Product Carbon Footprint for zuepyvshyh

Company: xujtvrjeuj | **Standard:** GHG Protocol | **Boundary:** Cradle-to-Grave

11.98 kgCO2e

Total Product Footprint

carboncalcpcf.com

Key Metrics

Carbon Intensity

11.98 kgCO2e/unit

Per 1.0 unit of zuepyvshyh

Primary Emission Hotspot

Use Phase

76.19% of total PCF

Top Material Impact

Microcontroller IC

1.50 kgCO2e for 1 unit

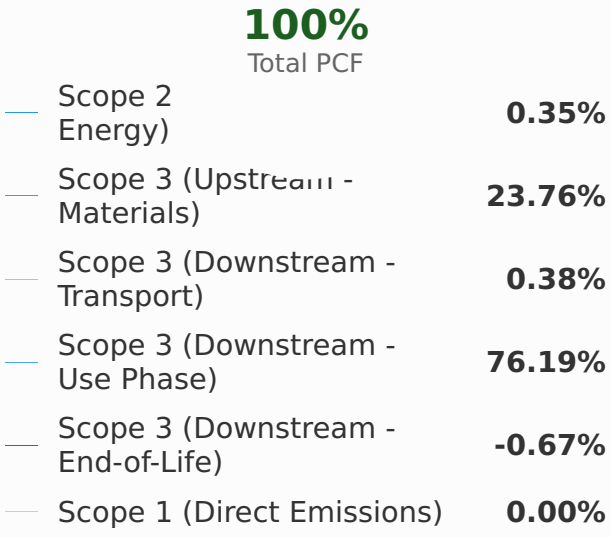
Circular Economy Impact

-0.08 kgCO2e

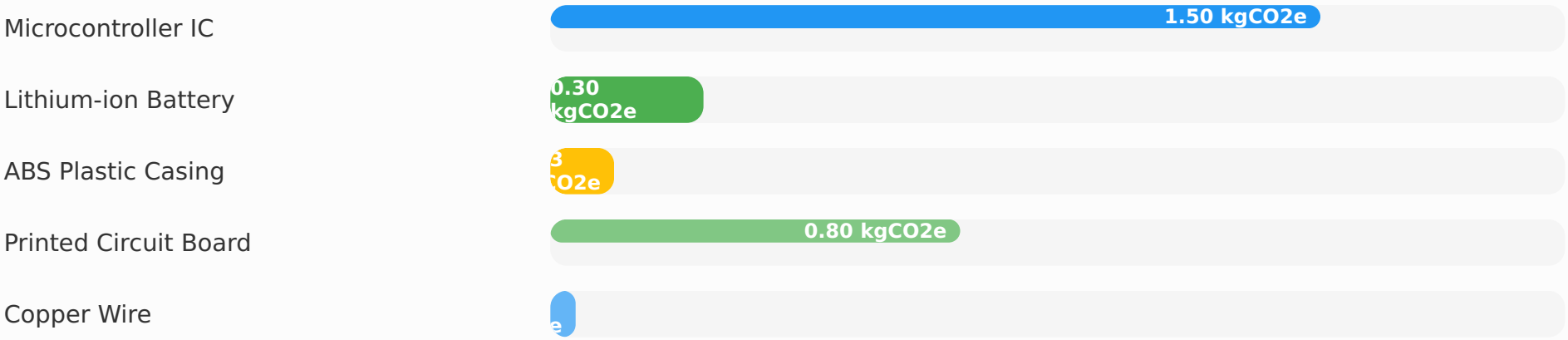
Net reduction from EoL (60% recyclable)

Carbon Footprint Breakdown

Lifecycle Stage Contributions



Top Material Carbon Impact



*Percentages are relative to the total material emissions (2.846 kgCO2e).

Highlights & Key Hotspots

- The **Use Phase** dominates the product's carbon footprint, accounting for **76.19%** of total emissions due to operational energy consumption over its 5-year lifespan. This is the primary area for reduction efforts.
- **Raw Material Acquisition** is the second largest contributor at **23.76%**, with the Microcontroller IC and Lithium-ion Battery identified as significant hotspots. Supply chain engagement and material selection are crucial.
- A strong **End-of-Life** strategy, including 60% recyclability and take-back programs, results in a **net reduction of 0.67%** in the overall PCF, showcasing the positive impact of circular economy principles.
- Production energy (Scope 2) and transportation (Scope 3) emissions are relatively minor, partially due to the 70% renewable energy usage at the production facility and the product's low weight.

Recommendations for Reduction

2. **Optimize Use Phase Energy Efficiency:** Focus on product design innovations to reduce energy consumption during operation. Explore low-power modes, extend battery life, and consider energy harvesting technologies.
4. **Engage Supply Chain for Material Decarbonization:** Collaborate with suppliers of high-impact components (e.g., Microcontroller ICs, Lithium-ion Batteries) to investigate and implement lower-carbon manufacturing processes and alternative, sustainable materials.
6. **Promote Circularity:** Continue to strengthen and expand existing take-back and recycling programs. Explore opportunities for material reuse and refurbishment to further maximize resource value and minimize waste.
8. **Monitor and Refine Data:** Systematically gather more granular primary data across all lifecycle stages, including actual grid mixes for product use and precise transport routes, to continuously improve the accuracy of future PCF analyses.