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carboncalcpcf.com

Product Carbon Footprint for

Detailed analysis for generated on .

kg CO₂e

Net Product Carbon Footprint per functional unit (1.0 unit)

Total Footprint

kg CO₂e

Net GHG emissions across the product's full lifecycle.

Carbon Intensity

kg CO₂e/kg

Emissions relative to total product mass (from BOM).

Top Material Hotspot

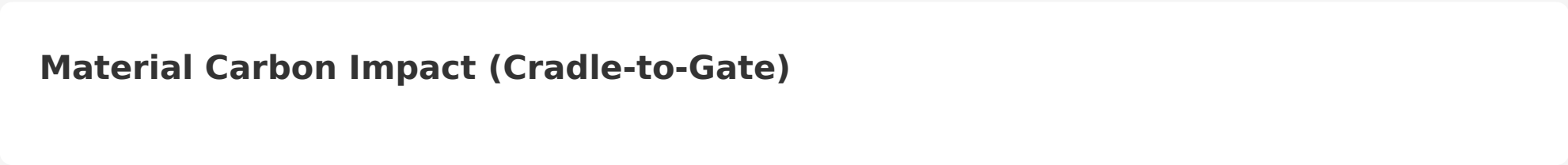
Component with the highest cradle-to-gate carbon impact.

Primary Emission Scope

Scope 3: Use Phase (kg CO₂e)

Largest contributing phase to the total footprint (before EoL credits).

Emissions Breakdown



Key Insights

- The **Use Phase** is the dominant contributor to the product's overall carbon footprint, accounting for approximately % of gross emissions. This highlights operational energy consumption as a key area for improvement.
- Raw Material Acquisition**, particularly for the Aluminum Casing and Lithium-ion Battery, represents a significant upfront emission hotspot, contributing % of gross emissions.
- Strong **Circular Economy initiatives**, including % recyclability and an , provide substantial End-of-Life credits, mitigating the overall net carbon footprint by kg CO2e.

Action Plan: How to Reduce Impact

- **Enhance Energy Efficiency for Use Phase:** Focus on engineering solutions to reduce the product's annual energy consumption during its -year lifespan. This will directly address the largest emission hotspot.
- **Optimize Material Sourcing & Design:** Explore alternative, lower-carbon materials for the aluminum casing and battery components, or increase the recycled content percentage in the Bill of Materials to reduce upstream impacts.
- **Strengthen Circularity & End-of-Life Programs:** Expand take-back programs and improve recycling infrastructure to maximize material recovery and further increase End-of-Life credits, leading to a lower net PCF.