

carboncalcpcf.com

Product Carbon Footprint Dashboard

Product: | Total Carbon Footprint: **30.44 kgCO₂e**

Functional Unit: 1.0 unit | System Boundary: factory_gate (cradle-to-grave analysis) | Production Country: China

Total Footprint

30.44

kgCO₂e per unit

Carbon Intensity

30.44

kgCO₂e/unit

Top Material Hotspot

Aluminum Casing

7.20 kgCO₂e

Primary Emission Scope

Scope 3

25.64 kgCO₂e

Key Highlights & Emission Hotspots

- **Materials Acquisition & Pre-processing** is the leading emission hotspot, contributing approximately 49.6% (15.09 kgCO₂e) of the total PCF.
- The **Use Phase** accounts for a significant 34.5% (10.50 kgCO₂e) of emissions, highlighting product energy consumption during operation.
- Manufacturing emissions, including Scope 2 and upstream Scope 3, represent about **17.4% (5.28 kgCO₂e)**, even with 60% renewable energy use.
- The **End-of-Life Treatment** stage provides a net credit of -1.25 kgCO₂e due to effective recycling programs.

Recommendations for Carbon Footprint Reduction

1. **Material Decarbonization:** Prioritize sourcing lower-carbon alternatives for high-impact components like aluminum, electronics, and lithium-ion batteries.
2. **Energy Efficiency in Use:** Invest in R&D to improve the energy efficiency of the product during its operational lifespan.
3. **Increase Renewable Energy:** Further transition to 100% renewable energy for manufacturing operations in China.
4. **Optimize Logistics:** Evaluate and optimize transport routes and modes, shifting to lower-carbon options where feasible.
5. **Enhance Circularity:** Continue and expand circular economy initiatives, including the take-back program and design for longevity.
6. **Supplier Engagement:** Implement a robust program to collect primary data from key Scope 3 suppliers for improved accuracy.