

syrzxsnwur

Product Carbon Footprint Dashboard

51.54 kg CO₂e

Total Carbon Footprint

Total Footprint

51.54 kg CO₂e

Carbon Intensity

51.54 kg CO₂e / unit

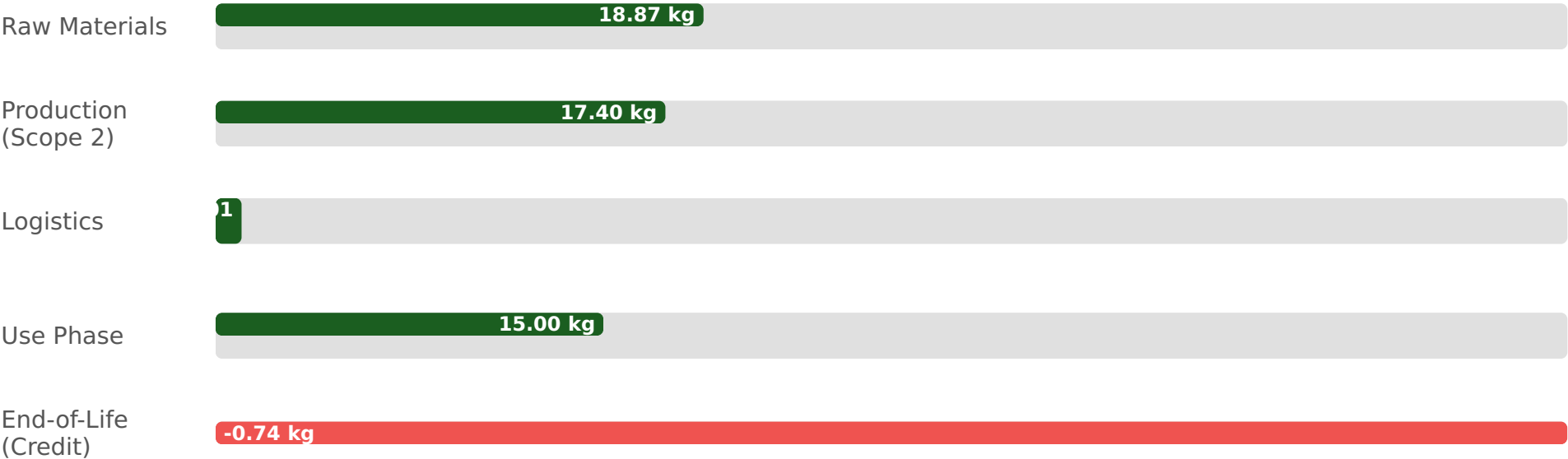
Top Material Hotspot

Electronics (PCB, Microchip)

Primary Emission Scope

Scope 3 (Raw Mat., Use)

Lifecycle Stage Breakdown



*Percentages for positive impacts shown. End-of-Life represents a net credit due to recycling.

Top Material Carbon Impact

Printed Circuit Board	5.00 kg CO2e
Silicon Microchip	5.00 kg CO2e
Aluminum Heatsink	3.00 kg CO2e
Lithium-ion Battery	2.25 kg CO2e
ABS Plastic Casing	2.00 kg CO2e

Based on the simulated Bill of Materials (BOM).

Highlights & Key Insights

- **Raw Material Acquisition is the Largest Contributor:** This stage accounts for approximately 36.6% of the total carbon footprint, primarily driven by high-impact electronic components such as the Printed Circuit Board and Silicon Microchip.
- **Significant Impact from Purchased Electricity:** The manufacturing process, particularly the purchased electricity from the Chinese grid (Scope 2), contributes substantially at 33.8% of the total, despite 40% renewable energy usage.
- **Use Phase is a Major Factor:** The energy consumed during the product's 5-year operational lifespan represents around 29.1% of the total emissions, indicating a need for energy-efficient product design.

Suggested Action Plan for Reduction

- **1. Optimize Material Sourcing:** Explore suppliers for Printed Circuit Boards, Silicon Microchips, and Aluminum Heatsinks with lower embodied carbon, potentially through recycled content or cleaner manufacturing processes.
- **2. Enhance Energy Efficiency in Manufacturing:** Increase the percentage of renewable energy used in production facilities in China and explore opportunities to reduce overall energy intensity per unit.
- **3. Design for Energy-Efficient Use:** Implement design changes to significantly reduce the product's energy consumption during its operational lifespan, leveraging low-power components and smart energy management features.
- **4. Strengthen Circularity Initiatives:** Continue and expand the formal take-back program and explore advanced recycling technologies to maximize material recovery and further increase recycling credits.

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