



Industry Report on Petrochemicals

July 2024

© Dun & Bradstreet All rights reserved.

D&B and D-U-N-S are registered trademarks of Dun & Bradstreet.

All other product names and brand names are trade names, service marks, trademarks, or registered trademarks of their respective owners.

Disclaimer

*This study has been undertaken through extensive secondary research, which involves compiling inputs from publicly available sources, including official publications and research reports. Estimates provided by Dun & Bradstreet (“**Dun & Bradstreet**”) and its assumptions are based on varying levels of quantitative and qualitative analysis including industry journals, company reports and information in the public domain.*

Dun & Bradstreet has prepared this study in an independent and objective manner, and it has taken all reasonable care to ensure its accuracy and completeness. We believe that this study presents a true and fair view of the industry within the limitations of, among others, secondary statistics, and research, and it does not purport to be exhaustive. The results that can be or are derived from these findings are based on certain assumptions and parameters/conditions. As such, a blanket, generic use of the derived results or the methodology is not encouraged.

Forecasts, estimates, predictions, and other forward-looking statements contained in this report are inherently uncertain because of changes in factors underlying their assumptions, or events or combinations of events that cannot be reasonably foreseen. Actual results and future events could differ materially from such forecasts, estimates, predictions, or such statements.

The recipient should conduct its own investigation and analysis of all facts and information contained in this report is a part and the recipient must rely on its own examination and the terms of the transaction, as and when discussed. The recipients should not construe any of the contents in this report as advice relating to business, financial, legal, taxation or investment matters and are advised to consult their own business, financial, legal, taxation, and other advisors concerning the transaction.

Table of Contents

Global Macroeconomic Scenario 4

India Economic Growth Scenario 4

 Economic Growth Outlook..... 5

Petrochemical Consumption in India 8

 Annual Consumption Volume 8

 India v/s Global Consumption Pattern 8

 Feedstock Scenario 9

Demand Drivers..... 11

 Demand from Paints & Coatings Industry 12

 Demand from Printing Ink Industry 13

 Demand from Agrochemical Industry 17

 Demand from Pharmaceutical Industry..... 18

 Demand from Specialty Polymer Industry..... 20

 Demand from Industrial Chemicals..... 21

Petrochemical Imports to India 23

 Role of Import in Meeting Domestic Demand..... 23

 Regulatory Framework Surrounding Petrochemical Imports to India..... 24

Growth Forecast..... 25

Global Macroeconomic Scenario¹

Global economic activity is expected to clock a growth of 3.2% in 2024, which is identical to the estimated growth recorded during 2023. Although this represents a modest growth outlook, the one positive factor is the balancing out of the risks to global growth, compared to previous years. In addition to the softening of risks, the global economy appears to have staved off any imminent risk of recession.

Global economic growth will be headlined by emerging markets & developing economies (largely dominated by India, China, Brazil, Russia). Asian economies within the bloc is expected to grow by 5.2% in 2024 and further by 4.9% in 2025. Although China is expected to witness sluggish growth during the period, Indian economy is showing signs of strong growth. Continued strengthening of domestic demand and a rising working age population are two of the key factors that would be driving the growth in India.

The emerging markets & developing economies bloc is expected to grow by 4.2% in 2024 and 2025. Meanwhile the economic growth in advanced economies is expected to rise from 1.6% in 2023 to 1.7% in 2024 and 1.8% in 2025.

Economic growth in the US and European area is expected to be marginally better in 2024. Although Europe experienced a less robust performance in 2023, the recovery in 2024 is expected to be driven by increased household consumption as the impact of energy price shocks diminishes and inflation decreases, thereby bolstering real income growth.

India Economic Growth Scenario

India’s economy showed resilience with GDP growing at estimated 7.6% in FY 2024. The GDP growth in FY 2024 represents a return to pre pandemic era growth path. Even amidst geopolitical uncertainties, particularly those affecting global energy and commodity markets, India continues to remain one of the fastest growing economies in the world.

Country	Real GDP Growth (2023)	Projected GDP Growth 2024
India	7.8%	6.8%
China	5.2%	4.6%
Russia	3.6%	3.2%
Brazil	2.9%	2.2%

¹ Note: Advanced Economies and Emerging & Developing Economies are as per the classification of the World Economic Outlook (WEO). This classification is not based on strict criteria, economic or otherwise, and it has evolved over time. It comprises of 40 countries under the Advanced Economies including the G7 (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada) and selected countries from the Euro Zone (Germany, Italy, France etc.). The group of emerging market and developing economies (156) includes all those that are not classified as Advanced Economies (India, China, Brazil, Malaysia etc.). Source for global economic outlook section – IMF World Economic Outlook Report

United States	2.5%	2.7%
Japan	1.9%	0.9%
Canada	1.1%	1.2%
Italy	0.9%	0.7%
France	0.7% ²	0.7%
South Africa	0.6%	0.9%
United Kingdom	0.1%	0.5%
Germany	-0.3%	0.2%

Source: The International Monetary Fund

Countries considered include - Largest Developed Economies and BRICS (Brazil, Russia, India, China, and South)

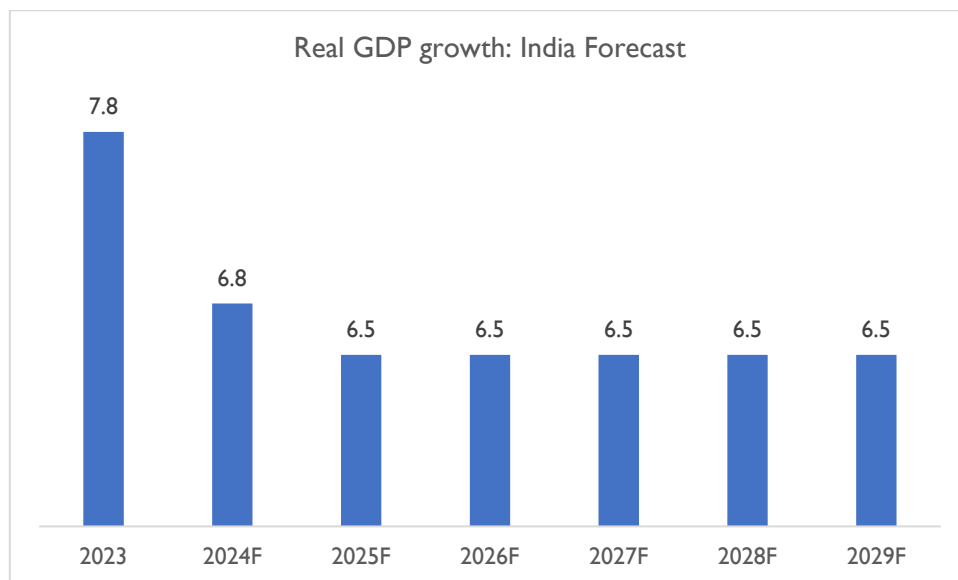
Countries have been arranged in descending order of GDP growth in 2023).

Realizing the need to impart external stimuli, the Government stepped up its spending on infrastructure projects which in turn had a positive impact on economic growth. The capital expenditure of central government increased by 37.4% increase in capital expenditure (budget estimates), to the tune of Rs 10 trillion in the Union Budget 2023-2024. The announcement also included 30% increase in financial assistance to states at Rs 1.3 trillion for capex. The improvement was accentuated further as the Interim Budget 2024-2025 announced an 11.1% increase in the capital expenditure outlay at Rs 11.1 trillion, constituting 3.4% of the GDP. This has provided the much-needed confidence to private sector, and in turn attracted private investment.

Economic Growth Outlook

Looking ahead to 2024, India's projected GDP growth of 6.8% in 2024 stands out as the fastest among major emerging markets, significantly outpacing China's 4.6% and Brazil's 2.2%. This robust growth trajectory is expected to sustain at 6.5% annually from 2025 to 2029, reflecting strong economic fundamentals and continued momentum.

² European Commission



Source: IMF

This decent growth momentum in near term (2024) is accompanied by a slowdown in inflation, as well as various other factors in the medium to long term that will support the economy. These include enhancements in physical infrastructure, advancements in digital and payment technology, improvements in the ease of doing business and a higher quality of fiscal expenditure to foster sustained growth.

On the demand side, improving employment conditions and moderating inflation are expected to stimulate household consumption. Further, the investment cycle is gaining traction, propelled by sustained government capital expenditure, increased capacity utilisation and rising credit flow. Additionally, there are positive signs of improvement in net external demand, as reflected in the narrowing merchandise trade deficit. Despite the supply disruptions, exports clocked positive y-o-y growth in December 2023 and January 2024.

From uplifting the underprivileged to energizing the nation's infrastructure development, the Government has outlined its vision to propel India's advancement and achieve a 'Viksit Bharat' by 2047 in the interim budget announced on 1st Feb 2024. Noteworthy positives in the budget include achieving a lower-than-targeted fiscal deficit for FY24 and setting a lower-than expected fiscal deficit target for FY25, proposing dedicated commodity corridors and port connectivity corridors, providing long-term financing at low or nil interest rates to the private sector to step up R&D in the sunrise sectors.

Achieving a reduced fiscal deficit of 5.8% in FY24 and projecting a lower than-anticipated fiscal deficit of 5.1% are positive credit outcomes for India. This showcases the country's capability to pursue a high-growth trajectory while adhering to the fiscal glide path. There has been a significant boost to capital expenditure for two consecutive years; capital expenditure – which is budgeted at 3.4% of GDP (INR 11.1 trillion/USD 134 bn) for 2024/25 – is at a 21-year high (3.3% of GDP in 2023/24). The enhancement of port connectivity, coupled with the establishment of dedicated commodity corridors (energy, mineral and

cement), is poised to enhance manufacturing competitiveness. This strategic move aims to fulfil India's export targets and reduce logistics costs.

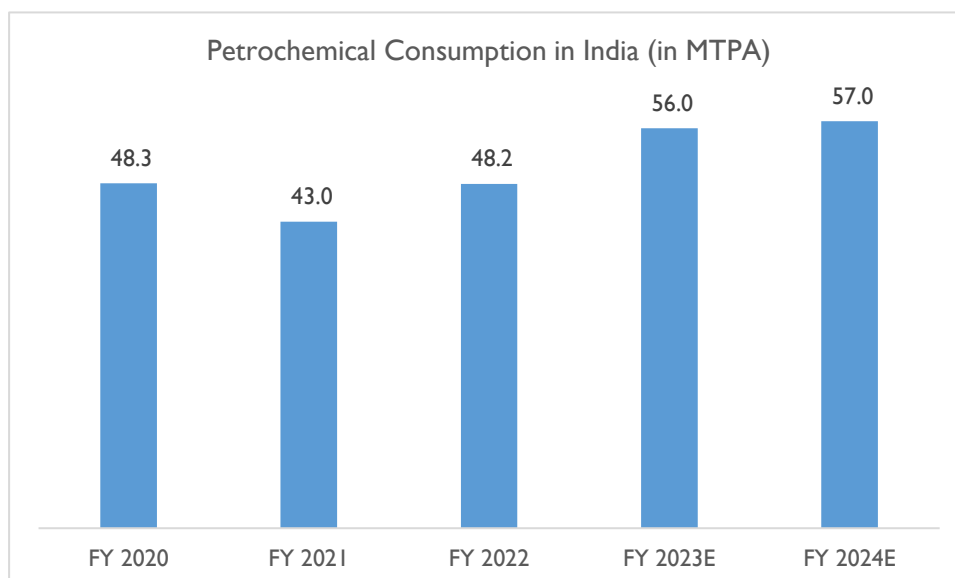
The push to position India as a global manufacturing hub through Make in India and PLI schemes is further boosting industrial output, exports, and domestic production capabilities. Compared to other major emerging markets facing demographic and economic challenges, India's combination of demographic strengths, policy reforms, and strategic initiatives positions it as a standout performer and a significant driver of global economic growth in the foreseeable future.

Petrochemical Consumption in India

Annual Consumption Volume

India has been one of the largest consumers of chemicals & petrochemical products in Asia Pacific region for the bulk of the last 10 – 15 years. The rapid growth in India’s manufacturing infrastructure during this time period have created strong demand for a wide range of chemical & petrochemical input materials and intermediates. As India became one of the fastest growing economies in the world, the annual growth in demand for chemical & petrochemical input materials and intermediates too increased at a fast clip.

The spread of Covid-19 pandemic impacted the petrochemical demand in India in FY 2021 – like it did across the globe. Subsequently the annual consumption of petrochemicals dropped to 43 million tons per annum (MTPA) in FY 2021, as against 48.3 MTPA in the previous year. However, the resumption in economic activity in FY 2022 and subsequent years – as the impact of Covid pandemic wore off – have helped the industry recoup its growth. Annual consumption volume rose to 48.2 MTPA in FY 2022 and further to approximately 57 MTPA in FY 2024³.



Source: Department of Chemicals & Petrochemicals, Ministry of Statistics & Program Implementation, Ministry of Commerce, D&B Estimates

India v/s Global Consumption Pattern

Despite the strong growth in petrochemical consumption in the recent years, per capita petrochemical consumption in India remains low when compared to both global average as well as other fast growing developing economies. For example, the per capital consumption of polyester in India is only 1.4 kgs as against

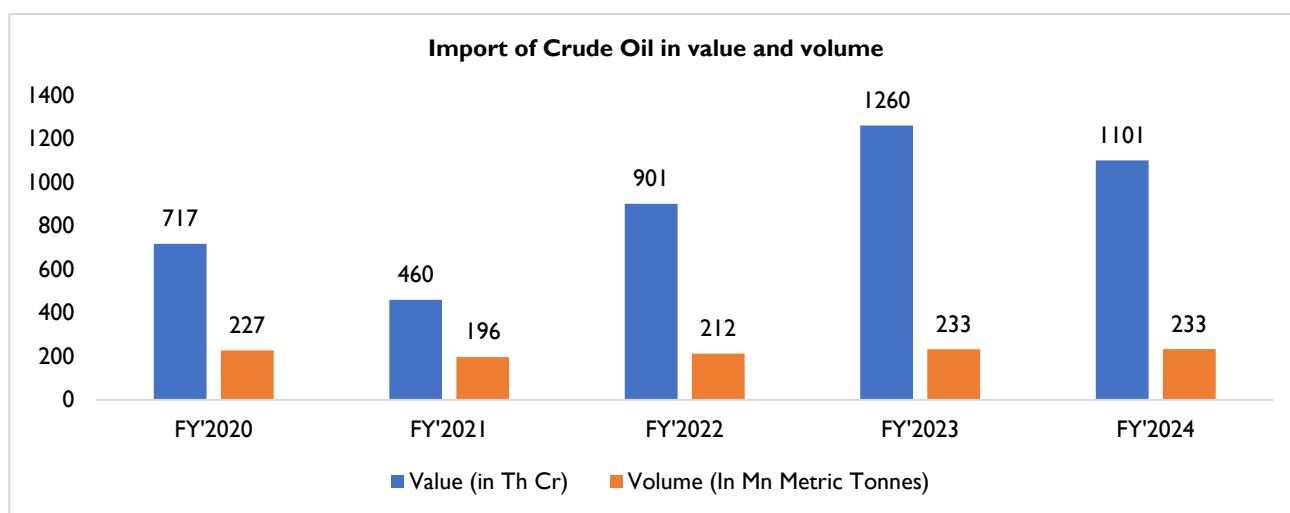
³ Annual production data for FY 2023 and FY 2024 is yet to be released by the Government of India. In the absence of this data D&B have estimated the production volumes for FY 2023 and 2024 using the IIP growth in chemicals, chemical products & refined petroleum products during those two years as proxy. Basis this proxy growth rate, D&B have estimated the production volume for FY 2023 and 24. These estimates together with import and export data has been used to arrive at the estimated consumption volume for FY 2023 and 24.

6.6 kg for China and 3.3 kg for world. Similarly, the per capita consumption of polymer in India is estimated to be 4 kg as compared to global average of 20 kg⁴. These disparities highlight the significant potential for growth in India's petrochemical consumption as the country continues to develop its industrial base and expand its production capacities to meet both domestic and global demand.

Several factors contribute to the lower per capita consumption of petrochemicals in India. The country's large population, coupled with lower levels of industrialization and urbanization compared to developed nations, results in relatively modest consumption levels. However, with ongoing industrialization, urbanization, and rising income levels, the demand for petrochemical products is expected to grow significantly.

While India's current per capita consumption of petrochemicals is significantly lower than the global average, the country's economic growth, government initiatives, and rising domestic and export demand present substantial opportunities for the petrochemical industry. As India continues to industrialize and urbanize, the demand for petrochemical products will likely surge, supporting the country's economic expansion and enabling it to address the needs of its diverse end-use sectors.

Feedstock Scenario



Source: Ministry of Petroleum and Natural Gas

India's crude oil imports decreased by 0.2% in FY 2024, yet import dependency remains high, with over 85% of crude oil being imported and refined into fuels like petrol and diesel. Despite importing a similar quantity of crude oil as compared to last year, India spent Rs 1,101 thousand crores in FY 2024 due to falling international crude oil prices. Petroleum products consumption in India increased by 4.6% to 233.3 million metric tonnes (MMT) in FY 2024, while domestic production remained steady.

A report from the oil ministry indicates that the growth in petroleum product consumption—an indicator of

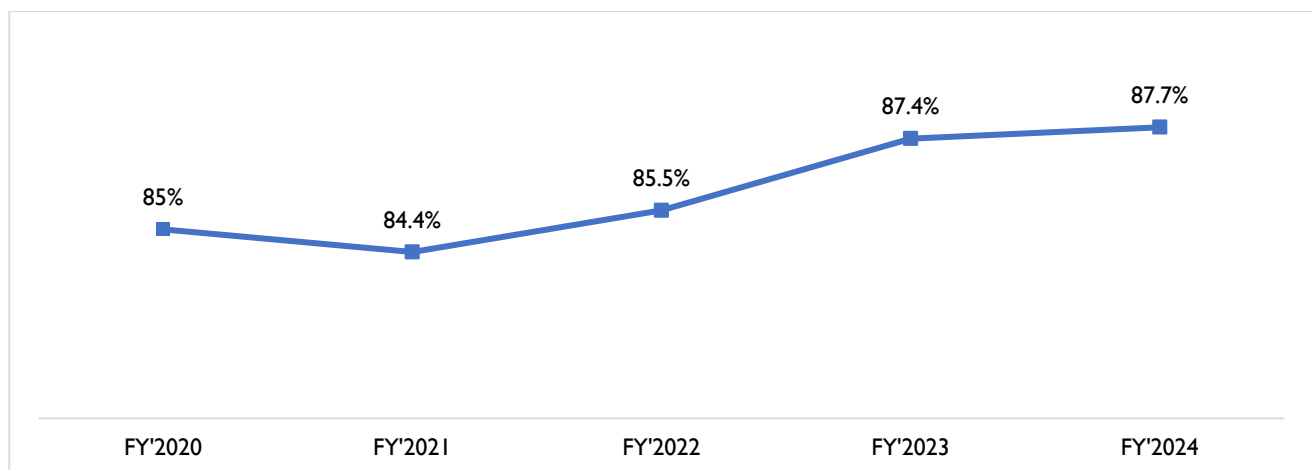
⁴ Demand and Availability of Petrochemicals Including Import and Exports, Lok Sabha Secretariat, December 2020

oil demand—in FY 2024 was driven by a 6.4% increase in motor spirit (MS) or petrol, 4.4% in high-speed diesel (HSD), 11.8% in aviation turbine fuel (ATF), and 14.3% in naphtha consumption, alongside increases in LPG, lubes, bitumen, petcoke, and light diesel oil (LDO). In comparison, product consumption in the previous year was 223 MMT. Domestic crude oil production in FY 2024 was 29.4 MMT, nearly unchanged from 29.2 MMT in the previous year. Consequently, India’s crude oil imports were at their highest, meeting 87.7% of its oil requirements from foreign supplies. This dependency was 87.4% in FY 2023 and 85.5% in FY 2022.

India’s high import dependency poses challenges amid rising oil prices due to geopolitical tensions in the Middle East and controlled supply from OPEC+. To mitigate the impact of rising oil prices, the Indian government has urged oil explorers ONGC and Oil India Limited (OIL) to boost production. ONGC aims to reverse years of declining production by FY 2025, targeting new output from its Krishna Godavari (KG) basin to gradually raise overall oil production by 11% and gas production by 15%.

On the trade front, India has diversified its sources of crude oil, now purchasing from 37 countries, up from 29 countries previously. This strategy ensures energy availability at affordable prices. Notably, Russia, which accounted for only 0.2% of India’s total crude requirements before 2022, now supplies around 30% of total crude imports.

Import dependency on crude oil



Source: Ministry of Petroleum and Natural Gas

Demand Drivers

India's petrochemical industry is experiencing a significant growth surge, fuelled by a confluence of economic, social, and infrastructural factors. The key drivers propelling this demand:

Strong Industrial Growth

Industrial activity in India has been growing at a rapid pace. A supportive policy environment enabled by the Government, attractive investment scenario, and strong demand for industrial products have all led to this rapid growth. Subsequently, the demand for input material and intermediate products required by the industrial segment has gone up. Since chemicals & petrochemicals form one of the key input material used by the industrial segment, the strong growth in industrial product naturally translated into a strong demand for chemical and petrochemical products.

Infrastructure Development

The Indian government's focus on infrastructure development creates a massive demand for construction materials with significant petrochemical content.

Petrochemical Applications:

- **Pipes and Insulation:** Petrochemical-based plastics are used for manufacturing durable and lightweight pipes for water supply, sewage systems, and electrical cables. Similarly, petrochemical-derived insulation materials like foam help regulate temperature in buildings.
- **Coatings and Sealants:** Petrochemical-based paints, coatings, and sealants are essential for protecting bridges, buildings, and other infrastructure from harsh weather conditions and corrosion.

Rapid Urbanization

Rapid urbanization fuels a construction boom, leading to a surge in demand for building materials with significant petrochemical content.

Petrochemical Consumption in Urbanization:

- **Building Materials:** Construction utilizes a variety of petrochemical products like PVC pipes, electrical wires with plastic insulation, and flooring materials like vinyl tiles.
- **Paints and Coatings:** As mentioned earlier, paints and coatings are crucial for protecting buildings and enhancing aesthetics, further driving demand for petrochemicals.
- **Furniture:** Modern furniture often incorporates petrochemical-based plastics, laminates, and synthetic fibers, impacting consumption.

Strong demand from Automobile industry

India's booming automotive sector is a major consumer of petrochemicals for various car components.

Petrochemicals in Automobiles:

- **Essential Components:** Tires, hoses, belts, and various interior parts like dashboards and seats rely heavily on different types of petrochemicals like rubber, synthetic polymers, and plastics.
- **Lightweighting Trend:** The automotive industry's focus on lightweight materials for fuel efficiency is driving demand for advanced petrochemical-based composites that offer strength and weight reduction.

Packaging Revolution:

- The rise of e-commerce and convenience food options has led to a significant increase in the use of plastic packaging. This trend is expected to continue, further boosting demand for polymers used in packaging materials.

Limited Alternatives and Affordability:

- Compared to traditional materials like metal or wood, petrochemical-based products often offer advantages in terms of cost-effectiveness, ease of use, and versatility. This makes them a preferred choice for many applications, especially in a price-sensitive market like India.

Demand from Paints & Coatings Industry

The annual turnover in Indian paint industry is estimated to be INR 746 Bn in FY 2024, growing by a CAGR of nearly 15% during the last four years. Approximately 809 thousand tons of paint & varnish was consumed in India in FY 2024, out of which nearly 96% was domestically produced. India is one of the leading manufacturers of paints & coatings in the world and is counted as one of its largest consumers. The annual production of paints & varnish in India stood at nearly 779 thousand tons in FY 2024.

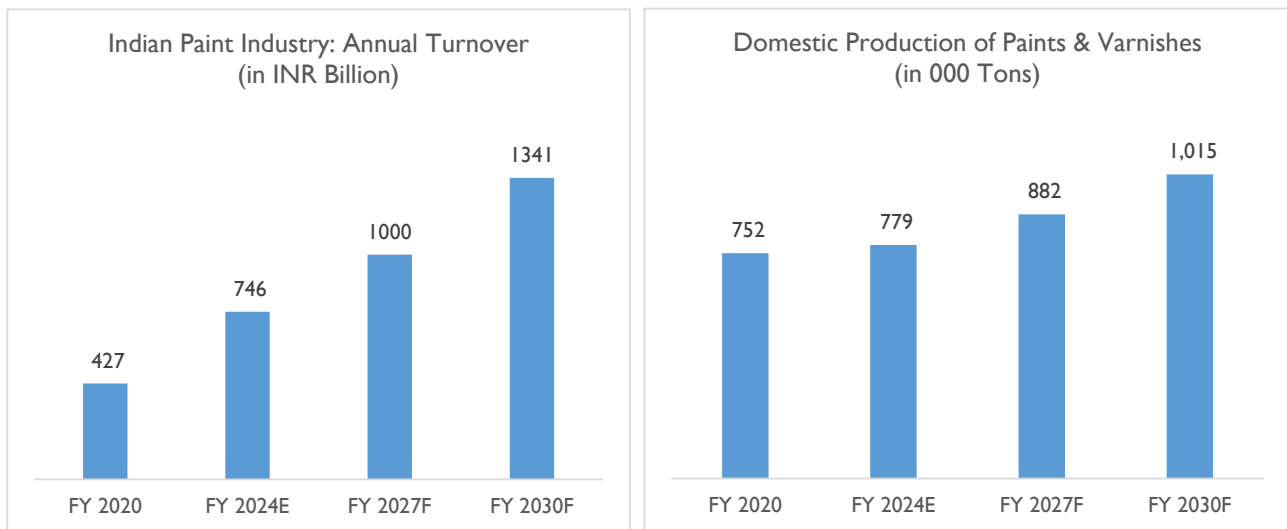
Indian paint industry is witnessing strong demand, mainly from a robust construction sector which is one of the leading consumers of paints & coatings in India. It is estimated that nearly two third of demand for paints in India comes from the real estate sector. Hence a growth in real estate construction commensurately translates into a strong demand for paints.

Indian real estate sector has been witnessing rapid growth in the recent years on the back of urbanization, Government focus on housing development, increasing income levels, and ease of access to mortgage products. Moreover, improvement in business sentiment and a supportive policy environment has triggered expansion in construction in commercial real estate too. All these factors are expected to remain positive in the long term, and this points to a continued growth in real estate industry in India.

On the back of this optimistic demand scenario, the Indian paint industry is expected to increase reach approximately INR 1,000 Bn in turnover by FY 2027⁵. Assuming the growth rate till FY 2027 continues, the industry is expected to touch an annual revenue of INR 1,341 Bn by FY 2030. The strong demand is expected

⁵ As per Indian Paint Manufacturers Association

to prompt paint manufacturers to expand their capacity. By the end of this decade the domestic production of paints in India is expected to reach approximately 1,105 thousand tons.



Source: CMIE Industry Outlook, Indian Paint Manufactures Association, D&B Estimates

Impact on Petrochemical Demand

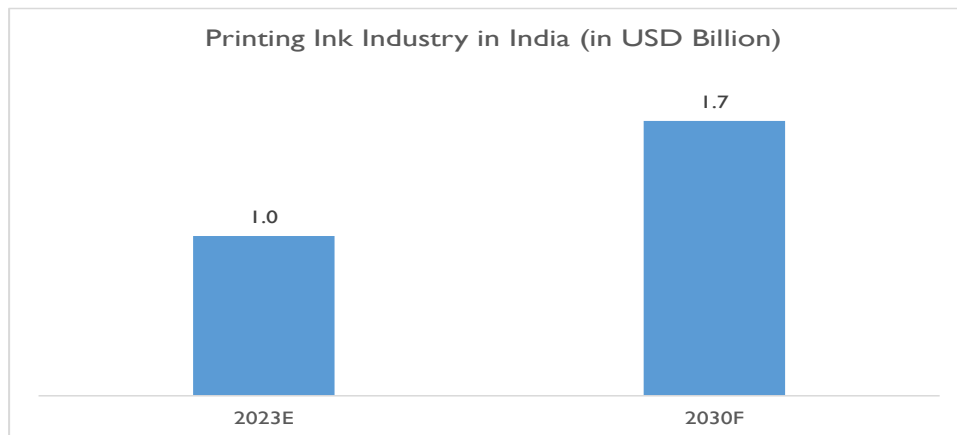
A wide range of chemicals & petrochemicals are used in paint manufacturing where it serves the purpose of binders, solvents, additives to name a few. Some of the commonly used binders in paint manufacturing include acrylic polymers, alkyd polymers, epoxy polymers, latex, and phenolic resins. Meanwhile petrochemical compounds like Xylene, Toluene, Alcohols (n-butanol, isopropanol), and ketones are used as solvents in paint manufacturing. In addition, a wide range of chemicals & petrochemicals are used as additives and pigments in paints.

The demand for these petrochemicals from paint industry is tied to the production of paints & coatings. India has emerged as one of the leading manufacturers of paints, producing nearly 779 thousand tons of paints & varnishes in FY 2024. The strong growth in real estate construction in the country points to continued strong demand for paints in India. As a result, the domestic production volume of paints & varnishes is expected to cross 1000 thousand tons per annum by FY 2030. This strong growth in domestic paint production would in turn create a strong demand for all the chemicals & petrochemical input materials and intermediates used by the paint industry.

Demand from Printing Ink Industry

Growth in Printing Ink Industry

Globally, the printing ink industry is estimated to be worth USD 15 Bn while Indian printing ink market is estimated to be around USD 1 Bn⁶. Meanwhile the domestic consumption of printing ink is estimated to be over 400,000 tons and has been increasing steadily. The demand for printing ink is fuelled by strong demand coming from packaging industry. Going ahead, the Indian printing ink market is expected to grow by a CAGR of nearly 8% over the next few years⁷. Assuming this growth rate, the turnover in Indian printing ink industry would hit nearly USD 1.7 Bn by the end of this decade.



Source: D&B Research and Estimates

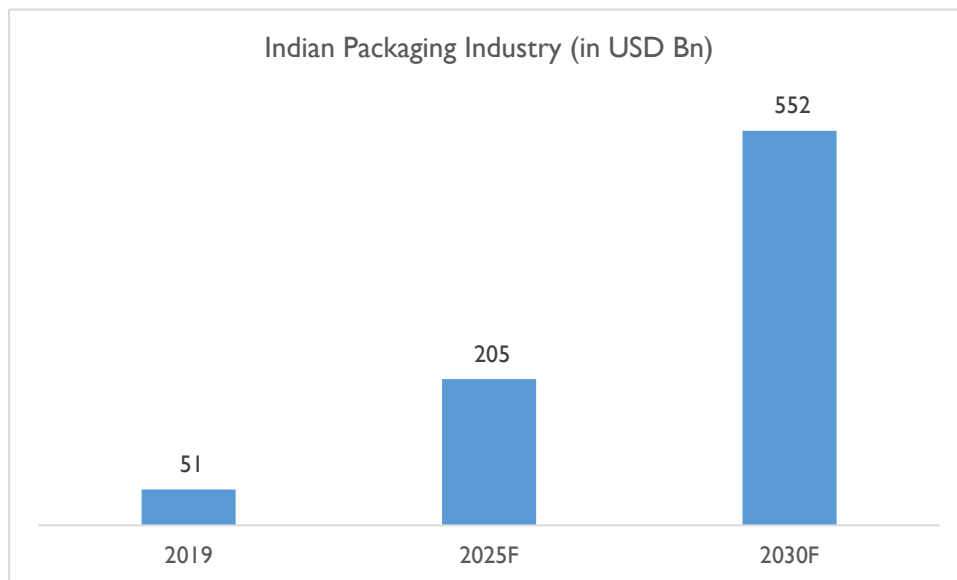
Expansion of the Packaging Industry

One of the primary drivers of the printing ink industry in India is the rapid expansion of the packaging industry. Packaging is the fifth largest economic sector in the country, and India is one of the fastest growing packaging markets in the world. According to Indian Institute of Packaging (IIP), the per capita consumption of packaging products in India has increased by nearly 200% during 2010 -2020 period, increasing from nearly 4.3 kg per person per annum in FY 2010 to nearly 8.6 per person per annum in FY 2020.

The Indian market for packaging products was worth nearly USD 50 Bn in 2019 and is expected to reach USD 204 Bn in 2025. According to Packaging Industry Association of India (PIAI), the industry is growing by a CAGR of 22 – 25%. Considering this growth forecast, the Indian market for packaging products is expected to reach approximately USD 552 Bn by the end of this decade.

⁶ Industry Sources: As quoted by Industry associations & affiliates associated with printing and packaging industry (including AIPIMA, PrintWeek, InkWorld)

⁷ Industry Sources: AIPIMA, PrintWeek



Source: Packaging Industry Association of India, Invest India, D&B Estimates

With increasing urbanization and changes in consumer lifestyles, there is a heightened demand for packaged goods. This surge necessitates the use of high-quality printing inks for various packaging materials such as flexible packaging, labels, and corrugated boxes. These materials require specialized inks to meet aesthetic and functional needs, thereby driving the growth of the printing ink market. This growth is significantly supported by the printed packaging segment, which accounts for about 27% of the total demand for printing inks. Newspapers contribute 20%, while commercial printing, promotional materials, and printed advertising together make up around 19%. The packaging industry’s growth is expected to continue, given the rising demand for consumer goods, thus sustaining the demand for printing inks.

Growth of the E-commerce Sector

The booming e-commerce sector in India is another significant demand driver for printing inks. The Indian e-commerce industry is projected to reach USD 300 billion by 2030, experiencing significant growth. The rise of online shopping has led to an increased need for printed packaging materials, as e-commerce companies strive to enhance the unboxing experience for consumers. Vibrant and high-performance printing inks are essential for creating attractive and durable packaging. As more consumers shift towards online shopping, the demand for quality printed packaging is expected to grow, further boosting the printing ink market. This trend underscores the critical role of e-commerce in driving the demand for printing inks in India.

Advertising and Promotional Activities

Advertising and promotional activities significantly contribute to the demand for printing inks in India. Businesses are increasingly investing in marketing efforts to attract and retain customers, leading to a heightened need for high-quality printed materials such as banners, posters, flyers, and brochures. Printing inks play a crucial role in achieving vivid colors and sharp images, making promotional materials more appealing and effective. Commercial printing, promotional materials, and printed advertising together make up around 19% of the total demand for printing inks. The growing emphasis on advertising and promotional

campaigns drives the demand for printing inks, as companies seek to differentiate their products and services in a competitive market.

Technological Advancements and Innovations

Technological advancements and innovations in the printing ink industry are also key demand drivers. The development of eco-friendly and high-performance inks has opened new market opportunities and catered to the evolving needs of various sectors. Innovations such as UV-curable inks, water-based inks, and other specialized formulations have enhanced the quality and sustainability of printed materials. These advancements not only improve the performance and appeal of printed products but also meet regulatory requirements and consumer preferences for environmentally friendly options. As a result, technological progress continues to drive the demand for advanced printing inks in India.

Petrochemical feedstock used by printing ink industry.

The printing ink industry in India is a significant consumer of petrochemical feedstocks, crucial for producing the various pigments and resins used in inks. This demand is driven by several key factors that interlink the growth of the printing ink sector with the consumption of petrochemicals. Firstly, the need for pigments, essential inputs for printing inks, is on the rise. Petrochemical-based pigments such as carbon black, Victoria blue, and phthalocyanine blue are extensively used.

As the printing industry expands, particularly in sectors like packaging, newsprint, publishing, and commercial printing, the demand for these pigments grows correspondingly. The vibrant and varied colors required in modern printing processes depend heavily on these specialized pigments, making petrochemicals a backbone of the industry. In addition to pigments, resins like phenolic resins, which provide the necessary adhesive properties for inks, are in high demand. These resins are also derived from petrochemicals and are indispensable for producing high-quality printing inks. As the printing ink industry continues to grow, the requirement for these resins increases, further driving the demand for petrochemical feedstocks.

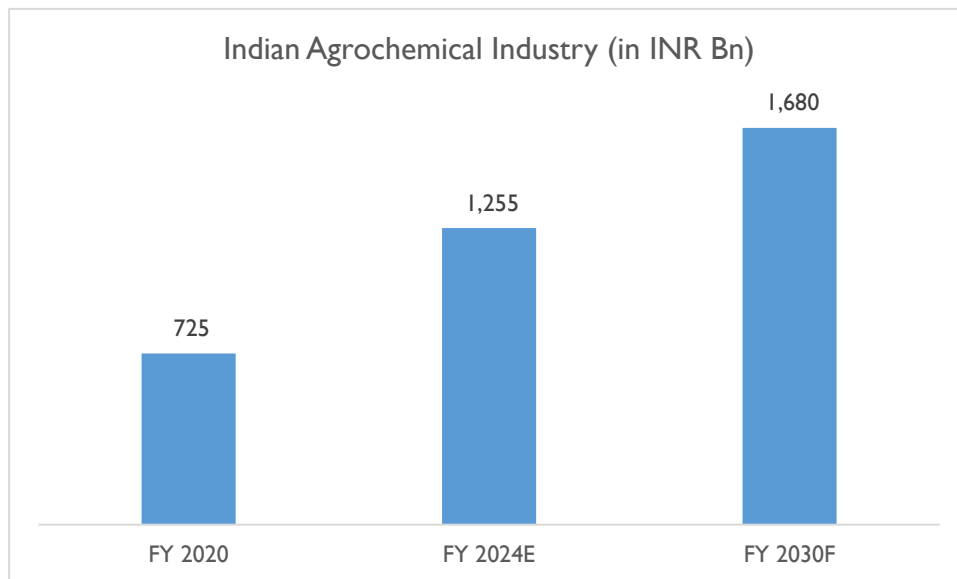
The ongoing trend towards high-performance and eco-friendly inks also stimulates demand for advanced petrochemical feedstocks. As the industry seeks to develop inks with lower environmental impact and better performance characteristics, the requirement for specialized petrochemical products, including high-purity solvents and advanced polymer resins, increases. This, in turn, drives innovation and demand in the petrochemical industry, highlighting the interconnected nature of these sectors.

In conclusion, the expansion of the printing ink industry significantly boosts the demand for petrochemical feedstocks. As the industry grows and evolves towards more advanced and sustainable products, the need for specialized petrochemical inputs will continue to rise, fostering further development and innovation within the petrochemical sector.

Demand from Agrochemical Industry

India is the fourth-largest producer of agrochemicals globally, following the United States, Japan, and China, and is also the fourth net exporter of agrochemicals and the thirteenth-largest exporter of pesticides and disinfectants..

Indian agrochemical industry is estimated to be worth INR 1,255 Bn in FY 2024, and it is expected to reach a turnover of INR 1,680 Bn by FY 2030. The rising demand in the agricultural segment is driving the growth of agrochemicals in India.



Source: CMIE Industry Outlook, D&B Estimates

Agrochemicals, which include insecticides, herbicides, fungicides, and other plant-protection chemicals, rely heavily on petrochemical feedstocks for their production. Organic chemicals derived from petrochemicals are crucial in synthesizing these agrochemicals. According to the Ministry of Chemicals' India's installed capacity for insecticide and pesticide manufacturing stands at approximately 324 thousand MT, with annual production reaching 138 thousand MT in FY 2023 (up to September 2022). The industry encompasses around 280 molecules and 800 agrochemical formulations registered in India, underscoring the significant dependency on petrochemical-derived raw materials. T

Key factors driving demand for agrochemicals

The demand for agrochemicals in India is rising rapidly, driven by the need to enhance crop productivity and protect against pests and diseases. As the agricultural sector expands to feed a growing population, farmers are increasingly adopting insecticides, herbicides, and fungicides. This growing reliance on agrochemicals is essential for improving yields and ensuring food security. Consequently, the agrochemical market in India is experiencing robust growth, supported by both domestic consumption and export opportunities.

Impact of Agrochemical Industry on petrochemical feedstock

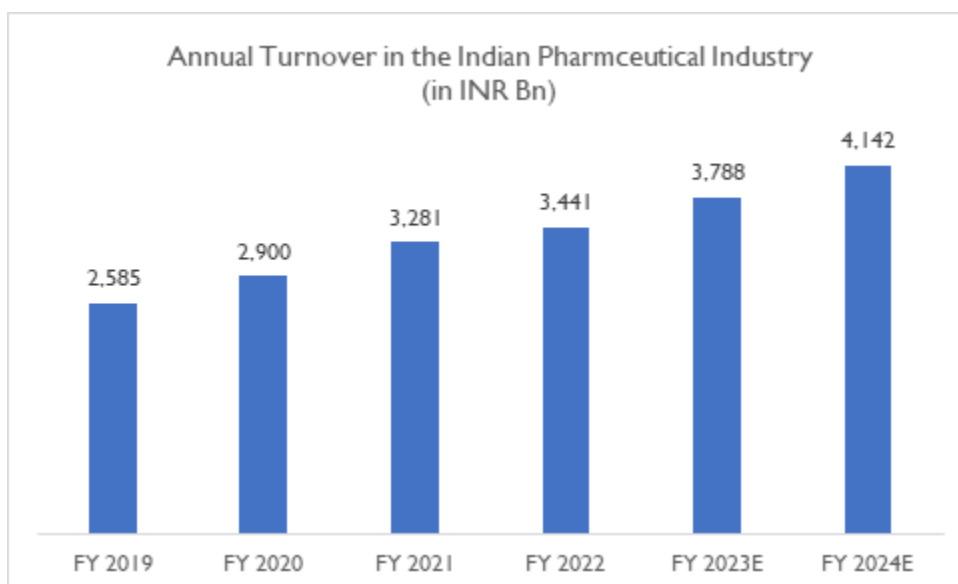
Agrochemicals play a pivotal role in driving agricultural productivity and ensuring food security for India's population. The government's fast-tracking of agrochemical projects suggests a positive trajectory for the industry, with export revenues projected to reach USD10 billion in the coming years. The future of India's agrochemical industry looks promising, with revenues expected to grow significantly, driven by favourable government initiatives, increased exports, and stable domestic and global demand.

The growth of the agrochemical industry in India is set to significantly impact the market for petrochemical feedstocks. As the demand for agrochemicals, including insecticides, herbicides, and fungicides, continues to rise domestically, there is also a notable increase in exports. Annual exports of agrochemicals reached INR 432 billion in FY 2023, with a CAGR of 18% between FY 2019 and FY 2023. This export growth is driven by competitive costing, superior product quality, and favourable export promotion measures. The increasing domestic demand combined with robust export performance underscores a rising need for petrochemical-derived raw materials.

Organic chemicals such as methanol, acetic acid, phenol, and acetone, essential for synthesizing agrochemicals, will see heightened demand. Additionally, polymers and synthetic fibers used in packaging agrochemical products will further drive the need for petrochemical feedstocks. This surge in demand is likely to prompt the petrochemical industry to expand production capacities, optimize operations, and invest in new technologies to meet the growing requirements of the agrochemical sector. Overall, the robust growth of the agrochemical industry, both in terms of domestic consumption and exports, will be a crucial factor in shaping the future dynamics of the petrochemical feedstock market in India.

Demand from Pharmaceutical Industry

India's robust position in generic drug manufacturing has been a significant driver of growth for the pharmaceutical industry, which in turn boosts demand for the petrochemical sector. With numerous blockbuster drug patents expiring globally, Indian pharmaceutical companies have seized the opportunity to produce and export cost-effective generic alternatives, bolstering their turnover. This surge has a cascading effect on the petrochemical industry, as the production of these drugs requires substantial quantities of petrochemical-derived raw materials.



Source: Annual Report, Department of Pharmaceuticals, Dun & Bradstreet Estimates

From FY 2019 to FY 2024, the annual turnover of the Indian Pharmaceutical Industry increased at a CAGR of 9.9%, rising from INR 2,585 billion in FY 2019 to an estimated INR 4,142 billion in FY 2024. Additionally, Indian pharma companies have been expanding their global footprint through strategic acquisitions, partnerships, and compliance with international quality standards, enhancing their exports and revenue streams. Increased investment in research and development (R&D), innovation in drug formulations, and the development of new therapeutic segments have also driven industry growth. The focus on biopharmaceuticals, vaccines, and biosimilars has opened new revenue channels, further increasing the demand for petrochemical inputs.

The domestic demand for drugs & pharmaceuticals is driven by increasing number of old populations, higher spending on healthcare, penetration of health insurance products, as well as rise in incidence of diseases. Exports also plays a large part in shaping the demand scenario in the industry, as India is the largest exporter of generic medicines in the world.

Impact of pharmaceutical Industry on petrochemical feedstock

The growth of the pharmaceutical industry is expected to significantly impact the petrochemical feedstock market. Pharmaceuticals rely heavily on petrochemical-derived intermediates and raw materials for the production of various drugs and medical products. As the pharmaceutical sector expands, driven by increasing healthcare demands, advancements in medical research, and rising investments, the demand for these petrochemical feedstocks will also increase. This heightened demand will likely necessitate an increase in the production capacity of essential feedstocks such as ethylene, propylene, benzene, and toluene, which are crucial in the production of pharmaceutical intermediates and active pharmaceutical ingredients (APIs).

Furthermore, the increasing demand from the pharmaceutical industry will likely drive greater investment in refining and petrochemical infrastructure to ensure a steady and reliable supply of high-quality feedstocks.

This could lead to technological advancements and enhanced efficiency within the petrochemical sector. However, the growing demand may also strain existing supply chains, potentially driving up the prices of feedstocks and impacting the cost structure of both the pharmaceutical and petrochemical industries. Overall, the symbiotic relationship between the pharmaceutical industry's growth and the petrochemical feedstock market will play a crucial role in shaping the future dynamics of both sectors.

Demand from Specialty Polymer Industry

The demand for specialty polymers significantly influences the petrochemical feedstock market. Specialty polymers, with their unique and advanced properties, require specific feedstocks derived from petrochemicals to achieve their performance characteristics. As the market for specialty polymers grows, driven by sectors such as automotive, electronics, and healthcare, the demand for these specific petrochemical feedstocks will increase. This shift emphasizes the need for high-quality raw materials, pushing petrochemical industries to innovate and enhance their production capabilities to meet the stringent requirements of specialty polymer manufacturing.

India's polymer demand, which stagnated at around 14.7 million tonnes during the pandemic years (2019-20 and 2020-21), is expected to rise as industries recover and expand. The Indian polymer industry, with a production capacity of 14.2 million tonnes, has seen its production remain flat at around 12.4 million tonnes during FY 2019-20 and FY 2020-21. The significant demand-supply gap, with domestic production meeting only 50% of the demand, highlights the potential for growth and the opportunities for foreign manufacturers and technology providers.

The specialty polymer market is a niche polymer additives segment in the polymer industry and is witnessing robust growth due to advancements in technology and increased application across various industries. Innovations in polymer chemistry have led to the development of materials with enhanced properties, such as higher heat resistance, greater tensile strength, and improved chemical inertness. These advancements are fuelling the adoption of specialty polymers in sectors requiring high-performance materials. For instance, the automotive industry's move towards electric vehicles and the need for lightweight materials is significantly boosting the specialty polymers market. Similarly, the growing electronics industry, with its demand for high-performance components, further propels market growth.

Impact of specialty polymer Industry on petrochemical feedstock

The rising demand for specialty polymers has a profound impact on the petrochemical industry. As specialty polymers require specific and often higher-grade petrochemical feedstocks, the demand for these raw materials is expected to rise. This shift is likely to lead to increased investment in the production of high-quality petrochemical feedstocks. Additionally, the petrochemical industry might see a transformation with a greater focus on sustainability and efficiency, driven by the need to support the production of eco-friendly and high-performance specialty polymers. The move towards bio-based specialty polymers also indicates a potential shift in feedstock sources, further impacting the petrochemical industry.

In summary, the growth of the specialty polymers market directly influences the petrochemical feedstock demand, driven by advancements in automotive, electronics, and healthcare industries. As specialty polymers become integral to various high-performance applications, the petrochemical industry will adapt to meet the evolving requirements, focusing on producing higher-quality and potentially bio-based feedstocks.

Demand from Industrial Chemicals

The country's utilization of chemicals encompasses a broad spectrum of products, including fertilizers, pesticides, industrial chemicals, pharmaceuticals, and consumer goods. This consumption is influenced by population growth, urbanization, industrial development, and agricultural practices. The industry's growth trajectory is notable, with projections suggesting that by 2025, the sector will reach a value of USD 304 billion, from USD 220 billion in FY 2022. This growth is underpinned by the government's strategic initiatives to transform India into a global manufacturing hub for chemicals and petrochemicals, aligning with the vision of making India a USD 5 trillion economy.

In the chemical industry, Industrial chemicals are essential to various sectors, ranging from manufacturing to agriculture. They encompass a vast array of substances such as acids, bases, salts, solvents, and more specialized compounds like polymers, resins, and surfactants. These chemicals are fundamental in creating products and materials used daily, including plastics, fertilizers, pharmaceuticals, and consumer goods. One of the critical dependencies in the production of industrial chemicals is on petrochemical feedstocks. Petrochemical feedstocks, derived from petroleum and natural gas, serve as the raw materials for producing a wide range of industrial chemicals. For instance, ethylene is a key feedstock for producing polyethylene, ethylene oxide, and ethylene glycol. The transformation of several feedstocks into valuable industrial chemicals is facilitated by processes such as cracking, reforming, and polymerization. As the demand for industrial chemicals grows, so does the demand for these critical petrochemical feedstocks.

Key factors driving demand for industrial chemicals.

Agriculture Practices

India's large and growing population continually drives the demand for various chemicals, particularly in agriculture (fertilizers, pesticides) to ensure food security. The need to feed over 1.3 billion people necessitates significant use of agricultural chemicals to enhance productivity and crop yield. The Indian fertilizer industry is on a robust growth trajectory, expected to reach a market size of INR 1.38 lakh crore by 2032, with a (CAGR) of 4.2 per year.

Urbanization

Rapid urbanization leads to increased construction activities, boosting the demand for construction chemicals, paints, coatings, and polymers. As cities expand and infrastructure projects proliferate, the consumption of industrial chemicals in construction materials and maintenance products rises correspondingly. Urban development not only necessitates the construction of residential and commercial buildings but also requires extensive infrastructure projects like roads, bridges, and public transportation systems. This results in a

heightened demand for materials that ensure durability, safety, and aesthetics, further driving the consumption of industrial chemicals.

Industrial Development

The expansion of industries such as automotive, textiles, electronics, and consumer goods increases the consumption of industrial chemicals for manufacturing processes and product development. The growth of these sectors relies on a steady supply of chemicals for processes like coating, treatment, and fabrication. As these industries innovate and expand, they demand more sophisticated and high-quality chemical inputs to improve efficiency, product quality, and sustainability. This industrial growth is a critical driver of chemical demand, reflecting the interconnected nature of modern manufacturing and industrial chemical usage.

Pharmaceutical Industry

India's growing pharmaceutical industry demands a variety of specialty chemicals for drug production, contributing significantly to overall chemical consumption. The market size of India's pharmaceutical industry is expected to reach USD 65 billion by 2024, approximately USD 130 billion by 2030, and USD 450 billion by 2047. This exponential growth will significantly drive the demand for pharmaceutical-grade chemicals and raw materials. As the global demand for affordable and high-quality medications rises, India's pharmaceutical sector continues to expand, necessitating a consistent supply of chemicals for research, development, and manufacturing of a wide array of pharmaceutical products.

The industrial chemicals sector in India is intricately linked to the petrochemical industry, relying on key petrochemical feedstocks to produce a vast array of essential products. As India continues to grow and urbanize, the demand for industrial chemicals is set to rise, driven by factors such as population growth, industrial development, and government policies. The burgeoning pharmaceutical industry, in particular, underscores the importance of the petrochemical industry as a backbone of the chemical sector, fueling the transformation of raw materials into valuable industrial chemicals that support a wide range of industries across the country.

Impact of industrial chemical industry on petrochemical feedstock

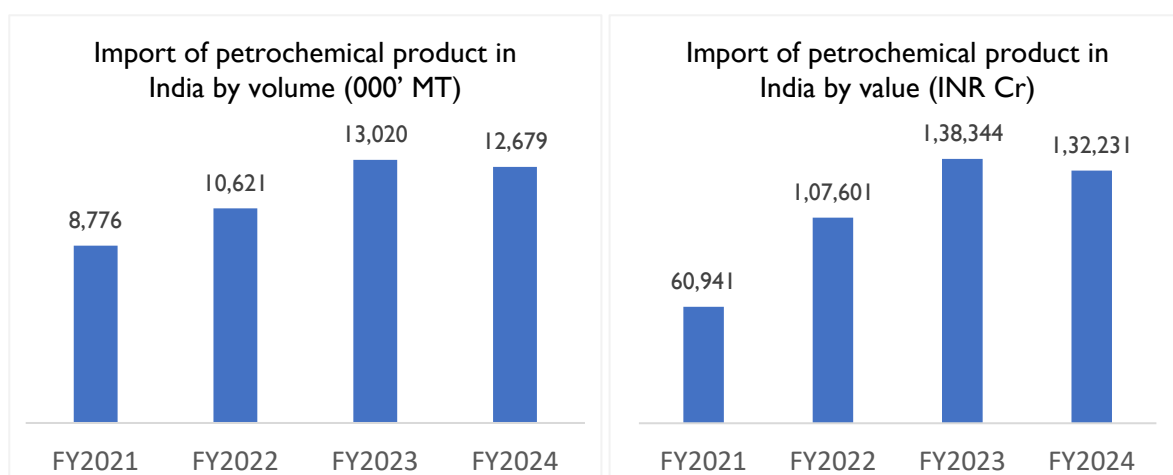
The Indian chemical industry is poised to reach USD 300 billion by 2025, significantly impacting every chemical segment, including the industrial chemical segment. The rising demand for industrial chemicals in India has a profound effect on the petrochemical feedstock market. As the industrial sector expands, driven by robust economic growth and increasing manufacturing activities, the demand for both basic and specialty chemicals surges. This heightened demand necessitates a proportional increase in the production of petrochemical feedstocks, such as naphtha and natural gas liquids, which are essential raw materials for industrial chemicals.

Consequently, the petrochemical industry is expected to ramp up capacity and optimize operations to meet this growing need. This increased demand will likely lead to greater investment in refining and petrochemical infrastructure, fostering advancements in technology and efficiency. However, it could also strain the supply chain, driving up feedstock prices and potentially affecting the cost structure of downstream products.

Overall, the interplay between the demand for industrial chemicals and the supply of petrochemical feedstocks will be a critical factor shaping market dynamics in India, influencing investment strategies, production capacities, and pricing in the petrochemical sector.

Petrochemical Imports to India

India is a net importer of petrochemical products, importing nearly 12.7 million tons of petrochemical products in FY 2024. Petrochemical import volumes have witnessed a significant rise, jumping from 8,776 thousand tonnes in FY 2021 to 13,020 thousand tonnes in FY 2023, reflecting a growth of nearly 48%. Even FY 2024, despite a slight dip, remains considerably higher than FY 2021.



Source: DGFT, D&B Estimates

The value of petrochemical imports has also seen a sharp increase, soaring from INR 60,941 crore in FY 2021 to INR 138,344 crore in FY 2023, a staggering growth of over 127%. This trend continued in FY 2024, albeit with a slight decrease.

India's domestic petrochemical production capacity is unable to keep pace with the growing demand from various sectors like paints, construction, and textiles. Domestic production is concentrated on certain petrochemical segments, leading to import reliance for others. Imported petrochemicals are more cost-competitive compared to domestically produced ones due to factors like economies of scale or lower feedstock costs in exporting countries.

Role of Import in Meeting Domestic Demand

In FY'23, India witnessed a 48% surge in imports in volume and staggering growth of 127% in value for petrochemical products. This uptick in demand stems from various factors. A growing economy and population are driving increased spending, expanding the consumer base for goods dependent on petrochemicals. Urbanization is also contributing significantly as cities require more housing and infrastructure, both major consumers of these materials. Furthermore, India's expanding manufacturing

sector, including industries such as automobiles and electronics, is another primary catalyst due to their heavy reliance on petrochemical products.

Petrochemical intermediates are crucial for the Indian chemical industry, serving as primary feedstock for specialty chemicals. Indian refineries have added capacities to produce polymer building blocks, managing pressure from flat gross refining margins and creating more resilient income sources. By 2035, India could support around 20 refinery-cum-petrochemical integrated plants to meet the plastic consumption demands of its growing population.

These configurations may include co-located or integrated facilities, or standalone NGL feedstock crackers with varied operational integration levels. Even with different ownerships, co-locating steam crackers with refineries in industrial zones such as SEZs can save on intermediate product transfer costs, corporate overheads, staff costs, and leverage synergies in utility supply and logistics infrastructure. Despite India's self-reliance on basic petrochemical products and promising export figures, there is a significant scarcity of petrochemical intermediates or derivatives, resulting in a 50% import dependency.

Regulatory Framework Surrounding Petrochemical Imports to India

Regulatory Agencies Involved

The import of petrochemical products into India is regulated by several key authorities. The Directorate General of Foreign Trade (DGFT) under the Ministry of Commerce and Industry plays a pivotal role in formulating and implementing import policies. DGFT issues Import Policy notifications, Export Policy, and Control Orders that govern the importation of goods, including petrochemical products. Importers must adhere to these policies and obtain necessary licenses or permissions as per the Import Policy.

Customs authorities oversee the physical movement of goods into the country and enforce tariff classifications and duty payments. They operate under the Central Board of Indirect Taxes and Customs (CBIC), which administers the Customs Tariff Act to determine duties applicable to petrochemical imports. Compliance with customs regulations is essential for proper clearance and entry into India.

The Ministry of Environment, Forest and Climate Change regulates environmental aspects related to the importation and handling of petrochemical products. Importers must comply with environmental norms to ensure the safe storage, handling, and transport of hazardous chemicals, thereby mitigating environmental risks and ensuring public safety.

Standards and Compliance Requirements

Bureau of Indian Standards (BIS) sets forth standards for petrochemical products to ensure quality, safety, and reliability. Compliance with BIS standards is mandatory for imported petrochemicals to ensure they meet Indian regulatory requirements. This includes specifications for product quality, packaging, labeling, and conformity assessment procedures.

Petroleum and Natural Gas Regulatory Board (PNGRB) regulates downstream activities in the petroleum

sector, including refining and distribution. While primarily focused on petroleum products, its regulations may also impact certain petrochemical imports, especially those closely related to the petroleum industry.

Taxation and Duties

Currently, the customs duties on these products are approximately 7.5%. Imported petrochemical products are subject to multiple taxes and duties. The Goods and Services Tax (GST) applies to the value of imported goods, while Customs Duties—including Basic Customs Duty (BCD), Countervailing Duty (CVD), and Special Additional Duty (SAD)—are imposed based on the classification and value of the products. Importers must accurately declare the value and classification of their goods to ensure correct assessment and payment of these duties.

Trade Agreements and Preferences

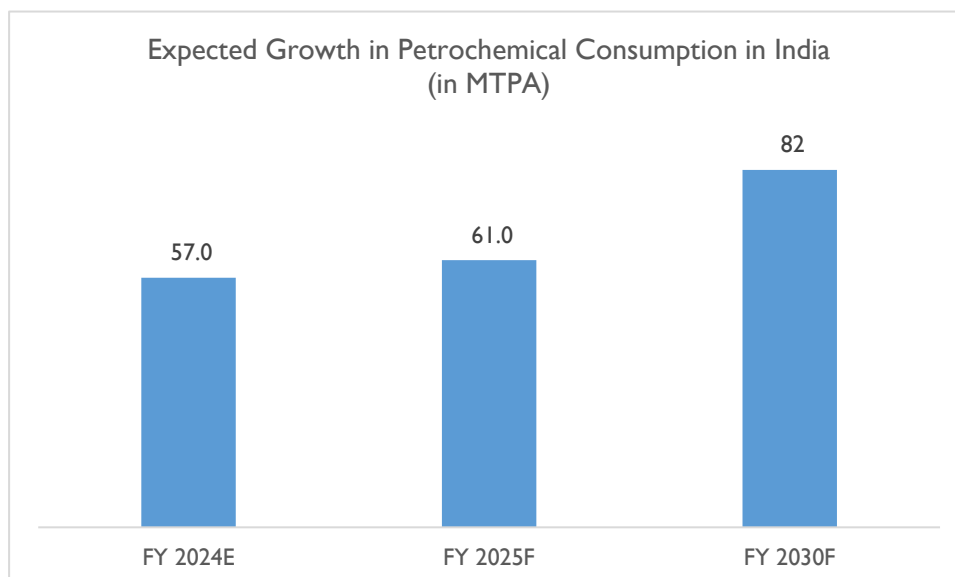
India participates in several bilateral and multilateral trade agreements that may offer preferential tariff rates or exemptions for certain petrochemical products. Importers can benefit from these agreements by meeting specific rules of origin and compliance criteria outlined in each agreement. Leveraging these agreements can reduce import costs and facilitate smoother trade relations with partner countries.

Growth Forecast

While the historical performance of Indian chemical industry has been exemplary, the future holds even better growth opportunities. Domestic chemical consumption is rising steadily, and the country is expected to account for more than 20% of the incremental global consumption of chemicals that would happen globally in near future. The steady growth in industrial production is a key demand enabler.

The annual consumption of petrochemicals in India is estimated to be 57 million tons in FY 2024, and it is expected to reach nearly 61 million tons per annum by the next year (FY 2025). Petrochemical demand is closely linked to the overall economic growth, due to the widespread usage across various industry. With Indian economy poised to maintain its strong growth, the demand for petrochemicals too is expected to remain strong. Going ahead, assuming the strong economic growth in Indian continues, the annual consumption of petrochemicals in India has the potential to reach nearly 82 million tons per annum by the end of this decade⁸.

⁸ D&B has estimated a stable forecast of 6% for the remaining period of this decade (FY 2030). The rate assumed mirrors India's long term economic growth rate.



Source: D&B Estimates

Role of Imports

Imports have played a major role in meeting the domestic demand for petrochemicals. Although petrochemical refining sector in India have witnessed capacity addition, it was mainly focused on adding capacity on fuel products and products like polymers and olefins.

India's vibrant manufacturing sector – comprising of thousands of companies manufacturing numerous products – require a wide range of petrochemical components as input materials as well as intermediates. Despite the advances made in domestic petrochemical manufacturing, India still do not produce the entire range of petrochemical products.

Given the wide range of petrochemical products needed by the industry, together with the limitations in domestic petrochemical production scenario import of petrochemical is expected to continue to play a key role in meeting the input /intermediate product demand coming from the manufacturing sector.

Moreover, the usage of petrochemical input / intermediates products is not only limited to large players, but also include smaller players with limited production scale. This has created a large pool of consumers for petrochemical compounds who are spread across the country, with demand varying from few tons to thousand of tons. The demand for this vibrant consumer base – for a wide range of petrochemical products – would be met through a combination of domestic production and imports.