

Life Cycle Analyses

LEDVIVA N



Summary



01 | Methodology



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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

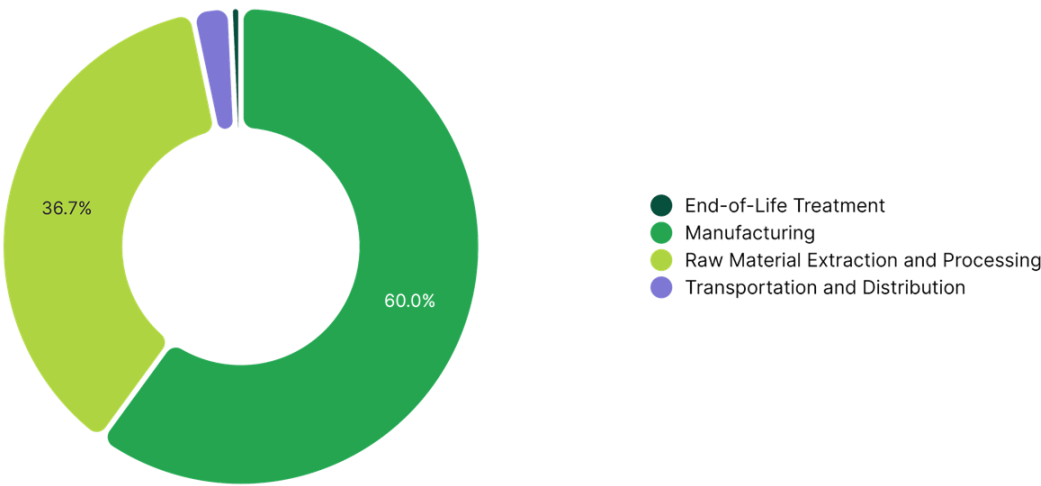
Num	Emission Factor	Source	Value	Unit
1	market for copper, anode	ECOINVENT 3.10	6.2099597 97	kg
2	Steel, low-alloyed Ordinary transforming activity	ECOINVENT 3.10	2.20330156 7	kg
3	Aluminium, primary, ingot Ordinary transforming activity	ECOINVENT 3.10	7.60562318 8	kg
4	Acrylonitrile-butadiene-styrene copolymer Ordinary transforming activity	ECOINVENT 3.10	4.53371834 6	kg
5	Electricity Total (Scope 2 & 3) People's Republic of China	IEA 2023	0.7231	kWh
6	Freight Boat From CN to FR	WELOW EXPERTS 1.0	0.2522727 8	kg
7	Waste reinforcement steel Ordinary transforming activity	ECOINVENT 3.10	0.0627342 7595	kg
8	Residues, MSWI, waste plastic, consumer electronics Ordinary transforming activity	ECOINVENT 3.10	0.3620299 477	kg
9	market for scrap copper	ECOINVENT 3.10	0.0350776 8	kg
10	Waste aluminium Ordinary transforming activity	ECOINVENT 3.10	0.0255540 4932	kg

02

Results

Desk lamp

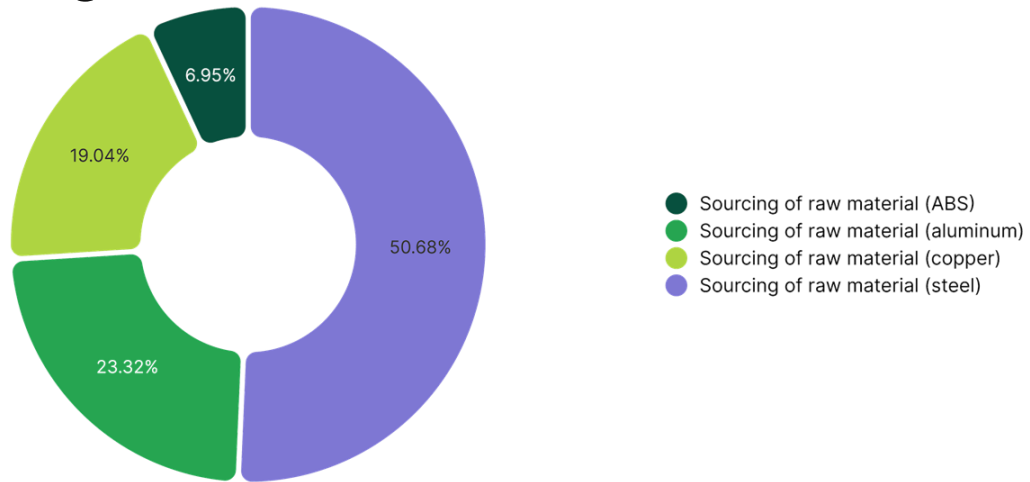
Climate Change



Step	Impact (kg CO ₂ eq)	Percentage (%)
Manufacturing	7.7	60.04 %
Raw Material Extraction and Processing	4.7	36.66 %
Transportation and Distribution	0.33	2.58 %
End-of-Life Treatment	0.09	0.73 %
TOTAL	12,82	100.00 %

Desk lamp

Climate Change - Raw Material Extraction and Processing



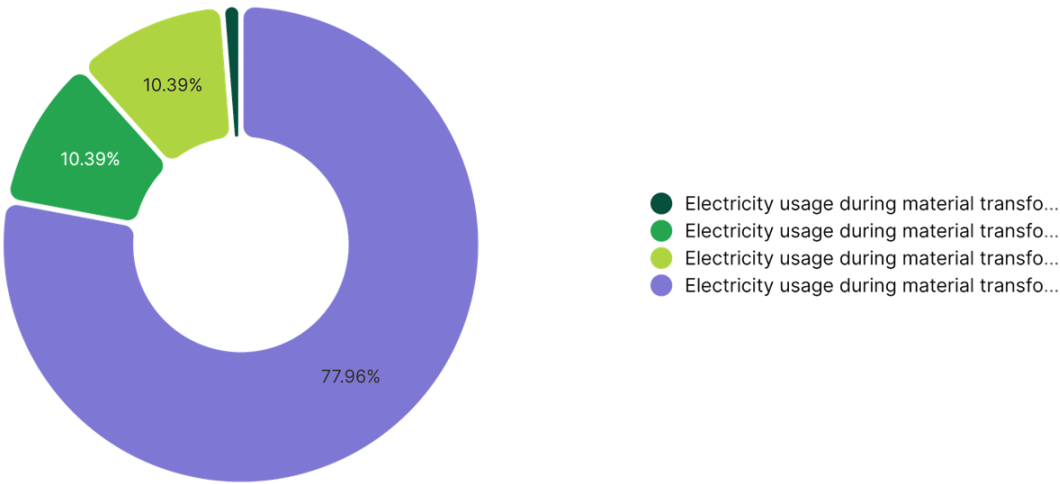
Activity	Emission Factor Num	Quantity	Impact (kg CO ₂ eq)	Percentage (%)
Sourcing of raw material (steel)	2	1.08	2.38	50.68 %
Sourcing of raw material (aluminum)	3	0.14	1.1	23.32 %
Sourcing of raw material (copper)	1	0.14	0.89	19.04 %
Sourcing of raw material (ABS)	4	0.07	0.33	6.95 %

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TOTAL			4.7	100.00 %
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Desk lamp

Climate Change - Manufacturing



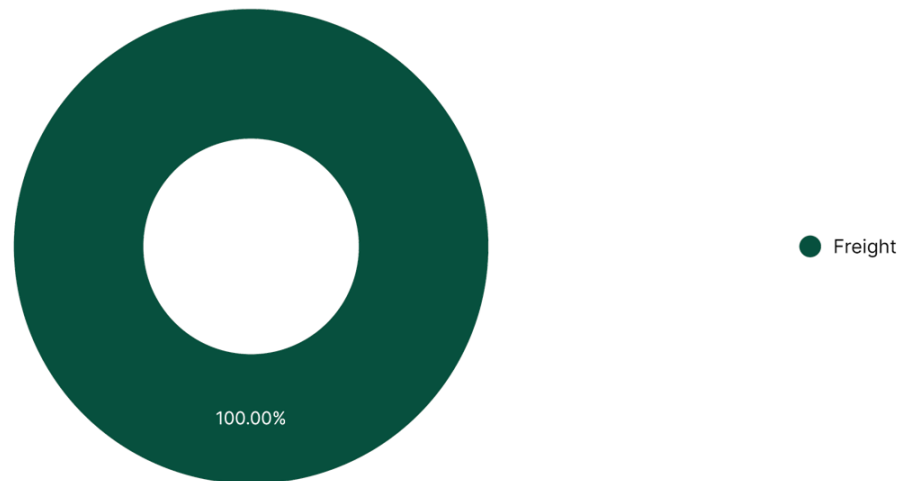
Activity	Emission Factor Num	Quantity	Impact (kg CO ₂ eq)	Percentage (%)
Electricity usage during material transformation (steel)	5	8.3	6	77.96 %
Electricity usage during material transformation (copper)	5	1.11	0.8	10.39 %
Electricity usage during material transformation (aluminum)	5	1.11	0.8	10.39 %
Electricity usage during material transformation (ABS)	5	0.13	0.1	1.26 %

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TOTAL			7.7	100.00 %
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Desk lamp

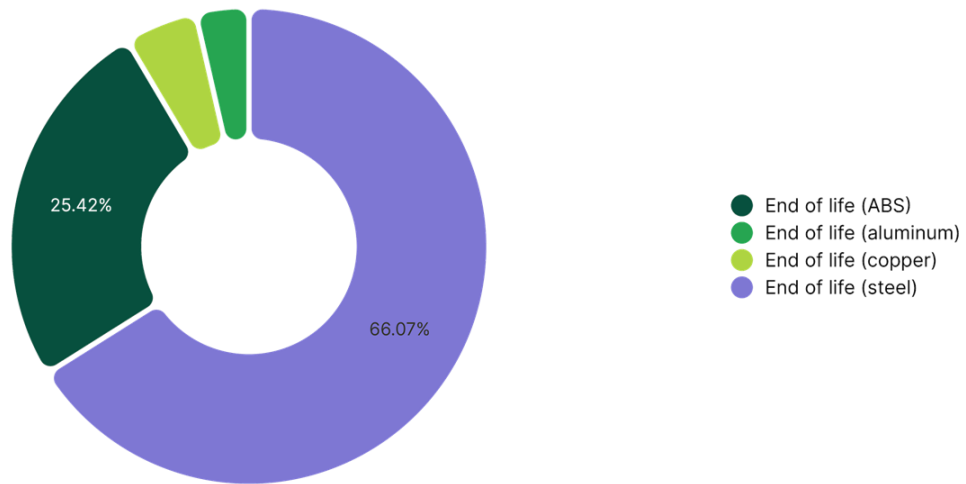
Climate Change - Transportation and Distribution



Activity	Emission Factor Num	Quantity	Impact (g CO ₂ eq)	Percentage (%)
Freight	6	1.31	330.48	100.00 %
TOTAL			330.48	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)	7	0.98	61.64	66.07 %
End of life (ABS)	8	0.07	23.71	25.42 %
End of life (copper)	9	0.13	4.6	4.93 %
End of life (aluminum)	10	0.13	3.35	3.59 %

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TOTAL			93.29	100.00 %
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