Product Carbon Footprint: wroxulfltk

Total PCF: 25.49 kg CO2e

25.49

Total Footprint (kg CO2e)

25.49

Carbon Intensity (kg CO2e / unit)

Use Phase

Primary Carbon Hotspot

Scope 3 Downstream

Primary Emission Scope

Lifecycle Stage Breakdown

Use Phase	15.00 kg CO2e (58.8%)
Raw Material Acquisition & Pre-processing	6.51 kg CO2e (25.5%)
Manufacturing - Energy	5.25 kg CO2e (20.6%)
Logistics	0.26 kg CO2e (1.0%)
End-of-Life Treatment (Net Removal)	-1.53 kg CO2e (-6.0%)

Top Material Carbon Impact

Aluminum Casing	3.75 kg CO2e (57.6%)
Printed Circuit Board (PCB)	1.00 kg CO2e (15.4%)
ABS Plastic Components	0.90 kg CO2e (13.8%)
Copper Wiring	0.40 kg CO2e (6.1%)
Electronic Components (misc)	0.30 kg CO2e (4.6%)
Packaging Cardboard	0.16 kg CO2e (2.5%)

Carbon Hotspots & Insights

Use Phase Dominance: The product's energy consumption during its 5-year lifespan contributes a significant 58.8% to the total PCF, primarily due to the average grid electricity mix in Europe.

Material Impact: Raw material acquisition and pre-processing account for 25.5% of emissions, with aluminum, plastics, and electronics being key contributors.

Manufacturing Efficiency: Despite 50% renewable energy use, manufacturing energy in China still makes up 20.6% of the footprint, indicating room for further green energy adoption or efficiency gains.

Recommendations for Decarbonization

1. **Product Design for Energy Efficiency:** Engineer 'wroxulfltk' for significantly lower energy consumption during its use phase through efficient components or smart energy management.
2. **Sustainable Material Sourcing:** Prioritize materials with lower embodied carbon, such as recycled aluminum, bio-based plastics, or certified low-impact electronic components.
3. **Increase Renewable Energy in Manufacturing:** Further boost the share of renewable energy used at the China production facility through direct procurement or on-site generation.
4. **Optimize Logistics:** Enhance transportation efficiency by optimizing routes, exploring lower-emission modes (e.g., rail/sea freight), and consolidating shipments.
5. **Enhance Circularity:** Expand circular/take-back programs to maximize the product's recyclability, investing in design for disassembly and material recovery.
6. **Engage with Value Chain Partners:** Collaborate with suppliers and downstream partners for precise data collection and joint emission reduction initiatives.