

CARBONCALCPCF.COM

**Product Carbon
Footprint: ilfqkywkmr**

23.92 kg CO₂e

TOTAL FOOTPRINT

23.92 kg CO2e

per 1.0 unit

SYSTEM BOUNDARY

Cradle-to-Grave

Includes all lifecycle stages

TOP MATERIAL HOTSPOT

Aluminum Frame & Li-ion Battery

0.80 kg CO2e each

PRIMARY EMISSION SCOPE

Use Phase

Scope 3 (Downstream)

Detailed Carbon Breakdown

Lifecycle Stage Breakdown

Material Acq. & Fabrication	3.10 kg CO2e (12.94%)
Production (Scope 1)	0.10 kg CO2e (0.42%)
Production (Scope 2)	5.20 kg CO2e (21.74%)
Transport (Upstream)	1.80 kg CO2e (7.53%)
Transport (Downstream)	0.14 kg CO2e (0.57%)
Use Phase	14.00 kg CO2e (58.54%)
End-of-Life (Net)	-0.42 kg CO2e (-1.75%)

Material Carbon Impact

Aluminum Frame	0.80 kg CO2e
Li-ion Battery	0.80 kg CO2e
Electronic PCB	0.75 kg CO2e
Plastic Casing	0.62 kg CO2e
Copper Wiring	0.08 kg CO2e
Packaging	0.05 kg CO2e

Key Emission Hotspots

- Use Phase (58.54%): The energy consumed during the product's 7-year lifespan is the most significant contributor.
- Production - Scope 2 (21.74%): Emissions from purchased electricity for manufacturing in China represent a substantial portion.
- Material Acquisition & Pre-processing (12.94%): The initial impact of raw materials, particularly aluminum and electronic PCB, contributes notably.
- End-of-Life (-1.75%): Net negative emissions demonstrate effectiveness of circular economy programs and high recyclability.

Recommendations for GHG Reduction

2. Enhance Use Phase Efficiency: Design more energy-efficient products and educate consumers on responsible energy use.
4. Increase Renewable Energy in Production: Aim for 100% renewable energy in manufacturing facilities.
6. Sustainable Material Sourcing: Prioritize materials with lower embodied carbon and increase recycled content.
8. Optimize Logistics: Investigate opportunities to optimize transport routes and shift to lower-emission modes.
10. Expand Circular Economy Initiatives: Strengthen take-back and recycling programs, exploring advanced recycling technologies.