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# Product Carbon Footprint: fgutzfrtko

**Company:** tvyuyqteuq

**Boundary:** Cradle-to-Grave | **Standard:** GHG Protocol

## 10.560 kg $CO_2e$

per 1.0 unit

Total Footprint

## 10.560 kg $CO_2e$

per functional unit

Carbon Intensity

## 10.56 kg $CO_2e$/unit

for 1.0 unit fgutzfrtko

Top Material Hotspot

**Circuit Board (PCB)**

0.750 kg $CO_2e$ (50.3%)

Primary Emission Scope

**Scope 3 (Value Chain)**

89.8% of total footprint

## Lifecycle Stage Breakdown

| | |
|---|---|
| **Use Phase** | 8.000 kg $CO_2$e (75.8%) |
| **Raw Materials & Mfg.** | 1.491 kg $CO_2$e (14.1%) |
| **Production Energy** | 1.080 kg $CO_2$e (10.2%) |
| **Transportation** | 0.511 kg $CO_2$e (4.8%) |
| **End-of-Life Credit** | -0.522 kg $CO_2$e (-4.9%) |

## Material Composition vs. Carbon Impact

| | |
|---|---|
| **Circuit Board (PCB)** | 0.750 kg $CO_2$e (50.3%) |
| **Plastic Casing (ABS)** | 0.375 kg $CO_2$e (25.2%) |
| **Lithium-Ion Battery** | 0.300 kg $CO_2$e (20.1%) |
| **Copper Wiring** | 0.050 kg $CO_2$e (3.4%) |
| **Packaging Box** | 0.016 kg $CO_2$e (1.1%) |

## Key Emission Hotspots

The **Use Phase** is the most significant hotspot, contributing 75.8% of the total footprint, driven by energy consumption over its 4-year lifespan.

**Raw Materials & Manufacturing** (14.1%) and **Production Energy** (10.2%) are also substantial, primarily from components like the PCB and battery, and electricity in manufacturing.

**Scope 3 emissions** (value chain) dominate the footprint at 89.8%, indicating the importance of supply chain engagement and downstream impacts.

## Recommendations for Reduction

- **Enhance Use Phase Efficiency:** Design `fgutzfrtko` for lower energy consumption; explore low-power modes and extended battery life.
- **Sustainable Material Sourcing:** Investigate lower-carbon materials for the plastic casing, PCB, and battery, focusing on recycled content and verified low-carbon suppliers.
- **Increase Renewable Energy:** Continue to expand renewable energy integration in manufacturing operations in China, potentially through direct power purchase agreements.
- **Strengthen Circularity:** Expand the "End-of-life device collection and refurbishment program" to maximize material recovery and reuse.