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Product Carbon Footprint for tenyijxomw

Analysis by iugmfmnyln (GHG Protocol, Factory-Gate)

Total PCF
40.92 kg CO2e

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40.92 kg CO2e

Per 1.0 unit (factory_gate)

Carbon Intensity

40.92

kg CO2e / unit

Top Material Hotspot

Aluminum Casing

7.50 kg CO2e

Primary Emission Scope

Scope 3

40.71 kg CO2e

Lifecycle Stage Breakdown

Use Phase	27.80 kg CO2e (67.94%)
Materials Acquisition & Processing	12.71 kg CO2e (31.06%)
Manufacturing (Energy)	0.21 kg CO2e (0.51%)
Transport (Upstream & Downstream)	0.13 kg CO2e (0.32%)
End-of-Life (Disposal)	0.07 kg CO2e (0.16%)

Key Highlights

- Use phase accounts for nearly 68% of the total carbon footprint, making it the largest hotspot.
- Material acquisition and processing contribute significantly, at over 31% of total emissions, with Aluminum Casing being the primary driver.
- High renewable energy usage (75%) substantially mitigates manufacturing emissions, keeping Scope 2 impact low.

Material Carbon Impact (of total material emissions)

Aluminum Casing	7.50 kg CO2e (59.0%)
PCB	2.00 kg CO2e (15.7%)
Lithium-ion Battery	2.00 kg CO2e (15.7%)
Plastic Enclosure	1.05 kg CO2e (8.3%)
Copper Wire	0.16 kg CO2e (1.3%)

How to Reduce Carbon Footprint

- **Enhance Use Phase Efficiency:** Focus on product design for lower energy consumption during its 5-year lifespan.
- **Source Sustainable Materials:** Prioritize recycled content and lower-carbon alternatives for components, especially aluminum.
- **Optimize Logistics:** Collect detailed transport data and explore opportunities for local sourcing or more efficient shipping modes.
- **Quantify Circularity:** Measure and report the avoided emissions from the established product take-back program.