

Product Carbon Footprint (PCF) Analysis carboncalcpcf.com

For Product: **fxijtehdu** by **erzjudqwdf**

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

60.96 kg CO₂e

Total Footprint

60.96 kg CO₂e

Carbon Intensity

60.96 kg CO₂e/unit

Top Material Hotspot

Aluminum Alloy (7.40 kg CO₂e)

Primary Emission Scope

Scope 3 (57.97 kg CO2e)

Lifecycle Stage Breakdown

Distribution of emissions across the product's lifecycle stages.

Use Phase	80.38% (50.00 kg CO2e)
Material Acquisition & Pre-processing	14.51% (9.025 kg CO2e)
Manufacturing (Scope 1 & 2)	4.80% (2.985 kg CO2e)
Logistics (Upstream & Downstream)	0.30% (0.1875 kg CO2e)
End-of-Life Treatment (Net Credit)	-1.24 kg CO2e
-1.24 kg CO2e (Avoided Emissions)	

Material Carbon Impact

Key materials contributing to the product's footprint.

Aluminum Alloy	81.99% (7.40 kg CO2e)
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Silicon Wafer	11.08% (1.00 kg CO2e)
Copper Wire	4.54% (0.41 kg CO2e)
Recycled Plastic (PET)	1.99% (0.18 kg CO2e)
Cardboard Packaging	0.39% (0.035 kg CO2e)

Highlights & Emission Hotspots

- The **Use Phase** accounts for the most significant portion of the PCF (approx. 82%), primarily due to the product's energy consumption over its 5-year lifespan.
- **Material Acquisition** is the second largest contributor (14.5%), with primary metals like Aluminum and Silicon driving a substantial impact.
- The company's **End-of-Life programs** demonstrate a positive impact, resulting in a net credit of -1.24 kg CO2e/unit through recycling and reuse initiatives.

Recommendations for Reduction

- 1. Optimize Use Phase Efficiency:** Prioritize R&D to significantly reduce the product's operational energy consumption through more efficient components and smart power management.
- 2. Sustainable Material Sourcing:** Increase the adoption of recycled content, low-carbon materials, and responsibly sourced alternatives for high-impact components, engaging with suppliers for primary emission data.

- 3. Enhance Renewable Energy Adoption:** Further increase the percentage of renewable energy utilized in manufacturing operations, exploring direct procurement or on-site generation in China.
- 4. Strengthen Circular Economy Programs:** Expand take-back and recycling programs to maximize material reuse and high-value recycling, potentially exploring product-as-a-service models.
- 5. Logistics Optimization:** Evaluate and optimize transportation modes and routes for both upstream and downstream logistics, aiming to reduce distances and shift to lower-emission alternatives where feasible.