carboncalcpcf.com

Carbon Footprint Analysis: SmartWidget Pro

Product: nfjxreoqdm | Company: ugjyfluwqj

TOTAL PCF **9.510** kgCO2e per unit

Total Footprint

9.510 kgCO2e

Carbon Intensity

31.7 kgCO2e/kg

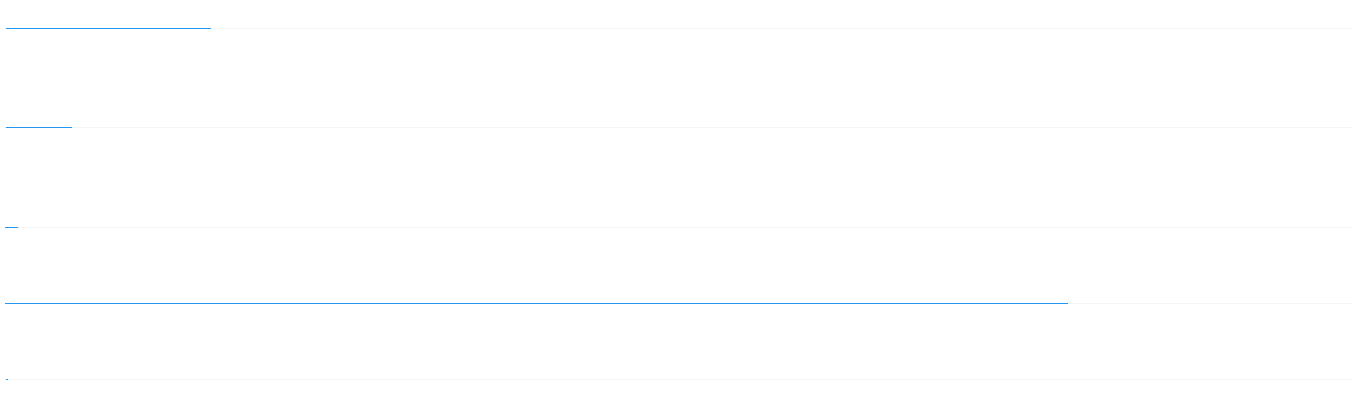
Top Material Hotspot

Aluminium Casing

Primary Emission Scope

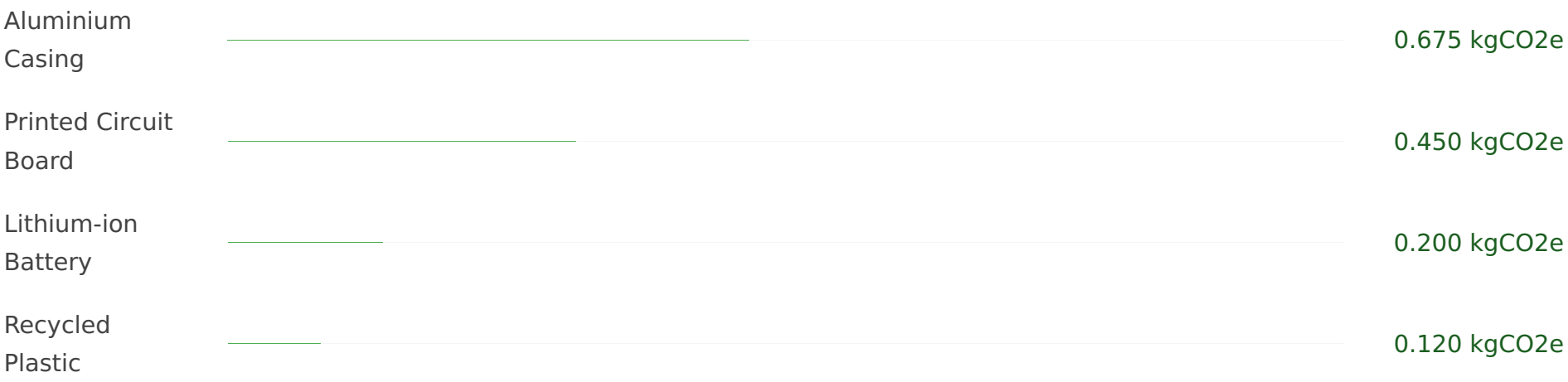
Scope 3

Lifecycle Stage Breakdown



Materials	1.445 kgCO2e
Production Energy	0.465 kgCO2e
Logistics	0.088 kgCO2e
Use Phase	7.500 kgCO2e
End-of-Life	0.013 kgCO2e

Material Carbon Impact



Highlights & Emission Hotspots

- **Use Phase Dominance:** The operational lifespan accounts for approximately 78.9% of total emissions (7.500 kgCO2e), making it the single largest contributor.
- **Material Impact:** Raw material extraction and pre-processing, particularly for Aluminium Casing and Printed Circuit Boards, contribute significantly (~15.2%).
- **Production Decarbonization Opportunity:** While 50% renewable energy is used, the remaining non-renewable portion of production energy (4.9%) is a key area for further emission reduction.

Recommendations for Reduction

Optimize Use Phase Efficiency

Implement product design innovations to drastically reduce energy consumption during the SmartWidget Pro’s operational life.

Decarbonize Production

Increase the percentage of renewable energy used in manufacturing facilities beyond 50% (e.g., through PPAs or on-site generation).

Sustainable Material Sourcing

Explore opportunities for higher recycled content and lower-carbon alternatives for high-impact materials.

Enhance Circularity

Leverage existing take-back programs to maximize actual recycling rates and explore product refurbishment/reuse.