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carboncalcpcf.com

Product Carbon Footprint for vmvsnlvixe (Smart Home Sensor)

Company: pgnqqspfhg

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19.506 kg CO2e

Total Carbon Footprint per unit

19.506

Total PCF (kg CO2e)

1.0

Functional Unit (unit)

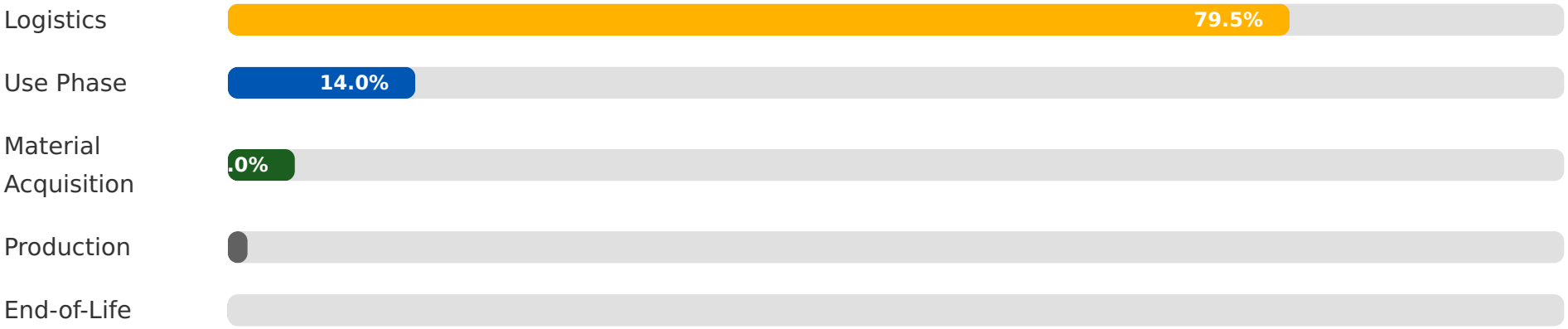
79.5%

Top Hotspot (Transport)

Scope 3

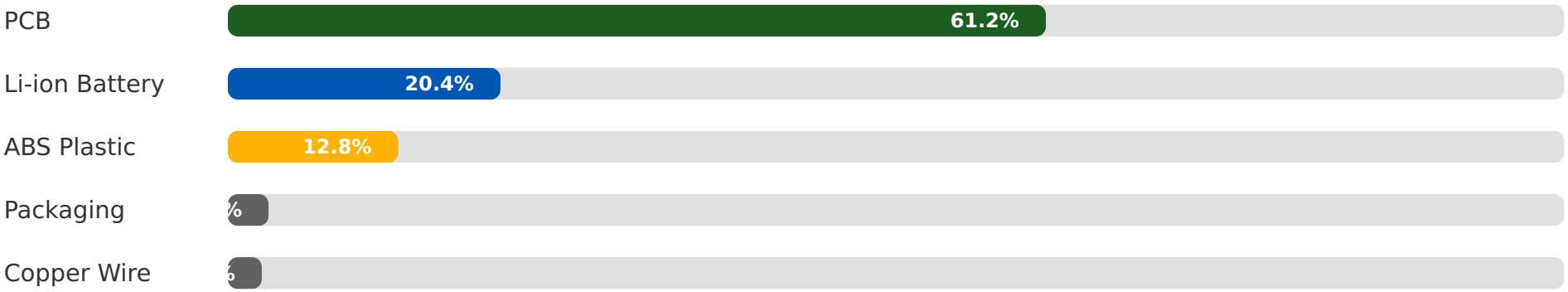
Primary Emission Scope

Lifecycle Stage Breakdown



Material Carbon Impact

Breakdown of the 0.980 kg CO2e from Material Acquisition.



Key Insights & Hotspots

- **Transportation is the dominant hotspot,** contributing ~79.5% of the total PCF due to long-distance ocean freight from China to Europe.
- The **use phase is the second largest contributor** (~14%), driven by the device's energy consumption over its 3-year lifespan.
- **Material acquisition accounts for ~5%**, with the PCB (61.2% of material impact) and Lithium-ion battery (20.4% of material impact) being the most carbon-intensive components.
- Production emissions are relatively low due to 60% renewable energy usage, and End-of-Life shows net-zero impact due to high recyclability (75%) and take-back programs.

Action Plan for Reduction

- **Optimize Logistics:** Explore localization, consolidate shipments, or consider alternative, lower-carbon transport modes for long distances.
- **Improve Use Phase Efficiency:** Focus on designing for even lower energy consumption during the product's operational life.
- **Sustainable Material Sourcing:** Investigate lower-carbon alternatives for PCBs and batteries, and design for overall material efficiency.
- **Enhance Circularity:** Continue to strengthen take-back and recycling programs to maximize material recovery and reduce virgin material demand.