Product Carbon Footprint Dashboard

Product: xxgninzirz

Total PCF: **57.66 kg CO2e/unit**

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57.66 kg CO2e/unit

Carbon Intensity

Aluminum Alloy

Top Material Hotspot (4.00 kg CO2e)

Scope 3

Primary Emission Scope (Use Phase)

Lifecycle Stage Breakdown

Materials Acquisition & Pre-processing	6.45 kg CO2e (11.04%)
Manufacturing (Scope 1 & 2)	1.55 kg CO2e (2.65%)
Transport (Upstream & Downstream)	0.41 kg CO2e (0.70%)
Use Phase	50.00 kg CO2e (85.60%)
End-of-Life (Net Benefit)	-0.75 kg CO2e

Material Carbon Impact

Aluminum Alloy	4.00 kg CO2e (62.02%)
ABS Plastic	1.05 kg CO2e (16.28%)
Steel (Stainless)	0.50 kg CO2e (7.75%)
Copper Wiring	0.40 kg CO2e (6.20%)
Electronic Components	0.50 kg CO2e (7.75%)

Key Emission Hotspots & Insights

- The **Use Phase** is the dominant carbon hotspot, accounting for an overwhelming 50.00 kg CO2e, driven by the product's energy consumption over its lifespan.
- **Materials Acquisition & Pre-processing** represents the second-largest impact at 6.45 kg CO2e, with Aluminum Alloy being the single highest contributor among materials.
- **Manufacturing Energy** emissions total 1.55 kg CO2e, highlighting the impact of energy mix despite illustrative renewable energy procurement.
- The End-of-Life phase shows a **net carbon benefit of -0.75 kg CO2e**, indicating effective circularity and avoided emissions from recycling programs.

Action Plan for Reduction

- **Optimize Use Phase Energy Efficiency:** Focus on product design innovations to drastically reduce energy consumption during the 5-year lifespan. Educate consumers on efficient usage.
- **Decarbonize Supply Chain & Materials:** Engage with suppliers to source lower-carbon materials, particularly for aluminum, and explore recycled content options to reduce upstream impacts.
- **Enhance Manufacturing Sustainability:** Further increase renewable energy procurement at the China facility and implement energy efficiency measures to reduce Scope 2 emissions.
- **Improve Data Accuracy:** Prioritize the collection of primary data for BOM, actual energy consumption, transport logistics, and real-world EoL outcomes for a more robust PCF.