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Product Carbon Footprint for emeuqrupeu

Detailed PCF analysis for 1.0 unit, manufactured in China under GHG Protocol standards.

27.9 kg CO2e Total PCF

Total Footprint

27.9 kg CO2e

Per 1.0 functional unit.

Carbon Intensity

27.9 kg CO2e/unit

Emission per single product unit.

Top Material Hotspot

Metals (5.4 kg CO2e)

Aluminum & Copper production.

Primary Emission Scope

Scope 3

Upstream Materials & Downstream Use Phase.

Lifecycle Stage Breakdown

Distribution of emissions across the product's lifecycle, relative to total positive emissions (28.756 kg CO2e).

Material Acquisition & Pre-processing	12.4 kg CO2e (43.12%)
Use Phase	12.5 kg CO2e (43.47%)
Manufacturing Energy (Scope 2)	3.6 kg CO2e (12.52%)
Upstream Transportation	0.128 kg CO2e (0.44%)
Downstream Transportation	0.128 kg CO2e (0.44%)
End-of-Life (Net Reduction)	-0.86 kg CO2e

(Net reduction due to circular programs)

Material Carbon Impact

Contribution of different materials to the total material footprint (12.4 kg CO2e).

Metals (Aluminum Alloy, Copper)	5.4 kg CO2e (43.55%)
Electronics (PCB, Silicon Chipset)	4.0 kg CO2e (32.26%)
Battery (Lithium-ion)	2.25 kg CO2e (18.15%)
Plastics (ABS Components)	0.7 kg CO2e (5.65%)
Packaging (Cardboard)	0.05 kg CO2e (0.40%)

Emission Highlights

- Material Acquisition & Pre-processing (12.4 kg CO2e) and Use Phase (12.5 kg CO2e) are the dominant emission hotspots, together accounting for over 86% of positive emissions.
- The high embedded carbon in materials like aluminum and silicon significantly drives the upstream footprint.
- Manufacturing energy contributes 3.6 kg CO2e, despite 70% renewable energy usage, indicating room for further greening.
- End-of-Life initiatives successfully provide a net reduction of -0.86 kg CO2e, showcasing effective circular economy impacts.

Action Plan: How to Reduce Emissions

- ✓ **Material Optimization:** Investigate higher recycled content for aluminum and plastics, and explore alternative lower-carbon materials.
- ✓ **Energy Efficiency:** Focus on product design innovations to reduce energy consumption during the use phase.
- ✓ **Renewable Energy Sourcing:** Continuously increase the share of renewable energy in manufacturing operations in China.
- ✓ **Supply Chain Engagement:** Collaborate with suppliers and logistics partners for more granular data and co-identify reduction opportunities.
- ✓ **Circular Economy Initiatives:** Expand and promote take-back programs to maximize material recovery and foster closed-loop systems.