

carboncalcpcf.com

Product Carbon Footprint Dashboard

Detailed PCF Analysis for **pxyllukdsx**

Total PCF: 55.42 kgCO₂e per unit

Report by pijdeknezn (hfeehoktso) - GHG Protocol (2026 Updates) - Cradle-to-Grave

Total Product Footprint

55.42 kgCO₂e

Carbon Intensity

55.42 kgCO₂e/unit

Top Lifecycle Hotspot

Use Phase (45.1%)

Primary Emission Scope

Scope 3 (96.8%)

Lifecycle Emissions Breakdown

Materials		11.35 kgCO2e (20.3%)
Production Energy		1.80 kgCO2e (3.2%)
Transport		17.85 kgCO2e (32.2%)
Use Phase		25.00 kgCO2e (45.1%)
End-of-Life		-0.58 kgCO2e (Credit)

Material Carbon Impact

Aluminum Casing		6.25 kgCO2e (55.1%)
Circuit Board		2.50 kgCO2e (22.0%)
Battery		2.00 kgCO2e (17.6%)
Plastic Enclosure		0.60 kgCO2e (5.3%)

Highlights & Key Insights

- Use Phase Dominance:** The product's energy consumption during its 5-year lifespan accounts for the largest share (45.1%) of the total carbon footprint, making it the primary hotspot.
- Significant Upstream Impact:** Materials (Aluminum Casing, Circuit Board) and their upstream transportation collectively contribute 43.5% of emissions, indicating a need for sustainable sourcing and optimized logistics.
- Robust Scope 3 Coverage:** Value chain emissions (Scope 3) represent 96.8% of the total PCF, demonstrating a comprehensive cradle-to-grave analysis aligned with GHG Protocol 2026 revisions.

Recommendations for Decarbonization

1. **Optimize Use Phase:** Implement design for energy efficiency, reduce power consumption, and provide clear user guidance for sustainable operation to minimize the largest emission source.
2. **Sustainable Material Sourcing:** Prioritize lower-carbon or recycled content for materials like Aluminum and electronic components. Engage with suppliers for primary emission data.
3. **Logistics Optimization:** Explore rail/sea for long-distance transport, improve load factors, and reduce overall transport distances to cut upstream and downstream logistics emissions.
4. **Renewable Energy Expansion:** Increase the use of renewable energy for manufacturing operations in China beyond the current 40% to significantly reduce Scope 2 emissions.
5. **Enhance Circularity:** Strengthen the existing take-back scheme to improve material recovery and reuse, striving to exceed the current 70% recyclability rate and maximize avoided burden benefits.