carboncalcpcf.com

Product Carbon Footprint for tduwlhvgwk

Total PCF: **19.09 kg CO2e**

Total Product Footprint

19.09 kg CO2e

Carbon Intensity

19.09 kg CO2e / unit

Top Material Hotspot

Silicon Chip & Recycled Aluminum Alloy

Primary Emission Scope

Scope 3

Lifecycle Stage Breakdown

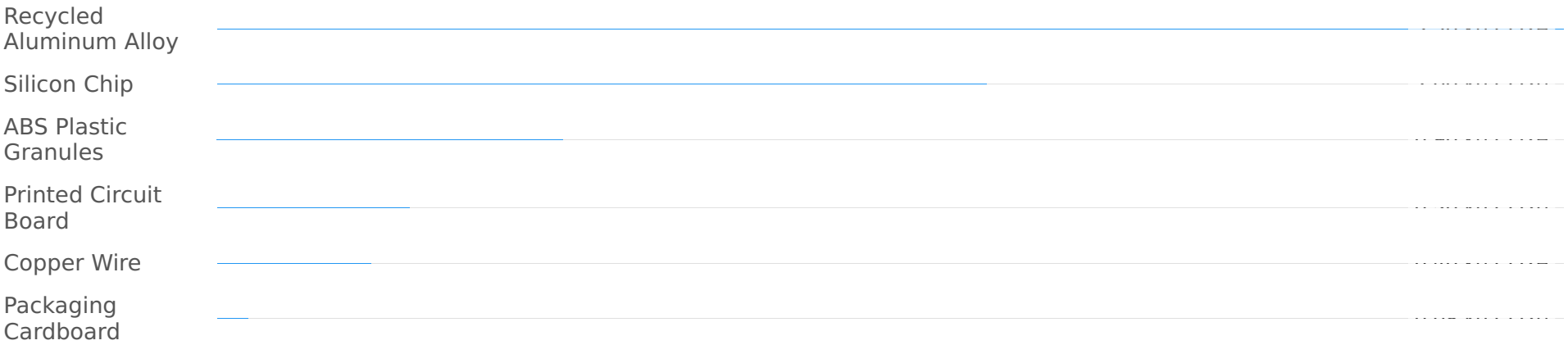
Percentage of total positive emissions (21.15 kg CO2e). End-of-Life provides a net reduction.

Materials (Scope 3, Cat 1)	34.89% (7.38 kg CO2e)
Use Phase (Scope 3, Cat 11)	59.09% (12.50 kg CO2e)
Manufacturing (Scope 2)	4.11% (0.87 kg CO2e)
Logistics (Scope 3, Cat 4 & 9)	1.89% (0.40 kg CO2e)
End-of-Life (Net Reduction)	-2.06 kg CO2e

(This represents avoided emissions through recycling and take-back programs.)

Material Carbon Impact

CO2e emissions per material component.



Key Emission Hotspots

Use Phase: Contributes the most significant portion with **12.50 kg CO2e (59.09% of positive emissions)**, highlighting the importance of product energy efficiency.

Material Acquisition: The second largest hotspot at **7.38 kg CO2e (34.89% of positive emissions)**, particularly from Silicon Chips and Recycled Aluminum Alloy.

Manufacturing (Scope 2): Despite 70% renewable energy, purchased electricity still accounts for **0.87 kg CO2e (4.11%)**.

Action Plan for Reduction

Product Design for Energy Efficiency: Implement design improvements to reduce energy consumption during the 'tduwlhvgwk' use phase.

Supply Chain Engagement: Source lower-carbon alternatives for high-impact materials and engage suppliers for better data.

Renewable Energy Expansion: Increase renewable energy penetration at the manufacturing facility beyond 70% to further decarbonize.

Circular Economy Initiatives: Enhance take-back programs and explore repairability to extend product lifespan and maximize material recovery.

Data Validation: Collect specific primary data for BOM, transport, and use-phase energy consumption to improve future report accuracy.