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Nitrocellulose Carbon Footprint

Product: Nitrocellulose (1.0 unit, Brazil production)

Standard: GHG Protocol | **Boundary:** Factory-Gate

4.439 kg CO₂e

Total Product Footprint

4.439

Carbon Intensity (kg CO₂e/unit)

Nitric Acid Prod.

Top Material Hotspot

Scope 3 (98.3%)

Primary Emission Scope

Asia & Brazil

Geographic Focus

Lifecycle Stage Breakdown

Upstream Materials (Scope 3 Cat 1)	91.3%
Upstream Transportation (Scope 3 Cat 4)	3.4%
Manufacturing Operations (Scope 1 & 2)	1.7%
Waste Management (Scope 3 Cat 5)	3.6%

Top Emission Sources

Nitric Acid Production	78.1%
Cellulose Production	12.4%
Wastewater Treatment	3.6%
Raw Material Transportation	3.4%

Key Insights & Highlights

- Nitric Acid production is identified as the single largest carbon hotspot, significantly contributing to the overall footprint.
- Upstream (Scope 3) emissions account for over 98% of the total product footprint, emphasizing supply chain impact.
- Brazil's predominantly hydroelectric grid helps mitigate direct manufacturing electricity emissions, making this a comparatively lower impact area.

