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Product Carbon Footprint for ilujorqgyv

Total PCF: 23.68 kg CO₂e

Total Product Footprint

23.68 kg CO2e

1.0 unit, Cradle-to-grave

Carbon Intensity

23.68 kg CO2e/unit

Production Country: China

Top Material Hotspot

Aluminum Casing

6.0 kg CO2e (61% of material impact)

Primary Emission Scope

Scope 3

87.05% of Total PCF

Carbon Footprint by Lifecycle Stage

Use Phase	11.90 kg CO2e (50.25%)
Materials Acquisition & Processing	9.85 kg CO2e (41.59%)
Manufacturing (Energy & Direct)	3.08 kg CO2e (13.01%)
Transportation (Upstream & Downstream)	0.22 kg CO2e (0.93%)
End-of-Life Treatment (Credit)	-1.26 kg CO2e (-5.32%)

Material Carbon Impact Breakdown

Aluminum Casing	6.0 kg CO2e (60.91%)
Circuit Board	2.5 kg CO2e (25.38%)
Plastic Components	0.7 kg CO2e (7.11%)
Packaging Material	0.45 kg CO2e (4.57%)
Copper Wiring	0.2 kg CO2e (2.03%)

Highlights & Key Insights

- **Use Phase Dominance:** The product's operational lifespan is the single largest contributor to its carbon footprint, accounting for over 50% of total emissions. This emphasizes the critical role of energy-efficient design.
- **Material Hotspots:** Materials acquisition and processing constitute a significant impact (over 41%), with the Aluminum Casing and Circuit Board identified as primary material hotspots.
- **Circular Economy Benefits:** The high recyclability (80%) and established take-back programs at End-of-Life result in a net carbon credit, demonstrating a positive environmental impact from circular initiatives.

Recommended Actions for Reduction

- **Optimize Use Phase Efficiency:** Focus on improving the energy efficiency of ilujorqqyv during its operational lifespan through lower-power components or smart energy-saving features.
- **Enhance Material Sustainability:** Investigate lower-carbon alternative materials and explore opportunities for increased recycled content, particularly for the aluminum casing and circuit board.
- **Strengthen Circular Economy Initiatives:** Continue to promote and expand take-back and recycling programs, exploring design for disassembly to facilitate higher-quality recycling and material recovery.