

html

Product Carbon Footprint Dashboard

Product: djswdesivt (Smart Home Device X)
Standard: GHG Protocol | **Boundary:** factory_gate
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35.58 kg CO2e

Total Product Carbon Footprint

Key Sustainability Metrics

35.58 kg CO₂e

Total PCF per Unit

35.58 kg CO₂e/unit

Carbon Intensity

Lithium-ion Battery

Top Material Hotspot (2.50 kg CO₂e)

Scope 3

Primary Emission Scope (97.6%)



Emissions Breakdown

Lifecycle Stage Carbon Impact

Use Phase	28.00 kg CO2e (78.7%)
Materials Acquisition & Pre-processing	5.90 kg CO2e (16.6%)
Manufacturing	0.87 kg CO2e (2.4%)
End-of-Life Treatment	0.60 kg CO2e (1.7%)
Transportation	0.21 kg CO2e (0.6%)

Material Carbon Impact Breakdown

Lithium-ion Battery	2.50 kg CO2e (42.4%)
Aluminum Casing	1.70 kg CO2e (28.8%)
Plastic Enclosure	0.75 kg CO2e (12.7%)
Circuit Board (PCB)	0.75 kg CO2e (12.7%)
Packaging (Cardboard)	0.12 kg CO2e (2.0%)
Copper Wiring	0.08 kg CO2e (1.4%)

Highlights & Insights

Key Findings from the Report

- The **Use Phase** is the most significant carbon hotspot, contributing approximately 78.7% of the total carbon footprint, primarily due to electricity consumption over the product's 7-year lifespan.
- **Scope 3 emissions** dominate the product's footprint, accounting for 97.6% of total emissions, highlighting the critical importance of addressing upstream and downstream value chain impacts.
- The **Lithium-ion Battery** stands out as the single largest material-related carbon contributor, representing 2.50 kg CO2e (42.4% of material emissions) due to its manufacturing process.

Action Plan: How to Reduce Carbon Footprint

Recommendations for Improvement

- ☐ ****Optimize Use Phase Energy Efficiency:**** Focus on incorporating lower-power components, designing energy-saving software features, and encouraging end-users to power their devices with renewable energy.
- ☐ ****Innovate Material Sourcing & Product Design:**** Prioritize reducing the impact of the Lithium-ion battery through exploring alternative, less carbon-intensive chemistries, increasing recycled content, and facilitating easier battery replacement for longevity.
- ☐ ****Strengthen Circular Economy Initiatives:**** Expand and promote the "Active Take-back and Refurbishment Program" to extend product lifespans, maximize material recovery, and reduce the need for new raw materials.
- ☐ ****Enhance Supply Chain Logistics:**** Conduct a deeper analysis of transportation emissions to identify opportunities for optimizing routes, consolidating shipments, and shifting to lower-emission transport modes for both inbound and outbound logistics.