste Commercial and Industrial Waste: Landfill UK	OTHER 1.0	0.520335	kg
10	market for inert waste	ECOINVENT 3.10	0.0153243 62	kg
11	Residues, MSWI, waste plastic, consumer electronics Ordinary transforming activity	ECOINVENT 3.10	0.3620299 477	kg
12	Waste reinforcement steel Ordinary transforming activity	ECOINVENT 3.10	0.0627342 7595	kg

02

Results

Desk lamp

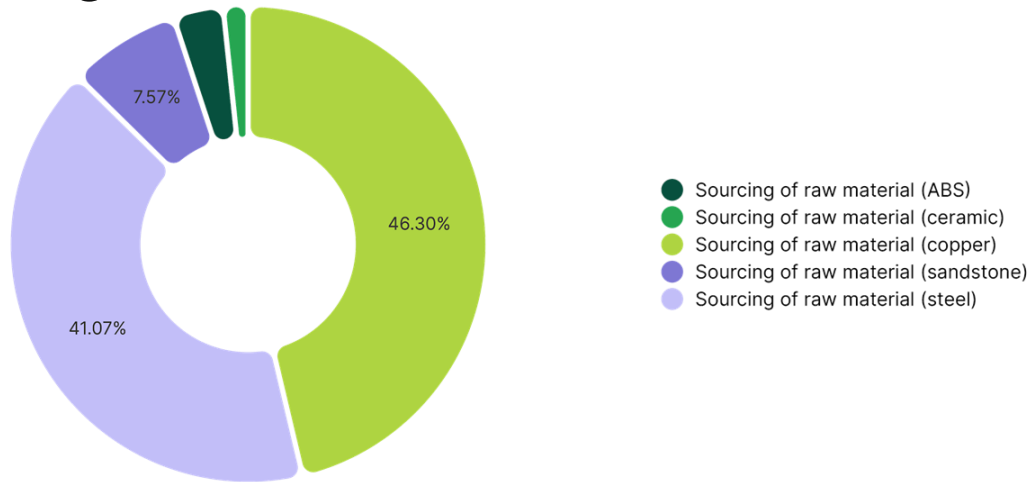
Climate Change



Step	Impact (kg CO ₂ eq)	Percentage (%)
Manufacturing	10.17	55.80 %
Raw Material Extraction and Processing	6.71	36.84 %
Transportation and Distribution	1.15	6.30 %
End-of-Life Treatment	0.19	1.07 %
TOTAL	18,22	100.00 %

Desk lamp

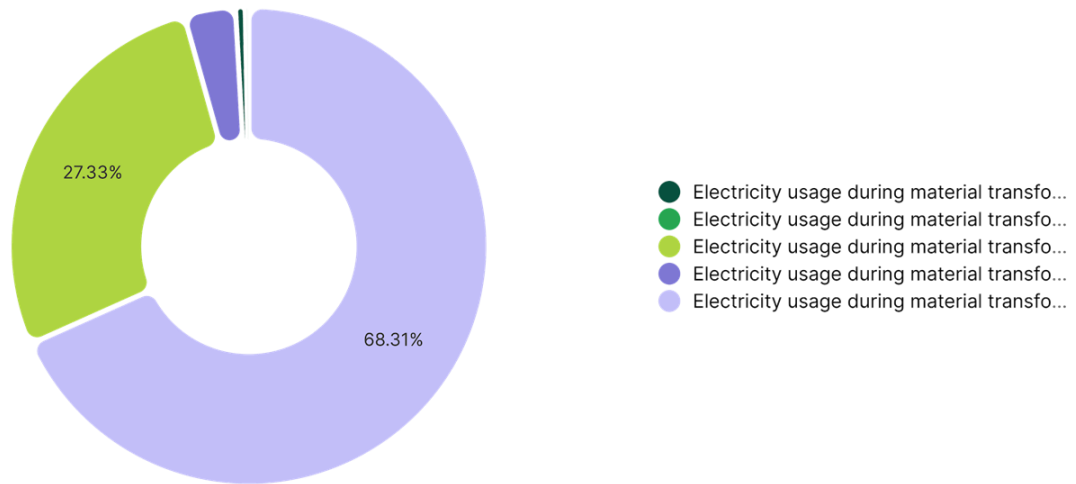
Climate Change - Raw Material Extraction and Processing



Activity	Emission Factor Num	Quantity	Impact (kg CO ₂ eq)	Percentage (%)
Sourcing of raw material (copper)	1	0.5	3.11	46.30 %
Sourcing of raw material (steel)	5	1.25	2.76	41.07 %
Sourcing of raw material (sandstone)	2	4.23	0.51	7.57 %
Sourcing of raw material (ABS)	3	0.05	0.23	3.38 %
Sourcing of raw material (ceramic)	4	0.14	0.11	1.68 %
TOTAL			6.71	100.00 %

Desk lamp

Climate Change - Manufacturing



Activity	Emission Factor Num	Quantity	Impact (kg CO ₂ eq)	Percentage (%)
Electricity usage during material transformation (steel)	6	9.61	6.95	68.31 %
Electricity usage during material transformation (copper)	6	3.84	2.78	27.33 %
Electricity usage during material transformation (sandstone)	6	0.49	0.35	3.46 %
Electricity usage during material transformation (ABS)	6	0.09	0.07	0.66 %
Electricity usage during material transformation (ceramic)	6	0.03	0.02	0.24 %

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TOTAL			10.17	100.00 %
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Desk lamp

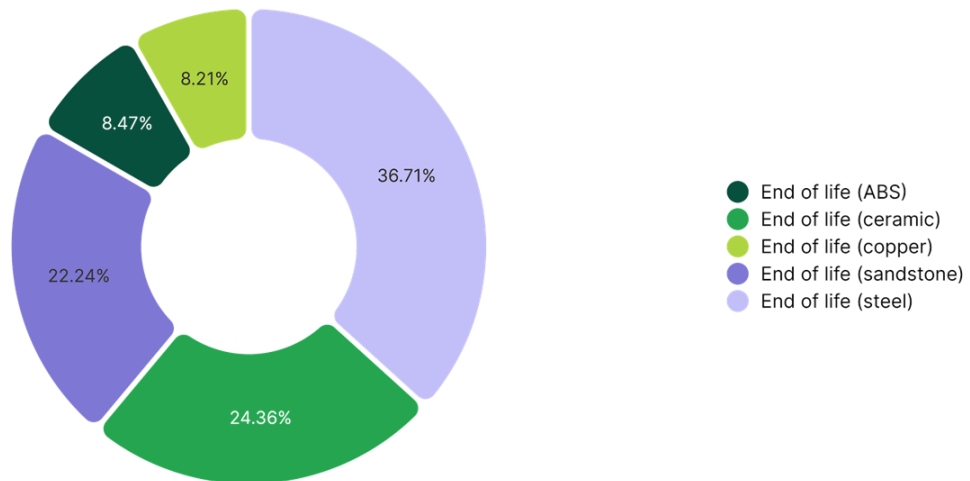
Climate Change - Transportation and Distribution



Activity	Emission Factor Num	Quantity	Impact (kg CO ₂ eq)	Percentage (%)
Freight	7	4.55	1.15	100.00 %
TOTAL			1.15	100.00 %

Desk lamp

Climate Change - End-of-Life Treatment



Activity	Emission Factor Num	Quantity	Impact (g CO ₂ eq)	Percentage (%)
End of life (steel)	12	1.14	71.36	36.71 %
End of life (ceramic)	9	0.09	47.35	24.36 %
End of life (sandstone)	10	2.82	43.23	22.24 %
End of life (ABS)	11	0.05	16.47	8.47 %
End of life (copper)	8	0.46	15.96	8.21 %
TOTAL			194.37	100.00 %

