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carboncalcpcf.com

Product Carbon Footprint Dashboard

Product: jiyknnuqlp

Standard: GHG Protocol | **Boundary:** Cradle-to-Grave

Total PCF: 12.99 kg CO2e / unit

Total Carbon Footprint

12.99 kg CO2e

For 1.0 unit of jiyknnuqlp

Carbon Intensity

12.99 kg CO2e / unit

Per functional unit produced

Top Material Hotspot

Aluminum Casing

3.50 kg CO2e

Primary Emission Scope

Scope 3

Upstream & Downstream Value Chain

Lifecycle Stage Breakdown

Distribution of CO2e emissions across product lifecycle stages. (Note: EoL is a credit)

Use Phase	**9.05 kg CO2e (51.04%)**
Material Acquisition	**7.58 kg CO2e (42.75%)**
Manufacturing (Electricity)	**0.84 kg CO2e (4.74%)**
Transportation (Factory to DC)	**0.14 kg CO2e (0.78%)**
Last-Mile Delivery	**0.13 kg CO2e (0.70%)**
End-of-Life (Net Credit)	**-4.74 kg CO2e**

Credit

Material Carbon Impact

Contribution of materials to total upstream emissions.

Aluminum Casing	**3.50 kg CO2e (46.17%)**
Circuit Board (PCB)	**1.50 kg CO2e (19.79%)**
Lithium-ion Battery	**1.25 kg CO2e (16.49%)**
Plastic Housing	**0.75 kg CO2e (9.90%)**
Copper Wire	**0.08 kg CO2e (1.05%)**

Key Emission Highlights

Use Phase Dominance: The product's operational use phase accounts for the largest share of emissions (9.05 kg CO2e), emphasizing the need for energy-efficient design.

Material Footprint: Material acquisition, particularly the Aluminum Casing and electronic components, contributes significantly (7.58 kg CO2e) to the upstream impact.

Circularity Benefits: Robust end-of-life recycling and take-back programs provide substantial avoided emissions, creating a net credit of -4.74 kg CO2e.

Recommended Action Plan

1. **Optimize Use Phase Efficiency:** Implement design changes for lower energy consumption and encourage end-users to utilize renewable energy sources.
2. **Sustainable Material Sourcing:** Prioritize lower-carbon materials like recycled content or alternatives, and seek primary emission data from suppliers.
3. **Enhance Circularity:** Strengthen take-back schemes and invest in advanced recycling technologies to maximize material recovery and carbon removal credits.
4. **Supply Chain Engagement:** Collaborate with logistics partners to improve transportation efficiency and explore lower-emission freight options.
5. **Data Granularity:** Continuously improve data collection for Scope 3 emissions, moving towards supplier-specific data for increased accuracy.