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Product Carbon Footprint Report

For Product: Idjtmjpkdk

Company Name: eyjnhovomm

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Protocol Data (Accounting Standard): GHG Protocol

Disclaimer: This report is generated based on available data and industry standards. Illustrative data has been used where specific parameters were provided as placeholders. Actual calculations require precise, primary data for highest accuracy.

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Product Carbon Footprint Analysis: Idjtmjpkdk

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Executive Summary

This report presents a high-detail Product Carbon Footprint (PCF) analysis for the product Idjtmjpkdk, conducted by gktpzuhjgg, Senior Sustainability Consultant at eyjnhovomm. The analysis adheres to the GHG Protocol, including the 2026 Land Sector and Removals (LSR) Standard update and aims for at least 95% Scope 3 reporting coverage. The functional unit for this study is 1.0 unit of Idjtmjpkdk. Emissions are categorized across the product's lifecycle, from raw material extraction and processing, through manufacturing, transportation, use, and end-of-life treatment. Key emission hotspots are identified, and the methodology employed ensures a robust and transparent assessment of the product's environmental impact. This analysis provides eyjnhovomm with critical insights to inform decarbonization strategies and improve the sustainability performance of Idjtmjpkdk.

1. Methodology and Scope Definition

1.1. Accounting Standard

This Product Carbon Footprint (PCF) analysis is conducted in strict accordance with the **GHG Protocol** Corporate Accounting and Reporting Standard and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard. This includes the application of the newly released **2026 Land Sector and Removals (LSR) Standard** for relevant land use and carbon removal activities. The

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LSR Standard, effective January 1, 2027, provides requirements for accounting for emissions and removals from agriculture and land use change.

1.2. Functional Unit

The defined functional unit for this PCF analysis is **1.0 unit of Idjtmjpkdk**.

1.3. System Boundary

The specified system boundary for this analysis is 'factory_gate'. However, for a comprehensive Product Carbon Footprint aligned with GHG Protocol Scope 3 requirements and the explicit instructions to calculate emissions across the value chain, including use-phase and end-of-life, the analysis extends beyond a strict factory-gate definition to encompass a 'cradle-to-grave' perspective. This full lifecycle approach captures upstream (raw material acquisition, manufacturing), core (production), and downstream (transport, use, end-of-life) emissions, ensuring a holistic view of the product's environmental impact.

1.4. Geographic Scope

- **Final Production Country:** China
- **Supply Chain Focus:** Europe Focused

This geographic scope informs the selection of region-specific emission factors for energy grids, transportation, and material sourcing where available.

1.5. Allocation

Where multi-output processes occur, emissions have been allocated using mass-based allocation principles, or economic allocation where mass-based is not appropriate, as per GHG Protocol guidance.

2. Lifecycle Mapping and Data Collection (LCI Inventory Stages)

The lifecycle of Idjtmjpkdk has been mapped into the following key stages, with data collected from primary and secondary sources. Placeholder values are acknowledged and illustrative data is used for demonstration purposes.

2.1. Materials Acquisition & Pre-processing (Upstream - Scope 3, Category 1: Purchased Goods & Services)

The Bill of Materials (BOM) provides a detailed breakdown of components. For this analysis, the provided BOM (poqyhjpw) is a placeholder, and an illustrative BOM is used to demonstrate calculations. Emission factors are selected from industry-standard databases (e.g., Ecoinvent/DEFRA equivalents) and represent cradle-to-gate impacts of material production.

Illustrative Detailed Bill of Materials (BOM) for Idjtmjpkdk

ID	Description	Category	Process	Qty	Unit	Illustrative Emission Factor (kgCO ₂ e/unit)	Total Carbon (kgCO ₂ e)
MTR-001	Plastic Casing (ABS)	Plastics	Injection Molding	0.25	kg	3.0	0.75
MTR-002	Printed Circuit Board (PCB)	Electronics	Manufacturing	0.05	kg	150.0	7.50
MTR-003	Copper Wire	Metals	Drawing	0.02	kg	6.0	0.12
MTR-004	Electronic Components (Assorted)	Electronics Confidential - Internal Use Only	Assembly	0.10	kg	50.0	5.00
Total Material Carbon Footprint (Illustrative):							13.47 kgCO₂e

ID	Description	Category	Process	Qty	Unit	Illustrative Emission Factor (kgCO2e/unit)	Total Carbon (kgCO2e)
MTR-005	Packaging (Cardboard)	Paper & Pulp	Converting	0.10	kg	1.0	0.10
Total Material Carbon Footprint (Illustrative):							13.47 kgCO2e

Note: The "Illustrative Emission Factor" values above are generic examples. Actual factors for ABS plastic range, for example, from ~3.0 kg CO2e/kg, for copper wire from ~0.2 to 41.8 kg CO2e/kg depending on source and scope, and for PCBs can be highly variable, with production emitting around 60-70 kg CO2e/m² or 0.045 to 0.25 kg CO2e/g (45-250 kg CO2e/kg) for components. Specific, verified data for each material is crucial for accurate assessment.

2.2. Production Phase (Direct - Scope 1 & 2; Indirect - Scope 3, Category 3: Fuel- and energy-related activities)

The production of Idjtmjpkdk occurs in China. Energy consumption for the manufacturing process is a critical data point.

- **Energy Intensity (kWh/unit):** ssitzskhir (Illustrative: 15 kWh/unit)
- **Renewable Energy Usage:** fldydguywd (Illustrative: 30%)
- **Final Production Country:** China
- **China Electricity Grid Mix Emission Factor:** Approximately 0.60 kg CO2e/kWh (Using an approximate average of MEE and IEA data, e.g., MEE 2021: 0.5568 kg CO2/kWh; IEA 2021: 0.6093 kg CO2/kWh; national average 2023: 0.6205 kg CO2e/kWh).
- **Renewable Energy Emission Factor:** 0.0 kg CO2e/kWh (assuming zero-emissions renewable sources)

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2.3. Transportation & Distribution (Upstream & Downstream - Scope 3, Categories 4 & 9)

Logistics data is incorporated to calculate emissions from the transportation of materials to the factory and the finished product to the customer.

- **Transport Mode:** Select Mode (Illustrative: Ocean Freight for intercontinental, Truck for continental)
- **Transport Distance:** jgyzduhpxx (Illustrative: Ocean Freight: 8,000 km for raw materials from Europe to China; Truck (Finished Product): 500 km from China factory to port, 1,000 km from European port to distribution center)
- **Last-Mile Delivery Channel:** Delivery Type (Illustrative: Delivery Van (Diesel) for 100 km)
- **Illustrative Emission Factors:**
 - Ocean Freight (Container Ship): 0.016 kg CO₂e/tonne-km
 - Truck (Heavy Goods): 0.10 kg CO₂e/tonne-km
 - Delivery Van (Diesel): 0.14 kg CO₂e/km (assuming a light product where distance-based EF is more appropriate for last mile)
- **Product Weight (Illustrative):** 0.5 kg (for finished product, derived from BOM estimate)

2.4. Use Phase (Downstream - Scope 3, Category 11: Use of Sold Products)

The energy consumption of the product during its operational lifespan is considered.

- **Product Lifespan:** qrjhgywfi (Illustrative: 5 years)
- **Energy Consumption in Use:** kumpkuyink (Illustrative: 10 kWh/year)
- **European Average Grid Mix Emission Factor:** ~0.25 kg CO₂e/kWh (Illustrative for Europe-focused supply chain, acknowledging variability across countries)

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2.5. End-of-Life (EoL) Treatment (Downstream - Scope 3, Category 12: End-of-Life Treatment of Sold Products)

The fate of the product after its useful life is assessed, considering recyclability and circular economy initiatives.

- **Recyclability Percentage:** kvovrninx (Illustrative: 70%)
- **Circular/Take-back Programs:** qquuhnukig (Illustrative: "eyjnhovomm implements a product refurbishment and material recovery program, aiming to extend product life and maximize recycling yields for key components. A portion of collected products is refurbished and resold, while others are disassembled for material recovery.")
- **Illustrative Emission Factors/Credits for EoL:**
 - Recycling Credit for Plastics: -1.0 kg CO₂e/kg (avoided virgin production, highly variable and can be positive or negative depending on methodology and material)
 - Recycling Credit for Metals (Copper): -3.0 kg CO₂e/kg (avoided virgin production)
 - Disposal (Landfill/Incineration) for residual materials: +1.5 kg CO₂e/kg (average for mixed waste, assuming no energy recovery for landfill, or some for incineration)

3. Emission Calculation (Activity * Emission Factor = CO₂e)

Emissions are calculated for each lifecycle stage based on the collected activity data and selected emission factors. All calculations are illustrative, based on the placeholder parameters and assumed values.

3.1. Raw Materials (Scope 3 - Category 1)

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Using the Illustrative Detailed BOM:

Total Material Carbon Footprint (Illustrative): 13.47 kgCO₂e

3.2. Production Phase (Scope 1 & 2, Scope 3 - Category 3)

- Total Energy (Illustrative): 15 kWh/unit
- Renewable Energy Usage (Illustrative): 30%
- Non-Renewable Energy Usage: $15 \text{ kWh} * (1 - 0.30) = 10.5 \text{ kWh/unit}$
- Renewable Energy Usage: $15 \text{ kWh} * 0.30 = 4.5 \text{ kWh/unit}$
- Emissions from Non-Renewable Energy: $10.5 \text{ kWh/unit} * 0.60 \text{ kgCO}_2\text{e/kWh (China Grid Mix)} = 6.30 \text{ kgCO}_2\text{e/unit}$
- Emissions from Renewable Energy: $4.5 \text{ kWh/unit} * 0.0 \text{ kgCO}_2\text{e/kWh} = 0.00 \text{ kgCO}_2\text{e/unit}$

Total Production Energy Emissions (Illustrative): 6.30 kgCO₂e/unit

(Scope 1 emissions (direct from owned/controlled sources) are not explicitly detailed here but would include on-site fuel combustion. Scope 2 covers purchased electricity. Scope 3, Category 3 captures upstream emissions of purchased fuels and electricity not covered in Scope 1 or 2.)

3.3. Transportation (Scope 3 - Categories 4 & 9)

Upstream Transportation (Materials to Factory)

Assuming raw material import (e.g., from Europe to China) and then internal transport to the factory. For simplicity, we'll use a blended weight of 0.5 kg for raw materials before processing, transported over illustrative distances.

- **Ocean Freight:** $(0.5 \text{ kg} / 1000 \text{ kg/tonne}) * 8,000 \text{ km} * 0.016 \text{ kgCO}_2\text{e/tonne-km} = 0.064 \text{ kgCO}_2\text{e}$
- **Truck (China):** $(0.5 \text{ kg} / 1000 \text{ kg/tonne}) * 500 \text{ km} * 0.10 \text{ kgCO}_2\text{e/tonne-km} = 0.025 \text{ kgCO}_2\text{e}$

Total Upstream Transport Emissions (Illustrative): 0.089 kgCO₂e

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Downstream Transportation (Finished Product to Customer)

Assuming finished product (0.5 kg) transport from China to Europe, then internal distribution and last-mile.

- **Ocean Freight (China to Europe):** $(0.5 \text{ kg} / 1000 \text{ kg/tonne}) * 11,000 \text{ km} * 0.016 \text{ kgCO}_2\text{e/tonne-km} = 0.088 \text{ kgCO}_2\text{e}$
- **Truck (Europe to Distribution):** $(0.5 \text{ kg} / 1000 \text{ kg/tonne}) * 1,000 \text{ km} * 0.10 \text{ kgCO}_2\text{e/tonne-km} = 0.050 \text{ kgCO}_2\text{e}$
- **Last-Mile Delivery (Delivery Van):** $100 \text{ km} * 0.14 \text{ kgCO}_2\text{e/km} = 14.00 \text{ kgCO}_2\text{e}$ (Assuming one unit delivered per van-km, or allocating based on parcel density)

Total Downstream Transport Emissions (Illustrative): 14.138 kgCO₂e

Note: Last-mile delivery can be a significant hotspot due to lower efficiency per unit.

3.4. Use Phase (Scope 3 - Category 11)

- Total Energy Consumption over Lifespan: $10 \text{ kWh/year} * 5 \text{ years} = 50 \text{ kWh}$
- Emissions from Energy in Use: $50 \text{ kWh} * 0.25 \text{ kgCO}_2\text{e/kWh}$ (European Grid Mix) = $12.50 \text{ kgCO}_2\text{e}$

Total Use Phase Emissions (Illustrative): 12.50 kgCO₂e

3.5. End-of-Life (EoL) Treatment (Scope 3 - Category 12)

Assuming total product weight (including packaging, for a total of 0.5 kg (product) + 0.1 kg (packaging) = 0.6 kg).

- Recyclable Portion: $0.6 \text{ kg} * 70\% = 0.42 \text{ kg}$
- Disposed Portion: $0.6 \text{ kg} * 30\% = 0.18 \text{ kg}$

For recyclable materials, assuming a blend of plastics and metals for credits:

- Illustrative Recycling Credit for 0.42 kg of mixed materials: $0.42 \text{ kg} * (-1.5 \text{ kgCO}_2\text{e/kg average credit}) = -0.63 \text{ kgCO}_2\text{e}$

- Illustrative Disposal Emissions for 0.18 kg of residual waste:
 $0.18 \text{ kg} * 1.5 \text{ kgCO}_2\text{e/kg} = 0.27 \text{ kgCO}_2\text{e}$

Total End-of-Life Emissions (Illustrative): -0.36 kgCO₂e

Note: Recycling credits can result in negative emissions, indicating avoided emissions from virgin material production. Circular/take-back programs further enhance this potential for negative emissions by prolonging product life and increasing material recovery rates.

3.6. Total Product Carbon Footprint (Illustrative)

Summing up all lifecycle stages:

- Raw Materials: 13.47 kgCO₂e
- Production Energy: 6.30 kgCO₂e
- Upstream Transportation: 0.089 kgCO₂e
- Downstream Transportation: 14.138 kgCO₂e
- Use Phase: 12.50 kgCO₂e
- End-of-Life: -0.36 kgCO₂e

Total Illustrative PCF for 1.0 unit of Idjtmjpkdk: 46.13 kgCO₂e

4. GHG Protocol Scopes Breakdown

The illustrative total PCF of 46.13 kgCO₂e for Idjtmjpkdk is categorized according to the GHG Protocol Scopes.

4.1. Scope 1 Emissions (Direct Emissions)

Emissions from sources owned or controlled by eyjnhovomm.

- Direct process emissions at the factory (if any, not explicitly detailed with illustrative data): 0.00 kgCO₂e
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Illustrative Total Scope 1 Emissions: 0.00 kgCO₂e

4.2. Scope 2 Emissions (Indirect Emissions from Purchased Energy)

Emissions from the generation of purchased electricity consumed by eyjnhovomm.

- Purchased non-renewable electricity for production: 6.30 kgCO₂e (from Production Energy calculation)

Illustrative Total Scope 2 Emissions: 6.30 kgCO₂e

4.3. Scope 3 Emissions (All Other Indirect Emissions in the Value Chain)

These encompass both upstream and downstream emissions. The goal of at least 95% coverage for Scope 3 reporting as per 2026 requirements is addressed by covering key categories.

- **Category 1: Purchased Goods and Services (Materials Acquisition):** 13.47 kgCO₂e (from Raw Materials)
- **Category 3: Fuel- and Energy-Related Activities (Upstream of purchased electricity, not included in Scope 2):** This would typically include T&D losses and upstream EFs for grid electricity. For simplicity, we assume the grid EF used already captures some upstream elements.
- **Category 4: Upstream Transportation and Distribution:** 0.089 kgCO₂e (from Upstream Transportation)
- **Category 9: Downstream Transportation and Distribution:** 14.138 kgCO₂e (from Downstream Transportation)
- **Category 11: Use of Sold Products:** 12.50 kgCO₂e (from Use Phase)
- **Category 12: End-of-Life Treatment of Sold Products:** -0.36 kgCO₂e (from End-of-Life)
- Other categories (e.g., Capital Goods, Business Travel, Employee Commuting) are assumed negligible or outside the product-specific boundary for this illustrative PCF.

Illustrative Total Scope 3 Emissions: 39.837 kgCO₂e (13.47 + 0.089 + 14.138 + 12.50 - 0.36)

**Overall Illustrative Product Carbon Footprint: Scope 1:
0.00 kgCO₂e
Scope 2: 6.30 kgCO₂e
Scope 3: 39.837 kgCO₂e
Total: 46.13 kgCO₂e**

4.4. 2026 LSR Standard Update Application

The Land Sector and Removals (LSR) Standard, released in January 2026, aims to provide clear requirements for accounting for emissions and removals from agricultural and land use activities. For Idjtmjpkdk, direct land-sector activities are not identified in the immediate production or use phases. However, the LSR Standard is relevant for the upstream supply chain (Scope 3, Category 1) if raw materials (e.g., bio-based plastics, paper/pulp) are sourced from land-intensive sectors or if eyjnhovomm or its suppliers engage in carbon removal projects. If any components of Idjtmjpkdk involve agricultural commodities (e.g., plant-based materials, some specialized chemicals derived from crops), the LSR Standard would guide the quantification and reporting of associated emissions or removals. For this illustrative report, specific land-use emissions/removals are not quantified due to the product's nature, but their potential relevance in the broader supply chain is acknowledged. The accompanying guidance, expected in Q2 2026, will provide more practical direction for implementation.

5. Review & Report - Hotspots and Reliability

5.1. Identification of Hotspots (Illustrative)

Based on this illustrative analysis, the primary emission hotspots for Idjtmjpkdk are: Confidential - Internal Use Only

- **Materials Acquisition:** High-impact components like Printed Circuit Boards (PCBs) and specialized electronic components

contribute significantly to upstream emissions, emphasizing the importance of sustainable sourcing and design for recyclability.

- **Downstream Transportation:** Last-mile delivery, even for a relatively short distance, contributes substantially due to the specific emission factor per kilometer for delivery vans compared to mass-efficient freight modes.
- **Use Phase:** Energy consumption during the product's lifespan, even if relatively low per year, accumulates over its entire lifespan and with the emission factor of the energy grid.

5.2. Data Reliability and Recommendations

The reliability of this PCF is contingent on the accuracy of the underlying data. As this report incorporates illustrative data for several parameters, the actual PCF for Idjtmjpkdk would require precise, primary data.

- **Primary Data Collection:** eyjnhovomm should prioritize collecting primary data for material quantities, supplier-specific emission factors for components, actual energy consumption in manufacturing, and precise transportation distances and modes.
- **Supply Chain Engagement:** Engage with key suppliers (especially for high-impact materials like PCBs and plastics) to obtain their cradle-to-gate carbon footprints, which improves the accuracy of Scope 3, Category 1 emissions.
- **Logistics Optimization:** Investigate opportunities to optimize transportation routes, switch to lower-emission transport modes, and improve load factors, especially for last-mile delivery.
- **Product Design for Sustainability:** Focus on designing Idjtmjpkdk for energy efficiency in the use phase and enhanced recyclability and repairability to minimize end-of-life impacts and maximize circularity.
- **LSR Standard Implementation:** For any raw materials with significant land-sector activities in their value chain, eyjnhovomm should prepare to implement the LSR Standard as its guidance becomes fully available in Q2 2026 and it takes effect in 2027.



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