carboncalcpcf.com

Product Carbon Footprint for "mnhnxtlfko"

1.0 unit - Factory Gate | GHG Protocol Standard

27.125 kg CO2e

Total Product Footprint

27.125 kg CO2e

Carbon Intensity

27.125 kg CO2e / unit

Top Material Hotspot

Silicon Chipset

5.00 kg CO2e

Primary Emission Scope

Scope 3

Lifecycle Stage Breakdown

Materials (Scope 3)	9.760 kg CO2e (35.98%)
Production (Scope 1 & 2)	4.700 kg CO2e (17.33%)
Transport (Scope 3)	0.186 kg CO2e (0.68%)
Use Phase (Scope 3)	12.500 kg CO2e (46.08%)
End-of-Life (Net Benefit - Scope 3)	**-0.021 kg CO2e (-0.08%)**

Net Removal

Material Carbon Impact

Silicon Chipset	5.00 kg CO2e (51.23%)
Aluminum Alloy Casing	3.75 kg CO2e (38.42%)
Recycled ABS Plastic Enclosure	0.66 kg CO2e (6.76%)
Copper Wiring	0.19 kg CO2e (1.95%)
Packaging (Recycled Cardboard)	0.16 kg CO2e (1.64%)

Key Findings & Hotspots

- **Use Phase Dominance:** The most significant hotspot is the Use Phase, contributing approximately 46% (12.50 kg CO2e) due to electricity consumption over the product's lifespan.
- **Material Impact:** Upstream material production, particularly the silicon chipset and aluminum casing, represents the second largest impact at approximately 36% (9.76 kg CO2e).
- **Production Efficiency:** Despite 70% renewable energy use, the remaining 30% non-renewable energy in production contributes substantially (approx. 17%, 4.70 kg CO2e).

Action Plan: How to Reduce Impact

- **Optimize Use Phase:** Focus on improving product energy efficiency (e.g., lower power consumption components) and promoting renewable energy use by end-users.
- **Sustainable Material Sourcing:** Investigate opportunities for sourcing lower-carbon alternatives for high-impact materials, engaging with suppliers to reduce their production emissions.
- **Enhance Production Energy:** Increase renewable energy procurement beyond 70% for the China production facility, or explore on-site renewable generation.
- **Logistics Optimization:** Continue to optimize transport routes, consolidate shipments, and explore lower-emission transport modes where feasible.
- **Expand Circularity:** Further develop and promote take-back and recycling programs and explore innovative design for disassembly to improve recycling yields.