

carboncalpcf.com

# Product Carbon Footprint for xpzzlrgkwh

Company

**vvhmzqznkl**

Consultant

**npppkdkiki**

Standard

**GHG Protocol**

Boundary

**Cradle-to-Grave**

## Key Carbon Metrics

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Total Product Footprint

**24.58** kgCO<sub>2</sub>e/unit

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Carbon Intensity

**24.58** kgCO<sub>2</sub>e/unit

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Top Material Impact

**ABS Plastic** (42.5%)

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Primary Emission Scope

**Use Phase** (75.0%)

# Carbon Footprint Breakdown

## Lifecycle Stage Breakdown

Materials	<hr/>	<b>3.67</b> <b>kgCO2e</b>
Manufacturing (S1+2)	<hr/>	<b>2.81</b> <b>kgCO2e</b>
Logistics	<hr/>	<b>0.19</b> <b>kgCO2e</b>
Use Phase	<hr/>	<b>20.00</b> <b>kgCO2e</b>
End-of-Life (Net)	<hr/>	<b>-2.10</b> <b>kgCO2e</b>

## Material Composition vs Carbon Impact

ABS Plastic Casing	1.56
Printed Circuit Board	1.50
Copper Wire	0.45
Cardboard Packaging	0.16

# Insights & Action Plan

## Emission Hotspot Highlights

- **Use Phase Dominance:** The product's operational use accounts for the vast majority (20.00 kgCO<sub>2</sub>e) of its total footprint, emphasizing energy efficiency during its 5-year lifespan.
- **Material Impact:** Raw material acquisition, particularly ABS Plastic Casing and Printed Circuit Boards, is a significant upstream contributor (3.67 kgCO<sub>2</sub>e).
- **Manufacturing Energy:** Despite 75% renewable energy, the remaining non-renewable electricity in China contributes noticeably (2.81 kgCO<sub>2</sub>e) due to its higher emission factor.

## Recommendations to Reduce Footprint

1. **Improve Use Phase Efficiency:** Focus on designing **xpzzlrgkwh** for even greater energy efficiency during its use, or explore alternative power sources if applicable.
2. **Decarbonize Manufacturing Energy:** Invest in 100% certified renewable energy for manufacturing operations in China, or explore on-site renewable energy generation.
3. **Engage with Material Suppliers:** Collaborate with BOM suppliers to identify and procure lower-carbon materials or increase the use of recycled content beyond current levels.
4. **Optimize Logistics:** Evaluate opportunities to optimize transport modes (e.g., shifting from road to rail or sea where feasible) and consolidate shipments.
5. **Strengthen Circularity:** Continue to expand and promote take-back and recycling programs to maximize the recovery and reuse of materials.