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Product Carbon Footprint for isefiokdiy **17.59 kgCO2e**

Report Date: June 3, 2026

Total Product Footprint (per unit)

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17.59 kgCO₂e

per 1.0 unit

Carbon Intensity

17.59 kgCO₂e/unit

Unit: 1.0 unit

Top Material Hotspot

Aluminum Casing

7.50 kgCO₂e (88.24% of materials)

Primary Emission Scope

Scope 3

Materials & Use Phases

Lifecycle Stage Breakdown

Materials Acquisition & Pre-processing	8.50 kgCO2e (48.32%)
Use Phase	7.50 kgCO2e (42.64%)
Manufacturing (Energy)	1.20 kgCO2e (6.82%)
Downstream Transportation	0.26 kgCO2e (1.48%)
Upstream Transportation	0.12 kgCO2e (0.68%)
End-of-Life Treatment	0.01 kgCO2e (0.06%)

Material Carbon Impact Breakdown

Aluminum Casing	7.50 kgCO2e (88.24%)
Plastic Enclosure	0.60 kgCO2e (7.06%)
Circuit Board	0.20 kgCO2e (2.35%)
Packaging (Cardboard)	0.15 kgCO2e (1.76%)
Small Fasteners	0.05 kgCO2e (0.59%)

Highlights & Key Findings

- Materials acquisition (8.50 kgCO₂e) and the Use Phase (7.50 kgCO₂e) are the primary drivers, accounting for over 90% of the product's total carbon footprint.
- Aluminum Casing is a significant hotspot, contributing 7.50 kgCO₂e which is 88.24% of the total material emissions.
- 60% renewable energy use in manufacturing mitigates Scope 2 emissions, yet the remaining grid electricity still represents a notable impact of 1.20 kgCO₂e.

Action Plan: How to Reduce Emissions

- ****Material Optimization:**** Explore lower-impact alternatives, increase recycled content, and optimize design for materials, especially for the aluminum casing.
- ****Energy Efficiency & Renewables:**** Improve product energy efficiency in the use phase and further increase renewable energy sourcing for manufacturing operations beyond 60%.
- ****Circular Economy Expansion:**** Enhance and expand take-back and recycling programs (mtvehqznyt) to maximize collection, reuse, and recycling rates, further reducing end-of-life impacts.
- ****Supply Chain Collaboration:**** Engage with tier-1 suppliers for direct data collection on energy consumption and transport, fostering collaborative decarbonization initiatives.