



Chemicals & Petrochemicals
Manufacturers' Association, India



AN OVERVIEW INDIA PETROCHEMICAL INDUSTRY

2024



INDIA COUNTRY REPORT

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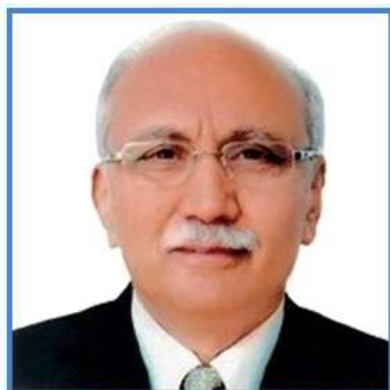


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Message from Kamal P. Nanavaty, President, CPMA, India

It is indeed my privilege to present the India Petrochemical Report 2024, published every year by CPMA.



This report has become a Reference Book for Petrochemical Industry Professionals, representing all its segments, covering review and outlook, together with detailed statistics on capacity, demand, production, import and export of key products.

CPMA enjoys the status of being the VOICE of the Petrochemical Industry in the country, a credible contact point for the Government, on all matters relating to growth of our industry.

In 2024, the Indian Petrochemical Industry experienced robust growth, reflecting India's broader economic expansion. With demand surging from various end-use sectors, including construction, automotive, packaging, and textiles, the industry is witnessing unprecedented momentum. This surge is fueled by India's burgeoning middle class, urbanization, and infrastructure development projects across the nation. Moreover, the integration of AI and innovation in the chemical industry is playing a pivotal role in driving efficiency, productivity, and sustainability. Cutting-edge technologies such as AI-driven predictive maintenance, process optimization, and advanced materials development are revolutionizing operations within the sector. This fusion of technology and industry expertise is propelling India's petrochemical sector to new heights, ensuring it remains competitive on the global stage.

As India embarks on its growth trajectory, sustainability has emerged as a central theme in shaping the future of the petrochemical industry. Against the backdrop of increasing environmental concerns and regulatory pressures, stakeholders are prioritizing sustainable practices and solutions. The 2024 conference, themed "Trailblazing the Path in a Sustainable Era," underscores this commitment to sustainability and underscores the industry's collective efforts to minimize its environmental footprint.

Key discussions at the conference are expected to revolve around strategies for reducing emissions, enhancing resource efficiency, promoting circular economy principles, and fostering eco-friendly innovations. Collaborative initiatives between industry players, government agencies, and research institutions are being highlighted as crucial for driving sustainability across the value chain.

In this era of heightened awareness and responsibility, the Indian Petrochemical Industry is poised to lead by example, demonstrating how economic growth can be harmonized with environmental stewardship. By embracing sustainability as a core principle, the industry not only safeguards the environment but also ensures its long-term viability and resilience in an ever-evolving global landscape.

CPMA has included a special chapter in this report covering how the industry has been supporting the various initiatives led by the Government of India for Sustainability.

Thank you.

INDIAN PETROCHEMICAL INDUSTRY

INDIA COUNTRY PAPER 2024



SECTION 1

THE INDIAN ECONOMY

The Indian Economy: Review and Outlook

The Indian Economy Review of 2023-24

The Indian Economy Review of 2023-24 paints a picture of robust growth and stability across various sectors, showcasing a resilient economy amidst global challenges. India's economy grew at its fastest pace in one-and-half years in the final three months of 2023, led by strong manufacturing and construction activity, clocking higher-than-expected growth of 8.4%, belying fears of tempering as manufacturing, electricity and construction put up a robust show.

Growth in the third quarter (Q3 FY24) was also higher than the 7.6% reported for the second quarter, which was revised to 8.1% while Q1 GDP growth figures were updated to 8.2%. The high growth number has also led to a revision in the National Statistical Office's estimate for GDP growth in FY24, from 7.3% in its first advance forecast to 7.6% in its recently revised estimate. Macroeconomic indicators remained favorable, with a notable moderation in inflationary pressures owing to proactive government initiatives on the supply side. Moreover, India's foreign exchange reserves swelled to a record high of \$645.58 billion, bolstering confidence in the economy.

The government's prudent fiscal management was evident, with proposed deficit targets for FY25 and FY26 signaling a commitment to fiscal consolidation. Additionally, strides in narrowing the goods trade deficit and maintaining a stable current account balance underscored India's economic resilience.

The country witnessed manufacturing activity picking up in the year along-with increased leisure & travel and optimum levels of hotel bookings and the tax collection of over Rs 34.37 trillion for 2023-24 was achieved by government on the back of robust economic activity and improved compliance.

Improvements were seen in consumer and business sentiment, driven by factors such as declining unemployment rates, increased investment, optimism about future prospects, private spending and economic growth. The manufacturing sector exhibited remarkable growth, with March 2024 witnessing the fastest expansion in 16 years, fueled by surging demand and increased hiring.

India's prowess in global trade continued to strengthen, with market share in goods and services exports witnessing an upward trajectory. The year also saw substantial inflows into India-focused funds, underscoring investor confidence in the country's growth story.

Investor confidence remained robust, reflected in the capital markets reaching new heights, supported by strong domestic participation from domestic investors, including retail investors, HNIs, and DIIs.

India's current account balance was within the comfort zone, between 2.8 to -1.4% of GDP. Interestingly, the government has proposed fiscal-deficit targets of 5.1% of GDP for FY25 and 4.5% or lower by FY26, continuing on its path of fiscal consolidation as it looks to reduce the deficit to around 3% of GDP over the next few years.

India's goods trade deficit narrowed by nearly 17% in March 2024 compared with the previous month, as imports fell steeply, while exports rose only marginally. The deficit fell to \$15.6 billion in March, down from \$18.71 billion in February, which is the lowest it's been in 11 months—the last time the deficit was narrower was in April 2023 when it came in at \$14.44 billion. The year also witnessed the government introducing numerous initiatives to strengthen the nation's economy. Notable initiatives include:

- The Foreign Trade Policy 2023, unveiled on April 1st, 2023, to create an enabling ecosystem supporting the philosophy of 'Atma Nirbhar Bharat' and 'Local goes Global.'
- Ministry of Ports, Shipping & Waterways launched the scheme in May 2023 named 'Harit Sagar' to meet the larger vision of achieving Zero Carbon Emission Goal.
- The Amrit Bharat Station Scheme, launched on August 6th, 2023, to transform and revitalize 1309 railway stations across the nation.
- The Draft Carbon Credit Trading Scheme, introduced by the Ministry of Environment, Forests, and Climate Change on June 28th, 2023.

Infrastructure development remained a focal point, with significant investments and ambitious projects unveiled to enhance connectivity and logistics. Achieving a milestone in railway electrification and substantial progress in road construction exemplified the government's commitment to bolstering infrastructure. The year witnessed the construction of 794 km of six or eight lane highways built in the country in 10 months between April and January 2024. Prime Minister Modi unveiled mega infrastructure projects worth Rs 1.64 lakh crore. Indian Railways also achieved electrification milestone: 94% Of total Broad-Gauge Network electrified in 2023-24. Overall, the Indian economy demonstrated resilience, buoyancy, and a proactive approach to addressing challenges, laying a strong foundation for sustained growth in the coming years.

Snapshot of Key Indicators

i. GDP growth

India has hit the ball out of the park with its Q3 FY24 GDP growth surpassing all estimates. The country's gross domestic product (GDP) for the October-December quarter grew 8.4 percent. The Q3 FY24 GDP growth is higher than the previous quarter's 8.1 percent expansion, and nearly double the lower base of 4.3 percent recorded in the same quarter of the previous year. The 8.4 percent Q3 GDP growth rate is also the highest in seven quarters. As a result, the statistics ministry now expects the country's full-year (2023-24) GDP growth to touch 7.6 percent. With this, India will maintain its position as the fastest growing major economy. With 5.2 per cent projected growth, China is at the distant second. Private final consumption expenditure, an indicator of consumption demand, rose by 3.5% year-on-year in October-December, while government final consumption expenditure decreased by 3.2%. Gross fixed capital formation, an indicator of investment, grew by 10.6% during the third quarter. Meanwhile, the growth rate for the 2023/2024 fiscal year was revised higher to 7.6% from 7.3%. Gross value added, which strips out indirect tax and subsidies, is estimated to have grown 6.5% as compared with a revised estimate of 4.8% in the same period last year.

The impressive Q3 numbers were led by robust growth in the manufacturing sector, tax collections, investments and exports, even though private consumption remained subdued. Investments emerged as the fastest growing component of GDP in Q3. Household consumption expenditure growth inched up. Construction, too, has shown an impressive performance and reflects the focus on infrastructure and real estate. As per economists, improvement in household consumption, bright prospects for capital formation, owing to an upturn in private capex cycle and improved business sentiments would continue to drive economic growth. What is more comforting to note is the fact that the robust expansion came despite the recurring spate of geopolitical flashpoints and was premised on a healthy double-digit expansion in manufacturing and investment. The construction sector registered double-digit growth in FY 2024, fueled by robust residential demand and the push given to the infrastructure sector by the government. Strong manufacturing growth and robust services sector growth in Q3 FY 2024 have further contributed to the high growth in FY 2024.

Broadly, growth in agriculture remains weak but private consumption continues to provide steady support to GDP growth.

Figure 1: India's GDP Growth

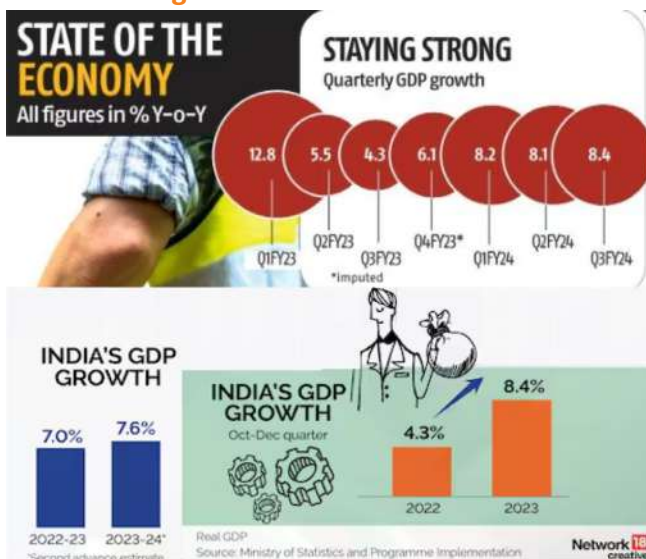
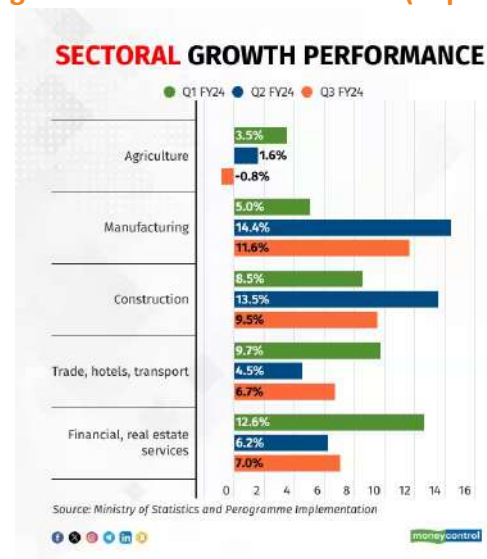


Figure 2 : Sectoral GDP Growth (in percent)



Agriculture declined 0.8% in Q3, as compared with 1.6% growth in Q2. Mining grew 7.5%, up from 11.1% in the previous quarter. Manufacturing expanded 11.6%, as against 14.4% in the prior quarter. Electricity and other public utilities expanded by 9% versus 10.5%. Construction grew 9.5%, compared with 13.5%. Trade, hotels, transport, and communication expanded 6.7% versus 4.5%. The overall GVA growth in October-December 2023 was 6.5 percent, down from 7.7 percent in July-September, while the full-year GVA growth has been pegged at 6.9 percent, up from 6.7 percent in 2022-23. The upward revision in the second advance estimate of GDP growth to 7.6 percent from 7.3 percent was also aided by a cut in the GDP growth figure for 2022-23 to 7.0 percent from 7.2 percent, resulting in a favourable base effect. Similarly, GDP growth in October-December 2023 also received a leg-up from the base effect, with the October-December 2022 GDP growth rate revised down to 4.3% from 4.5%.

ii. IIP – Index of Industrial Production

Growth in India’s industrial output accelerated to 5.7 percent in February, according to latest data released by the Ministry of Statistics and Programme Implementation. At 5.7 percent, the latest industrial growth figure as per the Index of Industrial Production (IIP) is higher from the January 2023 figure of 3.8 percent. The eight core industries – coal, crude oil, natural gas, refinery products, fertilizers, steel, cement, and electricity – make up around 40 percent of the IIP. As such, it is seen as a lead indicator of industrial growth data. The data was quite mixed, ranging from a contraction of 3.8 percent in consumer non-durables and a double-digit expansion of 12.3% in consumer durables in February 2024. The IIP during the April 2023-February 2024 grew at 5.9 per cent as compared to 5.6 per cent in the corresponding period previous year.

Figure 3: Index of Industrial Production (IIP)



The IIP saw a rise in February on account of mining production which increased to 8% while the power output increased to 7.5%. The manufacturing sector’s output slowed to 5% in February as compared to 5.9% in the same month a year ago, as per the data released by the National Statistical Office. In terms of the use-based classification of goods, production growth in February was as follows:

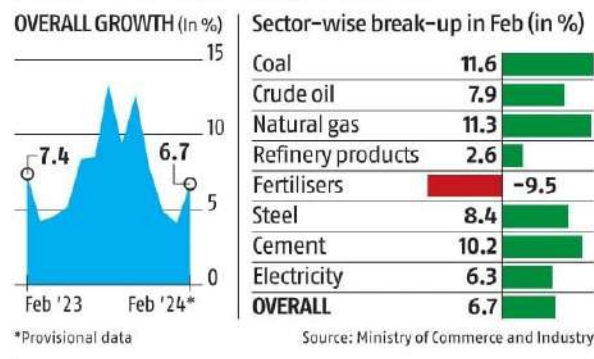
- Capital goods increased at 1.2%
- Intermediate goods increased at 9.5%
- Infrastructure goods rose to 8.5%
- Consumer durable rose to 12.3%
- Consumer non-durable goods fell to 3.8%



III. Core Industries Performance

Core sector growth reached a 3-month high of 6.7% in Feb. Eight core industries’ output growth hit a three-month high of 6.7 per cent in February 2024, reversing a slowing growth trend seen in January 2024 and December 2023 at 4.1 per cent and 4.9 per cent, respectively. Also, cumulative growth in core industries in April-February 2024 is at 7.7 per cent, albeit lower than 8.2 per cent in the same period last fiscal year, as per official data. The eight core industries — coal, natural gas, crude oil, refinery products, fertilisers, cement, steel, and electricity — combine 40.27 per cent of the weight of items included in the Index of Industrial Production (IIP). The government has revised the output growth upwards for the eight core industries for November 2023 to 7.9 per cent. Last month, the government revised the core industry print for October 2023 and earlier for September 2023. In February 2024, Coal sector output grew 11.6 per cent (9 per cent in February 2023); Crude oil at 7.9 per cent (-4.9 per cent); Natural gas at 11.3 per cent (3.1 per cent); refinery products at 2.3 per cent (3.3 per cent); fertilisers at -9.5 per cent (22.2 per cent); cement at 10.2 per cent (7.4 per cent); steel at 8.4 per cent (12.4 per cent); and electricity at 6.3 per cent (8.2 per cent)

Figure 4: Core Industries Growth Rate (in percent)



iv. Current Account Deficit and Balance of Payments

India’s current account deficit narrowed to \$10.5 billion or 1.2% of GDP in the October-December quarter from \$11.4 billion in the previous quarter, as per the Reserve Bank of India (RBI). The current account deficit, or CAD, which is the difference between a country’s exports and imports of both goods and services, stood at \$16.8 billion or 2% of GDP in the year-ago quarter.

The central bank revised CAD for the second quarter to 1.3% from 1% earlier owing to the upward adjustment of customs data on merchandise imports. Merchandise trade deficit widened to \$71.6 billion in Q3FY24 from \$64.5 billion in the previous quarter. Services exports and transfers saw an improvement in the third quarter. This has offset the widening of trade balance between second and third quarters and led to the narrowing of the current account deficit. Services exports grew by 5.2 per cent on a y-o-y basis on the back of rising exports of software, business and travel services, as per the central bank. Net services receipts increased both sequentially and from a year ago, helping cushion the current account deficit.

Consistent positive surprises on both goods and services exports reflect resilient global demand and another healthy print of CAD/GDP of 1.2% for 3QFY24 and FY24 CAD/GDP ratio likely tracking 0.8% or lower. More crucially, structural notable changes in net services exports have given fillip to external sector -- with software exports holding up well and net non-software exports led by professional consulting services likely to surge by over 55% YoY in FY24. Private transfer receipts, mainly representing remittances by Indians employed overseas, amounted to \$31.4 billion, an increase of 2.1% over their level during the corresponding period a year ago. Meanwhile, foreign direct investment recorded a net inflow of \$4.2 billion compared with a net inflow of \$2 billion in Q3 of 2022-23.

Foreign portfolio investment recorded a net inflow of \$12 billion in 3QFY24, higher than \$4.6 billion a year ago. External commercial borrowings saw a net outflow of \$2.6 billion in the third quarter of this fiscal compared with a net outflow of \$2.5 billion a year ago.

**Figure 5: CAD and Balance of Payments
India's Current Account Balance Profile**

(in \$ bn)	Q3FY23	Q3FY24
Current Account Balance	-16.8	-10.5
Current Account Balance as % of GDP	-2%	-1.20%
Goods	-71.3	-71.6
Services	38.7	45
Primary income	-12.7	-13.2
Secondary income	28.5	29.3

Note : - denotes deficit Source: RBI

The country's balance of payments, opens new tab was a surplus of \$6 billion in the December quarter, compared with a surplus of \$11.1 billion a year ago. The surplus, however, widened sharply from \$2.5 billion in the September quarter.

v. FDI

Mirroring the slowdown in foreign direct investments (FDI) flows to developing countries, gross FDI inflows to India also dipped in the period April 2023- January 2024. During these ten months, gross FDI inflows were USD 59.5 billion compared to \$61.7 billion in the same period last year. The net foreign direct investment (FDI) in India, inflows minus outflows, declined 38.4 per cent year-on-year to \$15.41 billion in the first 10 months of this financial year due to an increase in the repatriation of capital. In net terms, the comparable figures were \$25.5 billion compared to \$36.8 billion.

Economic uncertainty and higher interest rates impacted global investments. A modest increase in global FDI flows is likely in 2025. A decline in inflation and borrowing costs in major markets may stabilize financing conditions for international investment deals.



However, there are significant risks, including geopolitical risks, high debt levels accumulated in many countries, and concerns about further global economic fracturing. Around 80 per cent of the equity flows were received from Singapore, Mauritius, the US, the Netherlands, Japan, and the United Arab Emirates.

Figure 6: FDI Inflows till 2023

MODERATING DIRECT INVESTMENT FLOWS

	9MFY24 (\$ bn)	Y-o-Y growth in %
Net FDI	15.4	-38.4
FDI into India	25.53	-30.53
FDI from India	10.11	-13.95
Repatriation/disinvestment	34	36

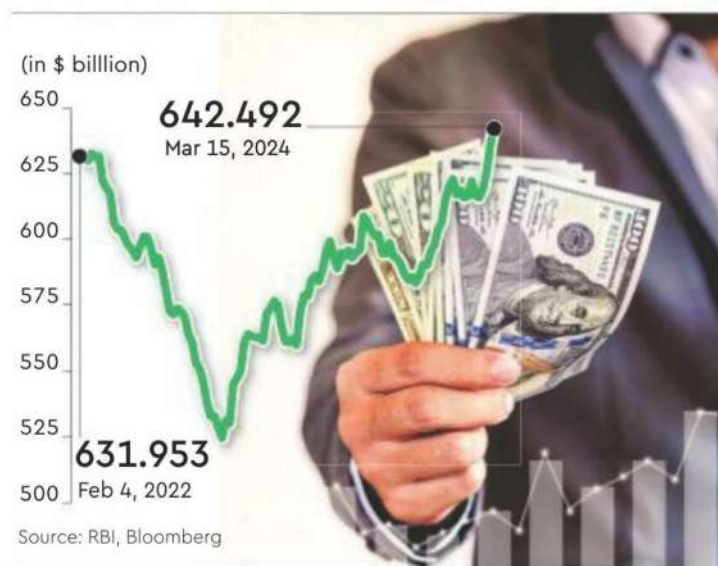
Source: RBI bulletin March 2024

FDI into India is expected to receive a boost from the trade and economic partnership agreement (TEPA) signed with the European Free Trade Association (EFTA) on March 10. The TEPA aims to attract FDI of \$100 billion in India from EFTA over the next 15 years and generate one million direct employment opportunities.

vi. Forex reserves

India’s foreign exchange (forex) reserves increased \$6.396 billion to \$642.492 billion for the week ended March 15, 2024, according to the latest RBI data. In the previous reporting week, the overall reserves had risen by \$10.47 billion to \$636.095 billion. Foreign currency assets, a major component of the reserves, increased by \$6.034 billion to \$568.386 billion. Gold reserves increased by \$425 million to \$51.14 billion during the week, as per the RBI. The special drawing rights (SDRs) were up by \$65 million to \$18.276 billion, as per RBI. India’s reserve position with the IMF was down by \$129 million to \$4.689 billion in the week ending March 15, 2024, as per the apex bank.

Figure 7: Forex Reserves



vii. FII Flow and Stock Market

FII began 2024 by selling Indian stocks worth over \$3 billion but the exodus stopped in February when modest buying was noticed. The resilience shown by domestic investors, led by retail, has ensured that every dip is being bought on stock market. Analysts say FIIs have been forced to buy the same shares which they sold at higher prices, which is a losing game. Large fund houses have started the exercise of considering reallocation of capital to India. Seeing the proactiveness of the Indian government in easing the mode of carrying business operations, compliances, and quickly updating the regulations will surely make India a global hub for carrying out businesses in all spheres. India has beaten rest of the Asian markets by attracting the highest foreign funds flow in March, defying geopolitical crises and concerns that the higher interest rate regime will continue for some more time. Foreign Institutional Investors (FIIs) pumped \$3.63 billion into Indian equities in their biggest buying binge since December 2023. Domestic institutions continued to be net buyers, investing around Rs 52,467 crore in the market to hit a four-year high.

Figure 8: FII Inflows



Outside India, South Korea, Taiwan and Indonesia were the investment destinations for FIIs, while they chose to pull out money from markets in Japan, Malaysia, Philippines, Thailand, Vietnam and Sri Lanka. South Korea received inflows of \$2.91 billion, Taiwan \$1.14 billion and Indonesia \$585 million. The Japanese market recorded the biggest FII outflow of \$5.35 billion, followed by Thailand and Malaysia at \$1.13 billion and \$514 million. In Vietnam, the outflow reached \$197 million, and \$40 million in Philippines. As per analysts despite the buying binge of the institutional investors, liquidity has dried up after recent actions by the RBI and enforcement agencies, impacting market operators and HNIs reliant on leverage. As per analysts NBFCs were reassessing lending against shares, reducing the overdraft facilities for HNIs. This forced liquidation of positions, triggering a cycle of falling prices and panic selling.

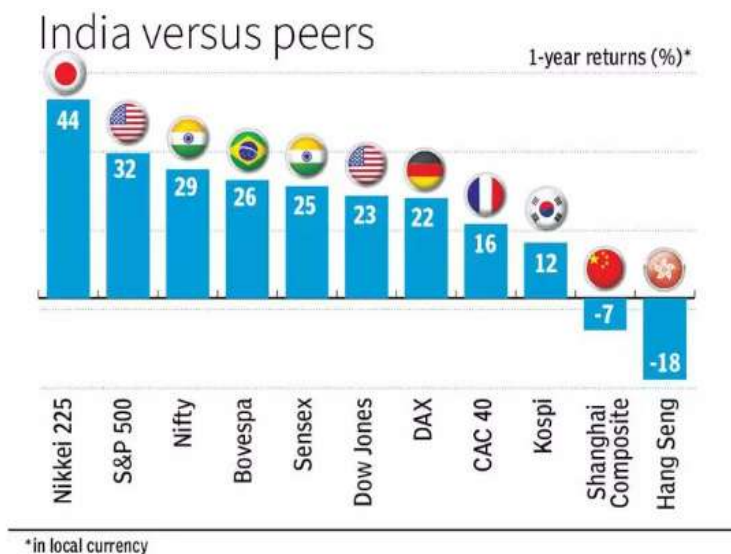


However, analysts expect mutual fund SIP flows are expected to remain stable, and attractive valuations may draw in investors waiting on the sidelines. Stocks linked to dubious entities might take longer to recover, while fundamentally sound ones may rebound more swiftly. The broader market, previously overheated, has undergone a healthy decline, likely marking the end of the correction phase and the resumption of the bull market. Large caps have also experienced corrective phases without significant damage to the Nifty50. Strong global market tailwinds, upcoming earnings seasons, and general elections indicate favorable risk premiums for long positions in the market.

The Indian stock markets are on a roll.

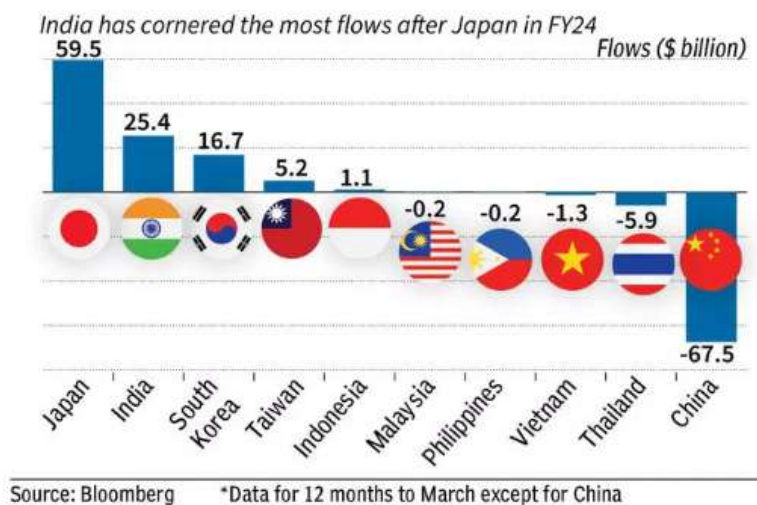
If the emerging markets universe had an anointed darling last year, it would be India — and the country’s momentum is still growing. India’s stock market capitalization overtook Hong Kong’s for the first time in the month of January 2024 as combined value of shares listed on Indian exchanges reached \$4.33 trillion, versus \$4.29 trillion for Hong Kong, according to data compiled by Bloomberg. That made India the fourth-biggest equity market globally. Its value crossed \$4 trillion for the first time on Dec. 5, with about half of that coming in the past four years. Indian equities beat most major markets in FY24. The indices have gained 28.6 per cent and 24.8 per cent, respectively, this fiscal, beating most other major market indices. Net inflows into exchange-traded funds focused on Indian stocks shattered records in 2023, clocking in at \$8.6 billion last year, according to Reuters. India’s NSE Nifty Index surged nearly 20% in 2023, handily outperforming the MSCIMSCI +0.1% emerging markets index’s 7% rise. Despite geopolitical risks, rising interest rates, and volatile commodity prices, the Indian capital markets have remained one of the best performing among emerging markets in FY24. In the first eleven months of FY24, capital worth ₹98,112 crore (equity + debt) has been raised by the corporates from the primary market through public and rights issuances, higher than the previous fiscal. The Sensex crossed the 75000 mark on 10th April 2024 touching all time high. The benchmark indices gained in continuation of the prevailing upward trend.

Figure 9: Stock Market Performance



As per the NSDL and CDSL data, the number of demat accounts in India opened in February 2024 soared to over 43.5 lakh, 38.6% higher compared to the corresponding period of the previous year. The total demat accounts tally now stands at 14.8 crore, marking a 31.7% increase from a year ago. The assets under management of mutual funds were 38.2% higher YoY in February 2024. In the first eleven months of FY24, mutual funds witnessed net inflows of ₹5.1 lakh crore, compared to net inflows of ₹0.95 lakh crore in the same period of the previous year. FPIs have shown a significant resurgence in their investment activity within the Indian equity markets this month, injecting over Rs 38,000 crore, mainly driven by favourable shifts in the global economic scenario and strong domestic macroeconomic outlook. The investment came following a modest investment of Rs 1,539 crore in February and a massive outflow of Rs 25,743 crore in January, data with the depositories snowed. With this, foreign portfolio investors' (FPIs) investment has turned positive to the tune of Rs 13,893 crore in equities so far in 2024 and Rs 55,480 crore in the debt market. Further, the influx of FPIs can be attributed to robust GDP growth and expectations of a potential shift in the RBI's policy, possibly leading to rate cuts of 25-50 basis points in the latter half of fiscal 2025, experts believe. In the 2023-24 financial year, the BSE benchmark jumped 14,659.83 points or 24.85%, and the Nifty soared 4,967.15 points or 28.61%. India got overseas flows to the tune of ₹3.33-lakh crore, or \$40.4 billion, in equities, debt and hybrid instruments put together this financial year, a record for any year. This is 25 per cent higher than the previous high of ₹2.67-lakh crore garnered in FY21. Equity flows stood at over \$25 billion, more than flows received by all other Asian markets except Japan, which received \$59.5 billion. China, on the other hand, saw outflows of over \$67 billion in the 12 months to December. Some of the flows could have made their way into India.

Figure 10: FPI Inflows into Asian Markets



India's market cap is currently the fifth largest globally, but India's weight in global indices is still low. This should change as market free float rises and some weight anomalies get sorted out, according to Jefferies. India will become a \$10 trillion market by 2030 -- impossible for large global investors to ignore, as per the brokerage firm.



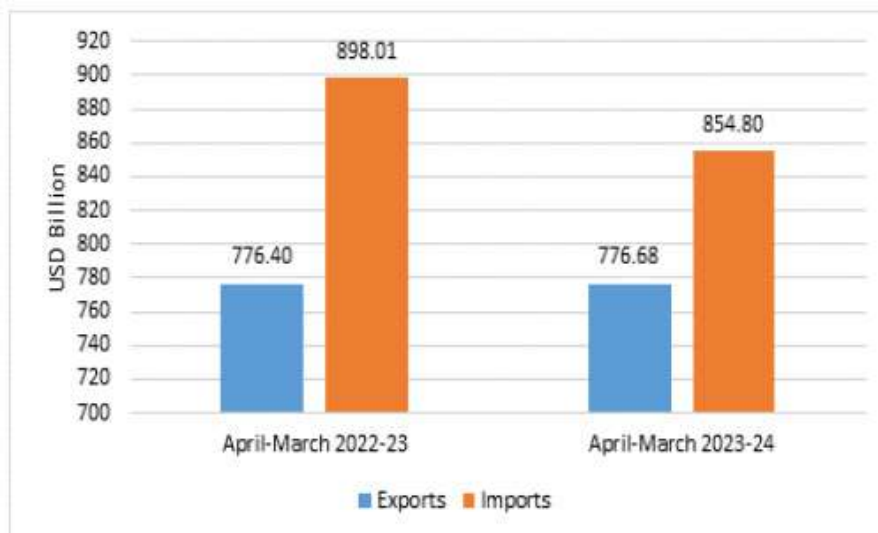
The market depth in India has also increased considerably over the last few years, with the number of stocks with a market cap of more than \$1 billion nearly doubling to 500. The Nifty is trading in the fair zone in terms of valuations. FY25 is expected to be a year of mega events, with elections to be held in India as well as in key developed economies, clarity emerging on interest rates and India's inclusion in global bond indices.

viii. India's Trade

India's trade deficit significantly improved in FY 2023-24. According to latest data from the Ministry of Commerce and Industry, India's trade deficit in FY 2023-24 is estimated to be \$78.12 billion, an improvement of 35.77 percent compared to FY 2022-23, when it was \$121.62 billion. India's overall trade in FY 2023-24 is estimated at \$776.68 billion worth of exports and \$854.8 billion worth of imports. Reduction in imports is the primary factor behind the improvement in trade deficits, as exports remain stagnant with nominal changes. While imports have fallen by \$43.21 billion, from \$898.01 billion in FY23 to \$854.80 billion in FY24, exports have risen by only \$0.28 billion in the same period. For FY24 as a whole, India's merchandise exports stood at \$437.06 billion, down from \$451.07 billion during the previous fiscal. Goods imports fell to \$677.24 billion from \$715.97 billion recorded during the same period. India's service exports stood at \$339.62 billion in FY24, up from \$325.33 billion in the previous fiscal while imports fell to \$177.56 billion from \$182.05 billion in the same period. The overall trade deficit, including merchandise and services, shrank to \$78.12 billion in FY24 from \$121.62 billion in FY23.

During FY24, the main drivers of merchandise export growth included electronic goods, drugs and pharmaceuticals, engineering goods, iron ore, cotton yarn/fabric, handloom products, and ceramic products & glassware, the commerce ministry said. However, the overall export of refined petroleum products and jewellery declined during FY24. FY24 trade deficit fell to \$240 billion from \$265 billion FY23, led by lower oil and non-oil-non-gold imports.

Figure 11: India's Trade

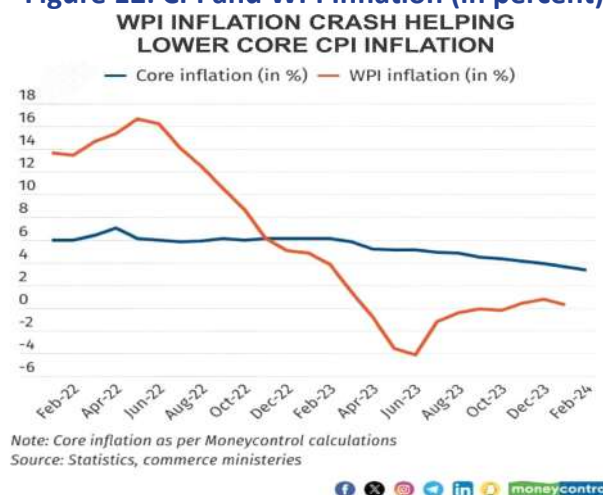


On the services side, exports are projected to grow at 17.34 percent in February 2024 on a year-on-year basis, while imports are seen rising by a smaller 2.81 percent during the same period. The estimated value of services export for April-February 2023-24 was \$314.82 billion against \$294.89 billion in the year-ago period. Services imports for this period in FY24 is expected to be \$161.86 billion compared \$165.09 billion in the first 11 months of the previous fiscal. The services trade surplus for April-February 2023-24 is estimated at \$152.96 billion as against \$129.80 billion in April-February 2022-23. Overall trade deficit for April-February 2023-24 (goods and services) is estimated at \$72.24 billion as compared to the deficit of \$116.13 billion during the same period in 2022-23, registering a decline of 37.80 percent.

ix. Inflation

As was expected, India’s headline retail inflation rate remained steady in February, coming in at 5.09 percent as against 5.10 percent the previous month. However, core inflation – inflation excluding food items and fuel – continued its downward trend and fell to 3.3 percent. This, economists say, is the lowest core inflation has been since January 2012. The sustained moderation in core inflation indicates that despite strong growth conditions, there are no signs of overheating.

Figure 12: CPI and WPI Inflation (in percent)



February inflation remained stagnant, above the central bank’s target of 4%, but within its tolerance range of 2-6% for the sixth consecutive month. Prices of food and beverages continued to rise – above 7% for four months in a row – owing to rise in prices of eggs, meat and fish and vegetables, but other primary categories like clothing, footwear, housing and transport eased marginally. In February 2023, inflation was a notch higher than the upper tolerance band, at 6.44%. Inflation stood at 5.5% in November 2023, up from 4.87% in October and 5.02% in September.

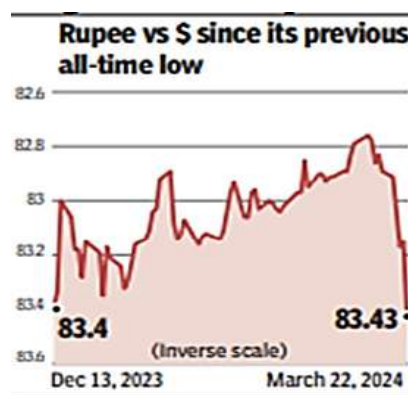
Core-CPI, which excludes food and beverages, fuel and light and petrol and diesel for vehicles, eased to 3.5% in February, from 3.7% the month before. The Reserve Bank of India (RBI) also kept policy rates the same with repo rates at 6.5%, fourth time in a row. Regulating interest rates is a key instrument for the central bank to control inflation.

x. Rupee

Unlike most emerging market currencies, the rupee has showed remarkable stability against the dollar, thanks to the RBI's hefty foreign exchange reserves, opens new tab of over \$619 billion, which it has used to absorb excess volatility. The rupee lost around 0.6% against the dollar in 2023 but was up about 0.4% this year, a negligible gain for the world's fastest-growing major economy, showing how tightly the currency is being managed. The Indian rupee is likely to appreciate against the US dollar in 2024, after logging a stable 2023, on a plethora of factors including anticipation of continued foreign inflows, with the local currency possibly strengthening up to Rs 82 per dollar during the year.

Robust foreign inflows into the domestic market have also played a pivotal role, providing resilience to the rupee amidst global uncertainties. The RBI's proactive measures throughout the year have successfully curbed volatility, preventing the local currency from further weakening. The rupee exhibited exceptional stability against the US dollar in the current calendar year, marking the least volatility seen in nearly three decades. Experiencing only a marginal depreciation of 0.5% against the greenback, the rupee's stability is attributed to the timely and active intervention by the RBI in the foreign exchange market. India's inclusion in the GBI-EM Global Diversified index by JP Morgan, with a phased approach over ten months, is projected to bring in significant inflows, potentially totaling \$25-30 billion. This inclusion is expected to contribute to the rupee's strengthening against the US dollar.

Figure 13: Rupee Movement in last one year



Rupee vs \$ since its previous all-time low

Market expectations suggest that the current quarter might mark the bottom of the economic cycle, with optimism for an uptick in economic activities from the next quarter onward. The RBI's anticipated rate cuts and favourable global factors contribute to this optimistic outlook. The recent indication by the US Federal Reserve of potential interest rate cuts in 2024 has implications for India's monetary policy. The RBI's stance, interpreted as dovish in the last policy review, aligns with expectations of a potential rate cut following the Federal Reserve's lead in May.

xi. Outlook for 2024-25: India

As things stand, India remains the world's fastest-growing major economy. In December the Reserve Bank of India (RBI) revised its growth forecast for the economy in FY24 to 7%, up from its previous projection of 6.5%. The revision was due to higher-than-anticipated growth in the first two quarters of the financial year.

Interestingly, the government has proposed fiscal-deficit targets of 5.1% of GDP for FY25 and 4.5% or lower by FY26, continuing on its path of fiscal consolidation as it looks to reduce the deficit to around 3% of GDP over the next few years. Meanwhile, rating agency Moody's raised its forecast for India's GDP growth in FY24 from 6.6% to 8% on the back of strong government expenditure and domestic consumption. The Indian economy surged ahead in the December quarter, clocking higher-than-expected growth of 8.4%, belying fears of tempering as manufacturing, electricity and construction put up a robust show. Growth in the third quarter (Q3 FY24) reported by the statistics ministry was also higher than the 7.6% reported for the second quarter, which was revised to 8.1% while Q1 GDP growth figures were updated to 8.2%.

The high growth number has also led to a revision in the National Statistical Office's estimate for GDP growth in FY24, from 7.3% in its first advance forecast to 7.6% in its recent revised estimate. S&P Global has raised India's FY25 growth forecast to 6.8% on the back of strong domestic demand and a pick-up in exports. The rating agency, which last November projected India's FY25 GDP growth at 6.4%, expects it to moderate in the coming fiscal year after better-than-expected 7.6% growth in FY24.

Meanwhile, S&P Global expects consumer inflation to decline further to 4.5% on average in FY25, though it expects the RBI to lower repo rates, as high repo rates could choke demand. The repo rate is the interest rate at which the RBI lends to commercial banks. A higher repo rate makes debt and debt-servicing more expensive, thus slowing economic activity.

Highlighting India's strength and stability as hallmarks of the current financial cycle, Morgan Stanley has raised its GDP (gross domestic product) growth forecast for the fiscal year 2024-25 (FY25) to 6.8 per cent from its previous estimate of 6.5 per cent. As per Morgan Stanley, the outlook for India's economic growth remains robust, with the expectation that growth will track around 7 per cent in the fourth quarter of the financial year 2023-24.

This growth momentum is expected to be broad-based, with the gaps between rural-urban consumption and private-public capital expenditure narrowing in FY'25. India is expected to see 'normal' monsoon between June and September weather forecasting company Skymet. This auger well with the rural buying pattern specially for two-wheelers, consumer durables, tractors and agricultural pipes in turn suggesting good growth of polymers. India of 2023 is seeing urban demand topping rural demand, a trend previously seen in 2003-07 cycle as well. This is expected to pick up as the cycle progresses. Morgan Stanley also anticipates a continuation of supply-chain normalization along with easing commodity price pressures, contributing to the disinflation trend.



Morgan Stanley also highlighted the potential risks stemming from global factors and domestic uncertainties. As per Morgan Stanley slower-than-expected global growth, higher commodity prices, and tighter global financial conditions pose risks to India’s growth and macroeconomic stability. India’s economic growth outlook for the upcoming fiscal FY25 -- starting from April 1, looks bright, thanks to strong growth and robust fundamentals, despite headwinds such as hardening crude oil prices and the global supply chain bottlenecks. The flows have largely been driven by the performance of our economy which has done well despite geopolitical conflicts, Covid, and rate action by the US Fed. Quite a lot of the growth is domestic-led and there is still scope for further improvement given the migration to urban areas. The PLI schemes and the China plus one story had helped the cause of Indian manufacturing. The massive investment in infrastructure modernization is helping companies in the materials, real estate, and construction space. Banks now have cleaner balance sheets with low NPAs which augurs well for the economy as a whole.

Table 1: India’s GDP Growth Projection – 2024-25 and beyond.

GDP Growth Forecast for India (%)			
	2023	2024	2025
Morgan Stanley		7.9%	6.8%
IMF	6.7%	6.5%	6.8%
World Bank	6.3%	6.4%	6.6%
Reserve Bank of India	6.8%	7.6%	7%
Moody's	6.7%	8%	6.4%
Goldman Sachs		6.3%	
Barclays	7.8%	7%	
ADB	6.7%	6.7%	6.7%
S&P		7.6%	6.8%

GDP growth in Q4 is expected to be in the range of 6.5%-6.8% despite certain signs of deceleration. As per economists’ high frequency indicators released so far point to continuation of momentum seen in Q3. International agencies including IMF, World Bank, ADB, Moody’s and others have recently revised India GDP growth forecasts upwards pointing to growth ~7%-7+%. India is drawing up near, medium and long-term goals in line with its target to become a developed economy by 2047, with a focus on electric mobility, digitization of payments infrastructure and high-speed expressways. All central ministries will soon firm up plans indicating five-year budgetary requirements for better financial management.

Looking Ahead at 2024 – Overall the country is on a growth path and with government impetus on infrastructure growth, introduction of PLI schemes, increasing government spending, fiscal measures on reducing inflation and focus on export growth, inflation taming down, forex reserves rising, FPIs investing in India, recovery in private final consumption, however, there are still some clouds of uncertainties especially with escalating crude oil prices, rising input prices and weaker global demand which remain a concern. That’s said, with Government focus on Make in India (Atmanirbhar Bharat) the demand for petrochemicals is expected to continue to stay up-beat with government initiatives like Digital India, Swachh Bharat (Clean India), Jal Jeevan Mission (Water is life), Start-up India and Skill development program, launch of smart cities and rapid expansion of metro projects.

INDIAN PETROCHEMICAL INDUSTRY

INDIA COUNTRY PAPER 2024



SECTION 2

INDIAN PETROCHEMICAL
INDUSTRY

xii. Petrochemical Industry in India

India is expected to remain a driving force in Asia for petrochemical demand in 2024 given its strong economic growth and resilient industrial production. But greater demand, however, is unlikely to bring much relief to domestic producers struggling with pressure on margins, as prices of key bulk chemicals are expected to remain suppressed due to ample supplies and new capacities coming on stream.

The market for chemical commodity products in India is expected to grow at around 7% in 2023 and 8% in 2024, according to S&P Global Commodity Insights analysts. This is higher than economic growth, which S&P Global Ratings has pegged at 6%-7.1% annually in fiscal years 2024-2026. The robust demand growth is being driven by a sharp pickup in India's economic activity after it emerged from COVID-19 lockdowns. The S&P Global India Services PMI Business Activity Index was at 58.4 in October, clearly signaling expansionary conditions for output and new orders. While India's domestic chemicals demand is expected to stay strong in 2024, price expectations are not very robust as the market struggles to find the right balance amid new production capacities coming on stream in the country and in the rest of Asia, changing trade flows, weak global demand and volatile upstream prices. Some players were hopeful that prices of some chemicals should reach a state of consolidation soon and improve H1 2024.

India's import of polyolefins -- the largest chunk of its petrochemical import basket -- surged significantly in 2023, led by higher demand and increased imports from China, where downstream demand scenario stood weak.

India's polypropylene imports were at 1.02 million mt in January-September, up 39% year on year, while polyethylene imports increased to 2.34 million mt, up 108% on the year, driven higher by demand from packaging, infrastructure, durables and automobile sectors.

India plans sizeable capacity additions for polymer through 2024 and beyond. HPCL-Mittal Energy's new 1.2 million mt/year PE capacity came on stream in 2023. HPCL's Rajasthan Refinery's 1.2 million mt/year PP and 1 million mt/year PE is on track and is expected in 2024, while Nayara Energy's new 440,000-450,000 mt/year PP plant in Vadinar is likely to come on stream in 2024, according to company sources.

Other capacities like GAIL's PP line in Usar is also expected in 2025. Taking advantage of the China Plus One strategy adopted by global players, some Indian chemical producers are planning to ramp up production levels in 2024 with an eye on domestic demand and export opportunities. However, cheaper Chinese imports for several petrochemicals such as phenol, acetic acid, nitric acid, aniline among others may continue to remain a key concern for Indian producers. Overall demand for aromatics too looks strong into 2024. While India's domestic chemicals demand is expected to stay strong in 2024, price expectations are not very robust as the market struggles to find the right balance amid new production capacities coming on stream in the country and in the rest of Asia, changing trade flows, weak global demand and volatile upstream prices.

Going into 2024, mandatory Bureau of Indian Standards certification to maintain the standard and quality of imported products could help regulate imports and promote local production of some chemicals.

BIS norms were implemented for MEG, PTA, PE and polyester fibers in 2023, and are likely to be implemented for imports of PVC, PP, and a few more chemicals in 2024. The requirement of BIS certification could help curb imports from China for a while, as Chinese companies are yet to apply for the certifications.

Several Indian state-owned energy companies are making major investments to boost their petrochemical activities to the tune of around \$123 bn (more than ~10 lakh crore) worth of new projects as the country moves to bridge the gap between the shortage of domestic supply and increasing consumer demand.

Going forward the planned investments on drawing board would need some government support and benefits so that they fructify and able to generate and create more job opportunities in the country.

The overall outlook for the petrochemical industry in India is more positive than it was in 2023 as several state-owned energy corporations have made investments to boost petrochemical feedstock availability and extend their presence in the downstream derivatives market.

The focus of the industry is to plan capacity addition and meet the domestic as well as export demand. The industry needs to be nurtured with the right policies and fiscal support from the government.

xiii. Petrochemical Industry Review of 2023-24 & Outlook for 2024-25

A. Global Petrochemical Industry review

Following a challenging conclusion to 2022, expectations for a modest rebound in chemical production in 2023 were widespread within the industry. However, by mid-2023, numerous chemical companies revised their forecasts significantly downward.

Various factors contributed to subdued global demand for chemicals, including a European recession, inflation in the United States, and a slower-than-expected recovery in demand from China. Furthermore, excessive ordering in 2021 and 2022 led to elevated inventory levels, prompting months of destocking.

As a result, chemical output saw minimal growth of less than 1% year-over-year in the first eight months of 2023, with several segments experiencing decreased output. To counterbalance this decline, many companies shifted their focus towards cost reduction and efficiency improvement initiatives.

A notable transformation in regional dynamics is evident in the olefins and polyolefins sector. In 2023, China completed over 20 petrochemical projects, bolstering its global share of petrochemical capacity to 25%. Chinese refiners transitioned from fuels to petrochemicals in anticipation of diminishing demand for fossil-based transport fuels. The country expanded capacity across the supply chain to achieve self-sufficiency, augmenting ethylene, propylene, polyethylene, and polypropylene capacity. Concurrently, plants in the United States and the Middle East capitalized on competitively priced feedstocks. With ethane production on the rise in the United States, companies are expanding ethylene and polyethylene capacity to absorb the surplus feedstock, despite escalating ethane exports. Nonetheless, global utilization rates at polyethylene and polypropylene plants declined as supply surpassed demand.

In general, global petrochemical prices peaked in October and are projected to gradually decline into early 2024 in tandem with energy and feedstock prices. Naphtha margins continue to face challenges, with ethylene margins derived from naphtha-based feedstock remaining below seasonal averages across all three regions since mid-2023, and European and Northeast Asian spot ethylene margins hovering close to zero in November. Europe persists as the weakest region, characterized by low ethylene margins and underwhelming derivative demand. As the industry advances into 2024, it contends with global trade restrictions compounded by extended transit times, elevated shipping costs, and disruptions like the Red Sea crisis. These challenges pose a particular dilemma for China, given its dependence on global markets for manufactured goods, including petrochemical products. Despite indications from global firms regarding substantial capacity expansion, historical trends suggest that such projections are often overstated. It is probable that 2024 will follow a similar trajectory, with fewer new capacities coming online than initially anticipated.

This reduction could play a pivotal role in facilitating the market's recovery.

The APAC chemical industry in 2024 faces compressed margins and high inventory levels, significantly dampening buyer sentiments. Last year, high oil prices and sluggish Chinese orders drove spreads on benchmark products to multi-decade lows. However, given the cyclical nature of the sector, supply and demand dynamics are expected to rebalance eventually. S&P Global Ratings anticipates a gradual recovery in global utilization rates of ethylene, which may lead to increased spreads this year. Furthermore, while global firms have signaled extensive capacity expansion plans, such intentions typically exceed actual implementation. This trend is likely to persist in 2024, with producers bringing less new capacity online than previously projected. This reduction may contribute to the market's recuperation to some extent.

B. Outlook for 2024-25

The outlook for the broader economy and energy markets is also mixed. Economic prospects by region continue to vary with the US showing surprising strength through late 2023, China struggling to regain lost momentum and the Eurozone headed for a recession. Annual global real GDP growth is forecast to slow to 2.3% in 2024, down from 2.6% in 2023, with the risk of a more prolonged period of weakness increasing, according to S&P Global. It's all about Asian growth in 2024. It is forecasted by S&P global the polymer demand to increase back to GDP levels or slightly higher after two weak years.

Global ethylene margins based on naphtha feedstock will remain challenged through 2024 regardless of demand scenarios due to all the new capacity. Global polypropylene demand is expected to rebound to 3%-4% in 2024. Overall, Chemical makers are expected to face challenging markets again in 2024 as weak economic growth and oversupply weigh on prospects. The Asian petrochemical industry is poised for a better year in 2024. Factors such as cyclical nature, capacity expansion, and the resilience of rated firms contribute to a more positive outlook. However, ongoing monitoring and strategic management will be crucial in navigating potential uncertainties. Despite challenges such as high oil prices and weak Chinese orders leading to low spreads on benchmark products in 2023, there are signs of improvement. Factors such as low-cost production, expansion into specialty chemicals, and diversified business portfolios contribute to their resilience. Although firms may have expansion plans in place, these plans don't always materialize. As a result, there will be less capacity coming online in 2024 compared to what firms have indicated. The market is expected to gradually recover throughout the year, supported by improving product spreads. However, it's important to acknowledge the risks associated with a potential prolonged downcycle and the significant capacity expansion within the industry. Companies in Asia are adopting different strategies to address the cyclical and inflationary risk associated with their commodity chemicals business.

The firms are aiming to minimize volatility in earnings and cash flow, or to diversify their product mix and markets. As both governments and consumers push for cleaner and more sustainable practices in the petrochemicals industry, companies are under pressure to reduce their environmental footprint, minimize greenhouse gas emissions, reduce energy consumption, and develop eco-friendly alternatives to traditional petrochemical products. To comply with stringent regulations and the adoption of sustainable practices, companies in the petrochemical sector are investing in research and development (R&D) activities to innovate and create greener solutions while also ensuring that their operations adhere to evolving environmental standards. With market volatility remaining, there is no doubt about the urgency to balance short-term solutions with long-term strategy to build resilience and ensure future viability of business models. And while transformation is certainly not a new theme in the industry, emerging trends are forcing business

Table 2: Naphtha Demand Supply

● Actual ● Estimate

Naphtha (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Production	19922	17036	18257	--	--
Imports	1246	897	1281	--	--
Exports	6861	5714	5153	--	--
Apparent Demand	14255	12127	13861	--	--
Demand Growth%	1.1%	-14.9%	14.3%	--	--

leaders to create lasting change if the industry is to weather the storm in 2023 and beyond. While the key themes of the transformation in the petrochemical industry remain, the developments of the past year have put additional emphasis on risk mitigation measures and significantly accelerated the need for action around new energy and feedstock supply efforts. To succeed in 2023 and beyond chemical companies must build resilience, accelerate investments in new and greener technologies, and develop M&A and margin management as core capabilities.



Petrochemical companies are likely to focus on repositioning their asset portfolios and balancing trade-offs between different strategic options with critical considerations such as scale, the scope of products, and growth opportunities. To deliver stronger growth and improve financial performance, firms should consider honing their product and services portfolios further, evaluating several areas.

Looking ahead, the APAC chemical industry in 2024 and beyond is set to navigate a landscape marked by varied challenges, from economic slowdowns and trade restrictions to capacity adjustments and market dynamics. The resilience of the industry will be tested, particularly in how it adapts to these evolving scenarios and maintains a balance between supply and demand. With a focus on strategic planning and adaptability, the APAC chemical sector has the potential to overcome these hurdles and continue its trajectory of growth and innovation.

xiv. Feedstock

A. Naphtha

Naphtha is a major raw material for production of Ethylene, Propylene and Aromatics. The current demand in country is lower than the production from refineries and as a result, India has been an exporter of nearly 6-8 MMTPA. However, in the year 2023-24, Naphtha exports were comparatively lower compared to last year around 5153 KT as well as production and imports.

Naphtha consumption witnessed a robust growth in 2023-24 after a negative growth in 2022-23. Next fiscal the demand is expected to see an improvement due to increase in demand from downstream products like Ethylene, Propylene demand. GAIL India Ltd, plans to import ethane from the United States to replace natural gas and naphtha as feedstock for its petrochemical facilities.

Moving in this direction, GAIL and the Central Board of Direct Taxes (CBDT) last year entered into a landmark advance pricing agreement (ArA) for determining the transfer pricing margin payable on its long-term LNG sourcing contract from the USA for five years.

GAIL in March 2023 had entered into a bilateral MoU with SEI for scouting opportunities in different facets of energy cooperation, wherein a feasibility study was conducted by a consultant on developing ethane import infrastructure in the existing SEI terminal at Hazira. GAIL (India) Limited, Oil and Natural Gas Corporation (ONGC) and Shell Energy India (SEI) Private Limited signed a tripartite memorandum of understanding (MoU) to explore opportunities for the import of ethane and other hydrocarbons.

The three companies have signed a preliminary agreement with a focus on developing ethane import facilities at Shell's LNG import terminal at Hazira in Gujarat. Both GAIL and ONGC are exploring import of ethane from countries such as US for planned petrochemical plants to meet the growing demand of plastics. GAIL is looking to build an ethane cracker which will produce ethylene that is required for products such as plastics. The MoU is expected to offer new business prospects to all the parties along with offering diversification of petrochemical feedstock while aligning with the national priorities and Government of India's Atmanirbhar Bharat (Self Reliant India) mission with manufacturing in India.

B. Natural Gas

Natural gas is the most diversified fuel being used domestically as well as industry wide to fuel vehicles, generate electricity and as a raw material for products such as fertilizer and plastics. The GoI in its ambitious target wants to raise share of gas in its energy consumption mix to 15 per cent up from current 6 per cent by 2030. The higher demand for natural gas in India is also expected to be supported by sizeable growth in domestic gas production wherein nearly 30 MMSCMD of new domestic natural gas production has gradually come on-stream over the last three years and another around 15 MMSCMD of new domestic natural gas production is expected to come on-stream during FY25. India currently imports about 50 per cent of its gas requirements. Net imports of natural gas by India, the world's fourth largest importer of liquefied natural gas (LNG), is expected to grow at an average of 4.9 per cent annually between 2022 and 2050, as per the US EIA. The industry is set to remain the largest contributor to this growth, accounting for close to 40 per cent of the total increase. According to data from the Petroleum Planning and Analysis Cell, demand for regassified LNG in fertiliser sector almost tripled during the first eight months of 2023 vis-a-vis 2022 on account of government subsidies and improved connectivity for fertiliser plants in southern India.

The higher imports are on account of rising demand from industrial sector, particularly fertilizers and oil refineries. The fertiliser sector is set to be a driver behind India's growing industrial gas demand, as urea imports are planned to be phased out by 2025-end. India imported 31.028 BSCM of LNG in FY22, 26.304 BSCM in FY23 and 22.856 BSCM in FY24 (April-December), per government data.

The US Energy Information Administration (EIA) expects India's domestic natural gas production and imports will help meet the growth in consumption of natural gas. India's net natural gas imports to grow even faster than domestic production, increasing from 3.6 billion cubic feet per day (Bcf/d) in 2022 to 13.7 Bcf/d in 2050, a 4.9 per cent average annual increase. The US EIA has projected that India's natural gas production is expected to nearly triple from 3.3 Bcf/d in 2022 to 9.1 Bcf/d in 2050 – a 3.7 per cent average annual increase. US EIA's International Energy Outlook 2023 projects India's natural gas consumption to more than triple to 4.4% by 2050. This growth rate is more than twice the 2 per cent annual growth rate of natural gas consumption in China.

By 2050, natural gas consumption is expected to rise in India to 23.2 Bcf/d. Among India's five consuming sectors, industrial sector's share of natural gas consumption will grow the most, rising to 80 per cent of total consumption, followed by the transportation sector rising to 10 per cent. The expansion of gas network over last few years has been epic. Globally, around 20% trunk gas pipeline additions announced for completion up to 2026 are in India, according to GlobalData, a data and analytics company. That is about 18,600 kms (16,000 kms in FY19 to 34,600 kms by 2024), more than the planned additions in China (17,810 km) and U.S. (12,305 km). GAIL India added another 1000 kms approx. pipeline in FY23 making it to 16,243 km gas pipelines as of March 2024. Production from the MJ field commenced in FY 2023-24. The KG D6 gas will account for approximately 30% of India's domestic gas production at its peak capacity of ~30 MMSCMD and will cater to key sectors like CGD, power, fertilizer, refiners, steel, glass, and ceramics etc.



IOCL has also planned for augmentation of capacity by laying 1,444 kms Natural Gas pipeline from Ennore LNG Import Terminal to Tamil Nadu, Andhra Pradesh and Karnataka with an investment of Rs. 6025 Cr.

By February 2026, India will invest ₹3 lakh crore, or \$40 billion, to expand gas infrastructure — pipelines, port-based LNG (liquefied natural gas) regasification terminals, city gas distribution (CGD) networks and gas exploration projects. The investment will more than double the gas pipeline network from 16,000 km in FY19 to 34,600 km by 2024.

Table 3 : Natural Gas Demand Supply

● Actual ● Estimate

Natural Gas (MMSCM)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Production	34024	33573	36423	--	--
Imports	31906	27021	30586	--	--
Exports	0	0	0	--	--
Apparent Demand	65037	60594	66309	--	--
Demand Growth%	6.9%	-6.8%	9.4%	--	--

As India is planning a massive expansion of LNG import infrastructure to spur gas demand, LNG prices have skyrocketed and increased attention on the global warming potential of methane (the major component of ‘natural’ gas) which is likely lead to a major risk of underutilization of this infrastructure with billions of dollars’ worth of investment.

In a nutshell, to strengthen energy security, there is an urgency for investment in alternatives to gas to insulate India from balance of payments risks and from the fuel’s inflationary pressure — and, most importantly, to meet low-carbon goals.

Alongside the rise in CBM, the country’s net natural gas production has seen a rise, reporting 33,664 MMSCM for the fiscal year 2022-23, marking an increase from 33,131 MMSCM in the previous year, data released by the Oil Ministry showed. The growth is partially attributed to the operationalization of 52 Compressed Bio Gas (CBG) plants under the Sustainable Alternative Towards Affordable Transportation (SATAT) initiative, cumulatively selling 11,527 tons of CBG by December 2023.

The utilization of India’s liquefied natural gas (LNG) terminal capacity stood at 44.1% from April to November 2023. These terminals, which have a total capacity of 47.7 million metric tonnes per annum (MMTPA), are a critical component of the country’s gas supply infrastructure.

Supporting the increase in gas production, India’s pipeline network has reached a total length of 33,009 kilometers, with 23,298 kilometers partially commissioned and 10,007 kilometers under construction, highlighting ongoing efforts to expand the gas distribution infrastructure. With the increase in domestic natural gas production, India’s dependency on imported liquefied natural gas (LNG) is expected to fall to about 45% of total consumption in 2025-26 after gradually declining from 53% in 2020-21 as per Care Ratings.

C. Coal Bed Methane

The production of coal bed methane from 12 active blocks is projected at 844 million standard cubic meters (MMSCM) in the current fiscal and 1,133 MSCM in current fiscal and 1,133 MSCM in the next financial year. Of the 12 Coal Bed Methane (CBM) blocks active at present, five are in the production phase, three in the development phase and four under the exploration.

At present, 12 CBM blocks are active, 5 of which are in the production phase, 3 in the development phase and 4 blocks (awarded during SCBM-21) are under the exploration phase.

Essar Oil and Gas Exploration and Production (EOGEPL), Reliance Industries, Great Eastern Energy Corporation, and state-run ONGC are the active players in the country's CBM sector. As part of its diversification plans to produce clean energy from coal, state-run Coal India has also recently started extracting CBM from its leasehold area under Bharat Coking Coal in Jharkhand. Reliance Industries Ltd is seeking a minimum \$10 rate for the gas it plans to produce from coal seams, as it altered its pricing formula to reflect the changed energy scenario. Reliance has sought bids from users for 0.90 million standard cubic meters per day of gas it will produce from coal-bed methane (CBM) block SP (West)_CBM-2001/1 in Madhya Pradesh, according to a tender floated by the company. Users have been asked to quote a premium they are willing to pay over and above 12.67 per cent of the Dated Brent crude oil price.

Gas price shall be higher than 12.67 per cent of Dated Brent plus premium 'V'; or the Government-declared monthly price for conventional gas.

The Government-mandated price for January is \$7.82 per mmBtu. RIL has set the starting bid price of 'V' at \$0.50 per million, British thermal units - bidders have to quote 'V' higher than \$0.50. At the current Brent crude oil price of \$78 per barrel, the minimum gas price comes to \$10 per mmBtu (12.67 per cent of \$78 is \$9.88 per mmBtu. Added to this is a minimum premium of \$0.50, which takes the gas price to about \$10.4 per mmBtu). E-auction is planned for January 31, the tender document showed.

The contract duration is for 1 to 2 years beginning April 1. State-owned ONGC sought a premium over the Government-dictated gas price of \$7.82 per mmBtu for the gas it plans to produce from a CBM block in Jharkhand.

ONGC sought bids from users for the sale of 0.05 mmscmd of gas from the North Karanpura CBM block in Jharkhand for three years. Users have been asked to quote a premium they are willing to pay over and above the monthly domestic natural gas price that the Oil Ministry's Petroleum Planning and Analysis Cell (PPAC) notifies.

Table 4: Coal Bed Methane Demand Supply

● Actual ● Estimate

Coal Bed Methane (MMSCM)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Production	683	674	649	--	--
Imports	--	--	--	--	--
Exports	--	--	--	--	--
Apparent Demand	683	674	649	--	--
Demand Growth%	6.4%	-1.4%	-3.7%	--	--

The recent developments in industrial policies around the world induced by climate change, which warrant a reduction in the usage of high-emission fuels, provide a golden opportunity for the country to tap into CBM. Utilization of CBM congruously aligns with the PM vision of making India a gas-based economy by increasing the share of gas in our energy mix from the current 5.6% to 15% by 2030. India is significantly dependent on imports for around 50% of its natural gas requirements, which costs the exchequer nearly US\$16-17 billion annually while remaining vulnerable to fluctuations in global energy prices.

D. Methanol

The use of methanol as a fuel has the potential not only to reduce greenhouse gas emissions but also to lead to reduction in crude oil and natural gas import bills. Methanol consumption has witnessed a notable increase in India in recent years, reflecting its diverse applications across industries. The chemical sector extensively employs methanol as a raw material for producing formaldehyde, acetic acid, and other essential chemicals.

India consumed around 3 million tonnes of natural gas-based methanol (grey methanol) in FY 24. A bulk of the 2.8 million tons of methanol, around 94%, was imported from gas-rich nations such as Saudi Arabia, Iran, Qatar and Oman, for a total import value of \$937 mn in 2022-23 and around 2.7 mn tonnes was imported in period April- Jan' 24, at a value of \$783 mn. As India does not have sufficient natural gas, the import bill cannot be brought down via conventional means. However, due to its immense bioenergy and RE potential, India can make a concerted push to replace grey methanol with green methanol.

Green methanol can replace grey methanol in traditional applications and open newer demand avenues for improving sustainability in sectors such as transportation.

Green Methanol Blending for Energy Security and Decarbonisation - The use of methanol as a fuel has the potential not only to reduce greenhouse gas emissions but also to lead to a reduction in crude oil and natural gas import bills. Compared to traditional fuels like gasoline and diesel, methanol blending would reduce GHG emissions by 20% in particulate matter, NOx, and SOx, thereby improving the urban air quality.

Realising the game-changing potential of Methanol for the Indian economy, NITI Aayog launched the methanol economy program with an aim to reduce the import bill and GHG emissions.

As per studies and pilot projects conducted by NITI Aayog, Methanol can be blended in ratios ranging from 15% to 100% in existing fuels like petrol and diesel, which can not only help in accelerated decarbonization of transport sectors but also save significant foreign exchange for the country.

Dimethyl Ether (DME), a derivative of Methanol, is another important application and can be blended to 20% in LPG, which could result in substantial savings, which can be passed on to end consumers.

The Indian government seeks to produce methanol and dimethyl ether (DME) from three plants that are set to come online in the next three years. The government last month approved \$1bn in financial incentives for such projects in a bid to reduce its reliance on imported fuels and support indigenous technology.

Coal gasification involves extracting methane from coal during the mining process and utilising it for commercial purposes. The total outlay of 85bn rupees (\$1bn) will be divided into three categories, India's Cabinet Committee on Economic Affairs (CCEA) announced on 24 January 2024. Coal India, Indian Oil, Gail, and Bharat Heavy Electricals are the firms that have so far announced plans to build coal-to-chemical projects that will convert coal into syngas, which can be subsequently processed for downstream production of value-added chemicals.

The government is also targeting to blend methanol in gasoline and is also working out if it can be blended in diesel. The plants are also likely to produce ammonium nitrate that is used in making explosives.

The government is targeting only the domestic market for the sale of these products, as the cost of production of methanol would not be at parity with global prices.

The government aims to gasify 100 million tonnes of coal by 2030 and envisions the adoption of domestic technologies to produce chemical products and their derivatives, as part of the National Coal Gasification Mission.

The Indian government had estimated in 2020 that it would require an investment of more than Rs 4 trillion to gasify 100mn t/yr of coal by 2030.

With its potential to contribute to industrial and environmental objectives, green methanol consumption in India is poised for further expansion as the nation seeks innovative and sustainable solutions for its energy and industrial needs. However, to jump-start the green methanol economy, swift and concrete regulatory support is required.

Table 5: Methanol Demand Supply

● Actual ● Estimate

Methanol (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	634	661	757	804	804
Production	189	157	170	208	248
Imports	2469	2885	2875	2999	3102
Exports	16	27	27	27	27
Apparent Demand	2646	2909	3018	3179	3323
Demand Growth%	11.8%	9.9%	3.7%	5.3%	4.5%

The Bureau of Indian Standards has notified 20% DME blending with LPG, and a notification for M-15, M-85, M-100 blends has been issued by the Ministry of Road, Transport and Highways. Test standards and plans for the M-15 blend are being evolved in consultation with the Indian Oil Corporation Limited, Automotive Research Association of India and Society of Indian Automobile Manufacturers.

In the railway sector, RDSO is working towards blending methanol in the range of 5-20% through direct fuel injection in locomotives.

The 500 TPD Methanol Plant at Namrup, Dibrugarh of Assam Petrochemicals Ltd (APL), executed by Engineers India Ltd. (EIL) was commissioned on 14th April 2023. This is one of the largest Methanol Plants in India with Natural Gas as feedstock, the APL Project boasts of high energy efficiency, Zero Liquid Discharge and provisions for future integration with Acetic Acid Plant.

Bengaluru's Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) is setting up India's first plant to convert CO₂ into methanol at a power plant in Telangana. The plant, commissioned by the Central Mine Planning & Design Institute Limited (CMPDI) with a recommendation from Coal India Limited, is expected to be completed in 2024.

XV. Building Blocks

A. Ethylene & Propylene

Ethylene Capacity touched 8677 KT in India in 2023-24 and is expected to increase to 9277 KT by 2025-26. Ethylene consumption in the country rose from 6854 KT in 2023-24 and is forecasted to witness a further growth next fiscal to 7335 KT, before touching 7802 KT by 2025-26. Production is expected to increase to 7712 KT by 2025-26 from 6836 KT presently.

Propylene demand dropped from 5923 KT in 2022-23 to 5735 KT in 2023-24 and is expected to rise further to 6466 KT by 2024-25. Capacity is expected to witness an increase from 7502 KT presently to 8052 KT by 2025-26. Production saw a drop from 5908 KT in 2022-23 to 5735 KT in 2023-24. It is projected to witness an increase touching 6465 KT by 2025-26.

Table 6: Ethylene & Propylene net availability

● Actual ● Estimate

Ethylene (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	7477	7853	8677	8677	9277
Production	7311	7312	6836	7285	7712
Imports	59	77	70	50	90
Exports	118	52	52	0	0
Net Availability	7253	7337	6854	7335	7802
Propylene (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	6614	7071	7502	7779	8052
Production	5835	5908	5735	6104	6465
Imports	27	15	0	0	0
Exports	0	0	0	0	0
Net Availability	5862	5923	5735	6104	6465

Indian Oil Corporation (IOCL) has planned for Panipat Refinery Capacity Expansion at an investment of Rs 34,627 Cr. The project aims to expand the Panipat Refinery’s capacity from the current 15 MMTPA (million metric tons per annum) to 25 MMTPA. Additionally, it involves installing a Polypropylene Unit and a Catalytic Dewaxing Unit. IOCL’s Gujarat Refinery will be expanded from the current 13.7 MMTPA to 18 MMTPA with an investment of Rs 18,936 Cr. The project includes integrating Lube and Petrochemical Production Units, revamping existing units, and adding new facilities.

The IOC Barauni Refinery’s capacity will be enhanced from 6.0 MMTPA to 9.0 MMTPA. The expansion will improve operational flexibility and refining margins. Additionally, a Polypropylene unit for processing propylene feedstock is also proposed at an investment of Rs 14,810 Cr. IOCL also plans for consolidating the corporation’s Polyester business by producing Mono Ethylene Glycol (MEG). The project aims to recover ethylene from FCC off-gases and upgrade it to MEG, Di Ethylene Glycol (DEG), and Tri Ethylene Glycol (TEG) at Paradip Refinery at an investment of Rs 5,654 Cr.

GAIL (India) Ltd, has outlined its intention to invest Rs 30,000 crore over the next three years. This investment aims to expand its petrochemical capacity and secure global LNG supplies. GAIL is also working to set up a 500,000 tonne per year polypropylene plant at Usar, near Alibag at an estimated investment of around Rs 7,000 to 8,000 crore. This significant expansion is expected to be ready. GAIL is planning to import ethane from the US to replace natural gas and naphtha as feedstock at petrochemical plants.

GAIL has signed a memorandum of understanding with Shell Energy India to explore opportunities for infrastructure development for ethane sourcing. GAIL in Feb’23 floated a tender to hire a very large ethane carrier (VLEC) for 20 years starting mid-2026 for importing ethane from the US. The ship with capacity of 80,000 to 99,000 cubic metres is targeted to take deliveries from the US ports of Marcus Hook, Nederland, Morgan’s Point or Beaumont and deliver ethane at Dahej or Hazira in Gujarat or Dabhol in Maharashtra.

The Ratnagiri Refinery & Petrochemicals Ltd (RRPCL), has seen a cost increase by India by 36 per cent to \$60bn. RRPCL has previously described this complex to be capable of 1.2 million barrels a day of processing capacity for Euro-VI fuels and aviation fuels with an eventual petrochemical component of over 50 units. The original location for the refinery was Nanar in Maharashtra's Ratnagiri district but this was scrapped in March in 2019 following protests by the locals. The Ministry of Environment, Forest and Climate Change had provided environmental clearance for the Ratnagiri oil refinery in March 2018. The project was earlier proposed at Nanar village in the Rajapur taluka in 2014.

Assam-based Numaligarh Refinery Limited (NRL) is executing a major expansion project to increase its capacity from the current 3.0 million metric tonnes per annum (MMTPA) to 9.0 MMTPA. The expansion involves installing a 6 MMTPA capacity refinery, associated crude oil terminals, and pipelines. The refinery will process Arab Light (AL) and Arab Heavy (AH) crude oil in a ratio of 30:70. A cross-country pipeline spanning approx. 1640 km will transport 9 MMTPA of imported crude oil from Paradip Port in Odisha to Numaligarh. The project is part of the Government of India's Hydrocarbon Vision 2030 initiative to meet the growing demand for petroleum products in north-eastern India. The approved budget for the project is Rs. 28,026 Cr. The project is progressing according to the set timelines by the Government of India & Mechanical completion and Commercial Operation Date (COD) are scheduled for 2024.

GAIL is diversifying its Petrochemical business by entering into Polypropylene business. GAIL is setting up a 500 KTA PP plant based on PDH technology at Usar, Maharashtra to be commissioned by 2025 and another 60 KTA PP plant is also being set up at PATA petrochemical complex to be commissioned by 2025. M/s W R Grace is the technology Licensor for both the upcoming PP plants and will be utilizing Unipol PP process technology with latest generation catalyst to produce world class PP products. Homopolymer Polypropylene grades will be produced at Usar PP plant whereas both Homopolymer as well as Co-Polymer Polypropylene grades will be produced from Pata PP plant.

B. Butadiene

Butadiene finds its application in manufacturing of synthetic rubbers like PBR, SBR, Chloroprene, a variety of plastics and Latex/block copolymers like ABS, ADN and NB/SB Lattices and into chemicals like Butanediol, linear olefins and other miscellaneous chemicals. Synthetic rubber (a key raw material for Auto tires) and Plastics form 65% and 20% of butadiene consumption respectively.

Thus, Automobile, Consumer Appliances and Construction sectors are key influencers of the Butadiene market. Regionally, China accounts for largest share of ~4.6MnT / 35% of global consumption followed by Americas, Europe and South Korea 15% / 14% and 11% respectively.

Recovery Post Pandemic: Global Butadiene consumption at 13MnT/Year has scaled well above the pre-Covid average of 12MnT/Year. Similarly, in India, the consumption has recovered to >310KT/Year, vs pre-Covid average of 275KT/Year.

Domestic Landscape: Butadiene and butadiene derivative production in APAC remains dominated by India. This is not expected to change in the foreseeable future. Butadiene capacity additions in the last decade outpaced investments in derivatives, enabling India to become a significant exporter of refined butadiene. In contrast, India continues to import cheaper PBR and SBR from Iran and Russia. SBR import volumes have declined with the start-up of new SBR plants by Reliance and IOCL, but they will increase again as strong automotive production growth is expected throughout the forecast period. It is vital to mention that Asia is and will remain a key region with respect to butadiene rubber consumption and production.

India has an installed capacity of 600KTA with RIL, IOCL, OPAL and Haldia as leading producers. Approximately 65% of capacity is captive, Haldia and OPAL are major exporters as they do not have downstream units. A competitor is expected to come up with a 100 KTA BD unit in CY25 according to ICIS. Consumption is expected to grow in Mid-single digit range, thus going forward, India will remain a net exporter of Butadiene. YTD FY24, India has exported 156KT of Butadiene, up 16% YoY and up 22% compared to last 10Y average. Export FOB offers are usually at a discount to the prevailing Southeast Asia Price marker.

Butadiene prices dropped significantly -22%/-44% Q-o-Q/YoY respectively during 1Q FY24. This was on account of inflationary pressure in key economies like USA. Although demand from Auto and construction remained fairly active, manufacturers were reluctant to destock the stocks at hand. Furthermore, PMI indexes overall remained in the contraction territory, dampening the overall business sentiment. Subdued demand trended in 2Q FY24 where the prices tumbled -2.3%/-22.5% Q-o-Q/Y-o-Y. BD prices underwent a strong fluctuation before finally improving in the 2nd half of the quarter due to high-cost support from feedstock Naphta.

Upstream crude oil prices also remained > \$80/Barrel drawing support from OPEC production cuts. One of the largest BD consumers in US, INVISTA announced permanent shutdown of its 480 KTA ADN facility, but the consumption gap was bridged by pick up in autos. BD market in Europe was hinged on buoyant demand from Asia, while some cracker shutdowns in region helped offsetting the market surplus.

In 3Q FY24, prices increased 21%/31% Q-o-Q/Y-o-Y on bullish feedstock prices. External developments like the UAW strikes in US, supply chain issues prolonged drought in Panama Canal and Red Sea crisis thereby increasing freight costs by >9% kept the supply demand in tandem. In APAC, market moved to a long scenario due to tepid demand and cheaper imports.

In initial periods 4QFY24, Butadiene prices are surging owing to boosted demand from Automobile industry, rise in ABS manufacturing in North-East Asia. This is being complemented by supply crunch stemming from the ongoing lower cracker operating rates and a switch to LPG cracking vs ethane which yields lower Butadiene. Butadiene prices are anticipated to intensify across Asian and European markets in the coming months. Further into FY25, supply will ease and gradually shift to long.



In upcoming plants, Vietnam’s Long Son Petrochemicals plans to resume test run at the Ba Ria-Vung Tau complex in June. TPC Group is expected to unlock 80KTA capacity via debottlenecking in US. Likewise, Sinopec, Exxon and Shangdong Yulong is anticipated to start new plants with a cumulative capacity of 550KTA in FY25.

Table 7: Butadiene Demand Supply

● Actual ● Estimate

Butadiene (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	605	605	605	752	752
Production	505	462	500	513	559
Imports	0	0	0	0	0
Exports	163	150	183	182	208
Apparent Demand	342	312	317	331	351
Demand Growth%	4.6%	-8.8%	1.6%	4.4%	6.0%

Bio Butadiene: In January 2024, Michelin has unveiled its First “Industrial scale” demonstration of bio-ethanol derived butadiene plant. This is a collaborative effort between Michelin, IFPEN and Axens. It is located in Michelin’s site in Bassens near Bordeaux, France, and is a component of the BioButterfly project, dedicated to advancing and commercializing the production of butadiene sourced from plant-derived feedstock. BioButterfly initiative has seen a cumulative investment exceeding €80Mn. The production capacity is estimated to range between 20 - 30 MT/Year.

Lummus Technology in April 2022 announced that its Green Circle business and Synthos S.A. have reached a major milestone in the development of advanced bio-butadiene technology. After completing a successful feasibility study in 2021, Lummus and Synthos have concluded that the bio-butadiene technology is ready for implementation, and the companies have agreed to move into the engineering and design phase of the project.

Given the confidence in the technology and the strong market demand for renewable materials, Synthos has committed to building a plant with a capacity of 40,000 metric tons of bio-butadiene per year – twice as much as the companies had originally planned.

In addition to the plant capacity expansion, Synthos has confirmed that it will license BASF’s butadiene extraction technology from Lummus and leverage Lummus’ digitalization capabilities for operational efficiency and reliability.

The commercialization with Synthos of this biotechnology for more sustainable rubber products is one of several sustainable process solutions that are making a positive impact. Lummus Technology (Houston) announced that Butadiene LLP has selected its iC4 CATOFIN, CATADIENE, CDMtbe technologies and BASF’s butadiene extraction technology for units at Butadiene LLP’s new petrochemical plant in Atyrau, Kazakhstan.

C. Styrene

The entire demand for styrene is met through imports due to lack of any production facilities within the country. This makes the demand susceptible to international fluctuations in prices as well in its availability. Benzene, the primary feedstock for styrene, has a direct influence on the supply of styrene to India since feedstock prices determine the prevalent market dynamics. Due to lack of production facilities, India is entirely dependent on imports from other countries to meet its growing styrene demand. An abrupt change in international prices, therefore, harshly affects domestic users in the country.

Styrene is relatively inexpensive to move and hence, widely exchanged between different regions. Asia currently accounts for more than half of global styrene demand and is expected to remain the global styrene growth driver. Continued industrial development, population growth and rising income levels are key drivers, all of which are dominant in the upcoming Asian markets and in India.

During the first quarter of 2023, the Asia-Pacific market witnessed a continuous decline in Styrene prices on account of a slow production rate. The initial phase of the quarter witnessed a fall on account of declining upstream (crude oil) prices in the international market. Consequently, the suppliers and end users stockpiled the product. Moreover, the demand for the product from downstream (polystyrene, ABS, and SBR) in Feb was slow, proportionally impacting the final prices.

Price of Styrene experienced a mixed trend during the second quarter of 2023 in the Asia-Pacific region. The market sentiments fluctuated based on various factors impacting demand and supply dynamics. At the beginning of the quarter, the Styrene market witnessed a surge in price trend. In the Asia-Pacific region, the price of Styrene experienced an incline trend with an overall increment of (22%) during the third quarter of 2023. In the first month of Q3, the surge in Styrene price from the expatiations of slower output recovery, as China imposed a consumption tax on mixed xylene, coupled with a rise in the consumption rate of Styrene from its downstream derivative industries.

In the second month of Q3, the global Styrene market experienced a noteworthy price surge, primarily driven by the continuous rise in crude oil prices. The uptrend in crude oil costs directly impacts the production expenses of Styrene, subsequently influencing the market price of the final product. Moreover, the market has been influenced by tightening oil supply due to cuts by the organization of petroleum exporting countries, alongside geopolitical tensions, supply chain disruptions, and growing global demand for crude oil. These factors have collectively contributed to the upward trajectory of prices, pressurized Styrene manufacturers to adjust pricing strategies, and resulted in higher costs for end consumers. Further, in the month of September, the Styrene market shifted course with stability in its prices, a departure from its previous consistent growth. This adjustment is attributed to market dynamics where customer needs have been met, leading to saturation in market activity.

Furthermore, the modest demand for the product from derivative sectors contributed to the price stability on the domestic front.



The Q4 2023 Styrene market in the APAC region experienced a declining trend throughout the quarter due to various factors. A surplus of product supplies, weak product demand, and limited market uptake led to a decline in Styrene prices. The market situation remained bullish due to the high demand for Styrene from downstream derivative industries, such as PS, EPS, and ABS. Furthermore, the continuous weakness in upstream crude oil prices and currency depreciation also affected the market fundamentals. During the week ending on February 16th, 2024, overall, the APAC Styrene market exhibited resilience driven by higher ethylene prices and improved export prospects, despite sluggish demand in the broader region and poor profit margins for downstream products. An increase in prices was observed due to heightened spot purchases, while concerns persisted regarding China's post-Lunar New Year demand signals amidst economic uncertainties.

The Indian Styrenics Market stood at 1070 KT in 2023-24 while it is expected to touch 1219 KT in 2024-25 and further 1401 KT by 2025-26. The demand of Styrene has been continuously increasing in Indian plastics market from past few years. The end segment with high styrene consumption has been automobiles, packaging, building and constructions, consumer products, medical devices and others. The favorable government policies & rapid expansion in projects such as Smart Cities has increased consumption of styrene used in the plastic products.

The major demand for styrene is from the automotive application in which it is used as an alternative material to metals and steel to reduce the weight of the vehicle which in turn increases the efficiency. With a buoyant retail sale of vehicles in India a jump of 13% to around 2 million units in February '24, helped in part by strong demand during the wedding season, and ease of chip storages, automakers launching new models to tap into the rising demand has helped demand for Styrenics in India.

The demand for products like nylon tires, foam seating, and paints, which are made from benzene-derived intermediates like nylon, styrene, and phenol resins, also witnessed a surge in market demand. India Oil Corporation Limited (IOCL), one of the biggest refineries for refining, transportation and marketing of petroleum products is aiming for a greenfield expansion at Panipat, Haryana, which is estimated to be operational by FY2026-27 with a capacity of 387 KT. This shall help the imports coming into India to reduce.

Table 8: Styrene Demand Supply

● Actual ● Estimate

Styrene (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Imports	889	1093	1070	1219	1401
Exports	0	0	0	0	0
Apparent Demand	889	1093	1070	1219	1401
Demand Growth%	20.5%	22.9%	-2.1%	13.9%	14.9%

The downstream ABS and polystyrene (PS) markets witnessed good demand in 2023 with demand from end-users such as the home appliance and automotive industries, however the demand growth was lower in 2023-24 than previous year.

A lot ultimately depends on the global economic recovery. Imports are projected to increase ~13% in next two fiscals to reach 1401 KT by 2026. In April 2022, the Indian government once again extended the implementation of mandatory quality certification for styrene imports till 24th April 2024. Some international suppliers are already registered with the Bureau of Indian Standards (BIS) for certification, but the completion process may take longer.

D. EDC and VCM

The current quarter (Q4) of 2023 for Ethylene Dichloride (EDC) in the APAC region witnessed several significant factors that impacted the market and prices. Firstly, there was a moderate to high supply of EDC in the market, leading to a balanced market situation. However, the market in South Korea experienced an excess of supplies, resulting in a bearish market situation. This oversupply was influenced by the pause in purchasing sentiments across the regional market, leading to a decline in prices.

Additionally, the Indian market saw a decline in prices due to an oversupplied market and modest market transactions. The EDC market in Asia faced a slump in the quarter ending September 2023, driven by reduced regional demand in the oversupplied market. Concurrently, the downstream PVC sector remained stable due to uncertain consumer confidence.

EDC (Ethylene Dichloride) prices exhibited a downward trend in the Quarter ending June 2023 in the APAC market. The market participants were concerned about the gloomy demand in the PVC production sector of the country. The inadequate revival of the economic condition in China deprived the consumer buying enthusiasm in the domestic market, and sluggish offshore trading activities further affected EDC's pricing movement in this Quarter.

Moreover, the volatility in the upstream crude oil prices and lower feedstock Ethylene supported the price decline for EDC in Q2. However, manufacturers opted to reduce production run rates in the face of bearish market transactions in the H2 of the Quarter. In the H1 of Q2, the downstream processing industry deteriorated following the Holiday season.

Moreover, the export demand slumped, and rising interest rates weighed on the PVC industry offtakes across the regional market. Traders continued to experience oversupplied market since the Labour Day Holidays in May 2023 and the drop in crude oil costs and feedstock Ethylene prices.

Almost the entire production of EDC and VCM in India are consumed captively by the polymer manufacturers for production of PVC and hence, PVC manufacturers who do not have facilities for captive production of EDC and VCM have to rely entirely on imports to meet their demand for PVC building blocks viz. EDC and VCM. EDC demand in India witnessed a de-growth of 4.8% in 2023-24. While the next financial year demand is expected to see a modest growth of 4.4%.

VCM demand was also negative growth of 6% in 2023-24 and is expected to improve next year to 4.3%.

Table 9: EDC & VCM Import into India

● Actual ● Estimate

EDC (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	247	247	247	247	247
Production	244	265	265	265	265
Imports	490	525	487	520	520
Exports	0	0	0	0	0
Apparent Demand	734	790	752	785	785
Growth (%)	2.7%	7.6%	-4.8%	4.4%	0.0%
VCM (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	1031	1031	1031	1031	1031
Production	915	945	900	940	940
Imports	500	545	500	520	525
Exports	0	0	0	0	0
Apparent Demand	1415	1490	1400	1460	1465
Growth (%)	-4.0%	5.3%	-6.0%	4.3%	0.3%

The fourth quarter of 2023 presented challenges for the Vinyl Chloride Monomer (VCM) market in the APAC region. The market encountered several significant factors that influenced prices and market dynamics. Initially, there was a restricted supply of VCM, leading to heightened competition among buyers.

This limited supply stemmed primarily from plant shutdowns, including the maintenance plant shutdown at Formosa Plastics Corporation in the USA, resulting in a reduction in VCM production capacity. Secondly, VCM demand ranged from moderate to high, driven by seasonal consumption in the construction and packaging industries in October 2023. The festive season in India, in particular, contributed to increased procurement activity. However, the VCM market faced subdued demand in the downstream PVC industry across the Asian market during December and November 2023 driving down the VCM prices. The prevailing downstream production uncertainty dampened earlier expectations of an upswing in demand, resulting in sluggish consumption in the domestic market. As a consequence, VCM sellers grappled with narrow profit margins in the terminating quarter of 2023. Traders acquired purchases at reduced prices, and the overall transaction scenario remained unsatisfactory. Additionally, there has been a significant drop of over 3% in international crude oil futures. The most recent price of VCM CFR Tuticorin in India for the current quarter was USD 660/MT in December 2023. The VCM prices in the Asian market were upward in the quarter ending September 2023, governed by the inclination in the import prices amidst a limited supplied market to fulfill current demand in the regional market. Meanwhile, the market participants are seen pitching a surge in downstream procurement activity ahead of the festive season during the Q4 of the year in India. Recently, the purchasing enthusiasm in the Asian market was heard to be limited, with traders selling material below producer price levels for the time being. The VCM prices were primarily driven by the cut in the production rates in the exporting countries, including the USA and Japan.

The maintenance plant shutdown at Formosa Plastics Corporation in the USA, with a total VCM production capacity of 653,000 mt/yr, shifted the VCM price trend significantly with an increment in the costs of inflow of imports. Meanwhile, the VCM price trend revived positively that month amidst a rise in seasonal consumption in the downstream segments and high production costs. As per the data released by the government of India, The CPI was observed to be falling marginally during the previous month and assessed as 186.2 (August 2023) in comparison to July, further showcasing similar market sentiments for September. The prices of VCM in the APAC market experienced a decline during the second quarter of June'23. This was mainly due to concerns among market participants about the subdued demand in the PVC production sector within the country. The slow economic recovery led to reduced consumer buying enthusiasm in the domestic market of India. Additionally, muted offshore trading activities further impacted the pricing movement of VCM during this quarter. The decrease in VCM prices was also influenced by the fluctuations in upstream crude oil prices and lower feedstock Ethylene costs in Q2. As a result, manufacturers chose to reduce production run rates due to the bearish market conditions in the latter half of the quarter. During the first half of Q2, the downstream PVC processing industry faced a decline after the Holiday season in China, and the export demand also decreased. Furthermore, rising interest rates prompted the PVC industry's offtakes across the regional market for VCM. Traders continued to experience an oversupplied market since the Labour Day Holidays in May 2023, which was exacerbated by the drop in crude oil costs and weak export demand.

E. Aromatics - Paraxylene

Paraxylene capacity in Asia expanded at a compounded average rate of 11.6% from 2018 to 2023, as per ICIS data. However, across the PX-purified terephthalic acid (PTA)- polyester value chain margins remained focused on the upstream.

That focus for profitability is expected to continue in 2024. Before the PX capacity expansion cycle in China began in 2019 PX was regarded as the most lucrative product in the aromatic to polyester value chain. Margins fell, however, as privately held refineries and production complexes were built. In Asia, polyester fibre accounts for around 75% of total PTA consumption and, after 2019, producer margins transferred from PX to polyester due to the more rapid capacity expansions for both PX and PTA.

From mid-2022, however, PX won back margin. The main reason for this was due to the gasoline shortage in the US prompted by sanctions on vacuum gas oil (VGO) exports from Russia starting in 2022. Prior to Russia's invasion of Ukraine, VGO from Russia was a key raw material for US gasoline manufacture.

The switch for the aromatic to gasoline blending rather than chemicals production led to a product shortage, and over the period in question, gasoline reformat value was much higher than the aromatic reformat value. This had rarely been seen before. Aromatics prices sky-rocketed in Q2 2022 on gasoline restocking ahead of the peak driving season in Q3.



According to the ICIS supply and demand database, annual global gasoline production in 2023 was around 1,165 million tonnes, while PX global production was around 56.7 million tonnes. Benzene global production was around 53.3 million tonnes. Once gasoline needs more aromatic as a blending component, a shortage in the chemicals markets can be expected. Similar situations also occurred in 2023, but re-stocking activities started earlier compared with 2022, leading to a greater spread of PX over naphtha from January 2023. Sharply increased aromatics prices, however, were avoided. In northeast Asia, the most flexible operating adjustment lies in South Korea refinery units considering their ports advantage. Owing to the comparably better netback from gasoline blending, PX run rates kept decreasing from 2021, but gasoline production kept growing. India is home to the 6% of world's total PX capacity, as world's third largest PX producer following China and South Korea. Overall, PX effective operating rate of India in CY'23 was at 70%. India is competitively placed to supply to South Asia, Southeast Asia and Western markets. In 2023, India exported 360 KT PX to Southeast Asia, US and China. Poor demand for imports from China and healthy gasoline margins have resulted in decline of PX exports. MCPI, Haldia with a capacity of 1200 KTA PTA is the only major PX importer in India. MCPI imported 780 KT PX in 2023. PX imports have largely been sourced from Middle East, Southeast Asia and occasionally from Far-East Asia. PX imports in India were around 822 KT in 2023. MCPI will continue to be dependent on imports, so overall import volumes are expected to remain largely unchanged. Indian PX demand is expected to grow with upcoming IOCL's capacity addition of 1200 KTA PTA alongwith 800 KTA PX in CY'26-27. PX consumption in India touched 4039 KT in 2023-24, a dip of 2% from the previous year. Further, it is expected to touch 4100 KT by next year 2024-25, growing at ~2%.

Table 10: Paraxylene Demand Supply

● Actual ● Estimate

(KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	5900	5900	5900	5900	5900
Production	4839	3756	3400	3462	4662
Imports	557	540	852	855	533
Exports	1670	600	213	217	1094
Apparent Demand	3772	3696	4039	4100	4100
Demand Growth%	14.4%	-2.0%	9.3%	1.5%	0.0%

IOC has given the EPCC contract for its new PX plant at Paradip to Tecnimont SPA and Tecnimont Private Ltd. which will deliver engineering, procurement, construction, and commissioning (EPCC) of the complex's new PX plant and related offsite installations. Once completed, the new plant will have a PX production capacity of 800,000 tpy, which will be used as feedstock for an adjacent 1.2-million tpy PTA plant to be built as part of complex.

The PX plant will receive its feedstock of reformate from the refinery's existing UOP LLC-licensed continuous catalyst regeneration (CCR) platforming unit, according to official project documents from IOC and the government of India. Maire Tecnimont—which valued the lump-sum EPCC contract at about \$450 million—said mechanical completion of the PX plant is scheduled for some time in 2025-26.

In official project documents filed by IOC with the government of India, the operator said the PX plant will consist of an integrated, UOP-licensed aromatics block that includes the following proprietary units and technologies: a xylene fractionation unit, a Sulfolane unit, a benzene-toluene fractionation unit, a Tatoray unit, a Parex unit, an Isomar unit. The complex's PTA will consist of two sections, the first of which will use a feedstock of PX to produce crude terephthalic acid (CTA). A second section of the plant will then use the CTA to produce high-purity PTA, according to IOC.

xvi. Intermediates

A. Fibre Intermediates

India synthetic fiber industry is the new addendum to the ever-growing Indian Textile Industry as it plays a vital role in the Indian Textile industry. The synthetic fiber industry of India has shown tremendous business potential and the industry has grown stupendously over the recent years. The textile industry contributes 5% to the GDP from domestic trade and 7% from foreign exports. However, these values are expected to increase this year, making this industry one of the leaders in the Indian economy.

The primary or key raw materials used to make polyester are Purified Terephthalic Acid (PTA) and Mono Ethylene Glycol (MEG). Both PTA & MEG are also used in large quantity in non-textiles segment applications. Textile applications accounts for only 60-65% of the total polyester production in India. PTA & MEG are key raw materials that also caters to packaging (bottle & film), automobiles and industrial applications. Indian MEG industry has potential for sustained growth, on the strength of growth in the Indian Polyester Industry, which is the world's 2nd largest after China. To realize this growth potential, Indian manufacturers have made huge investments in augmenting domestic MEG capacity. The domestic capacity and domestic demand of MEG was 2,705 KT and 3061 KT respectively in 2023-24. Indian MEG industry faces threat from very low-cost producers in the Middle East, and upcoming capacities in the US, who all have access to very cheap Gas feedstock. In 2022-23, 1501 KT of MEG was imported taking advantage of the low import duty. An increase of 583 KT over previous year. In the period Apr-Jan '24, the imports were close to 1000 KT already. While Middle east does have a feedstock advantage and location proximity to India, there has been a surge in imports of MEG and PTA. In case of MEG, re-investment economics is unfavourable due to exportable surplus in Asia. Further there is expansion plan of around 25 million tons in China during 2023-2035 period. To ensure the availability of high-quality products throughout the value chain, the government introduced Quality Control Orders (QCO) for polyester products such as Terephthalic Acid (PTA), Ethylene Glycol (MEG), in the month of June 2023 and Polyester Fiber in the month of October 2023. The objective is to regulate the import of sub-standard goods and promote the manufacturing of superior products within the country.

While a QCO is in place, with an increasing number of overseas players getting licenses, the threat from imported material continues to rise. A higher degree of duty protection will help the financial viability of the new investments and promote continued domestic investments.



Implementing these quality control orders will promote the sale of superior products and enhance the brand equity of the Indian Textile Industry on a global scale. By emphasizing product quality, sustainability, circularity, environmental aspects, consumer protection, and self-reliance through Indian standards and QCO, the national policy aims to protect end consumers and establish a robust and high-quality value chain. India is net importer of PTA and MEG and thus the demand-supply situation in the international market has an influence on the domestic prices. The export scenario of the Indian textiles industry remains good. PTA import volumes into India shot up in 2022-23 to 1536 KT from 1471 KT in the previous year. Imports are expected to see a rise further in 2023-24 to touch ~1600 KT.

In Q4 2023, the Mono Ethylene Glycol (MEG) market in the APAC region demonstrated diverse conditions. The supply of MEG varied from moderate to low, while demand fluctuated from moderate to high. Pricing trends in Taiwan, India, Indonesia, and China were influenced by factors such as the depreciation of Ethylene feedstock costs, escalating feedstock expenses, and anticipated increases in crude oil prices impacting production costs. In Feb'24, while the prices of PTA fell 10% from Apr'23, the prices of MEG rose 8% in same period. PTA prices as per Platts, in 2021-22 over 2020-21 rose 51% and from Apr'22 to Feb'23 prices increased by 15%. However, from \$914/ton in Apr'22, the prices had reduced to \$775 in Feb'23. While MEG as per Platts, in 2021-22 over 2020-21 rose 35% and from Apr'22 to Feb'23 prices crashed by 22%. India witnessed huge imports of MEG in 2022-23 almost 1600 KT, mainly from Kuwait, Saudi Arab, UAE and Singapore.

Currently, India's PTA capacity is at ~ 6.4 MMTPA of which RIL commands a lion's share of ~78% (4.5 MMTPA). Reliance will also expand its polyester chain capacity by adding 3 million mt/year of purified terephthalic acid capacity and 1 million mt/year of polyethylene terephthalate capacity at Dahej, Gujarat state, by 2026, as announced at the company's annual general meeting. The new capacity at Dahej would boost its capacity by ~ 60% by FY26. More than 60% of the end usage application for PTA is in the textile space (polyester fibre and yarn). Considering the vast export potential, the Government of India has already announced incentives to promote the growth of manmade fibre industry through production linked incentive scheme (PLI). Material increase in capacity by the market leader signifies bright prospects for India's man-made textile value chain. JBF was in the process of building a PTA plant with an initial estimated start date of 2017. This project was co-located with the OMPL PX plant in Mangalore, India, and JBF was the first merchant licensor of BP's new generation technology. However, that company ran into commercial difficulties in 2017 and the project had been stalled since then, despite being almost 90% complete. In October 2022, GAIL (India) won the financial bid to take over the debt-laden asset through an insolvency process. After duly securing ownership of the asset, the company plans to be able to start-up the plant in 2025, at the earliest. In India, PTA capacity available is enough to meet domestic demand (6.4 Mn Tons). However, capacity utilization was only 78% in 2021 and 87% in 2022. Domestic PTA Industry has planned for capacity addition to take care of future domestic demand. Expansion of 5.5 Mn Tons over existing 6.4 MMT is planned by domestic PTA players. There has been a huge overcapacity in Asia with total PTA exportable surplus of ~26 MMT collectively available with China, Korea, Thailand and Vietnam, and is likely go up to 33 MMT by 2025.

China alone is having over capacity of 18 Mn Tons in 2022 which is around three times of India's domestic PTA consumption of India and is expected to go up to 27 Mn Tons in 2025 which will be four times the expected domestic PTA consumption of India. After the removal of ADD on PTA imports, there has been a sharp increase in PTA imports of around 180% in 2023 over 2018, mainly from China (increasing by more than 1500%).

Table 11: Fibre Intermediate Demand Supply

● Actual ● Estimate

ACRYLONITRILE	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	0	0	70	70	70
Production	0	0	35	65	65
Imports	176	233	168	190	220
Exports	0	0	0	0	0
Demand	176	233	203	255	285
Demand Growth (%)	30.4%	32.4%	-12.9%	25.6%	11.8%
CAPROLACTAM	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	120	120	120	120	120
Production	107	132	119	108	128
Imports	60	23	21	35	20
Exports	0	0	0	0	0
Demand	167	155	140	143	148
Demand Growth (%)	19.3%	-7.2%	-9.7%	2.1%	3.5%
PTA	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	6440	6440	6440	6568	7193
Production	5616	5645	5734	5846	6136
Imports	1350	1550	1562	1850	2000
Exports	53	2	0	0	0
Demand	6913	7193	7296	7696	8136
Demand Growth (%)	24.3%	4.1%	1.4%	5.5%	5.7%
MEG	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2215	2279	2705	2705	2705
Production	1969	1642	1948	2269	2224
Imports	950	1400	1130	975	1200
Exports	27	20	18	20	20
Demand	2892	3022	3061	3224	3404
Demand Growth (%)	20.5%	4.5%	1.3%	5.3%	5.6%

The demand for fiber intermediates is driven by its increasing use in the manufacturing of synthetic fiber such as polyester and others. The fiber intermediates market is likely to grow on account of the increasing demand for synthetic fibres in various applications such as clothing, furniture, and upholstery.



The expanding textiles industry, as a result of increased spending on clothing coupled with changing fashion trends, is likely to propel the growth of the fiber intermediates market.

Acrylonitrile production was stopped by RIL and demand is being met by imports on the back of pesticide industry doing well. However, RIL has plans to re-start the production by end of 2024 by adding 70 KT.

India's petrochemical giant, Indian Oil Corp. (IOCL) commissioned Paraxylene (PX) and Purified Terephthalic Acid (PTA) plant in Paradip, Odisha solely dedicated towards manufacturing raw materials for the textile sector. The petrochemicals complex has PX production capacity of 800 KTPA which would serve as the feedstock for manufacturing purified terephthalic acid which is a key raw material for the production of polyester yarns. The PTA plant capacity would stand nearly at 1200,000 tpy post the commissioning. Plant backed by IOCL's MEG facility in Paradip which would serve as a source of feedstock for the company's upcoming 357 KT textile yarn manufacturing project located in the city of Bhadrak in Odisha. MEG plant has been commissioned recently by IOC. The project will help in consolidating the Polyester business of the corporation by way of producing MEG which will be used in manufacturing Polyester fibres, Bottle grade Chips & Polyester film grade chips. MEG is also used in non-Polyester applications, like to produce Antifreeze, Coolants, Paint formulations & Acrylic binders etc. This Project envisages recovery of ethylene present in FCC off-gases and then upgrading it to MEG, Di Ethylene Glycol (DEG) and Tri Ethylene Glycol (TEG) at Paradip Refinery.

Caprolactam

During the year the caprolactam production was restarted by Fertilisers and Chemicals Travancore (FACT) after about nine years. The company produced 35 KT of Caprolactam resulting in considerable reduction in imports of Caprolactam to the country from 60 KT in 21-22 to 21 KT in 2023-24. FACT is also planning to increase its production capacity with an additional NP fertilizer plant at its Cochin Division located at Ambalamedu. The work for the new project has already started and is expected to be completed by 2024. This will add another 500,000 MT to the total production capacity of the company. Demand for Caprolactam was not subdued however as the FACT production was short of the target supply in the market was less as compared to last year in India. The major raw material for manufacturing caprolactam is petroleum derivative benzene. Ammonia, carbon dioxide, sulphur dioxide & olem are other raw materials required in the manufacturing process. Caprolactam is polymerized in the downstream process to yield Nylon-6 which finds wide applications such as in production of Nylon Tyre cord, Nylon filament yarn, Engineering plastics, etc. The major sectors catered to are the Textile and Automobile Industries. The demand is expected to see a rebound and grow around 3-4% in next two years.

xvii. Polymers

Overall, business environment started improving in 2023 with overall, auto retail sales in India increasing by 10.29% in FY24. Rural growth has been much better than urban growth, around 10% for the year, whereas urban growth was at 7%.

This is also the highest ever rural sales we saw, which should also be a very good signal for the economy. FMCG companies have also witnessed a pick-up in rural areas. The Indian housing market saw record-breaking sales in Q4FY24, with 130,170 units sold across the top 7 cities, marking a 14% yearly increase. Total sales for FY24 reached 492,900, a 30% rise from the previous year. This saw a boost in cement, paints and consumer durables sales, indirectly pushed the demand for polymers. India has made significant strides in improving its infrastructure capacity, with a major push from government spending. The upcoming budget may not have big announcements, but the focus on infrastructure is expected to continue. The government has spent 23 lakh crore rupees on infrastructure in the past three years, with roads, highways, and railways receiving significant investment.

In addition, the government has incentivized states and increased the availability of power, accelerated highway and rural road construction, and improved logistics.

Consumer goods firms and auto companies are witnessing an upturn in rural demand, which had been lagging for most of FY24. Expectations of a bumper rabi crop harvest have helped turn the tide. India's purchasing managers' index (PMI) for manufacturing stood at a four-month high of 56.5 in January 2024, up from 54.9 in December, supported by new orders and output. Urban markets continue to drive FMCG growth and volume growth is expected to see improvement in the coming months on the back of uptick in consumption due to election season. As economy started to come back to normalcy, the demand started to see a pickup from end use sectors as people once again began purchasing. Other events and conference and even the big public events, like the fabulous Indian Premier League, supported consumption. Packaging is a key downstream sector for PE. Food packaging supported the PE demand and pushed converters to include a wide range of packaging options. Essential goods manufacturers in India have also added smaller packaging sizes to their product lines to increase accessibility for low-income customers. The rising consumption has helped balance demand with supply in India.

With the increasing purchasing power, the demand for petrochemicals is on the roll. The products cover all the essential daily use items ranging from housing, clothing, construction, automobiles, horticulture, furniture, household items, packaging, medical appliances and much more. This has given polymers the much-needed push in the country. The per capita consumption of polymer has reached the saturation level in US whereas India is expected to maintain a high economic growth propelling the country's polymer consumption. Polymers witnessed a robust growth of 10.6% in 2023-24, with rise in demand in PVC close to 10%, all PE (LD+LLD+HD) 13%, and polypropylene 9.5%. LDPE witnessed highest share under general purpose (24%), followed by EC (20%), AL (20%), MP (15%) and HD (12%) in 2023-24. In case of LLDPE, Butene 1 MI (64%) saw the maximum growth, followed by Metallocene (13%) and Butene 2 MI (8%). HDPE, maximum growth was seen in HM pipe segment (26%), blow molding (18%), followed by HM Films (9%), Raffia (8%) and injection molding (6%). HMEL began its new PE plant with 450 KT HDPE capacity and 800 KT, LLD/HD swing plant. PP demand remained firm in 2023-24 with demand for grain and fertilizer packaging with increased agricultural activity. As per Nayara Energy, expects production of its first petrochemical product i.e., polypropylene by Q4 of 2024.



Important to highlight is that India is deficit in Polyethylene (PE), is dependent on imports for fulfilling demand. Presently on account of demand supply gap especially in LD/LLDPE, imports are arriving to cover up the shortfall. To curb the cheap imports coming into the country, the Department of Chemicals and Petrochemicals, Government of India in January this year issued the Quality Control Order with certain exemptions. While more investments in this segment are planned and a total capacity of ~5.7 MMT is coming up by 2028. While this is much needed to be encouraged to bridge the demand-supply gap going forward as in case of PE, HDPE imports registered ~1674 KT coming into India in April-January '24 period.

In case of Polypropylene – India has large surplus capacity despite which significant imports take place (1658 KT in 2022-23), mainly from FTA countries – Singapore etc. In this year, the imports into India have touched 1433 KT in the Apr-Jan'24 period.

Around 4 MMT of new investments is on the anvil by 2028 for polypropylene in the country.

In case of PVC supply availability remained a concerned for Indian buyers in first half of 2023. With industrial activity, especially construction and agricultural activity with normal rainfall prediction by IMD, demand for agricultural pipe used in irrigation is likely to boost PVC demand. However, important to note is that India has a deficit of 2 MMT of PVC for a long time now, where industry needs government policy intervention. RIL plans to add 1200 KT a year of fresh capacity while Adani group has intended to build 1000 KT a year of the production facility, IOCL is adding 500 KT in Paradip and Chemplast Sanmar is adding another 300 KT in Cuddalore, Chennai. With this the total planned combined capacity of ~3.5 million tonnes will more than triple India's capacity in a few years.

The Indian domestic polymer industry (like global industry) was dominated by Polyolefins (PE & PP). After clocking a modest growth in 2021-22 the polymer growth witnessed a rebound growing at 11.3%. This year in 2023-24 the industry saw a growth of 10.6%. The demand is expected to be around 8.4% in the next fiscal.

Table 12: Polymer Demand Supply

● Actual ● Estimate

Polymers (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	14190	15770	16159	16610	16833
Production	12857	11824	13462	14695	15374
Op Rate (%)	0.91	0.75	0.83	0.88	0.91
Import	4089	6613	7713	7203	7975
Exports	1024	501	691	662	698
Net Trade	-3065	-6112	-7022	-6541	-7277
Demand	15913	17704	19575	21227	22423
Demand Growth %	8.3%	11.3%	10.6%	8.4%	5.6%

Polymer import dependency witnessed an increase with PVC, PP, HDPE imports witnessing a rise in 2023-24. In 2023-24, net trade deficit of total polymers stood at 7022 KT which was higher than previous year at 6112 KT.

India's petrochemical demand is likely to more than triple in the next two decades due to the evolution of new crude-to-chemicals technologies coupled with rapidly changing consumer lifestyles which calls for an increase in plastic consumption. It is estimated that the focus on sustainability and green solutions in industry will be increased. It is because companies are looking forward to more eco-friendly ways of producing and using polymers. Efforts would be made towards creating new and improved polymers that can meet the needs of a rapidly changing world. Overall, with the right policy support and investment, the petrochemical industry can contribute significantly to the goal making India a \$5 trillion economy by 2028.

xviii. Polyolefins

India's polyolefin demand witnessed a robust growth of 11% in 2023-24, on the back of a revival in the domestic consumers' sentiment, especially in rural markets where the growing agriculture economy and demand from infra sectors encouraged buyers to take advantage of the current low price and fill the past years Covid-related consumption gap.

As per estimates India's polyolefin demand was 15 MMT in 2023-24 and is estimated to grow to 16.3 MMT in the financial year 2024-25 and polyolefin demand would continue to rise to touch 17.4 MMT by 2025-26. All PE which includes LLD, LD and HDPE registered a staggering growth of 12.8% in 2023-24 to touch 7842 KT. By 2026, demand is forecasted to touch 9200 KT with end use sector demand increasing.

Table 13: Polyolefin Demand in India Actual & Projected

(KTA)	Actual		Projected		% change year on year					
	2021-22	2022-23	2023-24	2024-25	2025-26	2021-22	2022-23	2023-24	2024-25	2025-26
LDPE+EVA	1047	1095	1259	1283	1360	8%	5%	15%	2%	6%
LLDPE	2650	2743	3048	3351	3600	5%	4%	11%	10%	7%
HDPE	2933	3318	3759	4221	4500	6%	13%	13%	12%	7%
PP	6089	6370	6975	7464	7986	14%	5%	10%	7%	7%
Polyolefins	12719	13526	15041	16319	17446	9%	6%	11%	8%	7%

Source: Industry Estimates

xix. Vinyl's: PVC

The PVC suspension resin installed capacity in India currently stands at ~1.5 million metric tons per annum. The domestic consumption for PVC in India is estimated at ~4 million metric tons per annum. With domestic capacity having remained stagnant over last several years, this entire growth is taken by PVC imports.

India is the world's largest importer of PVC resin and continues to rely heavily on imports to bridge the supply-demand deficit. PVC Imports accounted for ~65% of total PVC consumption in India during the last fiscal year with the country importing approx. 2.5 million tons of PVC. Given this growing demand-supply deficit at a rapid rate, there is need for more PVC capacities in India for long term supply sustainability. The PVC industry in India needs government policy intervention to support new capacity additions.



With RIL plans to add 1.5 million tonnes a year of fresh capacity and Adani group's intended 2 million tons a year of the production facility to come up in phases in a few years' time, the domestic PVC supply would more than triple in India and support the growing import dependence for PVC. IOCL has also announced an investment of Rs. 4000 crore for a PVC project of 200 KT but its project timelines are not known. Despite rapid growth in PVC demand expected in India linked with GDP, the wide gap in demand-supply is likely to persist with need for import to feed country's economic development. India consequently remains the top import destination for PVC globally. The country has continued to absorb surplus material globally as domestic consumption remained strong. China, South Korea, Japan, Taiwan and US accounted for more than 80% of total PVC imports into India with large share of imports coming from China. The PVC imports would continue to support demand-supply gap even after announced domestic capacity additions by RIL/Adani coming on-stream in due course, as given the growing domestic consumption led demand, the increased domestic PVC capacities in India would only taper imports but not completely bridge the gap which would start widening once again subsequently.

Pipes & fittings used in Agriculture & Construction account for more than 70% of PVC resin consumption in India as against ~45% for the world. The other key drivers for PVC Resin are the growth coming from applications other than pipes such as packaging, profiles, pharmaceuticals segments, etc. which are expected to account for a higher share of the demand for PVC Resins in the years to come. India's per capita PVC consumption is 2.4 kg which is low compared to 10.3 kg in China & 12.7 kg in US. With steady rise in demand and promising prospects in the downstream agriculture, building & construction and infrastructure segments amid high dependence on imports, India is likely to remain at the forefront of the global PVC market.

PVC market witnessed a staggering growth in 2023-24 growing at 9% and demand touching 4082 KT. Industry likely to grow at 9% to 4442 KTA in 2024-25, with imports of ~2900 KTA and further increasing to 3280 KT by 2025-26. Amid continuing economy stress in major global economies, the average PVC prices during FY 2023-24 have tumbled across all major regions varying from a drop of 18% - 40% year-on-year. The average PVC import offers to India have fallen by 24% during FY 2023-24 versus previous year. The PVC-VCM spread in South Asia has remained at or below break-even levels for most of 2023-24.

Table 14: PVC Demand Supply

● Actual ● Estimate

PVC (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	1557	1617	1672	1717	1717
Production	1414	1487	1390	1437	1445
Imports	1433	2248	2700	2990	3280
Exports	19	0	0	0	0
Apparent Demand	2834	3734	4082	4442	4740
Demand Growth%	3.3%	31.8%	9.3%	8.8%	6.7%

In regulatory update, India issued quality control orders on Feb. 27, making BIS certificate mandatory for PVC after 180 days, as per the Ministry of Chemicals Fertilizers notification.

PVC importers to India need to submit their PVC specifications and gain BIS certificate to continue supplying to India after 180 days, which is approximately around September. As per analysts, China's PVC supplies to India would likely come down due to the BIS certificate and Chinese suppliers would likely seek opportunities to supply non-India market.

The 'Har Ghar Nal se Jal' scheme is likely to boost the demand for PVC pipes in India. Out of the 19.26 crore rural households in the country, 14.22 crore have been provided tap water connection under the 'Har Ghar Nal se Jal' mission till now. Union government has allocated ₹ 98,418 crore for the Jal Jeevan Mission (JJM) in the budget 2024-25. 75% of rural families in the nation now have access to tap water.

The implementation of drinking water supply works to ensure tap water supply in rural villages will raise demand for materials like cement, bricks, gravel, sand, steel, pipes, motors, faucets, etc. on one hand and engagement of unskilled, semi-skilled and skilled workers for creation as well as for operation and maintenance of water supply schemes on the other. This also boosts the rural economy and income generation to people in rural areas.

After a relatively better second quarter, Q3 FY24 performance ran into heavy weather due to further correction in PVC prices on account of dumping from China and other countries, slow down in other chemicals (Caustic Soda, Chloromethanes) business due to the over-supply situation in India, increase in key feedstock, prices and adverse impact of the lag effect in correction of VCM prices.

Today, India is amongst the largest consumers of CPVC, primarily in the form of plumbing pipe and fittings, and growing needs for clean water in all residential and commercial buildings will drive continued growth.

Chemplast Sanmar Paste PVC project of 41 KTPA (kilo tonne per annum) is expected to start commercial production in Q4 of FY2024.

DCW Ltd commissioned its project of Chlorinated Polyvinyl Chloride (CPVC) in first week of October 2023, expansion by 10,000 MT at Sahupuram Plant, Tamilnadu. The Company expects to ramp up the production and commercialise the incremental volumes in a phased manner. With this expansion, the total production capacity of CPVC Division of the Company has increased to 20,000 MT.

India's leading integrated chemical manufacturer, Epigral (formerly Meghmani Finechem), announced its expansion into Chlorinated polyvinyl chloride (CPVC) Compounds. With a capacity of 35,000 TPA, the CPVC Compound manufacturing plant is expected to get commissioned by Q4FY24 at Dahej, Gujarat.

In July 2022, Epigral commissioned CPVC Resin capacity of 30,000 TPA. This was followed by the company announcing further increase in capacity to 75,000 TPA by Q4FY24, a part of which will be utilized for CPVC Compound manufacturing with an additional capex of Rs. 25 Cr. With this expansion, Epigral will be catering to both, CPVC Resin and CPVC Compound customers in the country.

Lubrizol, a global leader in specialty chemicals, and Aditya Birla flagship Grasim Industries have conducted ground-breaking for the first phase of a 100,000-tonne CPVC resin plant at Vilayat in Gujarat in October 2023. The facility, located at the Grasim Industries' site, will be the largest single-site capacity for CPVC resin production globally, and is designed to meet rising CPVC demand for piping applications in India, Nepal, Bangladesh and Indonesia.

Lubrizol is also doubling to 140,000 tonnes its existing CPVC compound manufacturing capacity at Dahej in Gujarat. The two projects will together help meet the projected 10-12% annual increase in CPVC demand in India. Lubrizol is also planning a research and development centre at its Dahej site to address the rapidly changing needs of the India market. Phase-one of the resin site in Vilayat and the additional line in Dahej are expected to be operational by early 2025. Lubrizol expects to generate over 4,000 direct and indirect jobs with the upcoming projects.

xx. Styrenics

A. Polystyrene

The polystyrene caters to the appliances segment. It caters to the stationary, it caters to the writing pens, then it is packaging, medical disposables, dairy then disposable food wares, household items, then it is used for the glass like clear sheets, which is used in the construction. It goes into shaving products, toys, water purifiers, wall clocks, even beads and bangles are made out of polystyrene, when Christmas embellishments globally are all made from polystyrene. India's Styrenix Performance Materials (SPM) expects to begin operations at its expanded acrylonitrile butadiene styrene (ABS) and polystyrene (PS) capacities at Dahej and Nandesari in the western Gujarat state before 2028. SPM plans to invest Rs6.5bn (\$78m) on the expansion projects. Its ABS capacity will grow to 210,000 tonnes/year over the next four years, from 85,000 tonnes/year currently; while its PS capacity will be raised to 150,000 tonnes/year over the next three years from the current 66,000 tonnes/year, based on the plan released in October 2023.

Funding the brownfield expansions will be through a mix of internal accruals and debt. The expansion will be done in a phased manner and capacity will be increased gradually over the next few years. The expansion of production capacities will help SPM meet increasing domestic demand for ABS and PS.

Supreme is a leading manufacturer of polystyrene and they have a market share exceeding 50% today. It is also the largest exporter of polystyrene from India, with customers in more than 100 countries around the globe. To widen the spectrum of Styrenix, it entered into expanded polystyrene in 2006, and since then they have also become the market leaders in this segment as well. The other products of range of the company includes compounds and masterbatches and extruded polystyrene or XPS extruded insulation board of polystyrene, which helps in promoting green buildings movement in India.

Supreme is now further increasing their product range by going into manufacture of ABS through the mass ABS route and they have entered into a licensing agreement with Versalis of ENI Group Italy for the production of same.

The total capex on all the schemes which they have completed in 2023 and going forward in the next two years is around 1200 crores, and the same is being funded from the internal accruals and our cash reserves. The company has already completed this year, our brownfield expansion projects for enhancing the existing polystyrene and expandable polystyrene capacities at Amdoshi and Maharashtra, and also an expanded polystyrene at our plant at Manali in Tamil Nadu.

The company's effective capacity now stands for polystyrene is 300 thousand tons per annum and for EPS is now 110 thousand tons per annum, and the phase one of the mass ABS project is moving as per schedule. When all these schemes are complete, the company, at almost 80%, or 75 to 80% capacity utilization at the current market prices, the company expects to see a top line increase of around INR 3000 plus crores. The company plans to invest INR 700 crores by 2025 as the phase one and balance investment will be done in phase two by March 2026.

General polystyrene is also used in disposable medical products such as test tubes, test kit shells, diagnostic products, culture plates and tissue trays. Bathroom accessories and gardening equipment are also made from GPPS. The range of applications for this type of polystyrene is very wide. GPPS is used for disposable cups, case for a box lunch and a household dish, confectionary tray, package, CD cases, container for a seasoning, various films, etc. Packaging is the largest segment for HIPS.

It is used for food packaging (of meat trays, egg cartons, fruit trays, dairy packaging, etc.), industrial packaging, and consumer packaging (of cassettes, CD covers, etc.). The food packaging sector has kept demand positive during the coronavirus pandemic that has destroyed styrene draw from other sectors. HIPS has seen a good demand from appliances like air conditioners specially for the body and indoor unit panel. Apart from these, there is good demand for HIPS for probiotic bottles and cups for ice-cream and curd by various manufacturers and food containers of various sizes.

Indian Expanded Polystyrene Market is segmented based on end-use, sales channel, and region. Based on end-use, India Expanded Polystyrene Market is divided into Industrial Packaging, Food Packaging, Building & Construction, and Others. As of FY2024, the Industrial Packaging industry is dominating the EPS market with a share of 36%. Growing demand for Expanded Polystyrene (EPS) as a popular choice of packaging material in various industries such as industrial, food & beverages, electronics & electricals, due to its properties like shock-resistance, chemical-resistance, bacterial-resistance, and cost-effectiveness.

Asian polystyrene prices were mixed week on week March 20, 2024, as general-purpose PS and high-impact PS prices were assessed higher while expandable PS prices dropped. EPS prices were coming lower by \$10/mt week on week at \$1,345/mt FOB Northeast Asia as buyers were heard reluctant to accept the recent price level, which had been increased over time due to firm benzene and styrene monomer prices, adding that EPS prices typically would follow SM prices very closely, while that was not necessarily the case for GPPS and HIPS.

Table 15: Polystyrene Demand Supply

● Actual ● Estimate

Polystyrene (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	490	518	400	400	400
Production	240	270	285	330	346
Imports	34	72	70	60	60
Exports	30	23	42	60	60
Apparent Demand	240	314	315	330	346
Demand Growth%	5.7%	30.8%	0.3%	4.8%	4.8%

Further demand growth will however rely on global economic recovery for both domestic and export markets, given great uncertainties. After witnessing a robust demand growth in 2022-23, demand for Polystyrene witnessed a flat growth in 2023-24. It is forecasted that next two fiscal years will a modest growth of around 5% and demand will touch 346 KT by 2026. Imports witnessed an increase in 2023-24 and is expected to remain around 60 KT in next two years.

B. Acrylonitrile-Butadiene-Styrene (ABS)

The Asian ABS (Acrylonitrile Butadiene Styrene) market has experienced an incline at the beginning of March 2024, witnessing a substantial surge in spot prices for two consecutive months amidst higher upstream costs. Presently, demand fundamentals also showed improvement in the downstream home appliance industry in the region, however, insufficient to drive up the ABS prices for this time frame.

Recently, in Asia, the upstream Butadiene market exhibited positivity, driven by tensed situation in the Red Sea region during the holiday period, escalating crude oil risk premiums. The combination of cost-side boosts and external price increases has propelled the ABS market atmosphere, prompting production enterprises to raise their supply prices.

Further in March'24 second week, the Styrene market experienced a slight pullback following a period of growth. The continual rise in the price of raw material benzene, driven by high crude oil cost, concentrated benefits on the cost side elevating ABS pricing momentum. Conclusively, the ABS upstream materials demonstrated a relatively strong performance, bolstering the cost side in the first half of March 2024. Decreasing operations at petrochemical plants have alleviated supply pressure.

Despite this, the delayed resumption of work by downstream enterprises and the practice of offering discounts in response to increased merchant offers suggest a less optimistic short-term demand outlook. Expectations of hindered growth loom over the ABS market shortly.

As per industry analysts, the ABS price is expected to elevate in the short term amidst an anticipated increase in the downstream demand and tight supply side in the line of expensive upstream materials. While the cost dynamics favor an upward trajectory, resistance from regional buyers and concerns across the export market may pose challenges to sustaining significant market growth.

In international developments, LG Chem, South Korea's largest petrochemical company, is set to close its styrene monomer (SM) plant by the end of March. Further, INEOS Styrolution showcased Sustainable ABS at Arburg. INEOS Styrolution's advanced ABS solution, Terluran® ECO GP35 BC100, boasts a groundbreaking composition with bio-attributed content across all three essential ABS monomers: styrene monomer, butadiene, and acrylonitrile. This innovation represents a significant step towards sustainability in the plastics industry.

The demand of ABS in India is growing 7 ~8% year on year and assumed to continue till 2030 looking to increase in end applications such as – Household items – like Refrigerator, AC, Geyser, Washing Machine, Juicer Mixer, Fan, Automotive- Two-Wheeler, Four-Wheeler, Helmet and many more applications.

In past few years- Globally ABS prices has gone up high over other substitute polymers such as PP, HIPS, Personal Computers, however since last one year- the price delta among the substitute polymers has been the lowest since more than a decade. This helps the price stability in ABS usage and demand by again switching to ABS from PP, HIPS, PC. The demand supply gap in India also reducing over year on year and likely to have over capacity by 2030 vs demand. Global demand vs capacity has been increased substantially high since last one year which giving an upper age for the end users as long-term usage design plan and price stability as a cost competitive.

India's Styrenix Performance Materials (SPM) expects to begin operations at its expanded acrylonitrile butadiene styrene (ABS) and polystyrene (PS) capacities at Dahej and Nandesari in the western Gujarat state before 2028. SPM plans to invest INR 6.5bn (\$78m) on the expansion projects. Its ABS capacity will grow to 210,000 tonnes/year over the next four years, from 85,000 tonnes/year currently.

Supreme Petrochem has undertaken Project for manufacture of Mass Acrylonitrile Butadiene Styrene (mABS) at Village Amdoshi-Wangani, District-Raigad, Maharashtra (India), with two Lines of 70 KTA each aggregating 140 KTA. Line I is scheduled to go on stream by June 2024 and Line II is planned for completion by March 2025. The Company has already entered into an agreement for License and Basic Engineering Design for Line I of 70 KTA with M/s Vesralis-Eni Chemicals Group. The total project cost for both lines shall be funded from the Company's own funds.

ABS has also seen a spurt in demand with the introduction of EVs (electric vehicles) and fast expanding two wheelers market in India. Two wheelers and appliances infact provide a huge scope for ABS applications in India. And leading brands in India are expanding the use of ABS in the manufacturing of their products in India example for refrigerators etc.

ABS is used as a raw material in various industries such as automotive, plastic, construction, and others and all these industries showed a good recovery this year. Another example is of Toys market in India. With toy imports from China reduced to BIS specifications India has got oxygen to work and grow in this space and use of ABS has gone up in this segment. Moulders have also invested heavily in India and setting up new plants signalling good demand for ABS.



Demand in India continued to be supported by schools and offices means that computers and the peripherals such as monitors, mice, and keyboards are now essential products, and with spurt in house construction activity in India has led to rising demand for television sets and refrigerators. Increasing use of ABS in fabrication industry, 3D printing, or injection molding process is also supplementing the growth of the market.

Table 16: ABS Demand Supply

● Actual ● Estimate

ABS (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2024-25 E
Capacity	175	190	190	270	355
Production	135	160	170	210	240
Imports	98	110	122	105	95
Exports	0	0	0	0	0
Apparent Demand	233	270	292	315	335
Demand Growth%	7.9%	15.9%	8.1%	7.9%	6.3%

The rising demand for ABS from the automotive sector and the rise in demand for plastic pipes and sheets will further accelerate the growth of the market. ABS demand in India witnessed a growth of 8% in 2023-24 and is expected to grow around the same in the following year before witnessing a dip by 2025-26.

C. Styrene-Acrylonitrile (SAN)

The Styrene Acrylonitrile (SAN) market in the APAC region during the current quarter of 2023 (Q4) has been characterized by stable market situations and moderate demand from downstream segments. The persistent weakness in major feedstock Styrene fundamentals, coupled with lower energy prices impacting the overall production cost, prompted suppliers to provide discounts, aiming to rekindle market participation. The market faced challenges due to restrained demand from consumer goods manufacturing industries, casting a cautious shadow on market prospects. The market has witnessed a balanced and stable supply trend, and any plant shutdowns have not been reported.

In the Asia-Pacific region, the market initially remained stable due to moderate demand from the associated downstream construction and packaging industries, but weak cost support from feedstock Styrene and Acrylonitrile prices started manipulating market participants to lower the prices for this commodity. A decrease in demand from prominent sectors, such as the packaging and personal care industries, also triggered its market.

As the second month of Q2 unfolded, the SAN started showing a vanishing trend in the wake of sluggish demand from downstream businesses. However, the month of June brought another challenge. Weak feedstock Styrene prices posed additional pressure on the SAN market sentiments.

Despite attractive spot price offers, buyers approached with caution, as an abundance of affordable inventories within the domestic market influenced their decision-making. This led sellers to resort to discounts to stimulate transactions.

During the third quarter of 2023, the Asia-Pacific region’s Styrene Acrylonitrile (SAN) market experienced a slight increase of around 1.2%. At the beginning of Q3, the SAN market exhibited a bearish trend due to a surplus of SAN material in the regional market. However, as the quarter progressed, this surplus helped bridge the gap between supply and demand, leading to the modest market growth observed. Furthermore, the demand outlook remained low from the downstream Packaging and Electronics and electrical sector, leading to cautious market sentiments.

Table 17: SAN Demand Supply

● Actual ● Estimate

SAN (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	170	170	175	175	175
Production	111	145	150	155	165
Imports	14	16.3	20	40	60
Exports					
Apparent Demand	125	161.3	170	195	225
Demand Growth%	8.7%	29.0%	5.4%	14.7%	15.4%

SAN had been witnessing healthy growth in last two years due to its wide-ranging usage in consumer electronics, appliances and automotive sector. Significant demand for SAN is observed in various sectors owing to its impressive properties like high rigidity, high heat resistance, and chemical resistance.

Owing to the appreciable usage of SAN in autoclavable devices, medical light diffusers, and dental applications, the demand for SAN is anticipated to grow considerably on growth in the demand for medical devices due to potential advances in the healthcare sector after Coronavirus stress. In addition to this, demand for SAN in packaging applications in the cosmetic and food industry to further drive the growth of the Indian SAN market. Demand for SAN is dependent on the yearly production of derivative Acrylonitrile Butadiene Styrene (ABS). With capacity expansion of ABS in 2022-23, SAN demand had witnessed a staggering growth of 29% in the last year. In 2023-24, the demand stood at 5.4% and is expected to pick up next year on account of increasing demand for Styrene Acrylonitrile in the electronics sector for jacketing of air conditioner impellers, dial switches, and industrial battery switches on account of its thermal insulation properties. Apart from ABS & blends intermediate usage- market demand of SAN remains stagnant due to limited growth of the selected items usage. In past price difference was high between SAN and other substitute polymers – like GPPS, PMMA, PC. Over last year – like ABS, SAN price has been dropped significantly low by giving a hope of replacing other polymer applications. Global demand vs capacity has been enough to cater the market, in India- demand vs capacity is already surplus and able to cater the further growth as well. The Indian writing instruments industry, which has been growing at a CAGR of about 15% over the last decade. Pen industry is growing at a fast space in India now and SAN has seen a huge demand in the pen market as well. Dependence on Swiss machines have now seen a decline owing to high waiting time to import. Secondly the manufacturing on pens in India has also seen a rise due to shift seen in manufacturing from China to India, as China has been moving and adopting to 3D printers and robotics for manufacturing pens.

It is expected there will be an increase in demand of SAN grades, with a focus on consumer and industrial applications.



D. PET (Polyethylene Terephthalate)

In FY23-24, the estimated PET domestic demand was 1.7 MMT with a 13% YOY growth. Post Covid this is the second successive year with > 10% growth. IVL Nagpur started in Q1 & UFLEX started in Q4. In FY23-24, overall industry operating rate was estimated ~ 70% on account of very low export margins and low demand in Europe & America. Imports estimated 304 Kt in FY23-24, increased by 170% YOY basis, primarily from China 70%, Vietnam 20%, Thailand & Bangladesh both 5% each. Major customers in South & East like Sibi Polymers, Indopet, Varun Beverages and SNJ continued to import material. The demand drivers are primarily downstream consumption growth in different application segments, which is propelled by increased on the go consumption backed by strong summer seasonal demand last year, opening of educational institutions, Offices, strong tourism, major festivities & marriage season. Going forward YOY growth estimated for FY24-25 ~10%. As per GoI regulation: Min 30% rPET by FY26 & going up to 60% by FY29. As per GoI regulation: Min 30% rPET by FY26 & going up to 60% by FY29. Beverage segment revived post covid occupying 55% of total demand. Due to aggressive capacity additions from China ~ 3MMT, the international margin was suppressed on account of oversupply situation and predatory pricing. PET market continuously rose in India in the FY23-24 owing to the high demand from packaging. Due to uncertainties in international price, inflationary pressure cash flow remained a challenge for brand owners and small converters, need based buying maintained with average raw material inventory 5-7 days. Total Downstream investment estimated in FY23-24: 400 Cr; Capacity addition – 130 KT. Major Equipment suppliers are Husky/Krauss Maffei/SIPA/ASB & Ferromatik.

Table 18: PET Demand Supply

● Actual ● Estimate

PET (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2055	2208	2541	2613	2613
Production	1788	2031	1761	2143	1960
Imports	106	113	305	180	100
Exports	711	619	328	500	500
Apparent Demand	1182	1525	1730	1900	1620
Demand Growth%	5.5%	29.0%	13.4%	9.8%	-14.7%

Brand owners stayed active in launching different variants with new PET applications.

- Coke has launched Limca Sportz. No Fizz product.
- Parle launched Smoodh (flavoured milk) packed in PET (Aseptic line)
- Dabur is planning to enter Cola segment.
- DAVAT launched drinks in different pack sizes (Limpoo, Love Apple, Malty);
- Storia Launched Nimbu Pani, Coconut water changing shape and size of the bottle.
- Asian Beverages launched different variant of the bottle.

Main driver behind India's PET demand growth is more widespread use of PET packaging in the beverage sector in India.

The outlook of domestic industry is very positive with estimated growth of 10% in next year.

xxi. Synthetic Fibres

The synthetic fiber market in India has been growing steadily in recent years due to increasing demand for textiles and non-woven products. The government has also introduced various policies and initiatives to support the growth of the industry like PLI, PMMITRA which will provide a big boost to the growth of synthetic fibre in India. India produces almost all the types of synthetic fibres, be it polyester, viscose, nylon or acrylic and hence having an advantage compared to most other textile producing nations across the world. Synthetic textile industry in India is self-reliant across the value chain right from raw materials to the garmenting. Polyester remains the dominant fiber in synthetic category.

The changes in the consumer lifestyle and attitude drive the trends in the end products. Polyester has proved to be one of the most cost-effective and adaptable fiber types and has increasingly picked up the bulk of new business growth. It is recyclable and can be blended with other fibers like cotton and spandex for performance requirements.

Further, there has been an emphasis on more sustainable fashion and Indian industry geared up to compete in the new paradigm and recycled polyester has achieved pride of place as a green textile option today. Plastic bottles are recycled and transformed into fibres. This way, the bottles are saved from going into landfills. Many leading global fashion brands are incorporating recycled polyester in their manufacturing process and attracting the customers who are environment conscious. Demand for polyester continues to result in market share gains and the current trend has resulted in very strong opportunities for growth.

Government of India has set a target for textile and apparel industry in India of reaching \$ 350 Bn by 2030 from current level of \$ 150 Bn and synthetic fibre has a big role to play in achieving the target set by the government. Due to support from government policies, the industry is witnessing huge investments in world-class manufacturing plants, continuous innovation, untiring entrepreneurship, new product mix and strategic market expansion will enable India to cloth the entire world and set to take centre stage in the global arena. From the highs of the pandemic, growth and demand for the textiles sector has moderated this financial year. The Russia-Ukraine war, high inflation and the threat of a looming recession in key markets like the US and Europe have led to a slowdown in exports. The silver lining for the sector has, however, been robust domestic demand and new pockets of growth. The demand momentum sustained for home textiles in the domestic market because of improved consumer spending. About 100 smart cities that are being established have a huge opportunity for home textile as well because people are shifting to these places and getting established there. So, markets are no more restricted to metros. It is a good sign for manufacturers, retailers and for India as a country, as prosperity is spreading in the smaller pockets. It is becoming visible in retail sales in home categories as well. India's annual textile and apparel exports stood at USD 44.4 billion in FY 2022 with an increase of 41 per cent compared to last year.

Table 19: Demand Supply Balance of Synthetic Fibre

● Actual ● Estimate

	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
PSF					
Capacity	2281	2303	2339	2320	2339
Production	1698	1742	1697	1819	1898
Imports	71	95	57	84	88
Exports	392	240	207	223	219
Demand	1377	1598	1547	1679	1767
Demand Growth (%)	12.6%	16.0%	-3.2%	8.6%	5.2%
POY	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	3480	3480	3923	4248	4394
Production	2861	2931	2943	3413	3586
Imports	75	162	250	48	48
Exports	179	86	55	64	66
Demand	2757	3007	3138	3397	3568
Demand Growth (%)	23.7%	9.1%	4.4%	8.3%	5.0%
PTY	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2995	3115	3335	3855	4055
Production	2460	2817	2829	3281	3448
Imports	13	17	50	50	48
Exports	503	338	298	398	400
Demand	1970	2496	2581	2932	3096
Demand Growth (%)	26.0%	26.7%	3.4%	13.6%	5.6%
IDY	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	69	69	75	88	88
Production	54	56	61	81	81
Imports	51	50	41	40	55
Exports	10	8	3	8	8
Demand	92	98	98	113	128
Demand Growth (%)	29.6%	6.5%	0.2%	15.5%	13.0%
FDY	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	1259	1313	1389	1462	1539
Production	929	989	1098	1294	1385
Imports	146	215	152	60	60
Exports	25	14	7	8	8
Demand	1033	1194	1244	1346	1437
Demand Growth (%)	50.6%	15.6%	4.1%	8.3%	6.8%

India had been somewhat slow to capitalize on the sourcing shift from China towards South-east Asia, an opportunity quickly seized by Vietnam and Bangladesh to grow alternative apparel markets. The export of ready-to-wear textile products increased 11% to \$11.57 billion in January from \$10.13 billion in December 2023. In 2022-23, the combined production of synthetic fibre (PSF, POY, PTY, IDY, FDY) increased to 8553 KT from 7954 KT in the previous year. The same is expected to touch 10098 KT by 2024-25. The demand which had derailed to negative 14% in 2020-21 owing to the current pandemic situation grew at a robust rate of 24% in 2021-22. In 2022-23, demand grew at healthy growth of 15%. The same is expected to grow further to touch 9370 KT by 2024-25. Demand across end-user industry rebounded along with the textile demand picking up however high costs issues are still prevailing and hurting the manufacturers. The overall synthetic fibre capacity is expected to touch 10824 KT by 2024-25.

xxii. Synthetic Rubber

Demand for tyres in the domestic market is expected to remain robust going ahead as the automobile industry continues to scale new highs amid a positive economic environment. Robust GDP growth and the government's focus on infrastructure development is expected to fuel growth for the automobile sector as well as the tyre industry. Over the next 2-3 years, demand for tyres in the country is expected to grow stronger, in view of an uptick in economic activities and the big push envisaged for infrastructure growth. Even this year despite the headwinds and challenges plaguing the global economy, the domestic industry is on track to post double-digit growth. With the healthy revival of the economy, the Indian automobile industry is witnessing an uptick in demand of luxury cars, with the market having grown by nearly 50%. From March next year, about 70 types and sizes of tyres produced by multiple companies will be subjected to mandatory quality control norms. The Department for Promotion of Industry and Internal Trade (DPIIT) will update the list of tyres to include a total of 960 sizes and types, modifying the previous list of 600. The list of the remaining 890 tyre sizes and types, which are not being domestically manufactured and are imported from overseas, shall be added in the exemption list of the quality control order for tyres. The government has also restricted the imports of new pneumatic tyres from 'free' earlier which means importers have to apply for license to import such tyres. The government had also reduced the period of utilization of imported dry rubber under advance licensing scheme from 18 months to 6 months from January 2015. Port entry for import of natural rubber has been restricted to ports at Chennai and Nhava Sheva (Jawaharlal Nehru Port) since January 2016. Further, in the Union Budget 2023-24, the rate of custom duty on compound rubber was also increased from 10 per cent to 25 per cent or Rs 30 per kg, whichever is lower (at par with natural rubber) to curb circumvention on duty. A reason for optimism is the still low global share of Indian manufacturers. The global tyre market is dominated by China, which makes up around 50 per cent of the sector. India's tyre business has been resilient and is expected to grow by 7-9 per cent between 2020 and 2024 and overtake the US to become the third-largest market. This could be thanks to countries' search for alternatives to China. Indian tyre exports have witnessed growth at an accelerated pace and have nearly doubled in the last four years. Tyres manufactured in India are being exported to more than 170 countries. Major global markets such as the EU, US, Brazil, UAE and UK recognise the quality of tyres made in India, with India's tyre exports currently standing at \$3 billion, which is over 25 per cent of industry turnover. The Indian tyre industry is aiming to increase its export value to \$5 billion-plus and emerge among the top-3 global tyre hubs by 2030, as per Automotive Tyre Manufacturers Association (ATMA).



Challenges to global trade and economy due to recessionary conditions, rising interest rates and geopolitical issues have led to slowing of external demand. However, the tyre industry is making concerted efforts by aligning with suppliers, government, and industry bodies to achieve this goal. Tyre exports from India have gone up from ₹12,844 crore in FY20 to ₹23,125 crore in FY23. The US is the largest market for Indian tyres accounting for nearly 25 per cent of the total tyre exports from India. Tyre exports can be aided by signing up FTAs with significant tyre importing countries like LATAM (Colombia, Brazil, Argentina) and Africa (Nigeria, Ghana etc). There has been a discernible shift in the Indian automotive industry, both in two- and four-wheelers, towards premiumisation. Studies indicate a shift in preference towards higher-end models with advanced features, superior technology, and better performance. The tyre manufacturing companies are looking at investing over next few years based on the growing demand internationally as well as domestic market. Apollo Tyres is also focusing on the production of tyres for electric vehicles (EVs), a rapidly growing sector. The company has already started launching EV tyres in India, following Europe's lead in this area. The company has five manufacturing units in India, one in the Netherlands and one in Hungary. Currently, Apollo's plants are running at 75-80% utilisation, indicating room for increased capacity to meet growing demand. This positions Apollo Tyres well for capitalizing on India's emerging status as a global export hub.

JK Tyre & Industries is planning to invest Rs. 1025 crore on account of burgeoning demand for tyres in the domestic automotive market. The company is currently utilizing 95% of its capacity & plans to expand capacity by about 20% by October 2025. The two-phased expansion planned at Banmore facility to cater to the increasing demand for passenger car radial (PCR) tyres has completed its first phase. The phase one expansion involved an investment of Rs 312 crore thereby enhancing the annual production capacity by 31%. JK Tyre is now in the second phase of expansion, which will increase the capacity by an additional 31% by April 2024. The company can currently produce 35 lakh tyres per annum. Tyre maker CEAT Ltd is foraying into steel radial tyres for two-wheelers with an aim to enhance its leadership position in the overall two-wheeler tyre segment and also to help premiumise the brand. The company, launched its new premium range of two-wheeler steel radial tyres in January 2024, targeting both aftermarket and original equipment manufacturer (OEM) segments. TVS Srichakra Ltd, makers of TVS Eurogrip, Eurogrip and TVS brand of tyres, has drawn up plans to acquire the US-based Super Grip Corporation as part of its vision to grow in the global off-highway tyre market. TVS Srichakra recently invested in a new plant at its facility in Madurai to double the off-highway tyre capacity. This investment is largely directed at global markets. Yokohama Rubber Company, a Japan-based manufacturer, has revealed its plans to bolster its passenger car tyre capacity in India. The company is set to invest 671 crore rupees (\$82 million) in expanding its annual tyre production capacity in the Indian market through Yokohama India. The company aims to install the new capacity within its existing Visakhapatnam plant in India. The expanded production line is projected to commence operations in the fourth quarter of 2024 and will focus on manufacturing 22-inch passenger car tyres. Specialty chemicals company LANXESS has announced that it has completed the expansion of its Rhenodiv production line in Jhagadia, Gujarat. As per company the increased capacity of Rhein Chemie business unit will meet the demand of the Indian Sub-continent and the Asian tire and rubber goods markets.

The Rhein Chemie business unit is organized into two business lines: Specialty Rubber Products (SRP) Functional Tire Additives (FTA). Convergence Energy Services Limited (CESL) has issued a call for proposals to select an operator for the procurement, supply, operation, and maintenance of 3,132 electric buses as well as the development of associated civil and electric infrastructure under the Pradhan Mantri eBus Sewa initiative on Gross Cost Contract model. The deadline for bid submissions is April 25, 2024.

This is expected to boost the tyre demand in India.

As per ICRA, demand for tyres in India is likely to grow 6-8% in FY24, with tyre manufacturers witnessing margins expansion in second half of the fiscal. Demand will be driven by strong growth in OE (original equipment), and a slight increase growth in replacement volumes as well as softening prices of natural rubber and crude oil derivatives since July.

The Indian tyre industry is aiming to increase its export value to \$5 billion-plus and emerge among the top-3 global tyre hubs by 2030. Indian tyre exports have witnessed growth at an accelerated pace and have nearly doubled in the last four years. Tyres manufactured in India are being exported to more than 170 countries. Major global markets such as the EU, US, Brazil, UAE and UK recognize the quality of tyres made in India, with India's tyre exports currently standing at \$3 billion, which is over 25% of industry turnover.

SBR which accounts for 40% of the total synthetic rubber demand is consumed mostly in the tyre sector. Considering the large amount of SBR that is being consumed in the manufacture of tyres and tyre products, demand is very much dependent on the automotive industry and tyre sectors as a whole. On a positive note, growing use of low-rolling-resistance tyres to reduce fuel consumption and decrease CO₂ emissions should increase SBR demand. Low rolling resistance tires are acquiring significant popularity, with heightened emphasis on improving vehicular performance outcomes catalyzing growth. Furthermore, growing consciousness about environmental sustainability is prompting manufacturers to incorporate several changes in the nature of materials used during the production process. This trend has boded well for overall market growth. In the long-run, low rolling resistance tires with a wide band width are expected to account for bulk of the overall demand, while sales across the aftermarket segment are anticipated to surge incredibly.

SBR industry registered a growth of 6% in FY24 and expected to see a similar growth in next two years. Change in geo-political conditions has impacted the traditional trade flow of PBR/ SBR. Russian material has started flowing into SEA and NEA market instead of traditional EU markets.

EU material coming into SEA and NEA markets is finding its consumption in EU itself. With China nearing self-sufficiency and ingression of Russian material, Chinese material has started flowing into SEA market leveraging RCEP. The Board of Indian Oil in March 2022 had accorded approval for implementation of Poly-Butadiene Rubber (PBR) Project at IOCL cracker complex at Panipat, Haryana at an estimated investment of Rs.1459 crore which is expected to be operational by 2025.



The plant will have a PBR production capacity of 60 KT per annum based on state-of-the-art technology provided by Goodyear Tire & Rubber Company which is also the leading global manufacturer of automotive tyres. Butadiene is the primary raw material for the production of PBR which shall be available from the existing Naphtha Cracker Complex of the Company.

Tyre industry is the largest consumer of PBR in India with more than 80%, while balance is for other industries such as footwear, conveyor belts, etc. In view of the present deficit in PBR production in India and the steadily growing demand, the demand-supply deficit is expected to grow considerably in the future.

The implementation of the Project would reduce nation's import dependency for PBR, thereby, aiding to Atmanirbhar Bharat and Make in India vision for the nation. With the commissioning of this project, the Petrochemical Intensity Index of Panipat Refinery & Petrochemical Complex will increase from 15.9% to 18.05% along-with other upcoming projects.

EPDM demand rebounded and witnessed a robust growth of 20% in 2023-24. However, in next two fiscals the growth is forecasted to be a tad lower at around 13%.

EPDM gets its name from the chemicals (monomers) that are mixed together in various proportions: ethylene, propylene and diene, where the ethylene content is usually between 45% to 75%. Roofing made from EPDM can last 30-50 years, and liners can last for 20 years. Today EPDM manufacturing is one of the fastest growing segments of the synthetic rubber market, being the primary choice for automotive and industrial applications.

It has long replaced natural rubber. EPDM is used in automotive and industrial hose products due to their thermal and oxidative stability and chemical resistance to polar organic and aqueous inorganic fluids. The excellent physical properties of EPDM make EPDM hoses extremely durable.

They may have a longer lifespan than the car itself that they are built in.

EPDM is used in the automotive and construction industry for sealing purposes, as window and door seals, protective pads and electrical gaskets, as well. EPDM is used in heating, ventilation and air conditioning machinery, such as compressor grommets, mandrel-formed drain tubes, pressure switch tubing.

EPDM can also be found in vehicle weather stripping, seals, sealant, wire and cable harnesses, and brake systems. Blends of EPDMs and other polymers (PP) are also used for car bumpers, fender extensions, and rub strips.

Growing demand for cars and building and production coupled with demand increase for other software areas is expected to power the call for EPDM rubber.

Moreover, increasing call for electricals is also an influencing component helping demand upward push for EPDM. Moreover, as the demand for electric vehicles is increasing. In a study it has been found that the EPDM rubber waste from discarded non-tire automotive rubber parts is explored as an asphalt binder modifier.

The continuing territorial disputes with neighbouring countries have increased the demand for defensive equipment in India.

This has resulted in greater usage of synthetic elastomer-based goods by government military product manufacturing agencies, such as the Defence Research & Development Organization (DRDO). For instance, in August 2022, DRDO had announced procuring EPDM-kevlar rubber lining for ASTRA MK-2 air-to-air missile, which will be used to protect the rocket casings from hot gases.

Such developments are expected to provide a necessary push for the product demand in Defence applications. Astra Missiles were flagged off this February 2024 for supply to the Indian Air Force. Reliance is the only producer of PBR in India. PBR demand de-grew at 5.3% in 2023-24. However, same is expected to see a rebound next fiscal.

While Butyl rubber demand grew at a robust rate in 2023-24 at 8%, Halo butyl rubber demand also grew at staggering rate of 10.1% in 2023-24.

Nitrile Butadiene Rubber Latex (NBR) is one of the most used rubber compounds across a wide range of industries.

NBR which has a demand in end use applications like Auto components, Rice Rollers, Hoses, NBR/PVC blend, Insulation Foam, moulded Rubber Parts, Coats & Apron, Jointing Sheets, LPG Tubing, Oil Seals, Industrial Parts, Cork Sheets, Gaskets, Belts, Compounds, Cooker Gasket, Industrial Rollers, Footwear, Brake pads & Clutches etc., witnessed a staggering demand growth of 7.4% in 2023-24, and further is expected to grow around 7% in next fiscal.

Apcotex is the sole producer of NBR in India. The demand for nitrile butadiene rubber in India, China, and ASEAN countries stems mostly from bulk manufacture of molded and extruded polymer products and automotive components. Because of increased investment in the healthcare business, there is likely to be an increase in demand for NBR gloves, notably in the medical sector. A further factor projected to speed up market value growth over the coming years is the increased demand for disposable gloves across a variety of industries, particularly in the food sector.

Table 20: Demand Supply Balance of PBR, SBR, NBR, EPDM, IIR and HIIR

● Actual ● Estimate

PBR	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	135	135	135	135	135
Production	133	126	134	131	136
Imports	96	120	99	116	124
Exports	21	2	4	2	2
Demand	210	243	230	244	257
Demand Growth (%)	4.9%	15.7%	-5.3%	6.2%	5.2%
SBR	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	270	270	270	270	270
Production	225	198	234	243	249
Imports	91	94	87	91	103
Exports	11	6	5	3	3
Demand	292	297	315	332	350
Demand Growth (%)	6.7%	2.0%	5.9%	5.4%	5.4%
NBR	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	14	15	16	17	18
Production	13	14	16	17	18
Imports	30	37	40	43	45
Exports	0	1	1	1	1
Demand	43	51	55	59	62
Demand Growth (%)	-7.1%	20.0%	7.4%	7.3%	5.1%
EPDM	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	0	0	0	0	0
Production	0	0	0	0	0
Imports	50	55	66	75	85
Exports	0	0	0	0	0
Demand	50	55	66	75	85
Demand Growth (%)	19.0%	10.0%	20.0%	13.6%	13.3%
IIR and HIIR	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	120	120	120	120	120
Production	56	78	94	114	120
Imports	79	61	60	51	39
Exports	19	17	21	25	13
Demand	115	121	132	139	146
Demand Growth (%)	1.1%	5.3%	9.1%	5.0%	5.0%

xxiii. Surfactants

Based on demand across the globe, the Asia Pacific is the biggest consumer of Linear Alkyl Benzene (LAB). This region accounted for a demand of approximately 50% of the global Linear Alkyl Benzene (LAB) in 2023. Increased urbanization and government initiatives to promote better health and hygiene practices will most likely drive increased demand for laundry detergent. Moreover, increased investments across the detergents and other cleaning chemicals sector, looking at the rising penetration across the rural sectors, would further boost the LAB demand. Based on consumption rate, Asia Pacific was leading across the globe in H1 2023. The market value of LAB also rose exponentially across the Asian nations in the first half of H1 2023. There was a continuous hike in the LAB prices in the Chinese market was due to its high demand in the country's downstream laundry industry. The feedstock benzene prices rose, which pushed Chinese LAB prices higher till April 2023. However, May and June saw a decline in LAB prices in Asia. The lackluster demand from the downstream surfactant industries was the main cause of the fall in prices. The Asia Pacific region saw a decline in prices due to the slow Chinese economy and low market sentiment.

Table 21: Demand & Supply of LAB & EO

● Actual ● Estimate

LAB	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	550	572	597	597	597
Production	457	400	475	475	495
Imports	273	333	251	270	270
Exports	2	0	0	0	0
Demand	723	722	730	745	765
Demand Growth (%)	2.3%	-0.1%	1.1%	2.0%	2.7%
EO	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	303	311	376	380	440
Production	302	310	335	346	395
Imports	0	0	0	0	0
Exports	1	1	1	1	1
Demand	303	310	335	346	395
Demand Growth (%)	14.9%	2.3%	8.0%	3.3%	14.2%

LAB continues to be work horse for the surfactant industry in India with demand hovering around 730 KTA. To cater growing demand, IOCL expanded their capacity from 140KT to 162KTA during FY'23. The domestic operating rate was at 93% (excluding RIL 60KT shut capacity). Due to IOCL de-bottlenecking shutdown, Indian production for FY'23 is ~400KT and the balance demand was met by imports. With capacity addition, Indian imports requirement for next year is likely to reduce. Due to increase in the crude and energy prices, LAB prices were at elevated level leading to flat LAB demand growth. With falling raw material prices, demand is poised to grow. Domestic demand for LAB was flat in 2023-24 registering a growth of 1.1% which is slightly improve going further is next two years. In recent times, India is one of the largest producers of soaps and detergents, globally.



Government initiatives, such as the Swachh Bharat Mission, promote health and hygiene. Such initiatives, along with growing usage of soaps and detergent, have led to the growth of the manufacturing industry, which is further boosting the demand for LAB in the country.

Based on demand across the globe, the Asia Pacific is the biggest consumer of Linear Alkyl Benzene (LAB). This region accounted for a demand of approximately 50% of the global Linear Alkyl Benzene (LAB) in 2023. Increased urbanization and government initiatives to promote better health and hygiene practices will most likely drive increased demand for laundry detergent. Moreover, increased investments across the detergents and other cleaning chemicals sector, looking at the rising penetration across the rural sectors, would further boost the LAB demand in the future. Indian EO demand continues to grow, with shift in consumer preferences more and more Indian consumers are shifting to Liquid based detergents. The increased capacity of 40 KTA has been fully absorbed by the market and we are enhancing capacity even further over next 3 years to cater to growing Indian market. Indian EO demand of 335 KT is expected to grow at 3% in FY'25. EO is not directly Imported in India due to its hazardous nature, however, EO derivatives are imported. Demand for EO is expected to clock double digit growth of 14% by 2025-26. EO domestic demand is driven by Infrastructure, HPC (health and personal care), agrochemicals, solvents, antifreeze, textiles, detergents, adhesives, polyurethane foam, and pharmaceuticals. Smaller amounts are present in fumigants, sterilant for spices and cosmetics, as well as during hospital sterilization of surgical equipment.

xxiv. Carbon Black Feedstock & Carbon Black

Carbon Black is a pure elemental carbon which is produced by incomplete combustion or thermal decomposition of gaseous or liquid hydrocarbons under controlled conditions. CBFS is used as a reinforcing agent and colourant in rubber products, particularly automotive tyres. Carbon black is a key component of tyre manufacturing constituting up to 20–25% of its weight. It also has applications in other industries like paint, plastics, ink, etc.

Worldwide, nearly 90% of carbon black is used in rubber applications, 9% as a pigment, and the remaining 1% is used as a necessary component of numerous different applications. India ranks amongst largest exporters of carbon black in the world. As of Dec 2023, the top 3 exporters of carbon black in terms of shipments are India (85,377), China (67,985) and Germany (58,453). However, in terms of value, India is ranked 8th in carbon black exports (HS 280300), with exports of US\$ 384.2 million in 2023. In the next fiscal year, India is expected to see a further spike in its carbon black net exports. Its top markets are Thailand, Sri Lanka, Vietnam and the US. According to a recent report by CRISIL, geopolitical developments and consequent realignment of global supply chains are projected to double the net export volume of Indian carbon black in FY 2024.

As per the report, driven by the growing export demand, India's carbon black capacity has increased by nearly 14% over the last two fiscal years to around 1750 KTPA. European Union is the largest importer of carbon black, globally sourcing CBFS from China and Russia till now has restrained its supply from Russia.

China's production of carbon black has been affected by environmental concerns as well as high input costs. These developments have paved way for India's carbon black.

Indian companies use carbon black feed stock (CBFS), which comes from crude oil. Indian producers, post recent capacity additions, are well placed to address resultant supply challenges for EU. The domestic tyre industry is predicted to grow at a consistent rate of 6-8% during the current and next fiscal year, backed by replacement and original equipment manufacturer (OEM) demand.

Epsilon Carbon Pvt Ltd. Signed a MoU with the Govt of Odisha committing an investment of Rs 10,000 Cr over 10 years for the establishment of an Integrated Carbon Complex in Jharsuguda, Odisha. The ICC will have manufacturing capacity of 8,75,000 MT/annum for various carbon products (viz. Speciality Carbon Capacity, Carbon Black Capacity, Advanced Materials etc.).

Phillips Carbon Black Ltd (PCBL) has embarked on expansion projects in Chennai, Tamil Nadu and Mundra, Gujarat. Chennai plant will add 1,47,000 MTPA of carbon black capacity whereas Mundra plant in Gujarat will augment specialty chemical capacity of 40,000 MTPA.

Birla Carbon, the leader in sustainable carbon solutions, announced the establishment of two new carbon black manufacturing sites in Naidupet, Andhra Pradesh, India, and Rayong, Thailand. Each of the new facilities will have an initial capacity of 120 KT operational in 2025 with plans to expand to 240 KT in the future.

Other brownfield expansion plans in Hungary, as well as, the post treatment facility expanding Specialty capacity at Patalganga, India, are progressing on plan. Balkrishna Industries under the brand name Balkrishna Tyres (BKT), scaled up its capital expenditure budget for FY24 by an additional Rs 300 crore, revising it to Rs 900 crore for the ongoing fiscal. BKT also envisages a new capacity expansion project at Bhuj to enhance its market share in global markets.

Carbon Black demand across OHT segments remained strong in FY23 on account of higher global food prices which improved farmer realizations as well as profitability and increased capex spends by various governments which aided growth for mining and construction equipment.

Demand momentum to continue across geographies and segments, driven by pick-up in economic activities, government spending on infra worldwide and robust prices of commodities and agricultural commodities. There is good demand from mining as well as agriculture sectors in the OHT segment.

Demand-supply environment for carbon black is expected to remain favourable supported by strong demand outlook, which bodes for high carbon black margin in the near term.

Table 22: Demand Supply Balance of CBFS & Carbon Black

● Actual ● Estimate

CBFS (KT)	2021-22	2022-23	2023-24 A	2024-25 E	2025-26 E
Capacity	2638	2638	3118	3118	3300
Production	2503	2503	2803	2803	2863
Imports	1746	1842	1932	2074	2100
Exports	42	580	650	430	420
Demand	4207	3765	4085	4447	4543
Demand Growth (%)	10.4%	-10.5%	8.5%	8.9%	2.2%
Carbon Black (KT)	2021-22	2022-23	2023-24 A	2024-25 E	2025-26 E
Capacity	1542	1610	1750	1800	2200
Production	1230	1388	1550	1580	1650
Imports	30	50	50	50	100
Exports	400	380	450	450	400
Demand	1268	1360	1480	1180	1350
Demand Growth (%)	0.3%	7.3%	8.8%	7.8%	14.4%

Indian Carbon black manufacturers are expecting positive demand and adding capacities as well. Carbon black industry grew at 8.8% in 2023-24. It is expected to grow at a healthy robust growth of 7.8% next fiscal before clocking 14% growth in 2025-26. Meanwhile, CBFS too registered a growth of 8.5% in 2023-24 and expected to be grow at 8.9% next fiscal.

xxv. Other Key Petrochemicals

Overall other key petrochemicals demand in 2023-24 witnessed a de-growth of 1% and is expected to grow around 10% in next fiscal year. India's benzene capacity in CY'23 was 2.3 mmtpa. Operating at a 74% rate, Indian refineries and crackers produced around 1.7 million metric tons of benzene. However, domestic demand for BZ dropped from 820 kt in CY'22 to 720 kt in CY'23. Chloro Nitro Benzene producers faced import competition from China and reduced demand. Phenol producers also experienced price pressure due to low margins and cheaper imports. India continued to be a large net exporter, shipping approximately 1 mmtpa of benzene in CY'23, up from 0.95 million metric tons in CY'22. India will continue to export ~ 1 to 1.2 mmtpa annually, fueled by new petrochemical and downstream plants. After new capacity addition at HPCL-Mittal Energy Limited, two new petrochemical production facilities are expected - HPCL-Barmer refinery in Rajasthan in CY'25 and Indian Oil Corporation Limited in Paradeep in CY'26. Additionally, Indian Oil Corporation is set to establish a styrene plant, while Haldia Petrochemicals and Deepak Phenolics plan to construct phenol plants by CY'27. The FOB Korea benzene market experienced fluctuations from April'23, starting at \$977/MT supported by demand for EB and Cumene for gasoline blend in the US, dropping to \$779/MT in June'23 due to corrections in Brent and WTI crude prices. Currently, BZ Asia prices stand at \$1029/MT, influenced by rising global crude prices and high freights due to the Israel-Hamas conflict and logistical issues in the Red Sea.

Table 23: Demand Supply Balance of Benzene, Toluene, MXS & OX

● Actual ● Estimate

(KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Benzene					
Capacity	2470	2470	2650	2650	2750
Production	2124	1766	1706	1800	1850
Imports	0	0	0	0	0
Exports	1508	950	986	980	1010
Demand	720	816	720	820	840
Demand Growth (%)	20.0%	13.3%	-11.8%	13.9%	2.4%
Toluene					
Capacity	175	175	175	175	175
Production	120	100	125	125	125
Imports	510	554	550	550	565
Exports	17	11	15	0	0
Demand	613	643	660	675	690
Demand Growth (%)	-6.8%	4.8%	2.7%	2.3%	2.2%
MXS					
Capacity	90	90	90	90	90
Production	102	96	98	98	100
Imports	130	140	161	178	195
Exports	0	0	0	0	0
Demand	218	230	257	275	305
Demand Growth (%)	-5.9%	5.1%	12.2%	6.7%	11.2%
OX					
Capacity	450	450	450	450	450
Production	512	406	350	350	507
Imports	15	19	68	130	23
Exports	173	52	11	0	0
Demand	357	368	407	480	530
Demand Growth (%)	20.3%	3.1%	10.7%	17.9%	10.4%

After the 2022 capacity increase from Mangalore Refinery and Petrochemical Ltd's reformer/transalkylation plant integrated to a new paraxylene (PX) unit, there is another new benzene production capacity expected by Indian Oil Corporation Limited by reformer/transalkylation plant in 2025. Benzene production decreased in 2022-23 owing to reduced PX operations on the back of deteriorated PX margins and reformate base benzene production.



Benzene production is forecasted to grow, in line with new capacity addition by Indian Oil Corporation Limited's refinery and paraxylene (PX) unit in 2025. Reliance Industries accounts for slightly more than half of the benzene capacity in the Indian Subcontinent in 2023-24. From 2023, HPCL Mittal Energy started a pygas-based extraction unit with a benzene capacity of 180,000 metric tons per year in line with a new naphtha cracker. Furthermore, the usage of packaging made up of polystyrene, an intermediate derived from benzene, has increased in food and e-commerce applications, which, in turn, has stimulated the market demand for benzene. Benzene production will reach almost 2.75 MMT in 2025, with pygas, reformat, and transalkylation continuing to be the major supply sources. The largest part of regional benzene demand comes from cumene, which represented 28% of total benzene demand in 2024. The next-largest derivatives were alkylbenzene and chlorobenzene, which represented 38% and 15%, respectively, of total 2023-24 benzene demand. Toluene witnessed a modest growth in 2023-24. It is expected to witness similar growth in the next two fiscals. Toluene, an essential chemical compound in the global market, has been experiencing a mixed trend. The international market saw toluene prices opening at 920 \$/mt FOB Korea in April'23, jumping nearly 17\$ in Sep'23 to 998 \$/mt on increased crude and Naphtha prices. Currently Toluene FOB K stands at \$893/mt. BZ-Toluene delta in Asia remained low at an average of -\$5/mt from April'23 to Dec'23. The BZ-Naphtha delta is hovering at ~\$138/mt, making BZ and PX production from STDP/TDP methods viable. Toluene continues to be imported into the country, with around 550KT Toluene imported in CY'23. Major exporters of Toluene were Thailand, Korea and China. Imports from China was around 70kt in CY'23. Toluene consumption is affected due to lower demand for derivatives from Europe and USA. Toluene demand in India is likely to be subdued driven by pharmaceuticals and agrochemical market.

Toluene has the capability to dissolve several organic compounds and hence it is gaining popularity as solvent in paints, lacquers, thinners, glues, correction fluid and nail polish remover. Toluene being a major by-product in the manufacturing process of Styrene, has applications in the production of Toluene diisocyanate for further manufacturing of Polyurethane which is further used in the manufacturing of foams for furniture, seats etc. Toluene is also used in manufacture of Trinitrotoluene (TNT) which is used in small quantities for making explosives. With the increasing demand of cleaner and better fuels for automobiles, Toluene is used as an ingredient to produce better quality fuel by using it in the blending of petrol.

Among all segments, Ortho-Xylene has witnessed robust growth rate and will continue to do so in the forecast duration, owing to its extensive use as a solvent in several industries. OX is also used as an industrial feedstock to produce phthalic anhydride, which is then used in the production of plastic in end-user industries. In terms of application, the automotive segment is expected to see a considerable shift due to its extensive use in coating of automotive parts such as the engine, interior & exterior parts and others. The rising demand for PET and pure isophthalic acid (PIA) is expected to drive the market during the forecast period. Furthermore, the increasing use of the product in various sectors such as paints & coatings and textiles will also contribute to the growth. OX registered a growth of 11% in 2023-24 and is forecasted to witness double-digit growth of 18% in 2024-25. There is no new capacity addition lined up for OX.

MXS had witnessed a double-digit staggering growth in demand at 12% in 2023-24. MXS mainly goes into the Paints sector. Imports in the case of MXS are expected to rise to 195 KT by 2024-25. The Indian paint industry is estimated to be USD 8.5 billion in value terms and 6.3 million MTPA by volume. The architectural segment, which accounts for nearly 70% of the paint industry is the largest segment, while industrial segment accounts for 30% of the total consumption. The paint & coating industry has bright prospects in the country. Though there are still many supply-chain issues, fluctuating raw material prices, shortages etc., but the long-term story looks great. Demand from both architectural and industrial segments has grown steadily during the past few years.

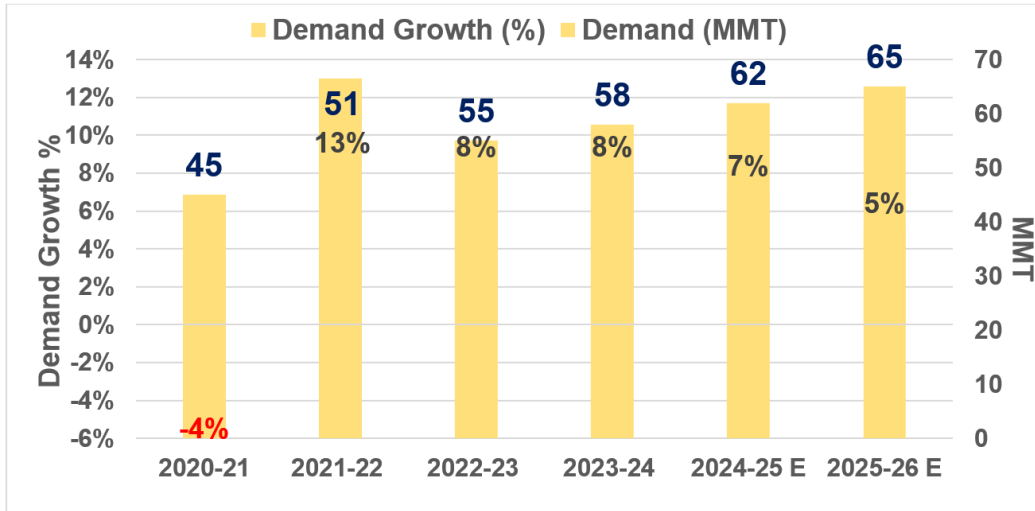
Rapid urbanization, shortening of repainting exercise, rising disposable income, government's thrust on infrastructure development in a major way, and Housing for All have been the major factors in varying degrees behind the robust demand of paint & coating products in the country in these years. Indian paint industry is shifting towards high-quality paints, with a projected 10% CAGR in the next three years. Major players are making substantial investments to boost their capacities. Despite raw material inflation, the industry anticipates margin expansion due to the growing demand for high-quality paints. Decorative paints expecting a better chunk due to expected investment in infrastructure followed by incentives given by Govt. in housing sector. The demand of industrial paints is expected to increase due to domestics & global auto majors having long term investment plans for Indian market. Accounting for more than 30% of India's paint & coating industry, industrial segment of the paints & coating industry has rapidly grown over the years. Primarily driven by steady growth in the automotive segment, industrial coating segment is expected to increase its share in the overall paint & coating industry.

Growth in the automotive coating segment has been driven by growing automotive industry in the country. India has retained its position as the third-largest light vehicle market in the world in 2023. In what was a close finish to the No. 3 position, Japan made a resounding comeback in 2023, registering 14% growth as against India's 8%. Japan ended 2023 a shade below 4 million cars, whereas India sold 4.11 million units. The gap between India and Japan has reduced from 3,44,000 in 2022 to 1,15,000 units in 2023. This was a third consecutive year of growth for India, hitting a new peak in 2023. Much like matured markets, SUVs stole the show with a share of over 48% of total passenger vehicle sales in the country.

xxvi. Outlook for the Overall Indian Petrochemical Industry

India's aggregated demand for petrochemicals had declined by 4% in 2020-21 due to the pandemic which affected the demand supply and had affected the supply chain, had grown by 13% in 2021-22. However, in 2022-23 it showed a slower growth but modest growing at 8%. In 2023-24 the aggregate demand touched 58 MMT growing at 8%. The forecast for the next two year shows the growth to grow around 7% and 5%. It is forecasted that the overall industry would have a healthy growth in next fiscal and the demand will touch 62 MMT and a further increase to touch 65 MMT by 2026, which reinstates the increase in consumption of petrochemicals across value chains in the future and healthy growth of the industry.

Figure 14: Aggregate Petrochemical Demand (All key segments – MMT)



Polymers are likely to register a healthy growth in the coming year 2024-25 and lock around 8.5% growth. Polyolefins are also expected to grow at same rate in 2024-25. Surfactants are projected to grow at 2% in the same period. Synthetic rubbers are expected to register demand growth of 6% in the said period. Other key petrochemicals expected to grow at a 10% in the same period. Various international and national megatrends like reduction of dependency on single source, shift in consumer preferences and income demographics, improving digitalization and innovation and more, are expected to propel the Indian chemical and petrochemical industry.

xxvii. Overview of circularity in Plastic Industry

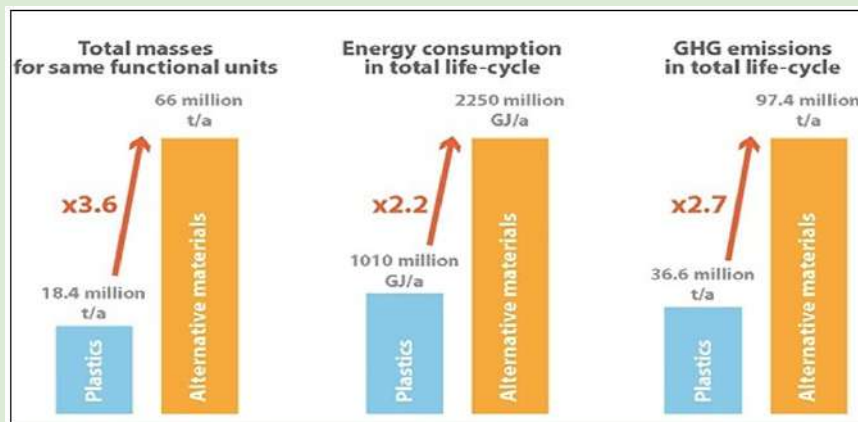
Embracing the Bright Side of Plastics and Sustainability

Plastics, often maligned for their environmental impact, possess remarkable qualities that contribute positively to various aspects of our lives. From healthcare to transportation, plastics play an indispensable role in modern society. They contribute significantly to the global economy, with the plastics industry valued at over \$600 billion annually. In healthcare, plastics are essential for sterile packaging, medical devices, and equipment, contributing to improved patient care and safety.

Lightweight plastics in transportation reduce fuel consumption, lowering greenhouse gas emissions and enhancing efficiency. Plastics packaging helps reduce food waste by preserving freshness and extending shelf life, addressing critical challenges in global food supply chains. Contrary to popular belief, the durability of plastics can be a boon.

Plastic-based materials often outlast alternatives, reducing the need for frequent replacements and conserving resources in the long run. The innovation in plastic technology continues to drive progress in diverse fields. Advancements such as biodegradable plastics, recycled materials, and sustainable production methods are transforming industry, paving the way for a more environmentally conscious future.

Figure 15: GHG – Greenhouse gas (Plastics Europe)

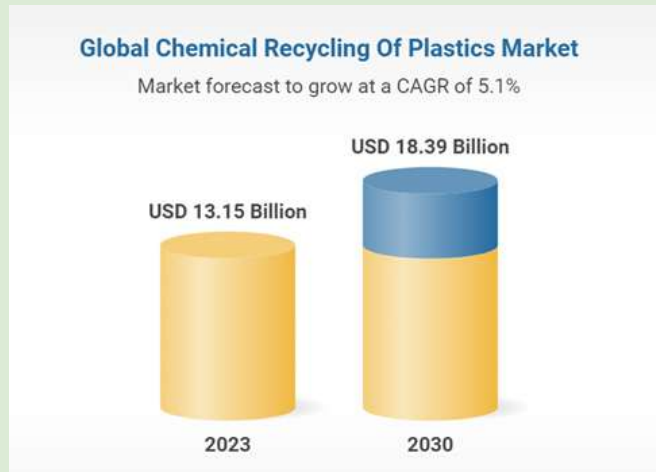


Material Conservation and Energy Savings. Plastics offer significant energy and material savings across various applications. For example, packaging beverages in PET (Polyethylene terephthalate) reduces energy consumption by 52% and greenhouse gas emissions by 55%. Lightweight plastic composites in aircraft and automobiles contribute to fuel cost savings and energy efficiency. Even disposable polystyrene cups require less energy in manufacturing compared to ceramic or paper cups, making plastics a resource-efficient choice. Carbon savings with plastics packaging. Plastics packaging, though criticized for environmental impact, uses only 1.5% of oil and gas. It is recyclable and can be used for energy recovery. Replacing it with alternatives would consume more energy and emit more CO₂. Plastics save 101.3 million barrels of oil and offset CO₂ from 12.3 million cars annually.

Plastic Recycling Statistics

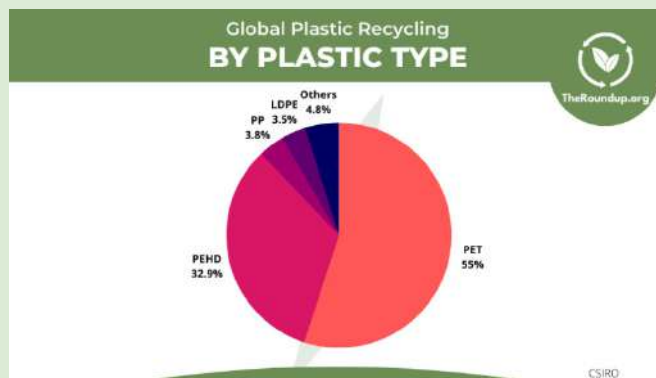
Globally, innovations such as chemical recycling, advanced sorting systems, and bioplastics are revolutionizing plastic recycling. These advancements enable the recycling of a wider range of plastics, improve sorting accuracy, and offer sustainable alternatives.

Figure 16: Global Chemical Recycling of Plastic Market (Research and Markets)



PET is the most commonly recycled type of plastic, accounting for 55% of global plastic recycling and High-Density Polyethylene (HDPE) accounts for another 32.9%.

Figure 17 Global Plastic Recycling Trend



India has the best plastic recycling rate in the world, reportedly recycling as much as 60% of its plastic waste and 90% of its PET waste. South Africa, the Netherlands, South Korea, Norway, and Spain come next on the list. South Korea aims to increase its rate to 70% by the year 2030. The global average plastic recycling rate is just 18%.

Figure 18 Global Plastic Recycling Rate

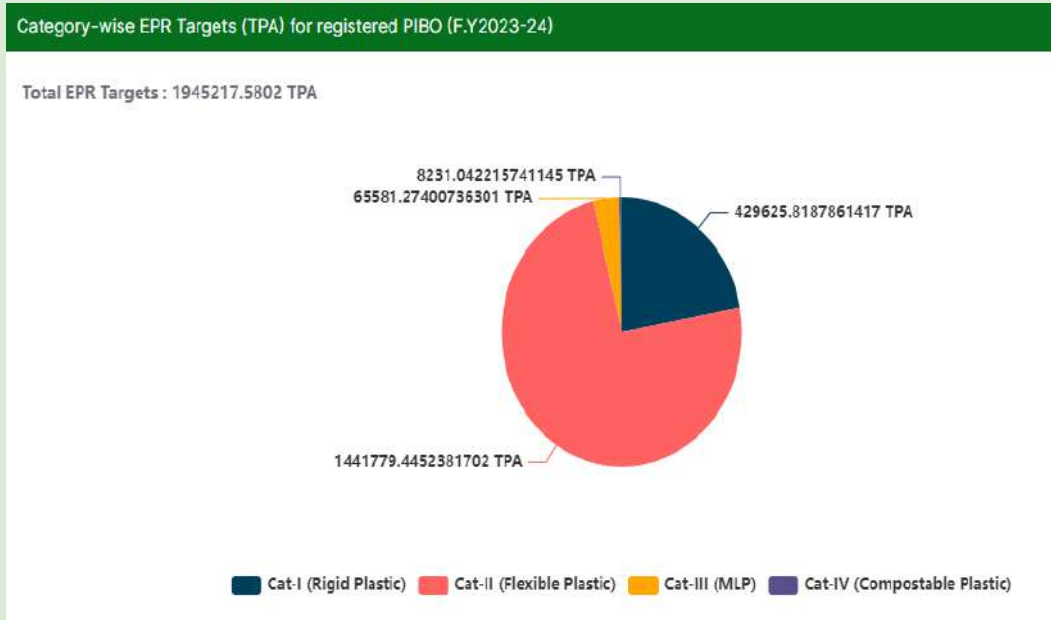


India’s recycling rate continues to grow while focusing on developing efficient technologies, spearhead the implementation of Plastic Waste Management Rules and ameliorate waste management. The Plastic Waste Management Rules, 2016, laid down the statutory framework for managing plastic waste in an environmentally sound manner across India. Recognizing the detrimental impact of single-use plastic items on terrestrial, aquatic, and marine ecosystems due to their high littering potential, the Ministry introduced the Plastic Waste Management Amendment Rules, 2021. These amended rules, notified on 12th August 2021, banned certain identified single-use plastic items deemed to have low utility and high littering potential, effective from 1st July 2022. Moreover, to further enhance plastic packaging management, the Ministry of Environment, Forest and Climate Change issued guidelines on Extended Producer Responsibility (EPR) for plastic packaging. These guidelines have provided a push in the recycling segment. The following plastic packaging categories are covered under Extended Producer Responsibility to ensure that plastics packaging, which contributes to 35-40% of plastics produced, are responsibly disposed of.

Plastic Packaging Categories	
Category I	Rigid plastic packaging
Category II	Flexible plastic packaging of single layer or multilayer (more than one layer with different types of plastic), plastic sheets or like and covers made of plastic sheet, carry bags, plastic sachet or pouches
Category III	Multilayered plastic packaging (at least one layer of plastic and at least one layer of material other than plastic)
Category IV	Plastic sheet or like used for packaging as well as carry bags and commodities made of compostable plastics
Category V	Plastic sheet or like used for packaging as well as carry bags and commodities made of biodegradable plastics

The graph below shows the obligations for 2023-24 of Producers, Importers and Brand Owners (PIBO) that responsibly dispose of the plastic waste by partnering with Plastic Waste Processors (PWP) who buy these EPR credits to fulfil their obligations.

Figure 19: Category wise targets for PIBO (CPCB Portal)

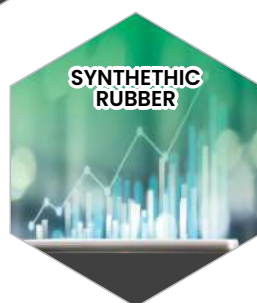


While acknowledging the environmental concerns associated with plastics, it is essential to recognize their positive contributions and harness their potential for sustainable innovation.

By embracing responsible usage, investing in recycling infrastructure, and promoting eco-friendly alternatives, we can maximize the benefits of plastics while minimizing their impact on the planet. Let's embrace the bright side of plastics as we strive for a more sustainable future.

INDIAN PETROCHEMICAL INDUSTRY

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SECTION 3

STATISTICAL APPENDIX

FEEDSTOCK

● Actual ● Estimate

Naphtha (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Production	19922	17036	18257	--	--
Imports	1246	897	1281	--	--
Exports	6861	5714	5153	--	--
Apparent Demand	14255	12127	13861	--	--
Demand Growth%	1.1%	-14.9%	14.3%	--	--
Natural Gas (MMSCM)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Production	34024	33573	36423	--	--
Imports	31906	27021	30586	--	--
Exports	0	0	0	--	--
Apparent Demand	65037	60594	66309	--	--
Demand Growth%	6.9%	-6.8%	9.4%	--	--
Coal Bed Methane (MMSCM)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Production	683	674	649	--	--
Imports	--	--	--	--	--
Exports	--	--	--	--	--
Apparent Demand	683	674	649	--	--
Demand Growth%	6.4%	-1.4%	-3.7%	--	--
Methanol (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	634	661	757	804	804
Production	189	157	170	208	248
Imports	2469	2885	2875	2999	3102
Exports	16	27	27	27	27
Apparent Demand	2646	2909	3018	3179	3323
Demand Growth%	11.8%	9.9%	3.7%	5.3%	4.5%

BUILDING BLOCKS (KT)

● Actual ● Estimate

Ethylene	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	7477	7853	8677	8677	9277
Production	7311	7312	6836	7285	7712
Imports	59	77	70	50	90
Exports	118	52	52	0	0
Net Availability	7253	7337	6854	7335	7802

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● Actual ● Estimate

Propylene	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	6614	7071	7502	7779	8052
Production	5835	5908	5735	6104	6465
Imports	27	15	0	0	0
Exports	0	0	0	0	0
Net Availability	5862	5923	5735	6104	6465
Butadiene	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	605	605	605	752	752
Production	505	462	500	513	559
Imports	0	0	0	0	0
Exports	163	150	183	182	208
Apparent Demand	342	312	317	331	351
Demand Growth%	4.6%	-8.8%	1.6%	4.4%	6.0%
Styrene	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Imports	889	1093	1070	1219	1401
Exports	0	0	0	0	0
Apparent Demand	889	1093	1070	1219	1401
Demand Growth%	20.5%	22.9%	-2.1%	13.9%	14.9%
EDC	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	247	247	247	247	247
Production	244	265	265	265	265
Imports	490	525	487	520	520
Exports	0	0	0	0	0
Apparent Demand	734	790	752	785	785
Demand Growth%	2.7%	7.6%	-4.8%	4.4%	0.0%
VCM	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	1031	1031	1031	1031	1031
Production	915	945	900	940	940
Imports	500	545	500	520	525
Exports	0	0	0	0	0
Apparent Demand	1415	1490	1400	1460	1465
Demand Growth%	-4.0%	5.3%	-6.0%	4.3%	0.3%
Aromatics	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
PX					
Capacity	5900	5900	5900	5900	5900
Production	4839	3756	3400	3462	4662
Imports	557	540	852	855	533
Exports	1670	600	213	217	1094
Apparent Demand	3772	3696	4039	4100	4100
Demand Growth%	14.4%	-2.0%	9.3%	1.5%	0.0%



INTERMEDIATES (KT)

● Actual ● Estimate

ACRYLONITRILE	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	0	0	70	70	70
Production	0	0	35	65	65
Imports	176	233	168	190	220
Exports	0	0	0	0	0
Demand	176	233	203	255	285
Demand Growth (%)	30.4%	32.4%	-12.9%	25.6%	11.8%
CAPROLACTAM	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	120	120	120	120	120
Production	107	132	119	108	128
Imports	60	23	21	35	20
Exports	0	0	0	0	0
Demand	167	155	140	143	148
Demand Growth (%)	19.3%	-7.2%	-9.7%	2.1%	3.5%
PTA	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	6440	6440	6440	6568	7193
Production	5616	5645	5734	5846	6136
Imports	1350	1550	1562	1850	2000
Exports	53	2	0	0	0
Apparent Demand	6913	7193	7296	7696	8136
Demand Growth%	24.3%	4.1%	1.4%	5.5%	5.7%
MEG	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2215	2279	2705	2705	2705
Production	1969	1642	1948	2269	2224
Imports	950	1400	1130	975	1200
Exports	27	20	18	20	20
Apparent Demand	2892	3022	3061	3224	3404
Demand Growth%	20.5%	4.5%	1.3%	5.3%	5.6%

POLYMERS (KT)

● Actual ● Estimate

LDPE	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	650	650	650	650	650
Production	583	624	630	630	630
Imports	345	352	486	493	550
Exports	47	48	41	40	40
Apparent Demand	865	889	1035	1043	1100
Demand Growth%	10.5%	2.8%	16.4%	0.8%	5.5%

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● Actual ● Estimate

EVA	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	0	0	0	0	0
Production	0	0	0	0	0
Imports	182	206	224	240	260
Exports	0	0	0	0	0
Apparent Demand	182	206	224	240	260
Demand Growth%	-4.2%	13.2%	8.7%	7.1%	8.3%
LLDPE	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2545	3210	3210	3210	3210
Production	2392	2053	2619	2824	3092
Imports	532	901	959	605	708
Exports	268	102	166	150	100
Apparent Demand	2650	2743	3048	3351	3600
Demand Growth%	5.3%	3.5%	11.1%	9.9%	7.4%
HDPE	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
HDPE Capacity	2665	3365	3365	3365	3365
LLDPE Capacity	2545	3210	3210	3210	3210
Total Capacity	5210	6575	6575	6575	6575
Production	2415	2048	2547	2896	3014
Imports	599	1348	1782	1421	1686
Exports	173	30	130	40	100
Apparent Demand	2933	3318	3759	4221	4500
Demand Growth%	5.7%	13.1%	13.3%	12.3%	6.6%
All PE	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	5860	7225	7225	7225	7225
Production	5390	4725	5796	6350	6736
Imports	1476	2601	3227	2519	2944
Exports	488	180	337	230	240
Apparent Demand	6448	6950	7842	8615	9200
Demand Growth%	6.1%	7.8%	12.8%	9.9%	6.8%
PP	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	6100	6220	6600	6990	7190
Production	5710	5214	5854	6431	6687
Imports	954	1482	1490	1400	1690
Exports	486	296	310	367	390
Apparent Demand	6089	6370	6975	7464	7986
Demand Growth%	13.6%	4.6%	9.5%	7.0%	7.0%

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● Actual ● Estimate

POLYMERS (KT)	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	11960	13445	13825	14215	14415
Production	11100	9939	11650	12781	13423
Imports	2612	4289	4941	4159	4894
Exports	974	476	647	597	630
Apparent Demand	12719	13526	15041	16319	17446
Demand Growth%	9.4%	6.3%	11.2%	8.5%	6.9%
PVC	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	1557	1617	1672	1717	1717
Production	1414	1487	1390	1437	1445
Imports	1433	2248	2700	2990	3280
Exports	19	0	0	0	0
Apparent Demand	2834	3734	4082	4442	4740
Demand Growth%	3.3%	31.8%	9.3%	8.8%	6.7%
PS	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	490	518	400	400	400
Production	240	270	285	330	346
Imports	34	72	70	60	60
Exports	30	23	42	60	60
Apparent Demand	240	314	315	330	346
Demand Growth%	5.7%	30.8%	0.3%	4.8%	4.8%
EPS	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	183	190	262	278	301
Production	103	128	137	147	160
Imports	10	2	1	1	1
Exports	1	2	2	5	8
Apparent Demand	120	128	136	143	151
Demand Growth%	18.8%	6.7%	6.3%	5.1%	5.6%
POLYMERS	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	14190	15770	16159	16610	16833
Production	12857	11824	13462	14695	15374
OR (%)	0.91	0.75	0.83	0.88	0.91
Imports	4089	6611	7712	7210	8235
Exports	1024	501	691	662	698
Net Trade	-3065	-6110	-7021	-6548	-7537
Apparent Demand	15913	17702	19574	21234	22683
Demand Growth%	8.3%	11.2%	10.6%	8.5%	6.8%

VINYLS (KT)

● Actual ● Estimate

PVC	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	1557	1617	1672	1717	1717
Production	1414	1487	1390	1437	1445
Imports	1433	2248	2700	2990	3280
Exports	19	0	0	0	0
Apparent Demand	2834	3734	4082	4442	4740
Demand Growth%	3.3%	31.8%	9.3%	8.8%	6.7%

STYRENICS (KT)

● Actual ● Estimate

PS	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	490	518	400	400	400
Production	240	270	285	330	346
Imports	34	72	70	60	60
Exports	30	23	42	60	60
Apparent Demand	240	314	315	330	346
Demand Growth%	5.7%	30.8%	0.3%	4.8%	4.8%
ABS	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	175	190	190	270	355
Production	135	160	170	210	240
Imports	98	110	122	105	95
Exports	0	0	0	0	0
Apparent Demand	233	270	292	315	335
Demand Growth%	7.9%	15.9%	8.1%	7.9%	6.3%
SAN	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	170	170	175	175	175
Production	111	145	150	155	165
Imports	14	16.3	20	40	60
Exports	0	0	0	0	0
Apparent Demand	125	161	170	195	225
Demand Growth%	8.7%	29.0%	5.4%	14.7%	15.4%

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PET (KT)

● Actual ● Estimate

PET	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2055	2208	2541	2613	2613
Production	1788	2031	1761	2143	1960
Imports	106	113	305	180	100
Exports	711	619	328	500	500
Demand	1182	1525	1730	1900	1620
Demand Growth (%)	5.5%	29.0%	13.4%	9.8%	-14.7%

SYNTHETIC FIBRES (KT)

● Actual ● Estimate

PSF	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2281	2303	2339	2320	2339
Production	1698	1742	1697	1819	1898
Imports	71	95	57	84	88
Exports	392	240	207	223	219
Demand	1377	1598	1547	1679	1767
Demand Growth (%)	12.6%	16.0%	-3.2%	8.6%	5.2%
POY	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	3480	3480	3923	4248	4394
Production	2861	2931	2943	3413	3586
Imports	75	162	250	48	48
Exports	179	86	55	64	66
Demand	2757	3007	3138	3397	3568
Demand Growth (%)	23.7%	9.1%	4.4%	8.3%	5.0%
PTY	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2995	3115	3335	3855	4055
Production	2460	2817	2829	3281	3448
Imports	13	17	50	50	48
Exports	503	338	298	398	400
Demand	1970	2496	2581	2932	3096
Demand Growth (%)	26.0%	26.7%	3.4%	13.6%	5.6%

● Actual ● Estimate

IDY	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	69	69	75	88	88
Production	54	56	61	81	81
Imports	51	50	41	40	55
Exports	10	8	3	8	8
Demand	92	98	98	113	128
Demand Growth (%)	29.6%	6.5%	0.2%	15.5%	13.0%
FDY	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	1259	1313	1389	1462	1539
Production	929	989	1098	1294	1385
Imports	146	215	152	60	60
Exports	25	14	7	8	8
Demand	1033	1194	1244	1346	1437
Demand Growth (%)	50.6%	15.6%	4.1%	8.3%	6.8%

SYNTHETIC RUBBER (KT)

● Actual ● Estimate

PBR	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	135	135	135	135	135
Production	133	126	134	131	136
Imports	96	120	99	116	124
Exports	21	2	4	2	2
Demand	210	243	230	244	257
Demand Growth (%)	4.9%	15.7%	-5.3%	6.2%	5.2%
SBR	2021-22 A	2022-23 A	2023-24 E	2024-25 E	2025-26 E
Capacity	270	270	270	270	270
Production	225	198	234	243	249
Imports	91	94	87	91	103
Exports	11	6	5	3	3
Demand	292	297	315	332	350
Demand Growth (%)	6.7%	2.0%	5.9%	5.4%	5.4%
NBR	2021-22 A	2022-23 A	2023-24 E	2024-25 E	2025-26 E
Capacity	14	15	16	17	18
Production	13	14	16	17	18
Imports	30	37	40	43	45
Exports	0	1	1	1	1
Demand	43	51	55	59	62

● Actual ● Estimate

EPDM	2021-22 A	2022-23 A	2023-24 E	2024-25 E	2025-26 E
Capacity	0	0	0	0	0
Production	0	0	0	0	0
Imports	50	55	66	75	85
Exports	0	0	0	0	0
Demand	50	55	66	75	85
Demand Growth (%)	19.0%	10.0%	20.0%	13.6%	13.3%
BUTYL RUBBER+HALO BUTYL RUBBER	2021-22 A	2022-23 A	2023-24 E	2024-25 E	2025-26 E
Capacity	120	120	120	120	120
Production	56	78	94	114	120
Imports	79	61	60	51	39
Exports	19	17	21	25	13
Demand	115	121	132	139	146
Demand Growth (%)	1.1%	5.3%	9.1%	5.0%	5.0%

OTHER KEY PETROCHEMICALS (KT)

● Actual ● Estimate

Benzene	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	2470	2470	2650	2650	2750
Production	2124	1766	1706	1800	1850
Imports	0	0	0	0	0
Exports	1508	950	986	980	1010
Apparent Demand	720	816	720	820	840
Demand Growth%	20.0%	13.3%	-11.8%	13.9%	2.4%
Toluene	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	175	175	175	175	175
Production	120	100	125	125	125
Imports	510	554	550	550	565
Exports	17	11	15	0	0
Apparent Demand	613	643	660	675	690
Demand Growth%	-6.8%	4.8%	2.7%	2.3%	2.2%
MXS	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	90	90	90	90	90
Production	102	96	98	98	100
Imports	130	140	161	178	195
Exports	0	0	0	0	0
Apparent Demand	218	230	257	275	305
Demand Growth%	-5.9%	5.1%	12.2%	6.7%	11.2%

SURFACTANTS (KT)

● Actual ● Estimate

	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
LAB					
Capacity	550	572	597	597	597
Production	457	400	475	475	495
Imports	273	333	251	270	270
Exports	2	0	0	0	0
Apparent Demand	723	722	730	745	765
Demand Growth%	2.3%	-0.1%	1.1%	2.0%	2.7%
EO	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	303	311	376	380	440
Production	302	310	335	346	395
Imports	0	0	0	0	0
Exports	1	1	1	1	1
Apparent Demand	303	310	335	346	395
Demand Growth%	14.9%	2.3%	8.0%	3.3%	14.2%

CARBON BLACK & CBFS (KT)

● Actual ● Estimate

	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
CBFS					
Capacity	2638	2638	3118	3118	3300
Production	2503	2503	2803	2803	2863
Imports	1746	1842	1932	2074	2100
Exports	42	580	650	430	420
Demand	4207	3765	4085	4447	4543
Demand Growth (%)	10.4%	-10.5%	8.5%	8.9%	2.2%
Carbon Black	2021-22 A	2022-23 A	2023-24 A	2024-25 E	2025-26 E
Capacity	1542	1610	1750	1800	2200
Production	1230	1388	1550	1580	1650
Imports	30	50	50	50	100
Exports	400	380	450	450	400
Demand	1268	1360	1480	1180	1350
Demand Growth (%)	0.3%	7.3%	8.8%	7.8%	14.4%

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Chemicals & Petrochemicals Manufacturers' Association

- ★ CPMA is the apex forum representing the Indian Petrochemical Industry, established in 1993, and the Association offers its members a podium to collectively present their ideas, voice their concerns and offer suggestions on relevant issues. It provides a linkage between the industry, the Government and society. It interacts with policy makers and industry associations to develop and maintain harmonious and conducive business conditions
- ★ The Association, registered under the Indian Societies Act, is widely recognized as one of the national apex bodies of the Indian Petrochemical Industry by all Ministries and Departments of Government of India, apex Chambers of Commerce and Industry and other related Associations in India and abroad. CPMA is affiliated to the Confederation of Indian Industry (CII). The Association is also a Steering Committee Member of the Asia Petrochemical Industry Conference (APIC) and had successfully hosted the annual APIC 2010 conference in Mumbai. APIC 2023 Conference was held on 18th -19th May, in New Delhi, after 13 years. The Conference was a grand success with more than 900+ international and national delegates attending the conference.
- ★ CPMA has various sub-committees constituted to effectively focus on key areas within petrochemicals like Polyolefins, Vinyl's, Styrenics, Glycols, Elastomers, Fibre Intermediates and Surfactants. CPMA has also taken the lead to set up and promote the India Centre for Plastics in the Environment (ICPE) to deal with all environmental issues connected with the usage of plastics.

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