

html

Product Carbon Footprint for **hmesvvlwtx**

Product: EcoWidget Pro

Quantity: 1.0 unit

Standard: GHG Protocol

Production Country: China

Total PCF: **80.83 kgCO₂e**

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Key Carbon Metrics

Total Footprint

80.83 kgCO₂e/unit

Total greenhouse gas emissions for one unit.

Carbon Intensity

80.83 kgCO₂e/unit

Emissions per functional unit (1.0 unit).

Top Material Hotspot

Aluminium Casing

Contributing 3.0 kgCO₂e (50.25% of material impact).

Primary Emission Scope

Scope 3 Downstream

Driven by Use Phase and Downstream Transport.

Emissions Breakdown

Lifecycle Stage Emissions

Use Phase	48.72 kg	
Downstream Transport	20.20 kg	
Raw Material Acquisition	5.97 kg	
Production (Purchased Energy)	5.80 kg	
Upstream Transport	0.16 kg	
Production (Direct)	0.10 kg	
End-of-Life (Net Credit)	-0.125 kg	

Material Carbon Impact

Aluminium Casing	3.0 kg	
Circuit Board (PCB)	0.8 kg	
Lithium-ion Battery	0.75 kg	
Recycled ABS Plastic	0.3 kg	
Packaging (Cardboard)	0.07 kg	
Steel Fasteners	0.05 kg	

Highlights & Hotspot Analysis

- **Use Phase Dominance:** The product's energy consumption over its 7-year lifespan accounts for 60.3% of the total carbon footprint, making it the most significant hotspot.
- **Logistics Impact:** Downstream transportation, particularly last-mile delivery, contributes a substantial 25.0% to the PCF, indicating high emissions in product distribution.
- **Material & Production Energy:** Raw materials (7.4%), led by Aluminium and Lithium-ion, and production energy (7.2%) are also notable contributors, despite 60% renewable energy use in manufacturing.

Action Plan for Decarbonization

- **Enhance Energy Efficiency:** Prioritize energy-efficient design for the product to reduce consumption during its use phase.
- **Optimize Logistics:** Explore lower-emission delivery methods, consolidate shipments, and optimize transport routes to mitigate downstream transportation emissions.
- **Sustainable Material Sourcing:** Increase the use of recycled content, select lower-impact materials, and engage suppliers for product-specific Environmental Product Declarations (EPDs).
- **Boost Renewable Energy:** Further increase renewable energy adoption in manufacturing operations or procure certified green electricity to reduce Scope 2 emissions.
- **Improve Data Collection:** Collect primary data for all significant Scope 3 activities and source country-specific electricity grid emission factors for more precise accounting.