

India Phthalic Anhydride Market By Type (Ortho-Phthalic Anhydride, Isophthalic Anhydride, Terephthalic Anhydride), By Sales Channel (Direct, Indirect), By End User (Automotive, Construction, Textiles, Electrical and Electronics, Pharmaceuticals, Paints & Coatings, Others), By Region, Competition, Forecast and Opportunities, 2020-2030F

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Report description:

India Phthalic Anhydride Market achieved a total market volume of 201.22 Million Tonnes in 2024 and is expected to reach 245.08 Million Tonnes by 2030 with a CAGR of 3.54% during the forecast period. Phthalic anhydride, with the chemical formula $C_8H_4O_3$, is a white, crystalline solid used primarily as an intermediate in the production of various chemicals and materials. It is typically produced through the oxidation of ortho-xylene or naphthalene, using a catalyst such as vanadium pentoxide.

One of its key applications is in the creation of phthalate esters, which serve as plasticizers in flexible plastics like polyvinyl chloride (PVC). The demand for these plasticizers is driven by sectors such as construction, automotive, and consumer goods. Additionally, phthalic anhydride is used in the production of dyes, pigments, and unsaturated polyester resins, which are essential for reinforced plastics and coatings. The growth of the construction and automotive industries further fuels the demand for these resins.

Phthalic anhydride reacts with alcohols to produce phthalate esters and can also be hydrolyzed to yield phthalic acid. It is also used in manufacturing certain pharmaceuticals and agricultural chemicals. The primary raw materials for its production, o-xylene and naphthalene are obtained both domestically and through imports, and their price and availability impact the cost and supply of phthalic anhydride.

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Increasing scrutiny and regulation of phthalates, due to health and environmental concerns, are prompting manufacturers to seek alternative plasticizers and adopt more sustainable practices. There is an increasing emphasis on creating production processes that are more sustainable and environmentally responsible. The Indian market, driven by industrial development and infrastructure projects, is expected to continue its growth, adapting to changes in the industrial and regulatory landscape.

Key Market Drivers

Construction and Real Estate Development

The Indian government's emphasis on enhancing infrastructure, including roads, bridges, and urban development, is driving increased demand for construction materials. Phthalic anhydride plays a critical role in producing unsaturated polyester resins and other essential construction materials. In the Interim Budget 2024-25, the capital investment allocation for infrastructure has been raised by USD 133.86 billion, representing 3.4% of GDP. Similarly, the Interim Budget 2023-24 has allocated USD 30.72 billion for the Railways, marking a 5.8% increase from the previous year.

Rapid urbanization in India further fuels the demand for residential and commercial buildings, leading to greater use of materials containing phthalate esters as plasticizers. Foreign Direct Investment (FDI) in construction development (including townships, housing, and infrastructure projects) reached USD 26.54 billion, while investment in infrastructure activities stood at USD 33.52 billion between April 2000 and December 2023. Increased investments from both domestic and international sources are accelerating construction activities, which in turn boosts the demand for phthalic anhydride and its derivatives.

According to IBEF, foreign investors contribute approximately USD 4 billion annually to Indian real estate, with a 20% year-over-year increase in foreign inflows in 2023. Additionally, the Reserve Bank of India (RBI) reports that Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InvITs) have accumulated USD 15.60 billion over the past four years up to March 2024.

Initiatives to develop smart cities across India necessitate advanced building materials and sustainable solutions, with phthalic anhydride-based products being essential for high-performance composites and coatings. Its role in producing coatings, sealants, and adhesives for construction further drives its demand. Supportive government policies and incentives aimed at boosting the construction sector, such as tax breaks and improved business conditions, also positively impact the phthalic anhydride market. The ongoing renovation and repair of existing structures sustains a steady demand for construction materials incorporating phthalic anhydride, ensuring continued market growth.

Growing Consumer Goods Market

The growth of the consumer goods market is driving increased demand for flexible plastics used in packaging, electronics, and home products. Phthalic anhydride is essential for producing phthalate esters, which act as plasticizers to improve the flexibility and durability of these plastics. With the rise in production of electronic devices and gadgets, there is a heightened need for high-performance materials, including plasticizers for cables, connectors, and other components, which boosts demand in this sector.

In 2022, the urban market segment contributed 65% to overall FMCG sales, while rural India accounted for over 35%. Improved harvests and government spending are expected to support a recovery in rural demand for FY24. The FMCG sector grew by 8.5% in revenue and 2.5% in volume in the previous fiscal year. As companies seek innovative and high-quality packaging solutions, the demand for phthalate-based plasticizers increases. Phthalic anhydride is vital in producing these plasticizers, enhancing the performance and visual appeal of packaging materials.

The Indian government has permitted 100% FDI in food processing and single-brand retail, and 51% in multi-brand retail, further stimulating the sector. Growing consumer demand for household goods such as appliances and furniture heighten the need for durable, flexible materials, with phthalic anhydride-based products being used in various components, from appliance casings to upholstery.

Rising disposable incomes are leading to increased consumer spending on a wide array of goods, further driving the demand for products made with phthalic anhydride. The focus on developing innovative, high-quality consumer products requires advanced materials, making phthalic anhydride-derived resins and plasticizers crucial for new product formulations and applications, thus supporting market growth.

Key Market Challenges

Regulatory Scrutiny and Environmental Concerns

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Governments worldwide are implementing increasingly stringent regulations on phthalates due to their potential health risks. This includes imposing restrictions on phthalate esters used in consumer goods, such as toys and packaging. Adhering to these regulations can raise operational costs and require significant modifications to production processes. Additionally, this product is subject to the mandatory BIS-ISI Mark certification scheme (Scheme-I of Schedule II), which requires manufacturers and importers to secure a valid license by a specified deadline. Non-compliance will result in a ban on importing, manufacturing, or selling these goods in the Indian market.

Failure to meet environmental and safety regulations can lead to legal consequences, including fines, lawsuits, and reputational damage. Companies must stay current with regulatory requirements to mitigate these risks. Meeting regulatory standards necessitates substantial investment in testing, documentation, and certification, increasing overall compliance costs and potentially straining resources, particularly for smaller manufacturers.

The demand for safer alternatives is driving the need to reformulate existing products. This process is complex and costly, requiring significant research and development to find viable substitutes for phthalate-based plasticizers and resins that meet both performance and regulatory standards. Consumer preference for environmentally friendly and non-toxic products is shaping regulatory trends. To remain competitive, companies must adapt to these preferences. Companies operating internationally face the challenge of navigating various regulatory environments, adding complexity and time to their global operations.

Price Volatility of Raw Materials

The prices of essential raw materials like ortho-xylene and naphthalene can vary widely due to market dynamics, geopolitical events, and disruptions in the supply chain. These price fluctuations can affect the cost of producing phthalic anhydride and subsequently impact profit margins. Disruptions such as transportation issues, natural disasters, or political instability can lead to shortages or delays, exacerbating cost challenges and production inefficiencies.

Unpredictable raw material costs create budget uncertainty for businesses, complicating financial forecasting and resource planning. This volatility can also affect manufacturers' ability to maintain stable product pricing, potentially undermining their competitiveness and profitability.

Companies may face difficulties negotiating with suppliers due to fluctuating raw material prices, which can impact their bargaining power. To manage these risks, businesses might need to invest in hedging strategies or secure long-term contracts with suppliers. While these approaches can help stabilize costs, they require additional resources and strategic planning. Consistent raw material price volatility can erode profit margins, especially if companies are unable to transfer increased costs to customers. This situation can strain financial performance and overall profitability.

Key Market Trends

Expanding Automotive Sector

The growth of the automotive sector is boosting the demand for high-performance materials, such as phthalic anhydride-based resins and plasticizers. These materials are essential for various automotive components, including interior trims, dashboards, and under-the-hood parts, due to their durability and flexibility. As automotive technology advances, the need for more sophisticated materials increases. Phthalic anhydride-derived products are increasingly used in advanced composites and coatings, which are crucial for new vehicle designs and performance improvements.

The surge in vehicle production, including passenger cars and commercial vehicles, is driving the need for materials that incorporate phthalic anhydride. As manufacturing scales up, so does the demand for components and materials that can endure demanding conditions. According to IBEF, in January 2024, the total production of passenger vehicles, three-wheelers, two-wheelers, and quadricycles reached 2,328,329 units.

Collaboration between automotive manufacturers and material suppliers is fostering innovation, leading to the development of new phthalic anhydride-based products tailored to the evolving needs of the industry. For instance, in February 2024, Vikas Ecotech Ltd. acquired a 100% stake in Vikas Organics Pvt Ltd. for USD 3.22 Million, expanding its product range to include various phthalate esters and plans to produce Dioctyl Terephthalate (DOT) and other materials within 6-12 months. Dioctyl Terephthalate is used in manufacturing high-temperature cables, automotive plastic parts, and leatherette.

The automotive industry is also increasingly focusing on sustainability, driving the shift towards more environmentally friendly materials. This includes seeking alternatives to traditional phthalate-based products and using renewable or recycled materials. For example, in 2023, the CSIR-Indian Institute of Chemical Technology (IICT) developed a process to convert PET bottles into

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safer phthalate-free Dioctyl Terephthalate (DOTP), and this technology was transferred to Chandantara Dugar Group (CDG) Petchem Ltd. for a new plant in Hyderabad.

Additionally, in 2023, Sohar Freezone announced a strategic partnership with Nasim Chemicals to establish a USD 10.4 million chemical manufacturing plant. This facility will produce Dioctyl Phthalate and Dioctyl Terephthalate, catering to the growing demand in the GCC, India, and African markets. The expanding automotive aftermarket is also contributing to the increased demand for phthalic anhydride-derived products, as aftermarket parts and accessories often require high-quality plastics and coatings.

Segmental Insights

Type Insights

Based on Type, the Ortho-Phthalic Anhydride emerged as the dominating segment in the Indian market for Phthalic Anhydride in 2024. Ortho-Phthalic Anhydride (OPA) is a crucial raw material for manufacturing phthalate esters, which serve as essential plasticizers for creating flexible and durable plastics. Beyond its role in plasticizers, OPA is also used in unsaturated polyester resins found in a wide range of products, including construction materials, automotive components, and coatings. The demand for OPA is fueled by its extensive application across various industries such as construction and automotive.

OPA's established presence in the chemical industry has led to well-developed infrastructure and optimized production processes, reinforcing its dominant market position. The large-scale production facilities and efficient supply chains contribute to lower production costs, making OPA economically favorable compared to other types of phthalic anhydride. OPA is vital in producing alkyd resins and other chemical intermediates used in numerous industrial applications, ensuring a steady and diverse demand. Its cost-effectiveness, driven by widespread use and established production methods, further supports its leading position in the market.

End User Insights

Based on End User, Electrical and Electronics emerged as the fastest growing segment in the Indian market for Phthalic Anhydride during the forecast period. The rapid evolution of electrical and electronics technology is driving the demand for high-performance materials. Products based on phthalic anhydride, such as plasticizers and resins, are crucial for manufacturing top-quality cables, connectors, and components that meet rigorous performance standards. According to IBEF, between April 2000 and December 2023, the electronic goods sector attracted FDI inflows totaling USD 4.57 billion. Modern electronics need data cables that resist heat, chemicals, and electrical interference. Phthalic anhydride-based plasticizers enhance the flexibility and durability of these cables through their insulation and sheathing.

The surge in production of smartphones, tablets, and other consumer electronics has increased the need for high-quality materials. Phthalic anhydride-based resins are integral in producing various electronic components, including circuit boards and connectors, providing the necessary insulation and mechanical strength for reliable performance.

Electric vehicles, which require specialized charging cables and components capable of withstanding high temperatures and electrical stress, also drive demand. Phthalic anhydride-based materials are used in the insulation and jacketing of EV charging cables, ensuring both safety and performance as EV production and infrastructure expand. The push for flexible electronic displays and advanced sensors necessitates innovative materials. Phthalic anhydride-based polymers are utilized in flexible substrates and protective coatings, aligning with the trend towards flexible and wearable electronics.

Regulations demanding better fire safety in electronic devices have spurred the development of flame-retardant materials. Phthalic anhydride-based products are key in these formulations, enhancing fire resistance while maintaining flexibility and performance. Overall, phthalic anhydride is essential for providing the advanced materials needed to support these technological advancements and sector growth.

Regional Insights

Based on Region, West India emerged as the dominant region in the Indian market for Phthalic Anhydride in 2024. The Western region is a hub for chemical and petrochemical industries, with Gujarat standing out for its extensive industrial infrastructure, including numerous chemical plants and industrial estates. Prominent companies like Thirumalai Chemicals Ltd and IG Petrochemicals have established their production facilities here, resulting in a substantial portion of the nation's phthalic anhydride production being concentrated in this area. The region benefits from well-developed port infrastructure, such as the ports of Mumbai and Gujarat, which supports the import of raw materials and export of finished products, enhancing its role in

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industrial activity. Additionally, Gujarat and Maharashtra offer attractive industrial policies and incentives that draw both domestic and international investment. The region also enjoys convenient access to essential raw materials for phthalic anhydride production, including o-xylene and naphthalene, from both local and global suppliers. The strong demand from key sectors such as automotive, construction, and paints & coatings further drives the growth and expansion of production facilities in the Western region.

Key Market Players

- IG Petrochemicals Limited
- Thirumalai Chemicals Ltd.
- SI Group - India Private Limited
- BASF India Limited
- LGC Petrochemical India Pvt. Ltd.
- OCI Company Limited
- KJ Group
- Vizag Chemical International
- Aekyung Petrochemical Co., Ltd.
- Sanjay Chemicals India Pvt Ltd.

Report Scope:

In this report, the India Phthalic Anhydride Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

□□India Phthalic Anhydride Market, By Type:

- o Ortho-Phthalic Anhydride
- o Isophthalic Anhydride
- o Terephthalic Anhydride

□□India Phthalic Anhydride Market, By Sales Channel:

- o Direct
- o Indirect

□ India Phthalic Anhydride Market, By End User:

- o Automotive
- o Construction
- o Textiles
- o Electrical and Electronics
- o Pharmaceuticals
- o Paints & Coatings
- o Others

□□India Phthalic Anhydride Market, By Region:

- o West India
- o North India
- o South India
- o East India

Competitive Landscape

Company Profiles: Detailed analysis of the major companies presents in the India Phthalic Anhydride Market.

Available Customizations:

India Phthalic Anhydride Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

- Detailed analysis and profiling of additional market players (up to five).

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