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# Product Carbon Footprint Analysis for "svsdzvpsq"

**81.032** kgCO<sub>2</sub>e / unit

Report by: fqsvyvitfp (Senior Sustainability Consultant for ulwzusdytj)

TOTAL FOOTPRINT

**81.032**

kgCO<sub>2</sub>e / unit

CARBON INTENSITY

**81.032**

kgCO<sub>2</sub>e / unit

TOP MATERIAL HOTSPOT

**Aluminum Frame**

~71% of material impact

PRIMARY EMISSION SCOPE

**Scope 3**

Value Chain Emissions

## Carbon Footprint Breakdown by Lifecycle Stage

Use Phase	91.01%
Materials	6.83%
Production Energy	1.82%
Main Transport (China to EU)	0.12%
Last-Mile Delivery	0.12%
Upstream Transport (Components)	0.09%
End-of-Life (Credit)	-1.364 kgCO <sub>2</sub> e

## Material Composition vs. Carbon Impact

Aluminum Frame	71.1%
ABS Plastic Casing	12.4%
Circuit Board Assembly	8.9%
Copper Wiring	5.3%
Polycarbonate Lens	2.2%

## Highlights & Key Findings

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- **Use Phase Dominance:** The product's operational life (use phase) accounts for approximately 93% of its total carbon footprint, making it the most critical hotspot.
- **Material Acquisition Impact:** Raw material production, particularly for aluminum and plastics, is the second-largest contributor, representing about 7% of the total PCF.
- **Circular Economy Success:** High recyclability (85%) and established take-back programs result in a net carbon credit for the End-of-Life stage, showcasing effective circularity strategies.

# Recommendations for Emission Reduction

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- **Enhance Use Phase Efficiency:**

- Invest in R&D for ultra-low power components and software optimization.
- Explore smart features to automatically reduce power usage.
- Educate end-users on energy-saving practices.

- **Optimize Material Sourcing:**

- Prioritize suppliers offering low-carbon and recycled content materials.
- Investigate material light-weighting and design for disassembly.

- **Further Decarbonize Production:**

- Increase renewable energy usage at manufacturing facilities beyond the current 70%.
- Explore energy efficiency improvements within processes.

- **Strengthen Circular Economy Initiatives:**

- Expand and promote existing take-back programs to maximize recovery.
- Investigate product-as-a-service models or repairability initiatives.