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Product Carbon Footprint for uqzxozurqw

Company: rgkgzdqtqm | **Standard:** GHG Protocol | **Boundary:** Cradle-to-grave

Report generated by dhkkhxmvrk (Senior Sustainability Consultant)

41.67

kg CO_2e per unit

Total Footprint

41.67

kg CO_2e

Carbon Intensity

41.67

kg CO_2e / unit

Top Material Hotspot

Aluminium Casing

2.00 kg CO_2e (4.0 kgCO_2e/kg)

Primary Emission Scope

Scope 3

99.14% of total PCF

Emissions Breakdown by Lifecycle Stage

Use Phase	36.50 kg CO_2e (87.6%)
Raw Material Acquisition	5.83 kg CO_2e (14.0%)
Manufacturing (Scope 2)	0.36 kg CO_2e (0.9%)
Transportation (Up/Downstream)	0.37 kg CO_2e (0.9%)
End-of-Life Treatment (Net Credit)	-1.39 kg CO_2e (-3.3%)

Material Carbon Contribution (Top 5)

Aluminium Casing	2.00 kg CO_2e
Circuit Board (PCBA)	1.50 kg CO_2e
Lithium-ion Battery	1.50 kg CO_2e
ABS Plastic Housing	0.70 kg CO_2e
Copper Wire	0.13 kg CO_2e

Key Carbon Footprint Highlights

The **Use Phase** is the overwhelmingly dominant emission hotspot, contributing 87.6% of the total product carbon footprint, largely due to energy consumption over the product's 5-year lifespan.

Scope 3 emissions (value chain) account for 99.14% of the PCF, highlighting the critical importance of upstream and downstream engagement for effective decarbonization strategies.

End-of-Life treatment results in a significant net carbon credit (-1.39 kg CO_2e) due to high recyclability (70%) and established circular/take-back programs, demonstrating the positive impact of circular economy initiatives.

Recommendations for Decarbonization

Focus on Use Phase Efficiency:

- Prioritize research and development into reducing the product's energy consumption during its operational lifespan (e.g., more efficient components, low-power modes, smart energy management).
- Investigate the feasibility of incorporating lower-carbon energy sources for product use, if applicable (e.g., bundled green energy solutions for consumers, promoting energy-efficient consumer behavior).

Optimize Material Selection:

- Continue efforts to source materials with lower embodied carbon, even if the current BOM data provides pre-calculated values. Engage with suppliers to understand and reduce their own carbon footprints.
- Explore lightweighting opportunities without compromising product durability or functionality.

Enhance Circularity:

- Leverage the existing 70% recyclability and circular/take-back programs. Continuously improve material recovery rates and investigate higher-value recycling streams.

- Explore opportunities for extending product lifespan through modular design, repairability, and upgradability, further reducing the need for new production.

Supply Chain Engagement:

- Collaborate with upstream suppliers, particularly those in Europe, to encourage their decarbonization efforts, including renewable energy adoption and more efficient logistics.
- Optimize transportation routes and modes for both upstream and downstream logistics to minimize fuel consumption and emissions.