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Product Carbon Footprint Analysis

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System Boundary: Factory-Gate (Cradle-to-Gate)
Standard: GHG Protocol

Total Carbon Footprint: 9.92 grams CO2e per unit

Total Footprint

9.92 g CO2e

per functional unit

Top Material Hotspot

PET/Alu/PE Film

(Sachet Packaging)

Primary Emission Scope

Scope 3

(79.94% of total)

Production Country

Netherlands

(Final Assembly)

Emissions Breakdown by Scope

Scope 3 (Value Chain)	**79.94%**
Scope 2 (Purchased Energy)	**17.84%**
Scope 1 (Direct Operations)	**2.22%**

Top Material Carbon Contributors (Scope 3, Cat 1)

PET/Alu/PE Film (Sachet)	**67.31%**
Polyester (Wipe Fabric)	**20.79%**
Cardboard (Outer Box)	**8.53%**
Isopropyl Alcohol	**2.67%**

Highlights & Key Insights

- **Sachet Packaging Dominates:** The PET/Alu/PE multilayer film used for individual sachets contributes the largest portion of emissions in Scope 3 due to its complex structure.
- **Virgin Polyester Impact:** Production of the polyester microfiber wipe fabric, derived from fossil fuels, is another significant contributor to upstream (Scope 3) emissions.

- **Operational Energy:** Purchased electricity for manufacturing, classified under Scope 2, remains a notable direct operational emission source, despite efforts towards a cleaner grid.

Action Plan: Recommendations for Emission Reduction

1. **Sachet Material Innovation:** Explore alternative lower-carbon or easily recyclable monomaterial films for sachets to reduce packaging impact.
2. **Sustainable Wipe Fabric:** Investigate options like recycled polyester or plant-based, biodegradable fibers to lower the carbon footprint of the wipe material.
3. **Renewable Energy Transition:** Aim for 100% renewable electricity at the manufacturing facility through PPAs or high-quality energy attribute certificates to virtually eliminate Scope 2 emissions.