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carboncalcpcf.com

Product Carbon Footprint: nzlvrgzdwn

54.59 kg CO₂e

Total Carbon Footprint (per unit)

Functional Unit

1.0 unit

Product: nzlvrgzdwn

Primary Emission Scope

Scope 3

97.34% of total

Top Lifecycle Hotspot

Use Phase

45.00 kg CO₂e (82.44%)

Top Material Hotspot

Aluminum Casing

3.75 kg CO₂e (58.50% of materials)

Lifecycle Stage Breakdown

Use Phase	45.00 kg CO2e (82.44%)
Materials Acquisition	6.41 kg CO2e (11.74%)
Downstream Transportation	1.25 kg CO2e (2.29%)
Production Energy	1.45 kg CO2e (2.66%)
Upstream Transportation	0.19 kg CO2e (0.35%)
End-of-Life Treatment	0.285 kg CO2e (0.52%)

Material Carbon Impact (of 6.41 kg CO2e total materials)

Aluminum Casing	3.75 kg CO2e (58.50%)
Circuit Board	1.50 kg CO2e (23.40%)
Plastic Enclosure	0.96 kg CO2e (14.98%)
Copper Wiring	0.20 kg CO2e (3.12%)

Highlights & Key Insights

The **Use Phase** of nzlvrzdwn is the most significant carbon hotspot, contributing 45.00 kg CO₂e (82.44%) to the total footprint, primarily due to energy consumption over its 5-year lifespan.

Scope 3 emissions dominate the product's footprint, accounting for 97.34% of total emissions, reflecting comprehensive value chain coverage beyond factory operations.

Material Acquisition for components like Aluminum Casing and Circuit Boards represents the second-largest impact, contributing 6.41 kg CO₂e (11.74%) to the overall PCF.

Recommendations: How to Reduce Impact

Enhance Use Phase Efficiency: Focus R&D on significantly reducing the product's energy consumption during its active lifespan through more efficient components or smart power management.

Optimize Material Sourcing & Design: Investigate lower-carbon alternatives for high-impact materials and implement design for disassembly to improve material efficiency and recyclability.

Strengthen Circular Economy Initiatives: Expand and promote take-back programs to maximize material recovery and recycling rates, aiming for closed-loop systems.

Refine Logistics: Explore more carbon-efficient transport modes and optimize logistics networks, especially for last-mile delivery, to reduce transportation emissions.

