

carboncalcpcf.com

jttjfirine

~68.041 kg CO2e / unit

Approximate Total Product Carbon Footprint (excluding unquantified transport & EoL)

68.041

Total PCF (kg CO2e / unit)

25.0 kg

Top Material Hotspot (Steel)

Scope 3 (Up/Downstream)

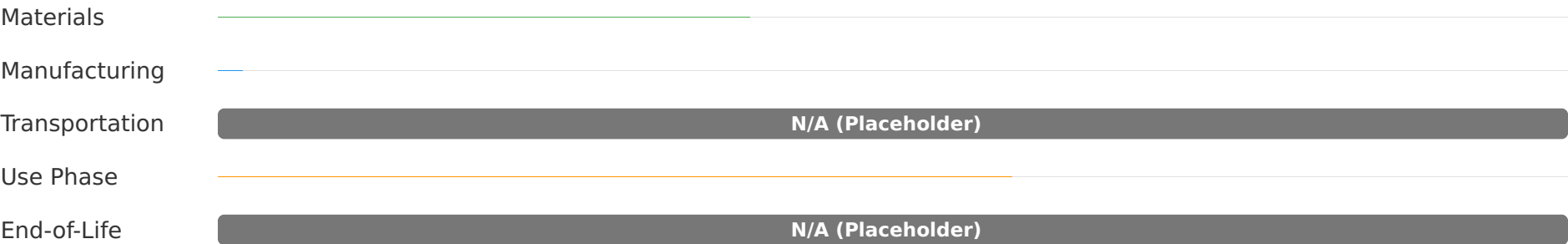
Primary Emission Scope

60%

Renewable Energy Used (Mfg)

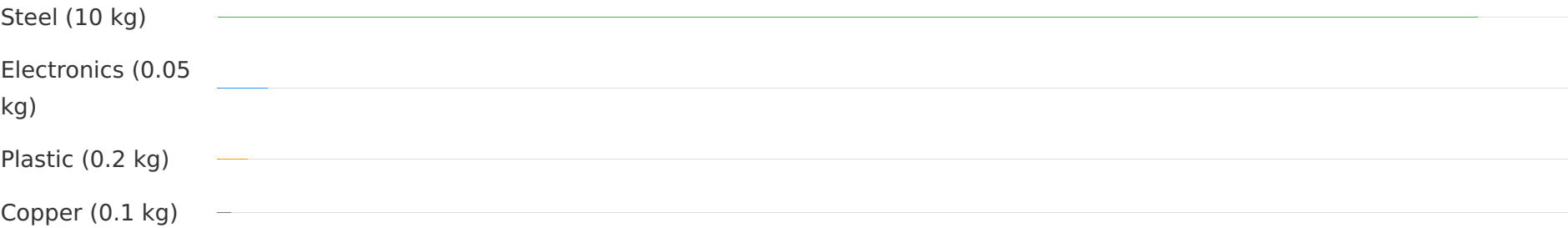
Lifecycle Carbon Breakdown

Emissions by Stage (of quantified total)



Material Carbon Impact

Key Materials & Their Contribution to PCF



Highlights & Hotspots

- **Material Acquisition**, especially Steel (25.0 kg CO₂e), is a significant contributor to the product's footprint.
- The **Use Phase** (100 kWh over 5 years) is a major hotspot, accounting for 40.0 kg CO₂e, influenced by user energy consumption.
- **Transportation** is an unquantified but critical Scope 3 hotspot, requiring detailed data for accurate assessment.

Recommendations for Reduction

- **Material Optimization:** Explore lower-impact alternatives for high-carbon materials like Steel and Electronics.
- **Manufacturing Efficiency:** Further increase renewable energy usage beyond 60% and adopt energy-efficient production technologies.
- **Logistics Optimization:** Conduct a detailed analysis to shift to lower-emission transport modes and optimize routes.
- **Use Phase Design:** Design for reduced energy consumption (100 kWh) during the 5-year product lifespan.
- **Circular Economy:** Strengthen and promote the robust take-back and material reprocessing scheme (80% recyclability) to maximize avoided emissions.