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# Product Carbon Footprint Report

for **hqwdhlpdlj** by nszrqvfgdm

**Total PCF: 31.748 kg CO2e**

Functional Unit: 1.0 unit | System Boundary: factory\_gate | Production Country: China

Total Footprint

**31.748 kg CO2e**

Carbon Intensity

**28.86 kg CO2e/kg**

Top Emission Hotspot

**Use Phase**

Primary GHG Scope

**Scope 3**

## Lifecycle Stage Breakdown

Materials Acquisition	18.12% (6.08 kg CO2e)
Manufacturing	8.30% (2.785 kg CO2e)
Transportation	2.63% (0.881 kg CO2e)
Use Phase	70.95% (23.8 kg CO2e)

End-of-Life Treatment (Net Credit): -1.798 kg CO2e

## Material Impact Breakdown

Aluminum Casing	0.5 kg	3.75 kg CO2e
Plastic Enclosure	0.3 kg	0.63 kg CO2e
Electronic Components	0.1 kg	1.50 kg CO2e
Packaging	0.2 kg	0.20 kg CO2e

Total Material Weight: 1.1 kg

## Key Insights & Hotspots

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**Use Phase Dominates:** The product's energy consumption over its 5-year lifespan contributes the largest share of emissions (23.8 kg CO<sub>2</sub>e), highlighting a critical area for optimization.

**Material Impact Significant:** Material acquisition, especially Aluminum Casing (3.75 kg CO<sub>2</sub>e) and Electronic Components (1.50 kg CO<sub>2</sub>e), is a substantial upstream hotspot.

**Manufacturing Emissions:** While renewable energy is utilized, the remaining grid electricity for manufacturing in China still contributes significantly (2.785 kg CO<sub>2</sub>e).

# Recommendations for Reduction

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**Optimize Use Phase Energy Efficiency:** Redesign hqwdhlpdlj for lower energy consumption and provide users with guidance for efficient operation.

**Enhance Material Circularity:** Increase recyclability beyond 70% and incorporate higher recycled content. Expand take-back programs.

**Decarbonize Manufacturing:** Further invest in or source 100% renewable energy for production and explore energy-efficient manufacturing technologies.

**Supply Chain Engagement:** Collaborate with upstream suppliers to reduce emissions from material extraction and processing.

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Report Generated: May 27, 2026 | Accounting Standard: GHG Protocol

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