

html

carboncalcpcf.com

Product Carbon Footprint Dashboard

Product Name	Quantity	System Boundary
Smart IoT Device (iojwrlrykm)	1.0 unit	Cradle-to-Grave

Total Carbon Footprint

15.54 kg CO₂e

Total Footprint

15.54 kg CO₂e

per unit

Carbon Intensity

15.54 kg CO₂e

per unit

Top Material Hotspot

Lithium-ion Battery

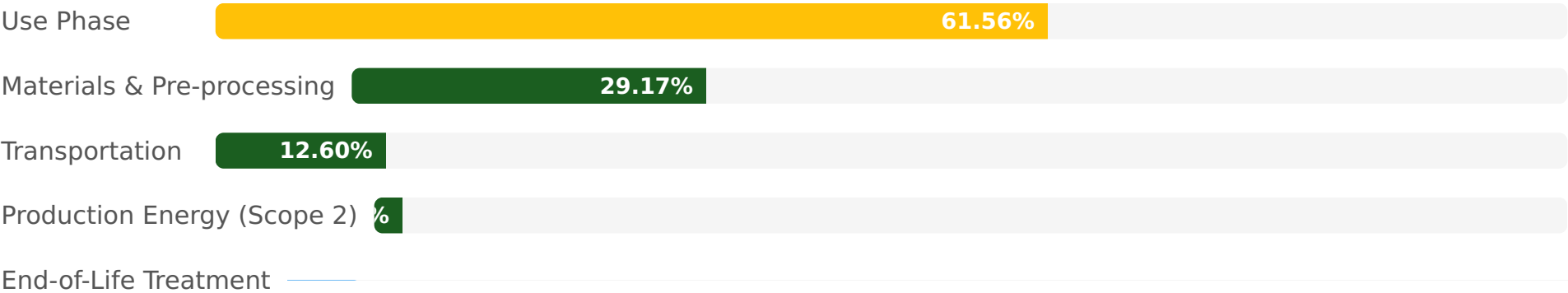
1.25 kg CO₂e

Primary Emission Scope

Scope 3

97.62% of total

Lifecycle Stage Carbon Breakdown



Top Material Carbon Impact

Lithium-ion Battery	1.25 kg CO ₂ e
Printed Circuit Board (PCB)	1.20 kg CO ₂ e
Aluminum Enclosure	1.13 kg CO ₂ e
ABS Plastic Casing	0.66 kg CO ₂ e
Sensor Module	0.20 kg CO ₂ e

Key Insights & Hotspots

- ✓ The dominant hotspot for the Smart IoT Device's carbon footprint is the **Use Phase (61.56%)**, primarily due to energy consumption over its 7-year lifespan. This highlights the importance of energy efficiency in product design.
- ✓ **Material Acquisition & Pre-processing (29.17%)** represents the second significant hotspot, driven by energy-intensive components like Lithium-ion batteries and PCBs.
- ✓ The **End-of-Life phase demonstrates a net carbon benefit (-5.85%)**, largely due to high recyclability (90%) and the "Active Product Reuse & Recycling Initiative."

Recommendations for Reduction

- **Optimize Use Phase Energy Efficiency:** Focus on designing the device to consume less power during operation or extending its lifespan.
- **Sustainable Material Sourcing:** Collaborate with suppliers for lower-carbon alternatives (e.g., recycled aluminum, bio-based plastics) for high-impact materials.
- **Enhance Circularity:** Continue investing in reuse, refurbishment, and recycling initiatives to further extend product value.
- **Logistics Optimization:** Evaluate inbound and outbound logistics for efficiency gains and explore lower-emission transport modes where practical.