

carboncalcpcf.com

Product Carbon Footprint Dashboard

for Pigment Blue 15:3 (1.0 kg unit)

Total PCF: **10.456 kg CO₂e** (Cradle-to-Gate)

TOTAL CARBON FOOTPRINT

10.456 kg CO₂e

CARBON INTENSITY

10.456 kg CO₂e / kg

TOP MATERIAL HOTSPOT

Phthalic Anhydride

4.0 kg CO₂e

PRIMARY EMISSION SCOPE

Scope 3

59.6% of total

Emissions Breakdown by Scope



- **Scope 3 Dominance:** Purchased Goods and Services (raw materials) are the largest contributor, accounting for 59.6% of the total PCF, highlighting the upstream supply chain's significant impact.
- **Energy-Intensive Production:** Scope 2 emissions from purchased electricity (India grid mix) represent 35.5% of the total, indicating a major opportunity for decarbonization through renewable energy adoption.
- **Phthalic Anhydride Impact:** Within raw materials, Phthalic Anhydride is the single largest material hotspot, contributing 4.0 kg CO₂e per kg of Pigment Blue 15:3, emphasizing the need for supplier collaboration for lower-carbon alternatives.

Recommendations for Emission Reduction

1. **Supplier Engagement for Low-Carbon Materials:** Collaborate with raw material suppliers to identify and procure chemicals produced with lower embedded carbon, focusing initially on phthalic anhydride and copper compounds.
2. **Renewable Energy Transition:** Invest in renewable electricity solutions for manufacturing operations in India, such as on-site solar, renewable energy credits, or Power Purchase Agreements (PPAs).
3. **Process Optimization and Energy Efficiency:** Implement energy-efficient technologies and best practices within the manufacturing plant to reduce overall electricity and natural gas consumption.
4. **Waste Reduction and Management:** Minimize process waste through improved efficiency and explore recycling or valorization opportunities to reduce emissions from waste treatment and disposal.
5. **Supply Chain Decarbonization for Logistics:** Optimize transportation routes and modes for raw materials to reduce fuel consumption and associated emissions.
6. **Advanced LSR Integration:** For future analyses, implement robust traceability systems to gather primary data on raw material origins and land use impacts, aligning with the GHG Protocol LSR Standard.

