

Industry Research Report on Inorganic Chemicals Industry

10th August 2026

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1. Economic Outlook

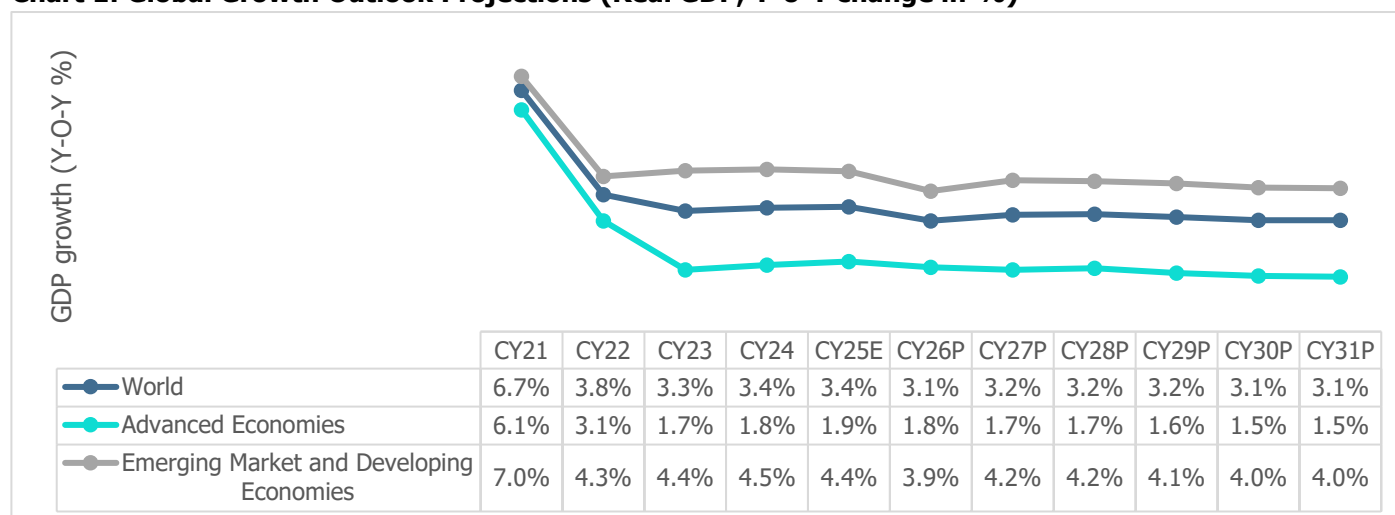
1.1 Global Economy

Global Economic Growth Expected to Sustain at ~3% in Near Term

Global economic growth is projected to moderate to around 3.1% in 2026, reflecting the impact of geopolitical tensions in energy and trade flows. The ongoing Middle East conflict poses downside risks with prolonged disruptions, potentially reducing growth further to 2.5%, or lower.

However, supportive factors such as continued investment momentum and policy support are helping offset some of these pressures.

Chart 1: Global Growth Outlook Projections (Real GDP, Y-o-Y change in %)



Source: IMF – World Economic Outlook, July 2026; Notes: P-Projection

Table 1: GDP growth trend comparison - India v/s Other Economies (Real GDP, Y-o-Y change in %)

	Real GDP (Y-o-Y Change in %)										
	CY21	CY22	CY23	CY24	CY25E	CY26P	CY27P	CY28P	CY29P	CY30P	CY31P
India	9.7	7.6	7.2	7.1	7.6	6.5	6.5	6.5	6.5	6.5	6.5
China	8.6	3.1	5.4	5.0	5.0	4.4	4.0	4.0	3.7	3.3	3.3
Indonesia	3.7	5.3	5.0	5.0	5.1	5.0	5.1	5.2	5.2	5.2	5.2
Saudi Arabia	6.5	12.0	0.5	2.6	4.5	3.1	4.5	3.6	3.5	3.5	3.6
Middle East and Central Asia	4.7	6.4	2.6	2.8	3.6	1.9	4.6	4.0	4.0	3.8	3.8
Latin America	7.5	4.3	2.3	2.4	2.4	2.3	2.7	2.9	2.9	2.7	2.6
Brazil	4.8	3.0	3.2	3.4	2.3	1.9	2.0	2.4	2.5	2.5	2.5
Euro Area	6.4	3.6	0.4	0.9	1.4	1.1	1.2	1.4	1.2	1.1	1.1
United States	6.2	2.5	2.9	2.8	2.1	2.3	2.1	2.1	1.9	1.8	1.8

Source: IMF- World Economic Outlook Database (July 2026)

Note: P- Projections E-Estimated; India's fiscal year (FY) aligns with the IMF's calendar year (CY). For instance, FY24 corresponds to CY23.

1.1.1 Iran Conflict: A Bottleneck in Chemical and Pharma Industries' Supply Chain of India

The geopolitical tensions surrounding the Iran conflict in West Asia have increased uncertainty in global supply chains and trade networks, thereby influencing India's economic and strategic outlook. Although recent progress towards a ceasefire agreement has reduced immediate concerns, risks associated with trade logistics, shipping costs, and regional stability continue to persist.

Iran and the broader West Asian region continue to be important markets for several Indian exports, including pharmaceuticals, basmati rice, tea, sugar, and other consumer goods. Consequently, disruptions to trade routes, payment mechanisms, or regional demand can affect export volumes and business operations for Indian companies engaged in these markets. At the same time, the evolving geopolitical environment presents potential opportunities for India.

Overall, while recent signs of de-escalation have reduced immediate risks, continued uncertainty in West Asia warrants close monitoring due to its potential implications for India's chemical, pharmaceutical, and export-oriented industries.

1.2 Indian Economic Outlook

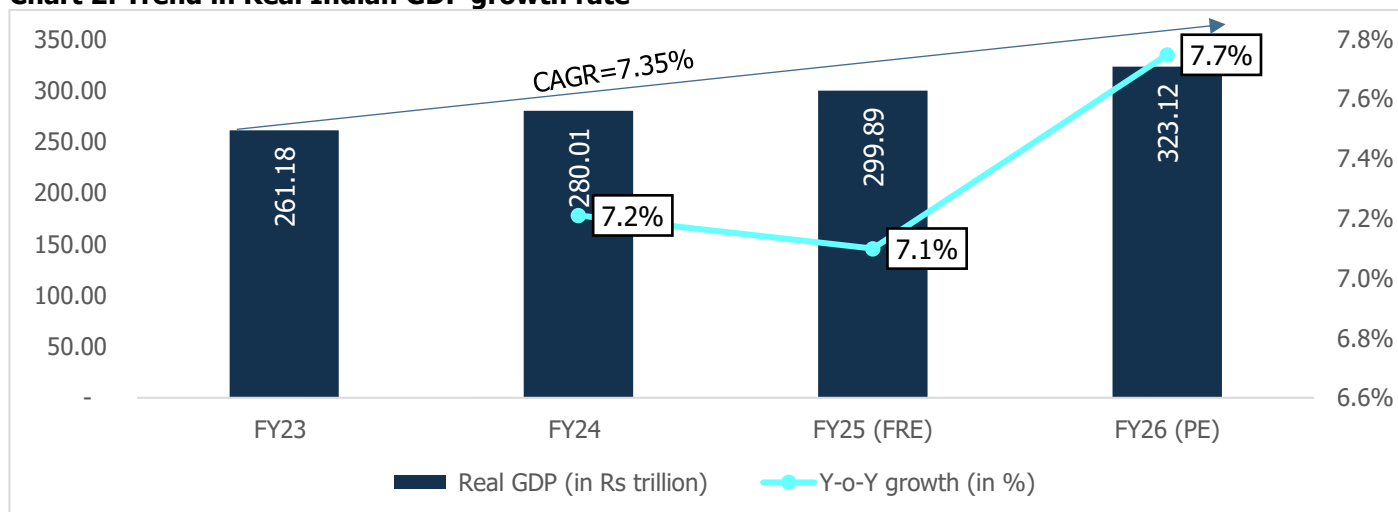
1.2.1 GDP Growth and Outlook

Resilience to External Shocks remains Critical for Near-Term Outlook

India's economy continues to show rapid growth. As per Provisional Estimates, GDP in FY26 is expected to have grown by 7.7%, supported by rising rural demand, better job opportunities and favourable business conditions.

For FY25, First Revised Estimates show a growth of 7.1% (Rs 299.89 trillion), led by robust performance in manufacturing, construction and financial services. Consumer spending rose by 7.7%, and government spending increased by 5.5%, both contributing to the overall growth. In FY23, the real GDP stood at Rs 261.18 trillion and registered Y-o-Y growth of 7.2% in FY24 (Rs 280.01 trillion).

Chart 2: Trend in Real Indian GDP growth rate



Source: MOSPI, Reserve Bank of India.

Note: FRE- First Revised Estimates, PE – Provisional Estimates

GDP Growth Outlook (June 2026)

FY27 GDP Outlook: The Reserve Bank of India (RBI) projects real GDP growth at 6.6% for 2026–27, supported by sustained momentum in the services sector, strong reservoir levels aiding the agricultural sector, and private consumption expected to remain uplifted by discretionary spending.

However, elevated energy and other commodity prices, cost pressures, as well as the travel disruptions in the Strait of Hormuz are likely to affect the growth this year. However, the government is working towards minimising the impact of the supply chain disruptions towards critical sectors to ensure limited interruptions.

Table 2: RBI's GDP Growth Outlook (Y-o-Y %)

FY27P (Complete Year)	Q1FY27P	Q2FY27P	Q3FY27P	Q4FY27P
6.6%	6.6%	6.3%	6.5%	6.8%

Source: RBI; Note: P-Projected

The trend for FY23-FY26 is based on new series base year 2022-23.

1.2.2 Gross Value Added (GVA)

GVA is the measure of the value of goods and services produced in an economy. GVA gives a picture of the supply side whereas GDP represents consumption. GVA in FY25 was powered by a broad-based rebound across sectors.

In FY26 (PE), real GVA growth of 7.9% is primarily led by manufacturing, Trade, Hotels, Transport, Communication & Services related to Broadcasting, Storage. Industry is estimated at 8.5%, supported by a pickup in manufacturing and construction (10.7% and 7.4% respectively). The gap between GDP and GVA growth stood at 0.2 percentage point in FY26, with GDP growing at 7.7% and GVA at 7.9%.

Table 3: Sectoral Growth (Y-o-Y % Growth) – at Constant Prices

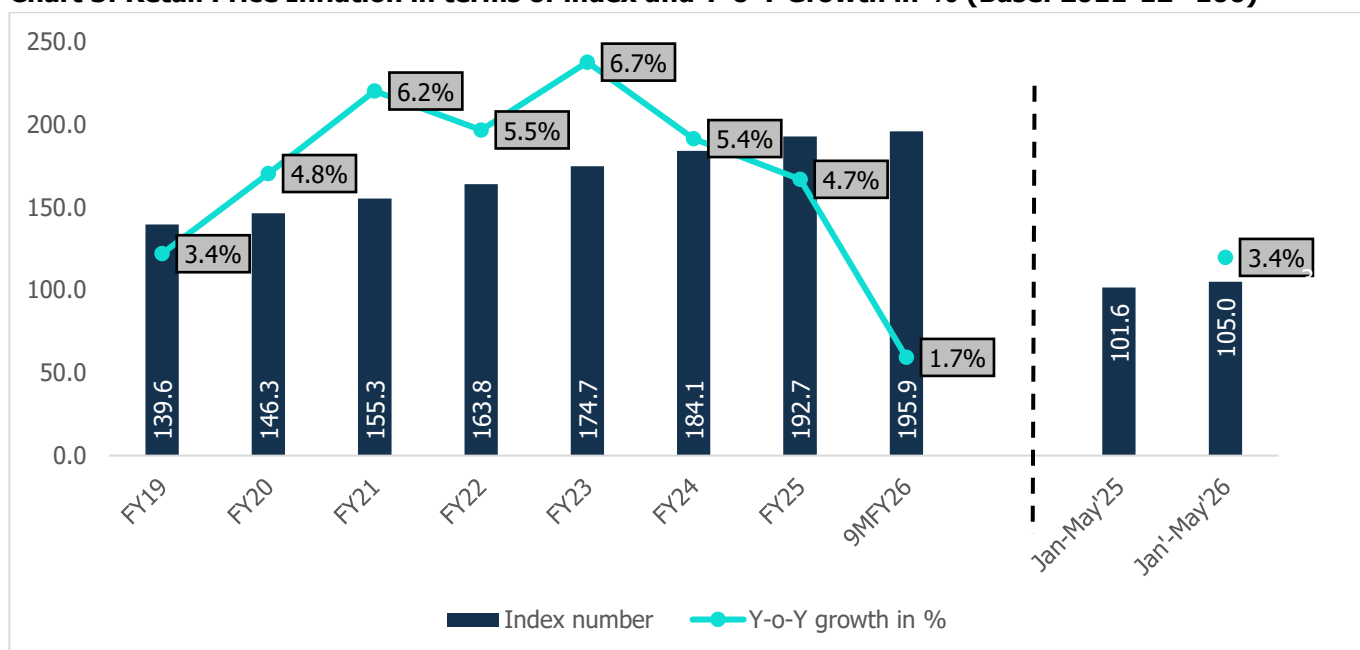
At constant Prices	FY24	FY25 (FRE)	FY26 (PE)
Agriculture, Forestry & Fishing	2.6	4.2	3.0
Industry	10.9	8.3	8.5
Mining & Quarrying	2.4	11.7	5.2
Manufacturing	12.7	9.3	10.7
Electricity, Gas, Water Supply & Other Utility Services	10.7	2.9	1.7
Construction	9.9	7.3	7.4
Services	7.0	7.9	9.3
Trade, Hotels, Transport, Communication & Broadcasting	10.1	6.6	11.0
Financial, Real Estate & Professional Services	5.5	10.0	10.4
Public Administration, Defence and Other Services	6.8	5.0	5.0
GVA at Basic Price	7.2	7.3	7.9

Source: MOSPI; Note: SAE – Second Advance Estimates, FE – Final Estimates, PE- Provisional Estimates

1.2.3 Consumer Price Index

Between January and May 2026, inflation followed a steady yet modest path, averaging 3.2% across the Consumer Price Index. By April, the year-on-year rise sharpened slightly, reaching 3.48% compared to the same month in 2025. Within this, the rural inflation rate stood at 3.8%, while the urban inflation rate was comparatively lower at 3.2%. This indicates an overall modest inflationary trend, with rural areas experiencing relatively higher price pressures than urban regions.

Chart 3: Retail Price Inflation in terms of index and Y-o-Y Growth in % (Base: 2011-12=100)



Source: MOSPI

The CPI is primarily factored in by the RBI while preparing their bi-monthly monetary policy. At the bi-monthly meeting held in June 2026, RBI projected inflation at 5.1% for FY27 with inflation during Q1FY27 at 4.2%, Q2FY27 at 5.1%, Q3FY27 at 5.9% and Q4FY27 at 5.4%.

Considering the current inflation situation, RBI has maintained the repo rate at 5.25% in the June 2026 meeting of the Monetary Policy Committee (MPC).

1.2.4 Trends in Per Capita State Domestic Product (SDP)

SDP is the total value of goods and services produced during any financial year, within the geographical boundaries of a state. The top best performing states on per capita SDP include Gujarat, Karnataka and Tamil Nadu, due to their strong industrial and services base, higher urbanisation, better infrastructure and greater investment inflows leading to higher income generation.

As of FY26, major states having a per capita SDP below national average include Rajasthan and Madhya Pradesh growing Y-o-Y by 7.76% and 6.99% respectively. Bihar is the poorest performing state with a per capita SDP of Rs 38,878 in FY26. It has consistently been performing the poorest since FY18, growing merely at a CAGR of 4.8% from FY18 to FY26. Bihar's poor performance is due to factors such as a high population base, lower levels of industrialisation,

infrastructure gaps, lower human capital development and higher dependence on agriculture together limiting productivity and income growth.

Table 4: Per Capita SDP for Key States (at constant prices, in Rs.)

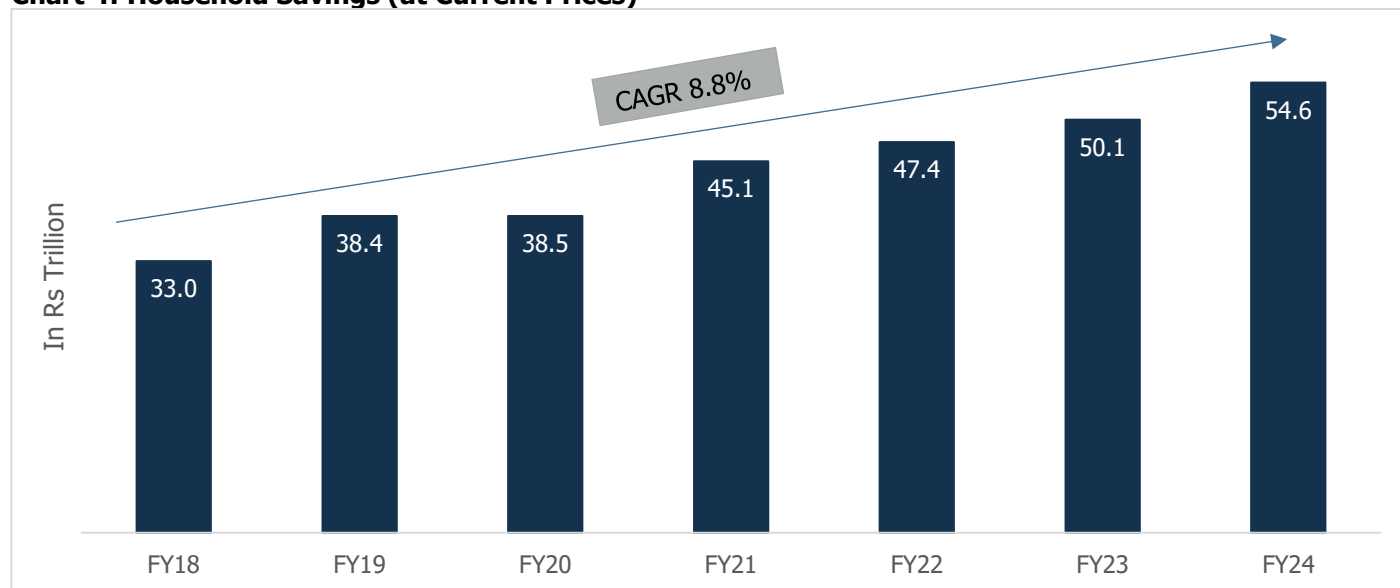
State\UT	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Andhra Pradesh	103,177	108,853	110,587	110,971	118,349	123,707	131,449	141,847	155,412
Bihar	26,719	29,092	29,798	26,839	27,674	30,678	33,968	36,264	38,878
Gujarat	143,604	154,887	164,060	156,285	170,519	182,527	196,541	208,895	224,654
Karnataka	140,747	149,024	156,478	149,578	163,999	181,487	195,448	208,397	223,866
Madhya Pradesh	54,824	59,005	60,452	56,037	61,011	63,852	68,014	71,945	76,971
Maharashtra	137,808	140,782	145,626	127,550	141,651	157,504	170,468	181,580	194,403
Rajasthan	73,529	73,975	76,840	73,447	79,490	83,561	88,868	95,762	103,189
Tamil Nadu	133,029	141,844	144,845	143,482	154,269	163,205	178,496	197,747	218,481
Uttar Pradesh	42,876	43,454	44,265	40,959	45,303	48,014	52,651	57,685	NA
Delhi	252,960	257,597	260,559	228,162	239,821	252,930	272,950	285,207	NA

Source: MOSPI

1.2.5 Household Savings' Shifting Focus from Physical Assets to Financial Assets

Household savings are of the household sector, measured as its excess of income over consumption and invested in financial assets and physical assets. Household savings in India have grown at an 8.8% CAGR since FY18, reaching Rs 54.6 trillion in FY24, a 8.8% Y-o-Y increase. A shift toward physical assets, particularly housing and gold/silver ornaments, reflects a preference for tangible investments amid high inflation and slow growth in monetary assets. Savings in the form of gold and silver ornaments (% of Household sector savings) was reported at 1.2% in FY24.

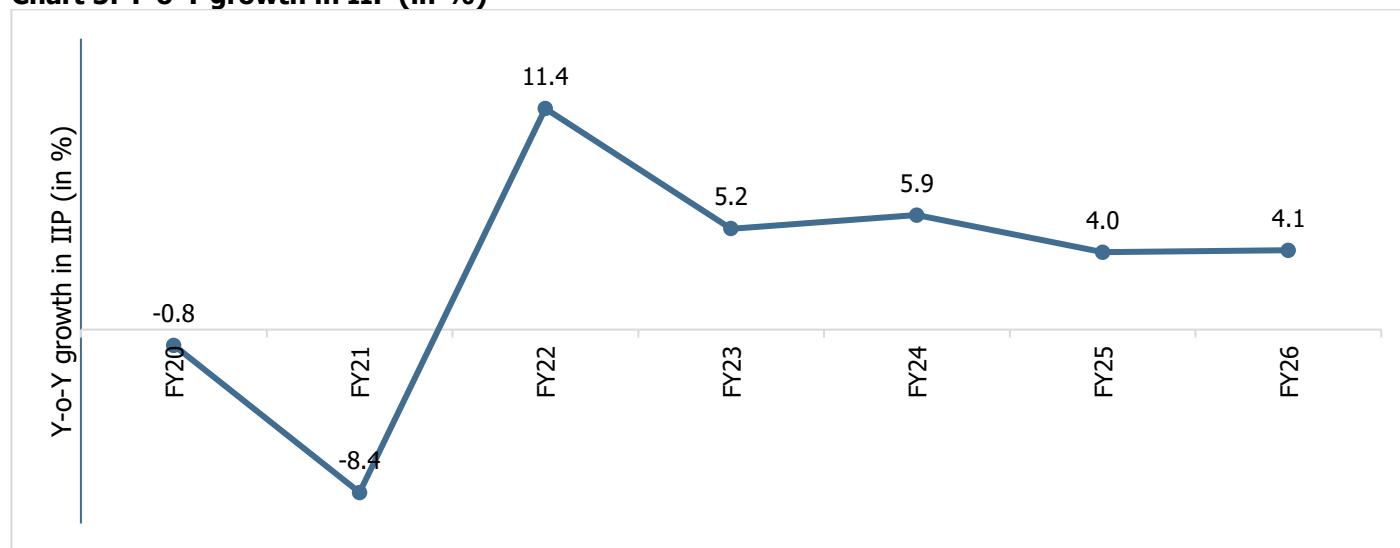
This increasing trend towards physical assets is occurring alongside a rise in household leverage, with borrowing, especially for housing, automobiles, and personal consumption, pushing household financial liabilities to a six-year high. As mutual funds and life insurance also grew, with an 11.5% and 13.6% Y-o-Y increase respectively, investment in equities and capital market instruments rose as they offer higher returns than bank deposits.

Chart 4: Household Savings (at Current Prices)


Source: MOSPI

1.2.6 Industrial Growth

The Index of Industrial Production (IIP) in India grew by 4.1% year-on-year in March 2026, showing steady but moderate industrial momentum, with mining (5.5%) and manufacturing (4.3%) driving growth, while electricity lagged at just 0.8%.

Chart 5: Y-o-Y growth in IIP (in %)


Source: MOSPI

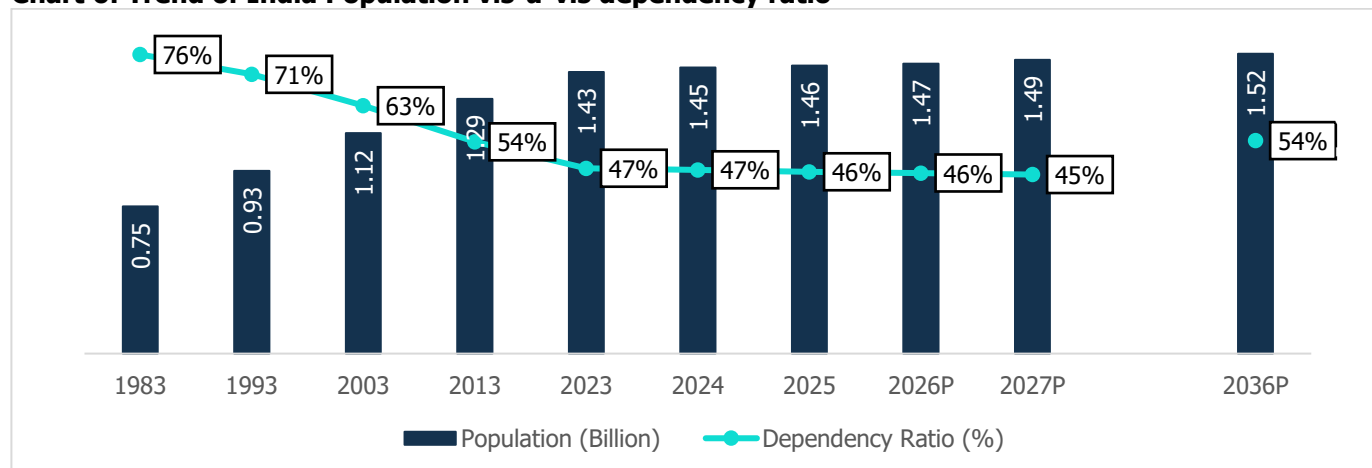
1.2.7 Overview of Key Demographic Parameters

- **Population growth and Urbanization**

The trajectory of economic growth and private consumption in India is driven by socio-economic factors such as demographics and urbanisation. According to the World Bank, India's population in CY22 surpassed 1.42 billion, slightly higher than China's population (1.41 billion) and became the most populous country in the world.

The Age Dependency Ratio, which is the ratio of dependents to the working age population has been on a declining trend. The ratio covers age 15 to 64 years, wherein dependents are population younger than 15 and older than 64. Declining dependency ratio indicates that the country has an improving share of working-age population generating income, which is a good sign for the economy. It was as high as 76% in 1983, which has reduced to 47% in CY23. However, this ratio is expected to rise again to 54% by CY36, driven by an increase in the elderly population as life expectancy improves.

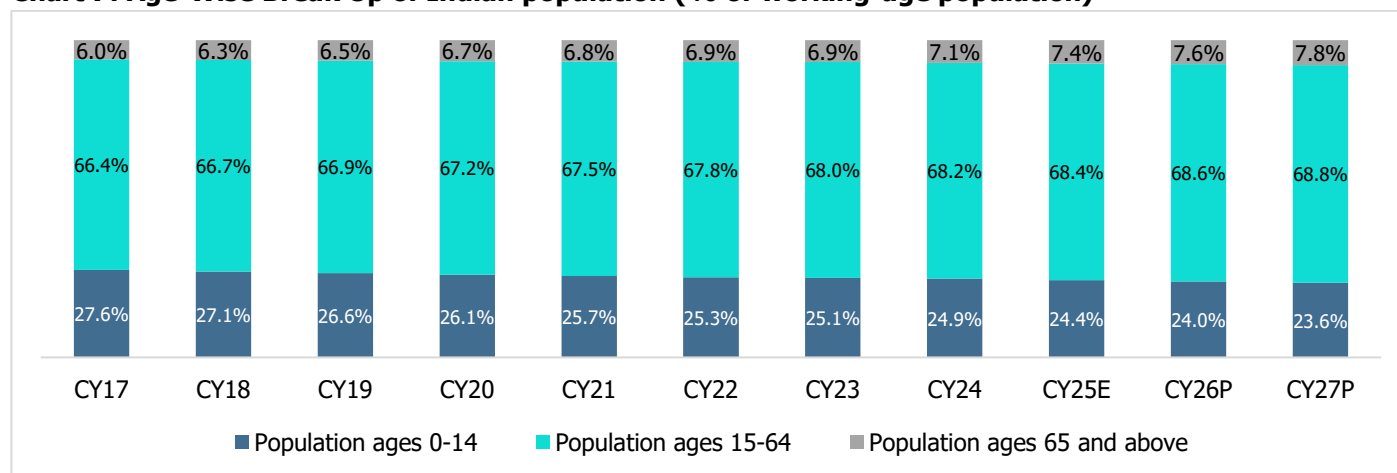
Chart 6: Trend of India Population vis-à-vis dependency ratio



Source: World Bank Database

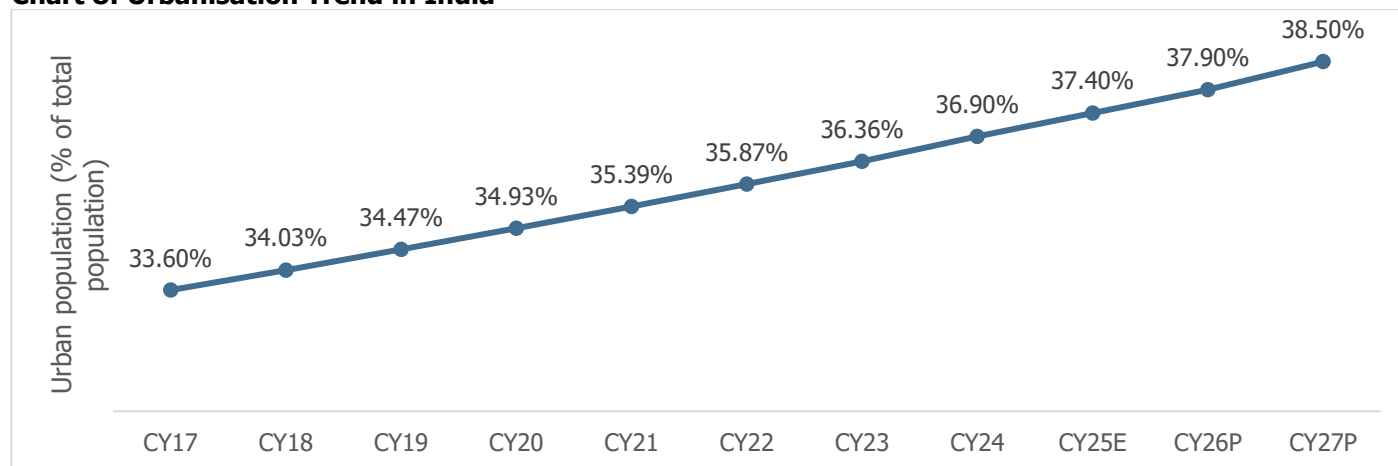
Despite a projected rise in the dependency ratio to 54% by CY36, India's young and growing workforce, especially in newly urbanised towns, will continue to drive income growth and consumer demand. This presents strong opportunities for sectors like consumer electronics, transportation and railways. Rising employment, urbanisation, and government investment in rural development and digital infrastructure will further boost demand, while increased tech adoption supports long-term consumption growth across both urban and rural markets.

Chart 7: Age-Wise Break Up of Indian population (% of working-age population)



Source: World Bank Database

The urban population is significantly growing in India. The urban population in India is estimated to have increased from 413 million (32% of total population) in CY13 to 519.5 million (36.4% of total population) in the year CY23. This shift is driven by factors such as improved living standards, increased employment opportunities in urban areas and government initiatives aimed at urban development. This rapid urbanisation might necessitate substantial investments in infrastructure, housing and transportation.

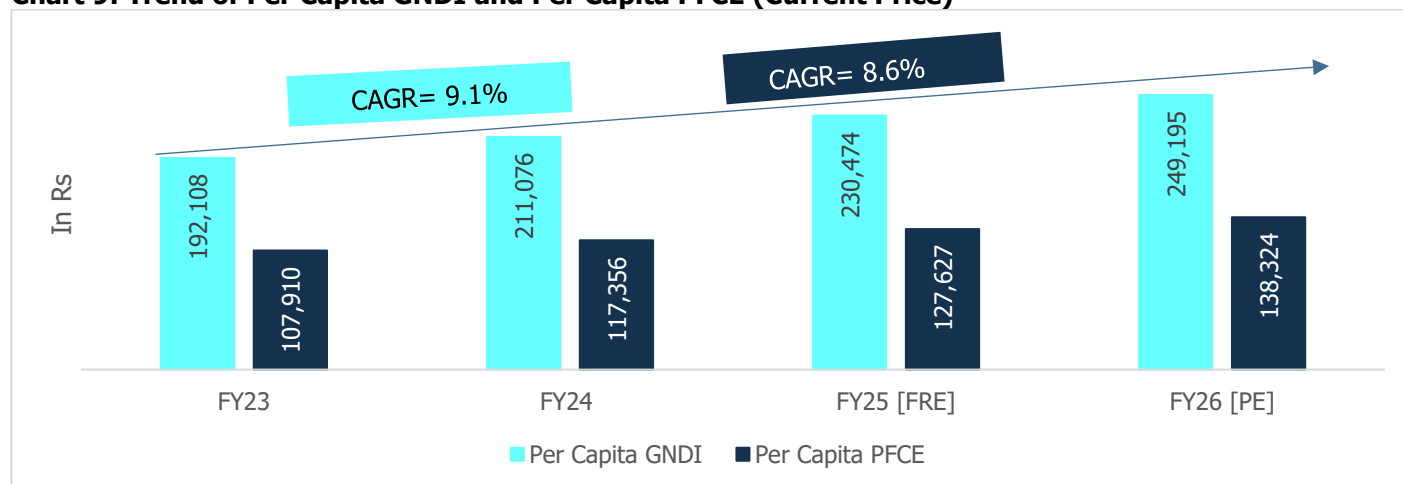
Chart 8: Urbanisation Trend in India


Source: World Bank Database

• Increasing Disposable Income and Consumer Spending

Gross National Disposable Income (GNDI) is a measure of the income available to the nation for final consumption and gross savings. Between the period FY23 to FY26, per capita GNDI at current prices registered a CAGR of 9.1%. More disposable income drives more consumption, thereby driving economic growth.

With increase in disposable income, there has been a gradual change in consumer spending behaviour of the country. Per capita Private Final Consumption Expenditure (PFCE), which is measure of consumer spending, has also shown significant growth from FY23 to FY26 at a CAGR of 8.6%.

Chart 9: Trend of Per Capita GNDI and Per Capita PFCE (Current Price)


Source: MOSPI; Note: FRE – First Revised Estimates, FE – Final Estimate

1.2.8 Concluding Remarks

Global economic growth faces headwinds from geopolitical tensions, volatile commodity prices, high interest rates, inflation, financial market volatility, climate change and rising public debt. The IMF forecasts GDP growth for India at 6.5% in CY26, far outpacing the estimated CY26 global average of 3.1%. Key drivers include strong domestic demand, government capital expenditure and moderating inflation.

The health sector in India has witnessed significant investments in recent years, driven largely by the need to strengthen infrastructure in response to the COVID-19 pandemic. While expenditures saw a decline post COVID-19 pandemic, the projected increase in future capital expenditure reflects a renewed focus on addressing growing healthcare demands and long-term reforms. Continued investment in healthcare infrastructure will be crucial for ensuring equitable access to quality healthcare and sustaining overall economic growth.

Further, India's position as a manufacturing hub is strengthened by government initiatives, a skilled workforce and a growing startup ecosystem, with ongoing reforms and innovation enhancing its global role. Key growth indicators like the PMI, E-way bills, bank credit, toll collections, and GST collections have shown growth in FY27. India's economic growth in FY27 is expected to be supported by strong growth in agriculture, industrial expansion and a surge in services exports. Key indicators point to sustained growth driven by improved infrastructure, private consumption and foreign investments. Normalising the employment situation after opening of the economy is supporting consumption expenditure. Public investment is set to grow with a Rs 12.20 lakh crore capital expenditure allocation for FY27. Private sector investment is also rising, supported by new project data and capital goods imports.

A below-normal monsoon and potential El Niño conditions may contribute to higher inflation and logistics costs, which could increase operating expenses for pharmaceutical companies. However, the sector's essential nature, stable demand profile, and diversified sourcing capabilities are expected to limit the overall impact on industry growth.

As of June 2026, India-US trade negotiations are ongoing, and the final Bilateral Trade Agreement (BTA) has not yet been concluded. In February 2026, both countries announced a framework for an Interim Agreement aimed at promoting reciprocal and mutually beneficial trade. Under this framework, the United States proposed an 18% reciprocal tariff rate on Indian goods, while also indicating the possible removal of tariffs on sectors such as generic pharmaceuticals, gems and diamonds, aircraft parts and certain engineering products, subject to finalisation of the agreement.

India continues to strengthen its position through diversification of trade partnerships and expansion of FTAs with the EU, UK, EFTA and other economies. This, along with India's growing manufacturing capacity and supply-chain integration, supports its competitiveness in sectors such as electronics, textiles, pharmaceuticals and auto components.

A ceasefire agreement between the US and Iran is expected to be finalized soon; however, a permanent truce between the two remains uncertain. The Iran conflict has led to an increase in input and freight costs for the chemical and pharma industry due to higher oil prices and disrupted supply chains. It is also delaying imports of key raw materials, leading to production slowdowns and higher medicine costs. Overall, this is leading to supply shortages, rising costs, and production slowdowns in India's chemical and pharma sectors, with the impact likely to worsen if the conflict continues. Prolonged geopolitical tensions or conflict in the region could lead to sustained increases in crude oil and LPG prices, which may translate into higher input costs across industries and contribute to inflationary pressures in the Indian economy.

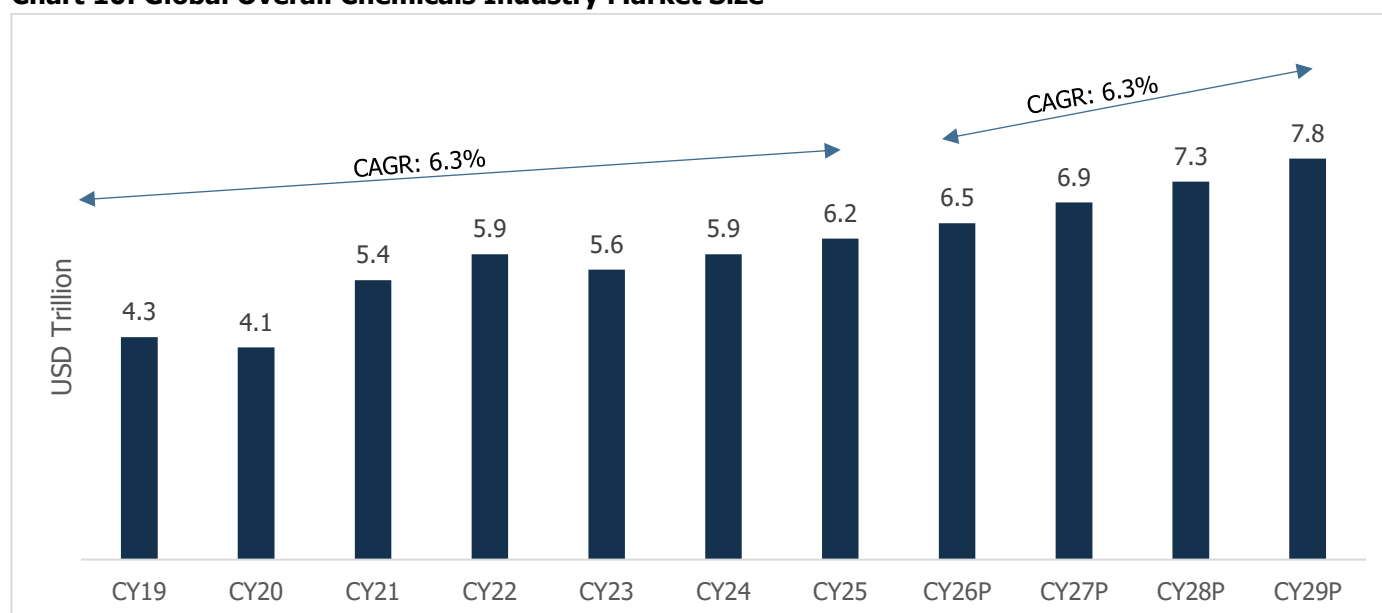
2. Global Chemical Industry

2.1 Industry Overview

Overview and market size

The global chemicals industry has demonstrated steady long-term growth, expanding from USD 4.3 trillion in CY19 to USD 6.2 trillion in CY25, driven by increasing industrialization, rising demand from end-use sectors such as construction, automotive, agriculture, healthcare, and consumer goods, along with growing investments in specialty and sustainable chemicals. The market has reached USD 6.2 trillion in CY25 and is projected to further grow to USD 7.8 trillion by CY29, supported by accelerating demand for high-performance materials, green chemistry solutions, digitalization of manufacturing, and capacity expansions across emerging economies. Despite periodic fluctuations due to supply chain disruptions and macroeconomic uncertainties, the industry is expected to maintain a stable growth trajectory over the medium term.

Chart 10: Global Overall Chemicals Industry Market Size

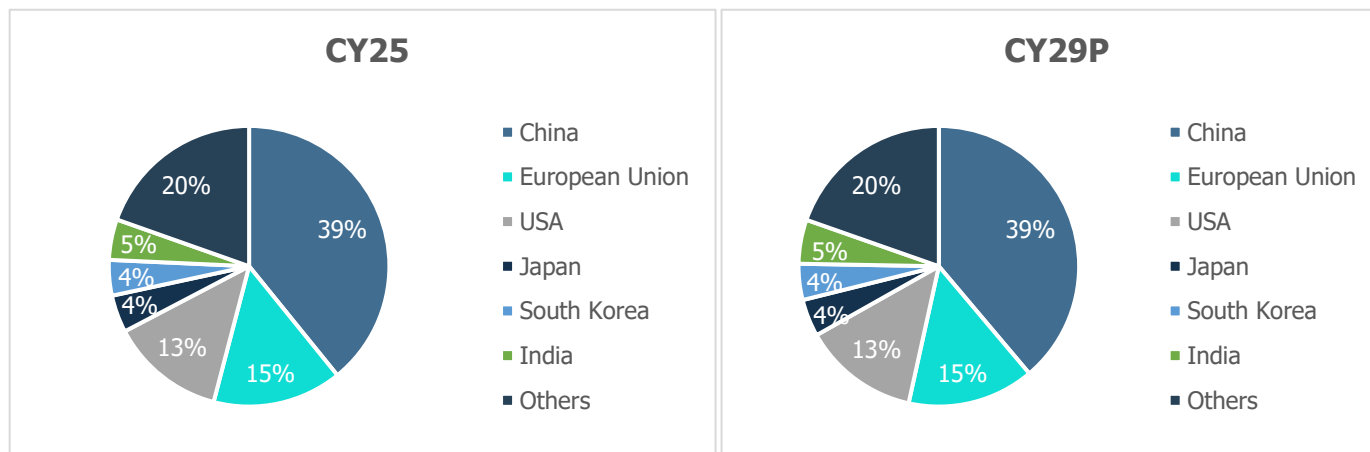


Source: CEFIC, CareEdge Research & Analysis; P: Projected

2.2 Global Chemicals Market by Geography

China is expected to maintain its dominant position in the global chemicals industry through 2029, though with a marginal dip from 39.2% to 38.8%, indicating gradual diversification in global sourcing. The European Union and the U.S. show relative stability, but with limited growth, suggesting mature markets with slower expansion rates. In contrast, India's share is projected to rise from 4.7% to 5.1%, signalling its growing competitiveness and capacity buildup, possibly driven by policy support and a shift in global supply chains. South Korea also shows slight improvement, reinforcing its position in high-value specialty chemicals.

Chart 11: Global Chemicals Market by Geography



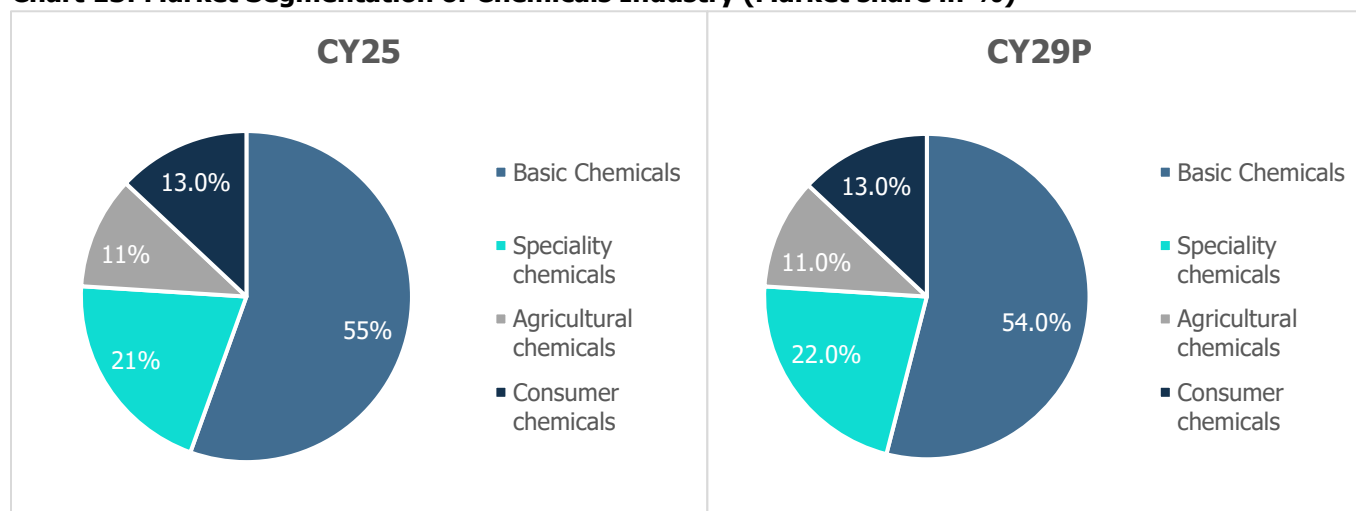
Source: CareEdge Research

2.3 Market Segmentation of the Chemicals Industry

The chemical industry is broadly segmented into the following key categories:

Chart 12: Chemicals Industry Market Segmentation



Chart 13: Market Segmentation of Chemicals Industry (Market share in %)

Source: CareEdge Research & Analysis

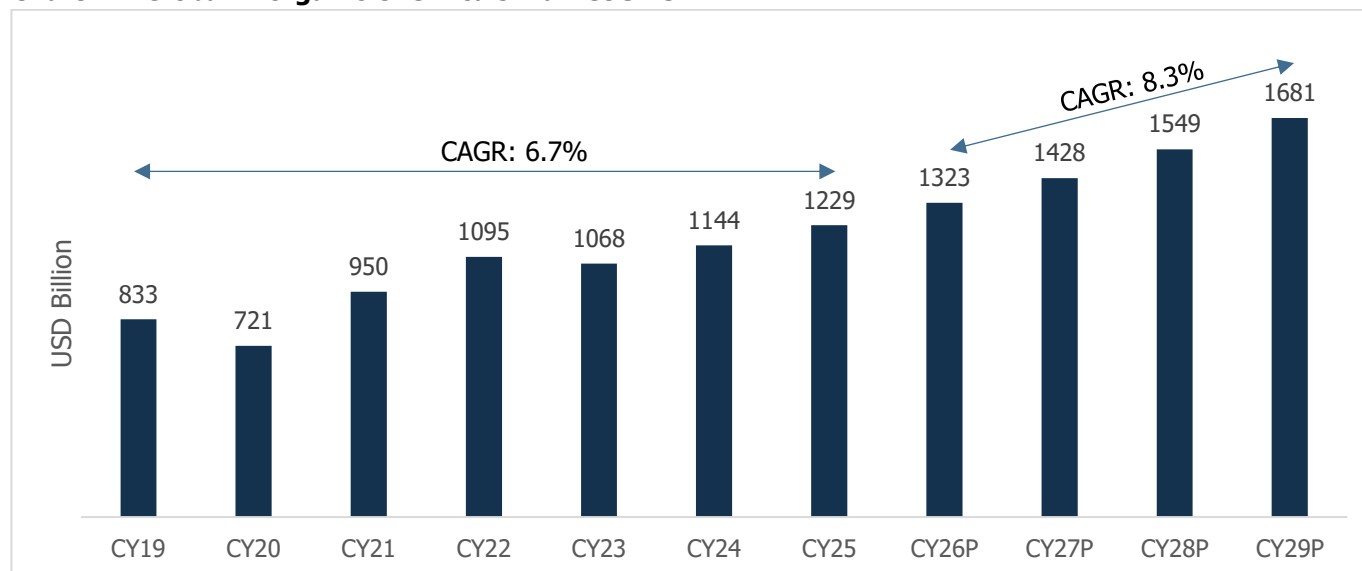
- 1. Basic Chemicals:** Basic chemicals form the foundation of the global chemical industry, representing the largest market share. In CY25, they account for around 55% of the market, with a projected moderation to 53–55% by CY29 as higher-value segments expand at a faster pace. This category covers bulk petrochemicals (such as ethylene and propylene), intermediates, and a broad range of inorganic chemicals including sulphuric acid, soda ash, caustic soda, chlorine, and other sulphur-based compounds. These serve as critical feedstocks for downstream applications across fertilizers, water treatment, pulp & paper, textiles, and metallurgy. While basic chemicals are volume-driven and cyclical in nature, the inorganic segment remains particularly vital given its extensive use in industrial processes. Furthermore, energy transition policies and the expansion of cost-competitive capacities continue to reinforce the role of basic chemicals in the industrial ecosystem.
- 2. Specialty Chemicals:** Known for their tailored and application-specific functionalities, specialty chemicals represent 21% of the market in CY25, with growth expected to reach 21–23% by CY29. These chemicals include categories such as coatings, adhesives, construction chemicals, surfactants, textile auxiliaries, and active ingredients. The segment is witnessing rising demand due to the shift toward higher performance, environmentally compliant, and customized solutions, particularly from end-user industries like pharma, personal care, automotive, and electronics. Innovation, IP-driven formulations, and customer stickiness make this the most profitable and fastest-growing segment in India's chemical industry.
- 3. Agricultural Chemicals:** This segment includes fertilizers, crop protection chemicals (insecticides, herbicides, fungicides), micronutrients, and plant growth regulators, at 11% of the market share in CY25, with a projected range of 10–12% by CY29. The minor decline in share reflects a gradual pivot toward integrated pest management, organic farming, and sustainable agriculture. Nevertheless, India remains a net exporter of agrochemicals, and domestic demand is underpinned by increasing cropping intensity, rising foodgrain demand, and policy support. Some sulphur-based compounds like elemental sulphur, sulphur dust, and sulphur micronutrients are key inputs in fungicides and soil enrichment formulations, especially for oilseeds and pulses.
- 4. Consumer Chemicals:** These include products such as detergents, cosmetics, personal hygiene products, oral care items, and household cleaning agents, contributing 13% of the market share in CY25, expected to grow modestly to 12–14% by CY29. Growth is driven by urbanization, rising disposable incomes, changing consumption

patterns, and increasing awareness around hygiene and personal care. This segment is evolving with the emergence of natural, bio-based, and dermatologically safe ingredients, pushing chemical manufacturers to develop mild surfactants, fragrance compounds, and specialty preservatives tailored for health-conscious consumers.

2.4 Global Inorganic Chemicals Market Size

The global inorganic chemicals market expanded from USD 833 billion in CY19 to USD 1,229 billion in CY25, driven by rising demand from key end-use industries such as construction, chemicals, agriculture, water treatment, electronics, and manufacturing. While the market witnessed a temporary decline to USD 721 billion in CY20 due to disruptions caused by the COVID-19 pandemic, it recovered strongly in subsequent years, supported by industrial reopening, infrastructure investments, and increasing consumption of essential chemicals including chlor-alkali products, soda ash, industrial gases, and inorganic salts. The market has reached USD 1,229 billion in CY25 and is projected to grow further to USD 1,681 billion by CY29, underpinned by sustained industrialization in emerging economies, expanding demand for batteries and semiconductors, growing water treatment requirements, and the global transition towards clean energy and advanced manufacturing.

Chart 14: Global Inorganic Chemicals Market Size



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

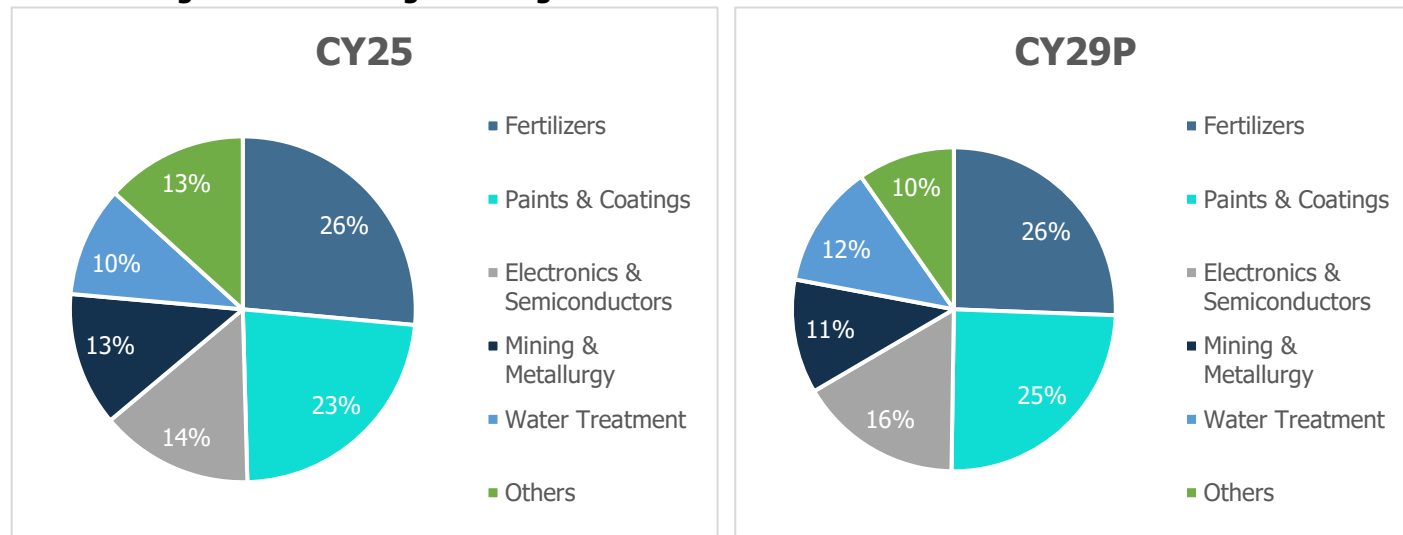
2.5 Global Segmental End-use of Inorganic Chemicals

The global end-use distribution of inorganic chemicals is expected to remain relatively stable between CY25 and CY29, with subtle shifts across key industrial segments. Fertilizers continue to dominate demand, maintaining a consistent 26% share until CY29. This underscores the sustained reliance on inorganic compounds such as nitrogen-based salts and phosphates in global agricultural practices, especially across developing economies.

The paints and coatings segment are expected to see a modest rise in share from 23% in CY25 to 25% by CY29 driven by ongoing expansion in infrastructure, automotive manufacturing, and protective coatings. Meanwhile, electronics and semiconductors are also poised for growth, with their share increasing from 14% to 16%, supported by rising semiconductor fabrication and investments in clean energy technologies that require specialty inorganic materials.

In contrast, mining and metallurgy and others show a slight decline in share, reflecting slower relative growth in traditional heavy industries. Water treatment, however, is expected to grow modestly, increasing its share from 10% to 12%, as global focus intensifies on sustainability and industrial water reuse.

Chart 15: Segmental end-usage of Inorganic Chemicals



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

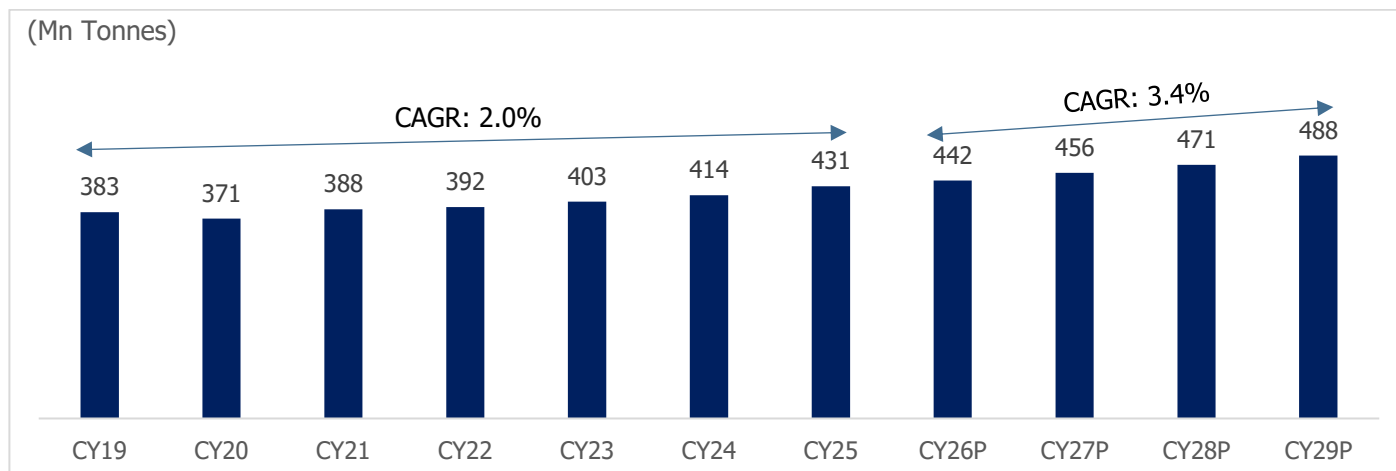
2.6 Global Inorganic Chemicals Consumption Trend

Global consumption of inorganic chemicals is expected to grow at a CAGR of 3.4% from 442 million tonnes in CY26 to 488 million tonnes in CY29, reflecting steady industrial demand across key end-use sectors. After a marginal dip in CY20 due to COVID-19-induced disruptions, the segment rebounded in CY21 and has since exhibited a consistent upward trajectory.

This growth is primarily underpinned by expanding demand in fertilizers, water treatment, construction, textiles, and mining, where sulphuric acid, chlorine, soda ash, and other inorganic compounds serve as critical inputs. The forecasted acceleration beyond CY25 suggests rising investments in infrastructure, clean energy transitions (e.g., solar PV glass and batteries), and stricter environmental regulations, which in turn boost usage of treatment chemicals and advanced inorganics.

Moreover, growth in emerging economies especially across Asia-Pacific is expected to drive incremental consumption, supported by strong manufacturing and industrial output. Despite being a mature segment, inorganic chemicals continue to play an indispensable role in global industrial value chains, ensuring long-term volume stability.

Chart 16: Global Inorganic Chemicals Consumption Trend



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

2.7 Country-wise growth of Inorganic Chemicals

The global inorganic chemicals industry is witnessing a shift in growth patterns, with emerging economies increasingly driving demand and capacity expansion.

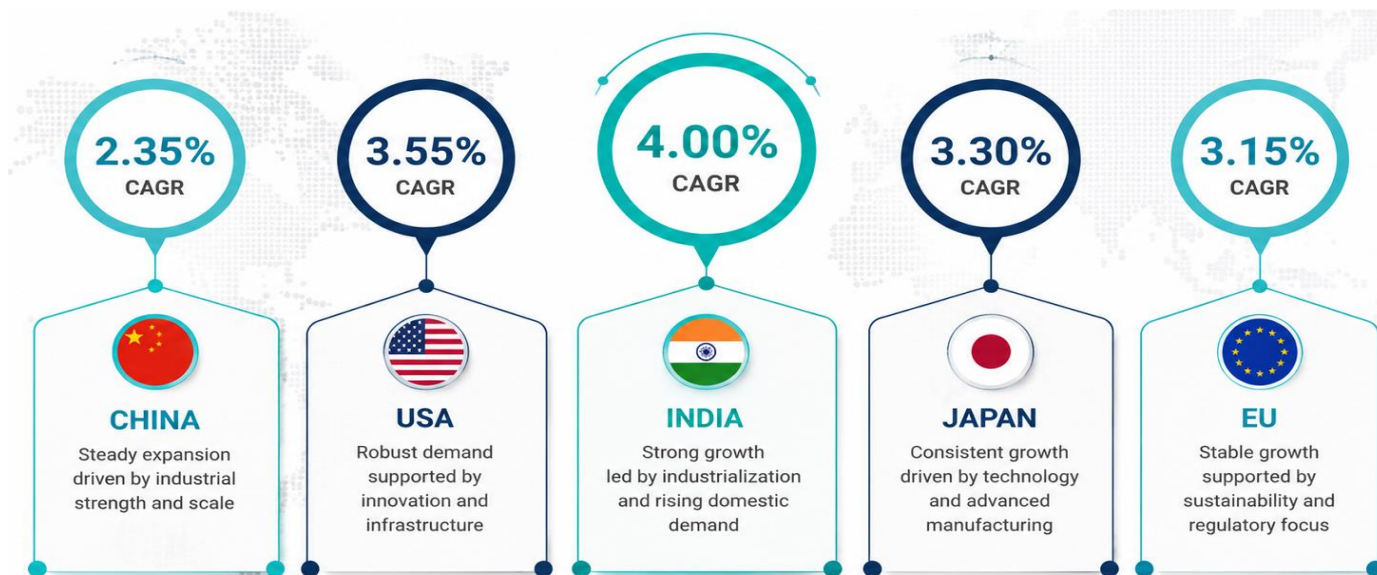
India is projected to record the highest growth rate globally at a CAGR of 4.0% in the inorganic chemicals space. This robust momentum is driven by broad-based end-use expansion across fertilizers, construction materials, textiles, water treatment, and food-grade preservatives. A notable support also comes from the increased domestic production of sulphur-based chemicals, such as sulphuric acid, sodium bisulphite, and sulphites, which are integral to India's fertilizer and agrochemical manufacturing. Government-backed initiatives like PLI schemes and import substitution mandates are catalysing backward integration and scaling of capacities, positioning India as a rising hub in the global inorganic value chain.

The United States, growing at 3.55% CAGR, maintains a steady trajectory, supported by sustained demand from industrial segments like pulp & paper, automotive components, and environmental treatment. Investment in modernizing infrastructure particularly wastewater treatment and green building has created stable demand for chemicals like chlorine, alum, and caustic soda. Additionally, reshoring trends in chemical production post-pandemic are reinforcing domestic manufacturing resilience.

Japan (3.30% CAGR) and the European Union (3.15% CAGR) exhibit moderate but high-quality growth, underpinned by stringent environmental compliance and a shift toward sustainable and high-purity inorganic compounds. Growth is tied to sectors like electronics, specialty glass, and clean energy, where performance-grade chemicals such as ultra-pure sulphuric acid and high-purity hydrogen peroxide are critical. Both regions are investing in circular economy initiatives and carbon-neutral manufacturing, influencing product and process innovation.

In contrast, China, while retaining its position as the largest global producer, is expected to grow at a slower pace of 2.35% CAGR. The country is undergoing structural realignment, with a strategic pivot from bulk commodity chemicals toward value-added and specialty inorganic variants. Stringent environmental regulations and plant rationalization efforts have subdued volume expansion. Sulphur-based chemicals, once a high-volume export stream, are now increasingly targeted for domestic value addition in electronics, semiconductors, and lithium-ion batteries.

Chart 17: Country-wise growth of Inorganic Chemicals Industry



Source: Custom Market Insights (CMI), CareEdge Research & Analysis

These trends indicate a gradual rebalancing of global growth in the inorganic chemicals space, with countries like India emerging as new centres of production and consumption, reflecting broader changes in industrial priorities and regional competitiveness.

2.8 Key Sulphur-based Chemicals in the Inorganic Chemicals Industry

2.8.1 Sodium Bisulphite (NaHSO_3)

Product Overview

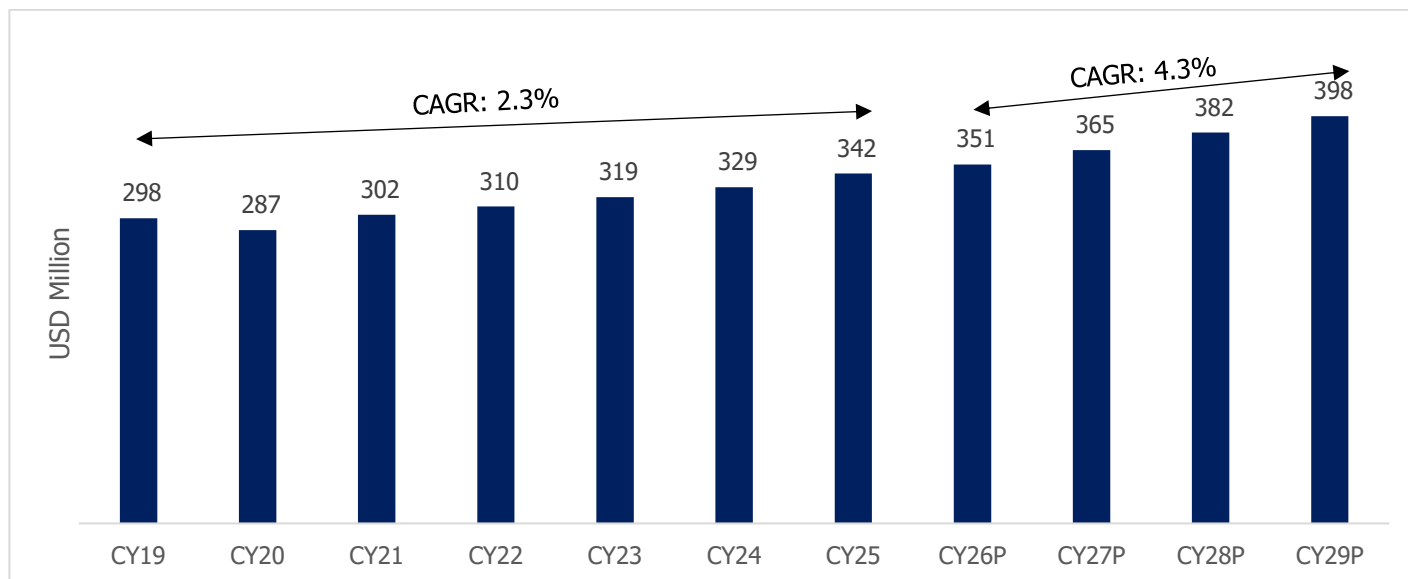
Sodium bisulphite is an inorganic salt commonly used as a reducing agent and preservative in various industrial and food applications. It is typically manufactured by bubbling sulphur dioxide (SO_2) through a sodium carbonate or sodium hydroxide solution.

Globally, the product finds significant demand in water treatment, textile processing, and paper & pulp industries, driven by its effectiveness in oxygen scavenging and bleaching. Its use in food preservation and pharmaceuticals is more prominent in regions with advanced regulatory compliance systems, such as North America and Europe.

Global Market Size

The global market for Sodium Bisulphite has grown due to increasing demand for effective water treatment chemicals and its use as a preservative in food processing from USD 298 million in CY19 to USD 342 million in CY25. Going further, the market is expected to grow at a CAGR of 4.3% to reach USD 398 million by CY29 backed by growing industrial wastewater treatment facilities and stricter environmental discharge norms globally.

Chart 18: Global Market Size of Sodium Bisulphite

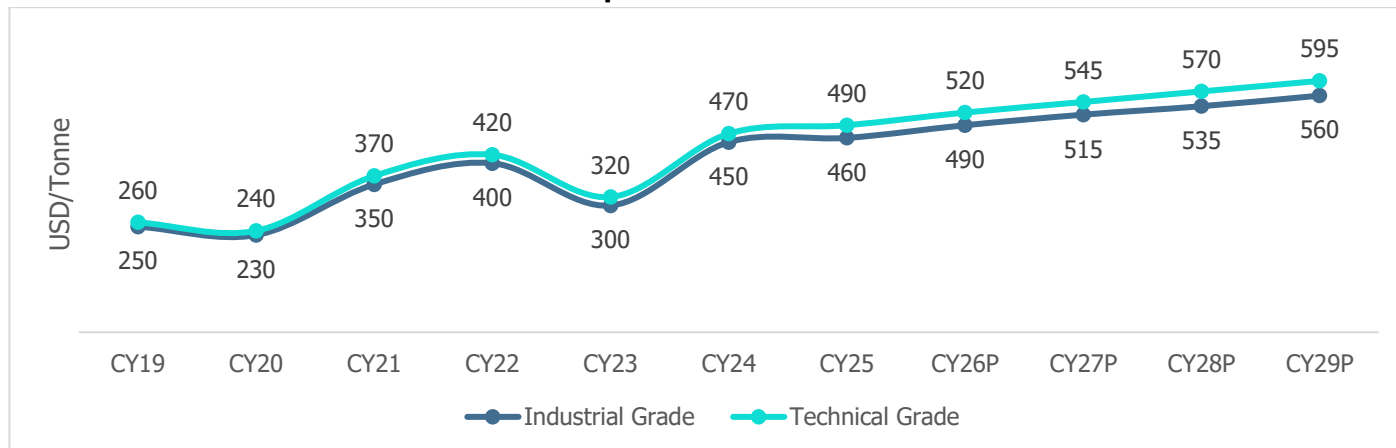


Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

Global Price Assessment

Globally, sodium bisulphite prices have shown a steady upward trend, supported by consistent demand across water treatment, pulp & paper, and textile industries. Minimal volatility in sulphur-based raw materials has helped maintain this gradual price growth.

Chart 19: Global Price Trend of Sodium Bisulphite Solution



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

2.8.2 Sodium Metabisulphite ($\text{Na}_2\text{S}_2\text{O}_5$)

Product Overview

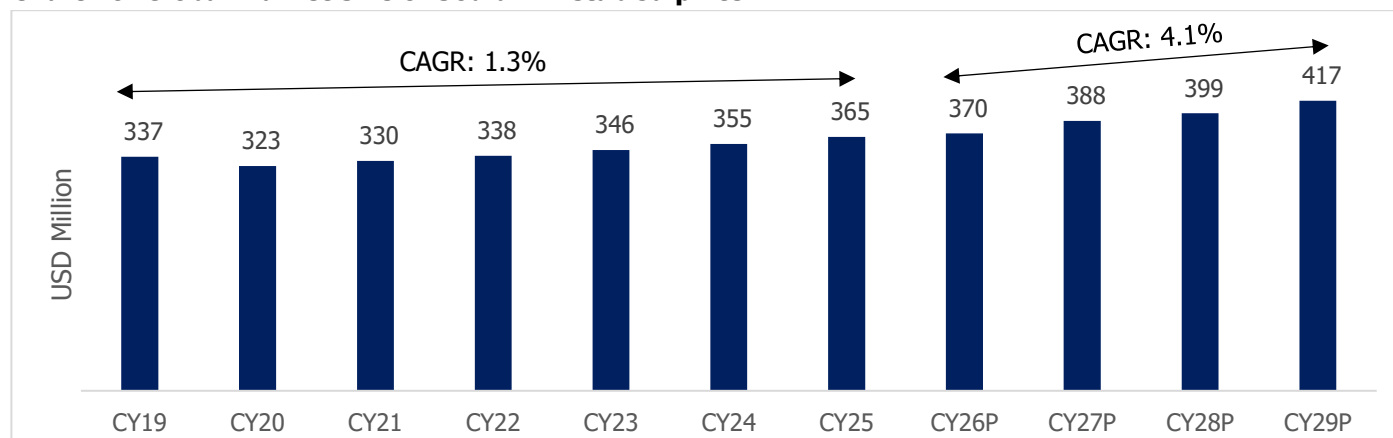
Sodium metabisulphite is a widely used sulphite salt with strong antioxidant, disinfectant, and bleaching properties. It is produced through the reaction of sulfur dioxide with sodium carbonate or sodium hydroxide. Globally, it is extensively used in food processing (as a preservative), photography, textile bleaching, mining (as a flotation agent), and water

treatment. Growth in packaged foods, water recycling technologies, and chemical processing especially in emerging economies is fuelling its global demand.

Global Market Size

The global growth for Sodium Metabisulphite has been driven by its wide application in food preservation, water purification, and mining processes to reach USD 365 million in CY25. Continued expansion in packaged food consumption, along with growth in gold and mineral processing is expected to drive further demand to grow at a CAGR of 4.1% to reach USD 417 million by CY29.

Chart 20: Global Market Size of Sodium Metabisulphite

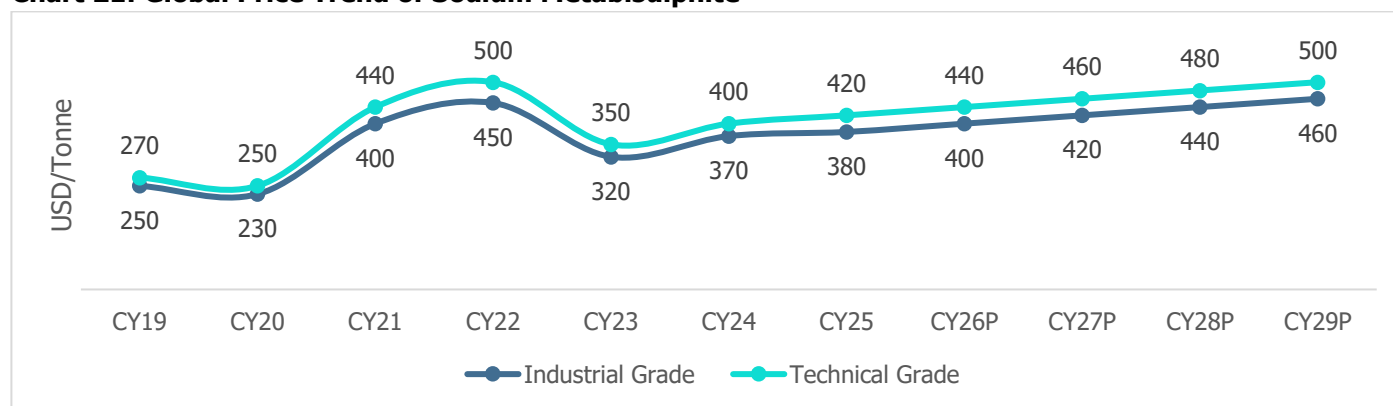


Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

Global Price Assessment

On a global scale, sodium metabisulphite prices have increased marginally over time, driven by stable consumption in food preservation, pharmaceuticals, and industrial applications. Supply chain normalization post-COVID has also contributed to steady price growth.

Chart 21: Global Price Trend of Sodium Metabisulphite



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

2.8.3 Sodium Sulphite (Na_2SO_3)

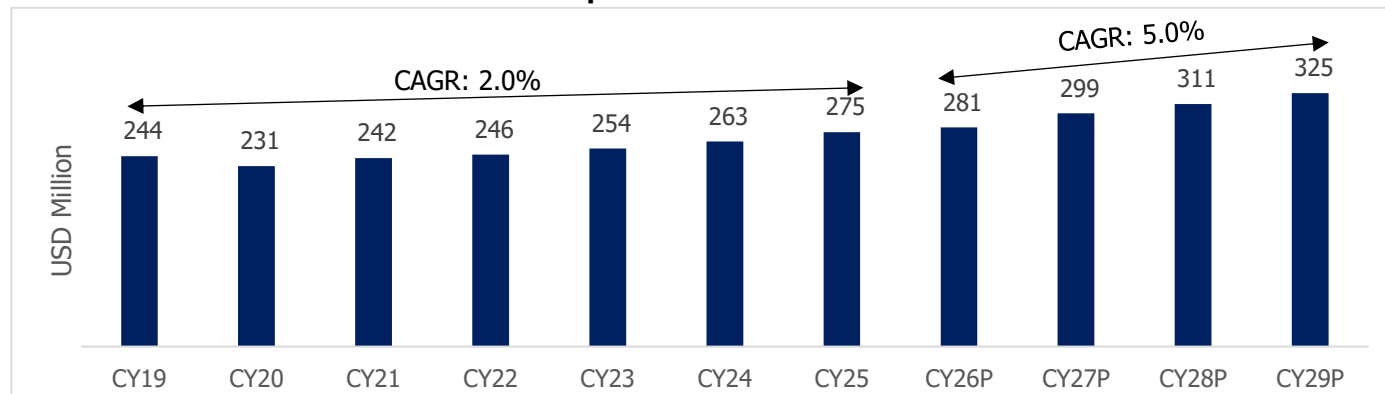
Product Overview

Sodium sulphite is a white, water-soluble solid that functions primarily as a preservative, antioxidant, and bleaching agent. Produced industrially by reacting sodium hydroxide with sulfur dioxide, it plays a vital role in pulp and paper manufacturing, photography, chemical synthesis, and textile processing. Global demand for sodium sulphite is closely tied to environmental and industrial water treatment needs, particularly in Asia-Pacific, where infrastructure development and regulatory frameworks are evolving rapidly.

Global Market Size

The global demand has grown owing to usage in pulp & paper, textile, and photographic industries, particularly in developing economies to reach at USD 275 million in CY25. Going further, the market expansion is expected to grow at a CAGR of 5.0% to reach USD 325 million by CY29 backed by the growth in the packaging and paperboard sectors along with eco-friendly bleaching solutions likely to gain traction.

Chart 22: Global Market Size of Sodium Sulphite

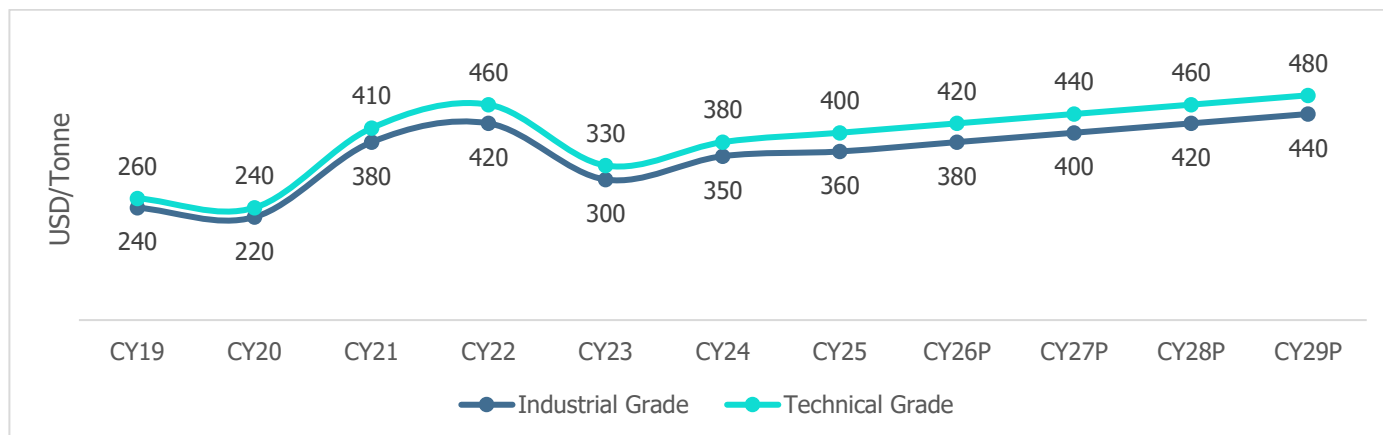


Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

Global Price Assessment

Global sodium sulphite prices continue to rise slowly due to sustained demand from the paper, water treatment, and photographic sectors. Balanced supply-demand conditions and moderate energy costs are keeping the upward momentum intact.

Chart 23: Global Price Trend of Sodium Sulphite



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

2.8.4 Ammonium Bisulphite (NH_4HSO_3)

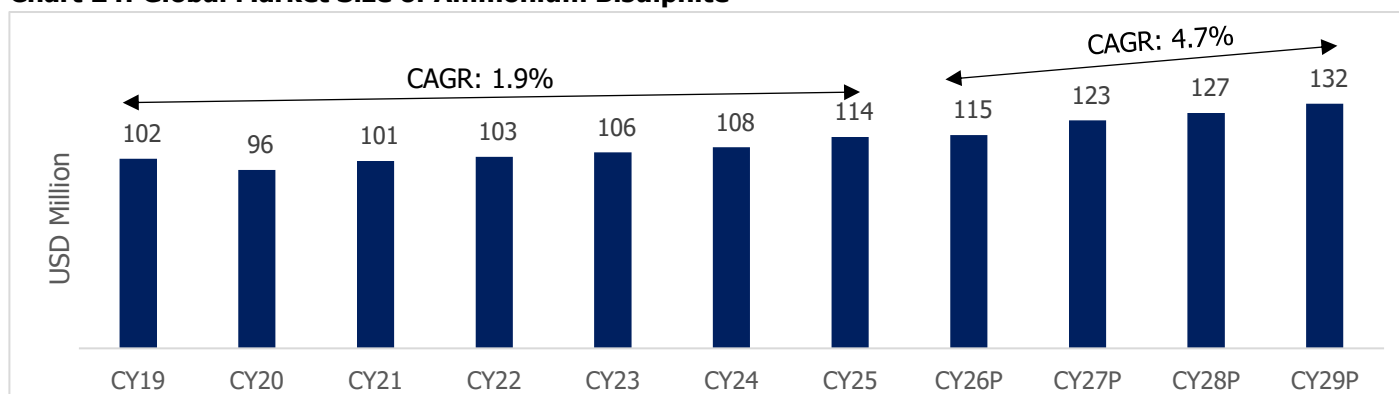
Product Overview

Ammonium bisulphite is a clear, yellowish liquid used primarily as an oxygen scavenger and reducing agent in industrial processes. It is formed by absorbing sulfur dioxide into an aqueous solution of ammonia. The product is critical in oilfield applications (especially in drilling fluids), boiler water treatment, and the photographic and pulp & paper industries. Its global demand is strongly linked to the upstream oil & gas industry, particularly in regions with enhanced oil recovery and offshore drilling operations like North America and the Middle East.

Global Market Size

The market has expanded owing to increased usage in oil & gas fields for oxygen scavenging and corrosion control to reach USD 114 million in CY25. With rising upstream oil exploration and the need for efficient boiler water treatment, demand is likely to grow further at a CAGR of 4.7% to reach USD 132 million by CY29.

Chart 24: Global Market Size of Ammonium Bisulphite

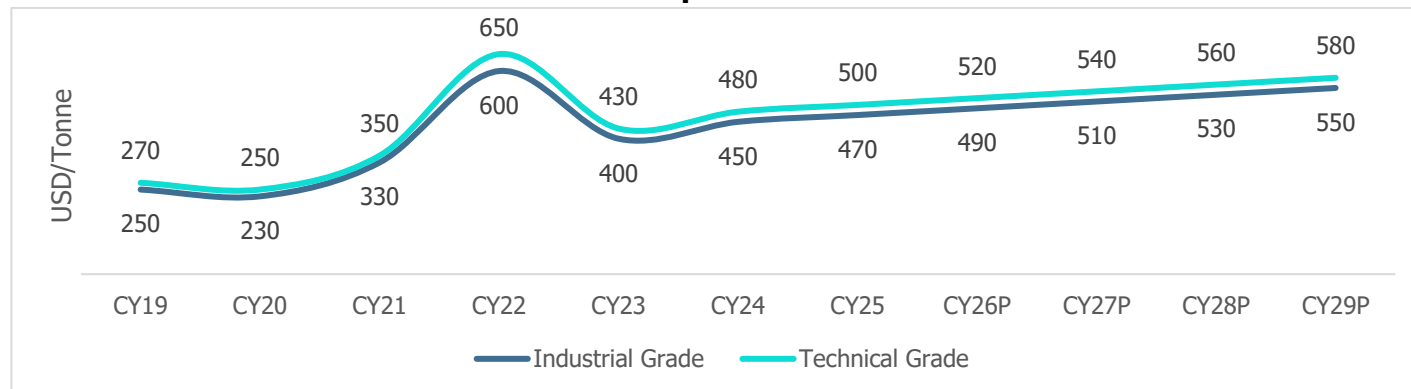


Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

Global Price Assessment

Globally, ammonium bisulphite prices are on a gradual upward trajectory, with steady demand from oil & gas drilling, gas treatment, and wastewater management. Limited production capacity in key regions and specialized end-use reliance is contributing to firming price levels.

Chart 25: Global Price Trend of Ammonium Bisulphite



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

2.9 Key growth drivers for the Chemical Industry

The growth drivers for the Chemical Industry are as follows:

Rising Demand from End-Use Industries

- As per the International Council of Chemical Associations (ICCA), the global chemical industry enables 95% of all manufactured goods, reflecting its widespread application across end-use sectors such as agriculture, pharmaceuticals, construction, and automotive.
- Government initiatives like India's National Policy on Electronics and Production Linked Incentive (PLI) scheme have spurred the growth of electronic manufacturing, thereby increasing demand for semiconductors and chemicals used in PCB fabrication and chipmaking.
- The Ministry of Agriculture & Farmers Welfare continues to support fertiliser production through subsidies, contributing to steady demand for agrochemicals.

Shift of Global Supply Chains Away from China (China+1 Strategy)

- Global players are actively diversifying sourcing and manufacturing away from China, driven by supply chain disruptions, geopolitics, and ESG scrutiny.
- India has emerged as a preferred alternative, particularly in pharmaceutical intermediates, agrochemical actives (AIs), and specialty chemicals, evidenced by increasing contract manufacturing deals (CDMO/CRAMS).
- Between FY21 and FY24, FDI inflow into India's chemicals sector rose by ~25%, reflecting this strategic shift.

Technological Advancements

- According to the European Chemical Industry Council (CEFIC), digitalisation and Industry 4.0 tools, such as advanced analytics, process automation, and predictive maintenance, are being increasingly adopted to optimise production and reduce unplanned downtime.
- The Indian government, through the Department of Chemicals and Petrochemicals (DCPC), has supported innovation in bio-based and green chemical processes to encourage cleaner production pathways.

- Biotechnological methods such as enzyme catalysis are being promoted globally for their lower environmental impact and process efficiency, as noted by industry bodies like the ICCA.

Sustainability and Green Chemistry

- Growing emphasis on circular economy practices is leading chemical manufacturers to invest in waste minimisation, recycling, and the use of renewable feedstocks. This aligns with India's National Chemical Policy draft that encourages sustainable manufacturing.
- The European Green Deal and initiatives by organisations like Responsible Care promote green chemistry principles, pushing producers toward safer, environmentally friendly alternatives.
- Programs such as the Bureau of Energy Efficiency's (BEE) PAT Scheme incentivise energy efficiency in the chemical sector.

Industrialisation in Emerging Economies

- According to CEFIC, Asia remains the largest chemical-producing region, accounting for approximately 60% of global chemical sales.
- The Government of India's "Make in India" initiative and 100% FDI allowance in the chemical sector have boosted investments and capacity expansions across industrial zones.
- Development of Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIRs) is creating hubs for integrated chemical manufacturing and infrastructure development.

Innovation in Speciality Chemicals

- ICCA highlights that speciality chemicals continue to see strong growth due to their tailored applications in personal care, electronics, and healthcare sectors.
- Increased R&D activity supported by public-private partnerships and government incentives is facilitating the development of performance chemicals and value-added formulations.
- The DCPC under the Ministry of Chemicals & Fertilisers has recognised the specialty chemical segment as a focus area under its industrial development plans

Rising Demand for Environmentally Compliant Chemicals

- Regulatory tightening (e.g., EU REACH, India's BIS standards, and bans on specific APIs and agrochemicals in China) is driving demand for low-toxicity, biodegradable, and high-purity chemical substitutes.
- This has led to a surge in R&D-driven specialty segments like bio-based surfactants, green solvents, and water-soluble polymers.
- Indian companies with strong process engineering are gaining market share in exporting these compliant chemistries.

3. Domestic Chemicals Industry

3.1 Industry Overview

The chemical industry is one of the most pervasive sectors in manufacturing, owing to its critical role in enabling a wide array of end-use applications. The Indian chemicals industry is highly diversified, encompassing over 80,000 commercial

products, including basic chemicals, petrochemicals, agrochemicals, paints, gases, personal care chemicals, and pharmaceuticals. It is a key enabler of India's industrial and agricultural development and acts as a fundamental building block for several downstream industries such as textiles, paper, packaging, paints and coatings, soaps and detergents, and healthcare.

Within this broader ecosystem, the sulphur-based chemicals segment holds particular importance due to its wide industrial usage and essentiality in strategic sectors. Sulphur and its derivatives such as sulphuric acid, sulphur dioxide, and sulphur hexafluoride are critical inputs in fertilisers, dyes, detergents, pharmaceuticals, petroleum refining, water treatment, and metal processing. Sulphuric acid, in particular, is one of the most produced and consumed industrial chemicals globally and serves as a key indicator of a country's industrial development.

India is one of the largest consumers of sulphur-based chemicals in Asia, driven by growing fertiliser production (especially phosphatic fertilisers), increasing demand from the petroleum refining industry, and expansion of the chemical intermediate sector. Moreover, with limited domestic availability of elemental sulphur, India relies heavily on imports, primarily from the Middle East and the CIS region, making supply-chain stability a critical concern.

The strategic role of sulphur-based chemicals in supporting food security (via fertilisers), clean energy (via refining and batteries), and industrial manufacturing positions this segment as an essential contributor to India's economic and industrial growth. Ongoing investments in downstream chemical manufacturing, coupled with increasing environmental regulations, are expected to shape the demand-supply dynamics of sulphur-based products in the near to medium term.

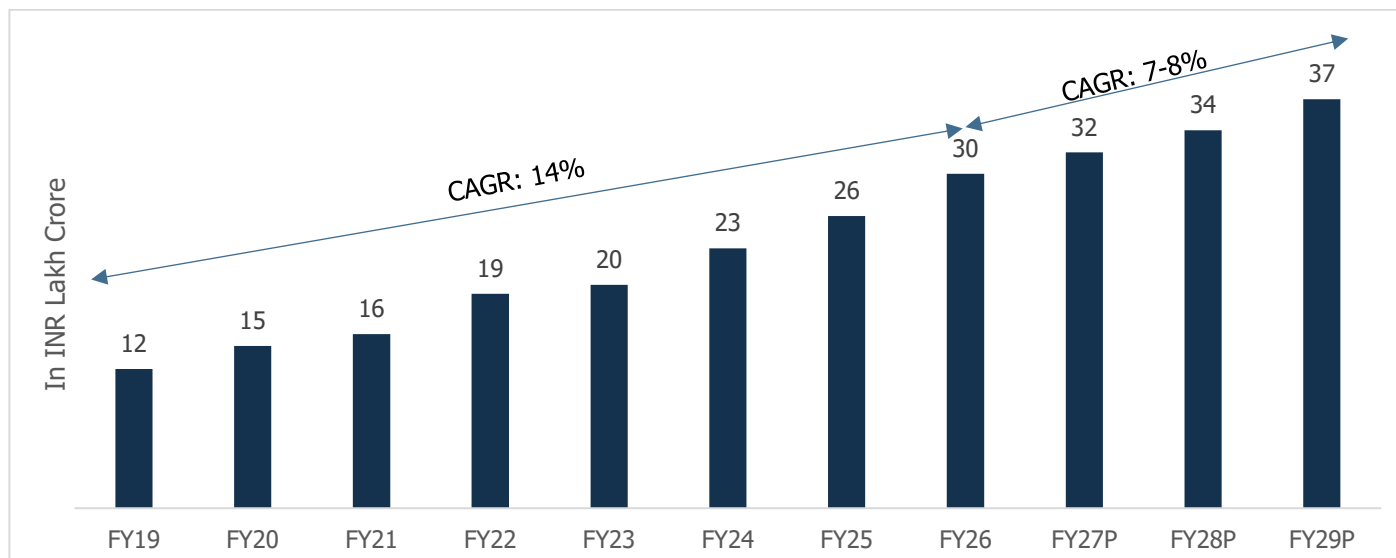
3.2 Industry Market Size and Segmentation

India's chemical industry has showcased robust growth over the years, evolving into a key pillar of the country's manufacturing landscape. The industry stood at Rs. 12 lakh crores in FY19 and expanded at a healthy CAGR of 14% to reach Rs. 30 lakh crores by FY26.

Looking ahead, the sector is projected to continue its growth trajectory, albeit at a slightly moderate pace. From FY26 to FY29, the market is expected to grow at a CAGR of 7-8%, reaching approximately Rs. 37 lakh crores by FY29. This moderation is likely reflective of global economic headwinds, commodity price volatility, and evolving regulatory frameworks, though the long-term fundamentals remain strong.

The expansion is being driven by rising domestic consumption, increasing exports, diversification of manufacturing bases, and growing demand from end-user industries such as pharmaceuticals, textiles, agrochemicals, and automotive. India's growing positioning as a preferred alternative to China in the global chemicals supply chain is further bolstering investment inflows and capacity expansion across multiple sub-segments.

Chart 26: Market Size of the Chemicals Industry in India

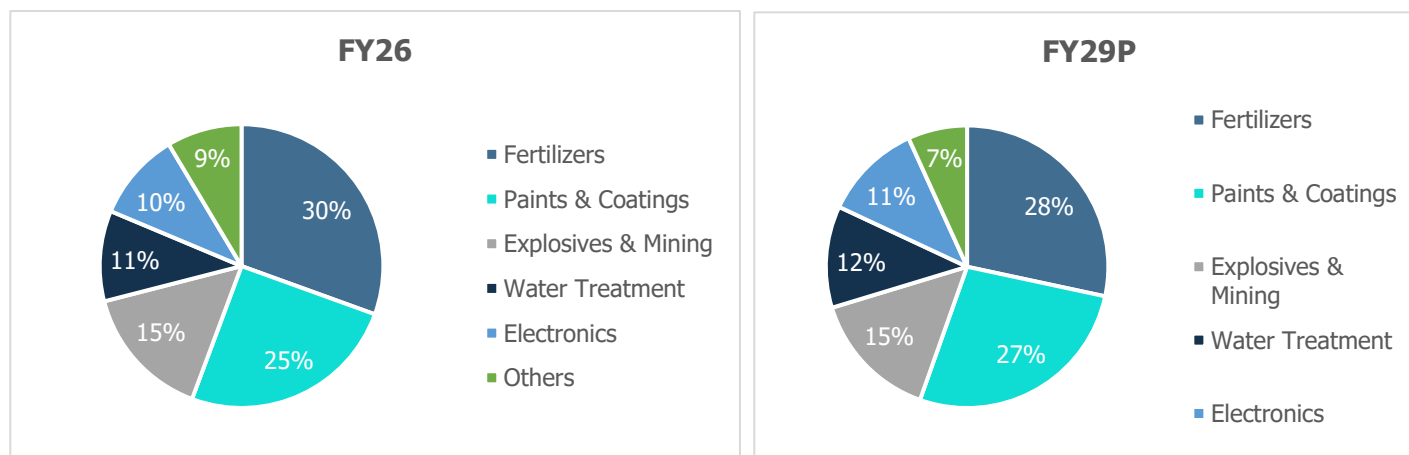


Source: CareEdge Research & Analysis; P: Projected

3.3 Domestic Segmental end-usage of Inorganic Chemicals

India's domestic inorganic chemicals market remains anchored by the fertilizer sector, though its share is expected to decline from 31% in FY26 to 28% by FY29, reflecting a shift toward industrial applications. Paints & coatings are set to grow from 25% to 27%, driven by infrastructure and manufacturing demand. Electronics and water treatment are also gaining share, supported by policy push and sustainability focus. While explosives & mining remain steady at 15%, the others category is expected to decline. Overall, the market is gradually transitioning toward higher-value and tech-driven end uses.

Chart 27: Segmental end-usage of Inorganic Chemicals



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

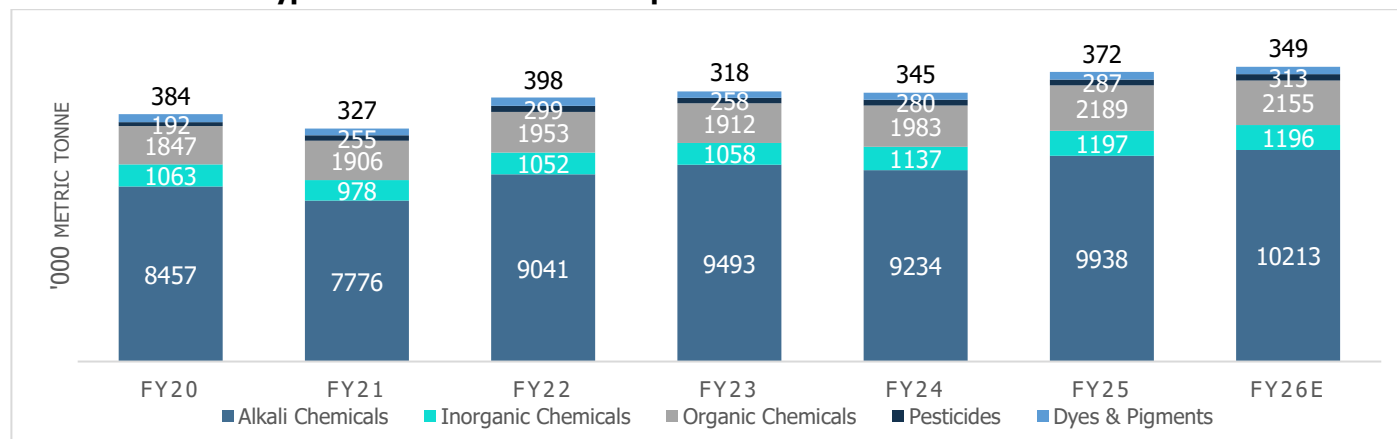
3.4 Share of Different Types of Chemicals Based on Production

Major chemicals production in India increased from 12,979 thousand metric tonnes in FY24 to 13,983 thousand metric tonnes in FY25, registering a growth of around 7.7% y-o-y. Alkali chemicals remained the dominant segment with a 71% share in total production, followed by organic chemicals (16%) and inorganic chemicals (9%). Production growth

was supported by improving demand from end-user industries such as textiles, pharmaceuticals, construction, agrochemicals, and water treatment.

Going forward, total major chemicals production is projected to increase further to 14,226 thousand metric tonnes in FY26. Alkali chemicals are estimated to continue dominating the production mix with production expected to rise to 10,213 thousand metric tonnes in FY26, followed by organic chemicals at 2,155 thousand metric tonnes and inorganic chemicals at 1,196 thousand metric tonnes. The projected growth is expected to be driven by rising domestic demand, capacity expansion initiatives, and increasing industrial applications across key end-user sectors.

Chart 28: Share of types of Chemicals based on production



Source: Statistics at a Glance 2025, Department of Chemicals and Petrochemicals, CareEdge Research

3.5 Overview and Domestic Market Size of the Inorganic Chemicals Industry

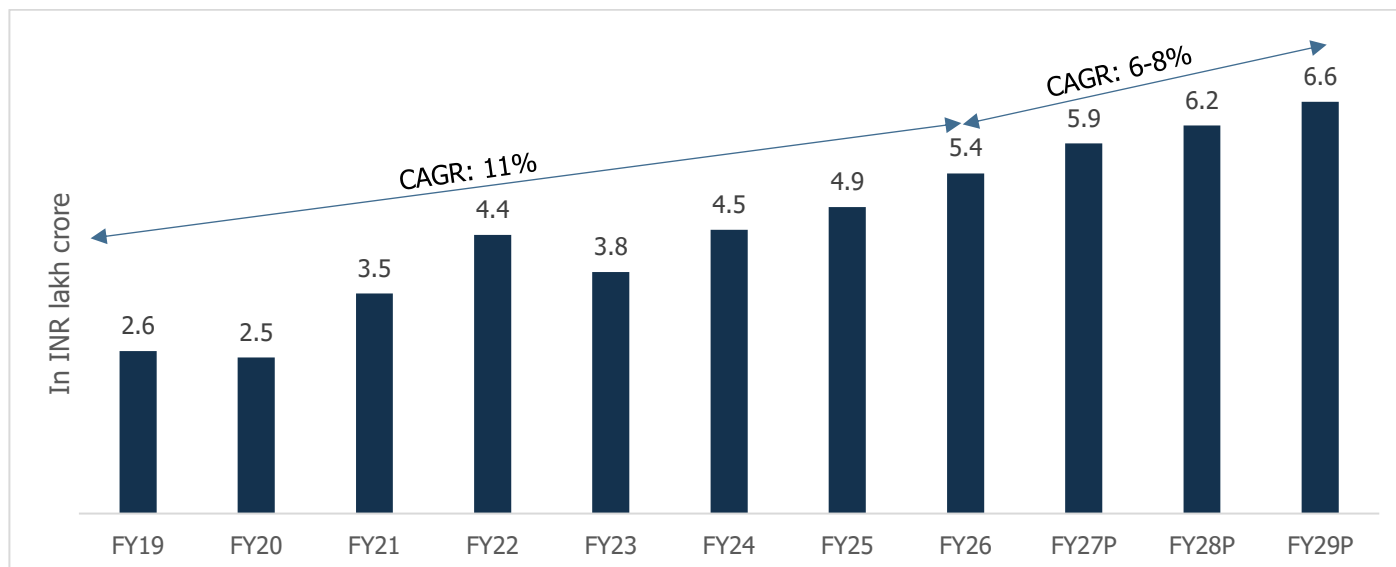
Inorganic chemicals form a crucial segment of India's chemical industry, catering to diverse sectors such as fertilizers, textiles, water treatment, and construction. Common products include acids, alkalis, salts, and gases like chlorine and hydrogen. India has a strong base in the production of inorganic chemicals, particularly due to the availability of key raw materials and robust domestic demand.

The segment is also supported by established players and government initiatives encouraging industrial growth. Despite being a smaller contributor in volume compared to alkali or organic chemicals, inorganic chemicals remain indispensable for several core industrial processes.

India's domestic inorganic chemicals market has demonstrated a resilient recovery post-pandemic, growing from Rs. 2.6 lakh crore in FY19 to Rs. 5.4 lakh crore in FY26. This rebound has been backed by revived demand in core sectors like fertilisers, infrastructure, and water treatment, alongside policy-driven industrial momentum.

Going forward, the market is projected to reach Rs. 6.6 lakh crore by FY29, supported by expansion in electronics manufacturing, environmental compliance, and downstream capacity additions. The growth trajectory signals a structural shift from cyclical recovery to sustained industrial demand and strategic import substitution.

Chart 29: Inorganic Chemicals Industry Market Size in India



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

3.6 Overview of Sulphur-Based Inorganic Chemicals

India is one of the leading consumers and producers of sulphur-based inorganic chemicals, driven primarily by its large agricultural base, expanding industrial activity, and growing demand from sectors such as fertilizers, water treatment, chemicals, pulp & paper, and textiles.

The Indian sulphur-based chemical industry includes products such as sulphuric acid, sodium bisulphite, sodium metabisulphite, sodium sulphite, and ammonium bisulphite, with sulphuric acid being the most consumed and produced.

3.7 Key Sulphur-based Chemicals in the Inorganic Chemicals Industry

3.7.1 Sodium Bisulphite (NaHSO_3)

Product Overview

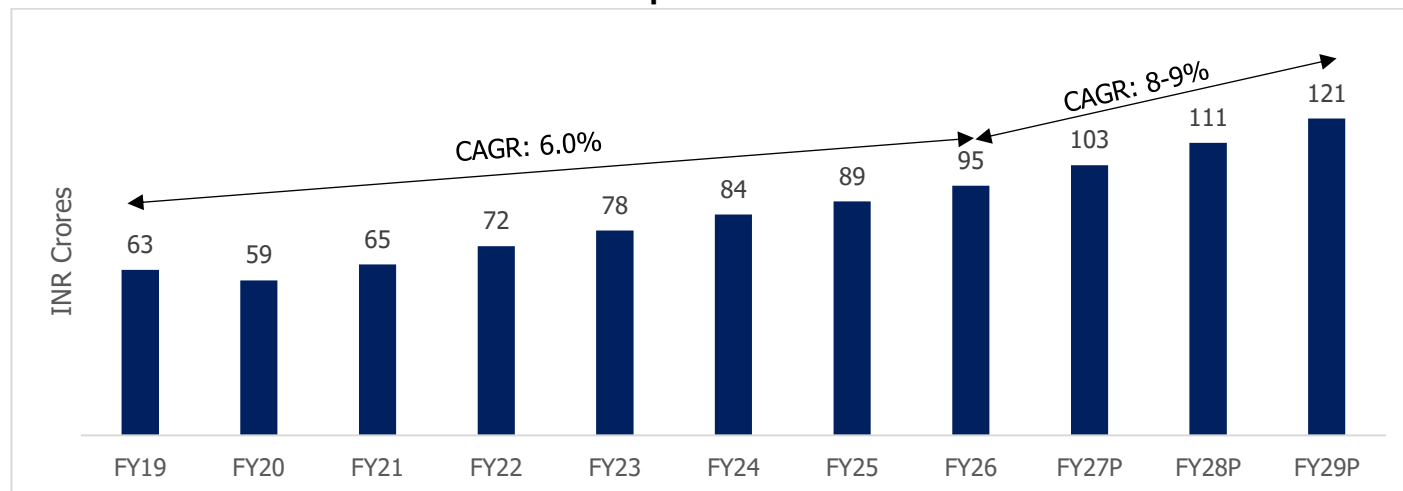
In India, sodium bisulphite is primarily produced for use as a reducing agent and oxygen scavenger in water treatment, effluent treatment plants (ETPs), and the pulp & paper industry. It is also used in the leather and textile industries as a bleaching and dechlorinating agent.

India's industrial demand for sodium bisulphite has been rising in line with environmental compliance norms, especially across states with high industrial output like Gujarat, Maharashtra, and Tamil Nadu. It is typically produced by sulphur dioxide reacting with sodium carbonate or sodium hydroxide.

Domestic Market Size

The demand for sodium bisulphite in India has grown due to stricter industrial effluent treatment norms and expanding capacity in the paper, textile, and leather industries to reach Rs. 95 crores in FY26. The growth of urban water treatment infrastructure and industrial clusters has created steady domestic demand.

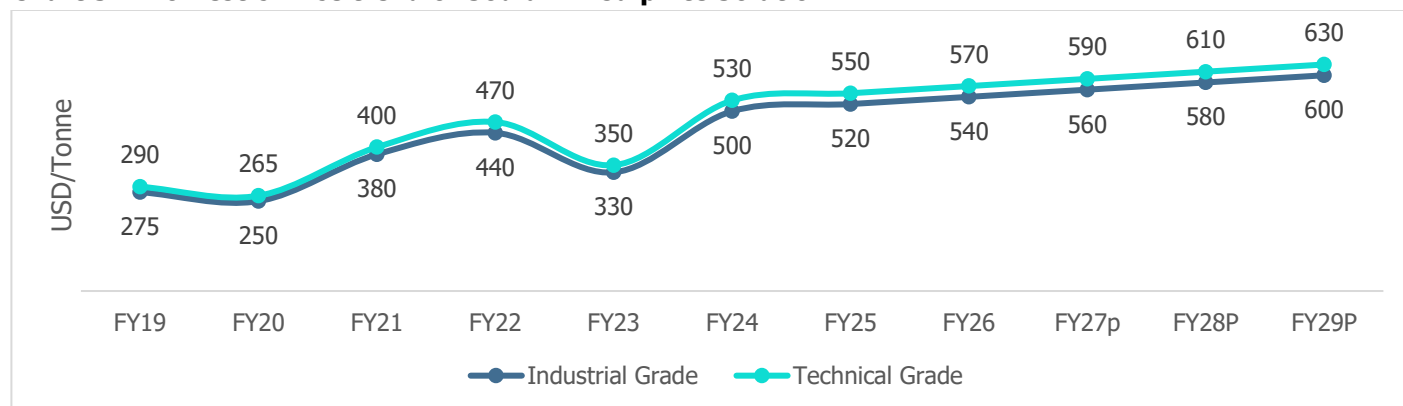
Going forward, increasing investments in clean water and wastewater treatment under government initiatives like the Jal Jeevan Mission are expected to further support consumption with market growing at a CAGR of 8-9% to reach Rs. 121 crores by FY29.

Chart 30: Domestic Market Size of Sodium Bisulphite

Source: CareEdge Research & Analysis; P: Projected

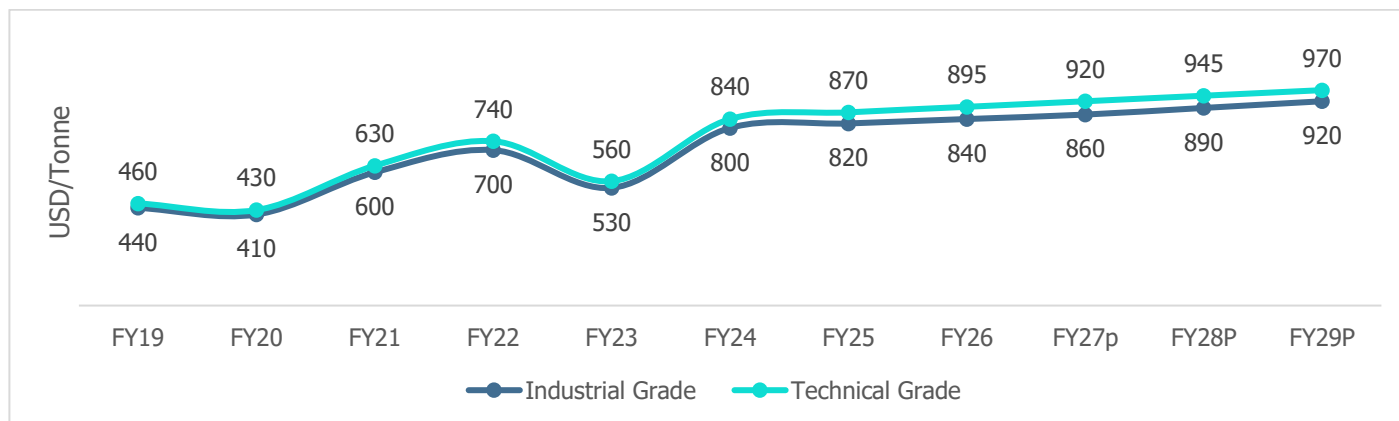
Domestic Price Assessment

Prices of sodium bisulphite solution and solid both have witnessed rising trend post covid. However, global uncertainties led to certain decline in prices. Going forwards prices are likely to witness a steady upward trend, largely driven by consistent demand from water treatment and textile sectors. Limited fluctuations in raw material costs are expected to support this minimal yet sustained growth.

Chart 31: Domestic Price trend of Sodium Bisulphite Solution

Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

Chart 32: Domestic Price trend of Sodium Bisulphite Solid



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

3.7.2 Sodium Metabisulphite ($\text{Na}_2\text{S}_2\text{O}_5$)

Product Overview

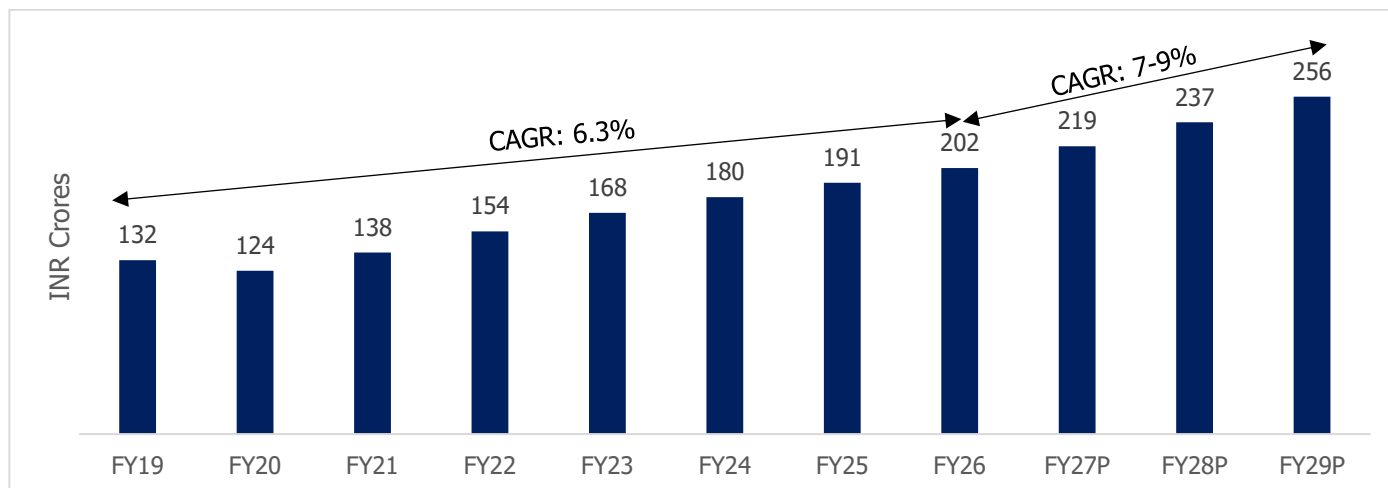
Sodium metabisulphite in India has applications across food processing, mining, photography, and chemical industries. It is widely used as a preservative and antioxidant in food and beverages, particularly in packaged foods, pickles, and fruit juices. Industrially, it is used in the textile sector for dyeing and as a bleaching agent.

India exports significant volumes of sodium metabisulphite to markets like the U.S., UAE, and Europe, which has driven investments in capacity expansion by domestic chemical manufacturers. Gujarat and Andhra Pradesh are major production hubs.

Domestic Market Size

India has seen a rise in food preservation needs due to growth in packaged and processed foods, especially in urban centers. Additionally, the use of Sodium metabisulphite in mining and textile dyeing processes has contributed to industrial demand to reach Rs. 202 crores in FY26. Going forward, growth will likely be driven by increasing exports, expansion of food-grade production capacity, and growing demand from the pharmaceutical and chemical formulation sectors to reach Rs. 256 crores by FY29 at a CAGR of 7-9%.

Chart 33: Domestic Market Size of Sodium Metabisulphite

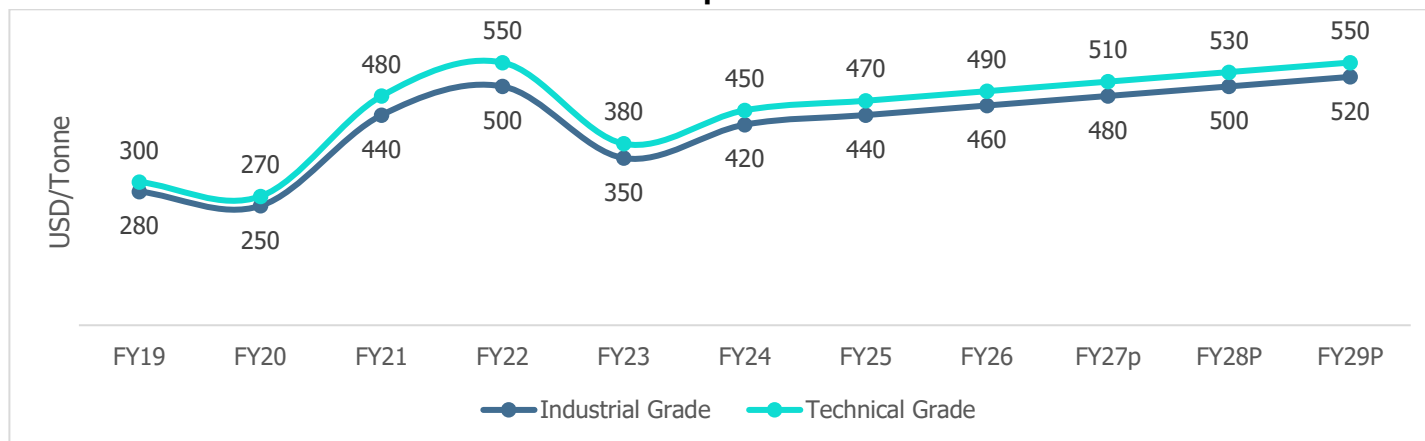


Source: CareEdge Research & Analysis; P: Projected

Domestic Price Assessment

The price of sodium metabisulphite has seen marginal increases over time, backed by stable demand from food preservation and chemical processing industries. Supply-side stability has contributed to this gradual rise. The prices are expected to rise on a constant trend supported by rising demand.

Chart 34: Domestic Price trend of Sodium Metabisulphite



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

3.7.3 Sodium Sulphite (Na_2SO_3)

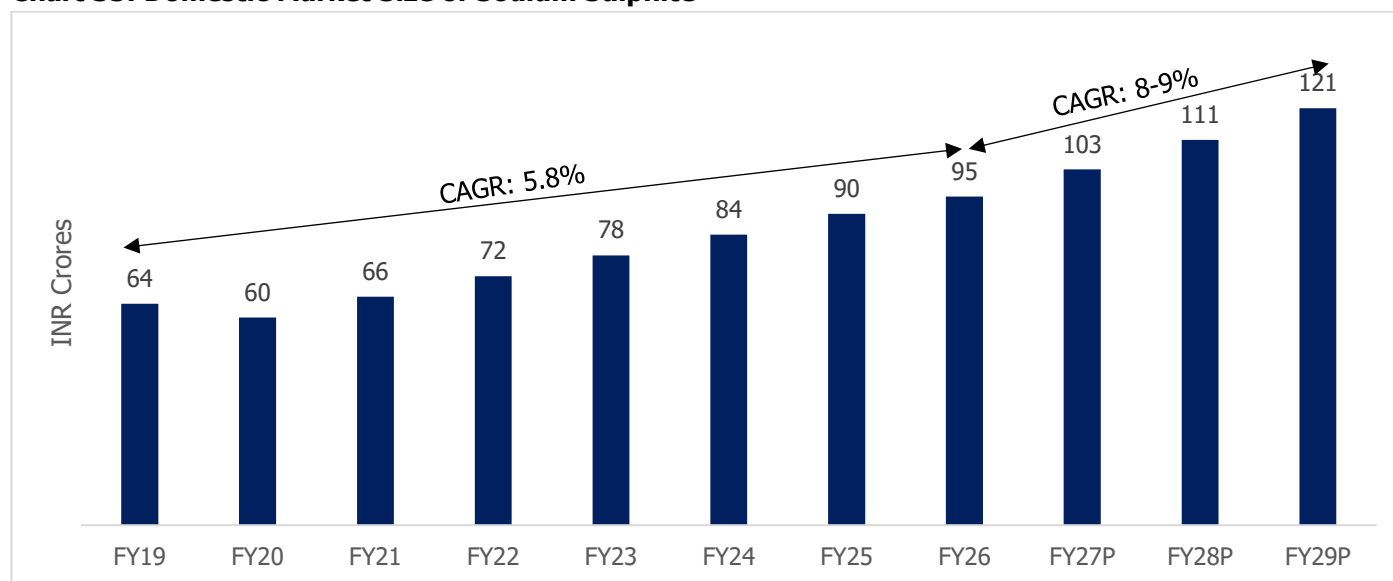
Product Overview

Sodium sulphite is used in India mainly for pulp & paper processing, photographic development, chemical synthesis, and as an oxygen scavenger in boilers. Its role in helping reduce dissolved oxygen in feedwater makes it critical in the power and industrial steam generation sectors. While sodium sulphite demand remains stable, the chemical is considered moderately hazardous, and Indian regulations mandate strict handling and transport standards. Local production is largely centered around western India, where bulk chemical industries operate.

Domestic Market Size

The growth in sodium sulphite consumption has been aligned with the expansion of India's pulp and paper industry and power generation sector, where it serves as an oxygen scavenger. This has led to consistent growth in demand reaching Rs. 95 crores in FY26. Going further, demand is expected to be driven by India's industrial infrastructure expansion, particularly in packaging, printing, and utility sectors to reach Rs. 121 crores by FY29 at a CAGR of 8-9%.

Chart 35: Domestic Market Size of Sodium Sulphite

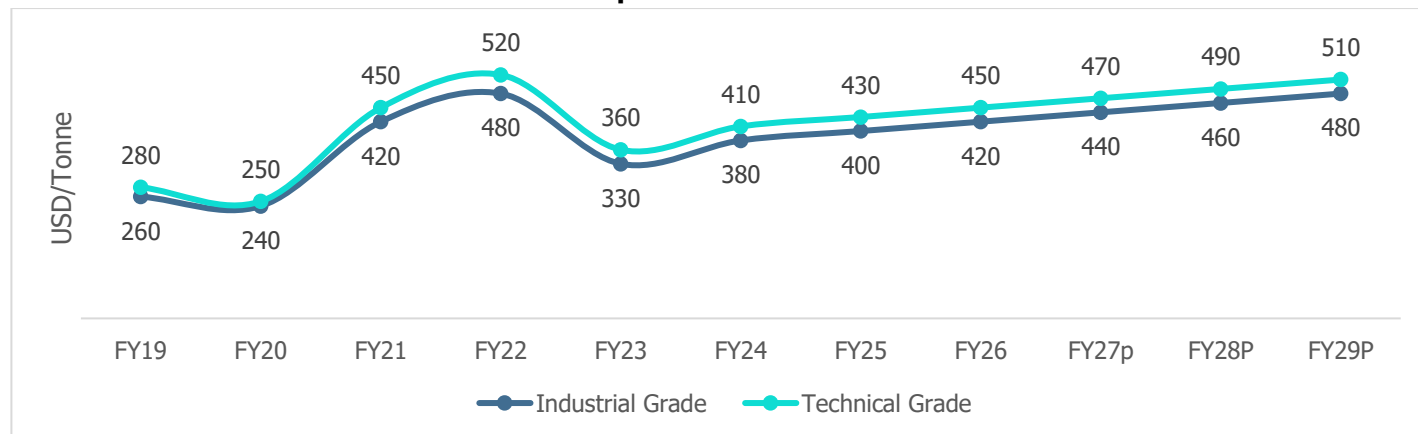


Source: CareEdge Research & Analysis; P: Projected

Domestic Price Assessment

Sodium sulphite prices continue to edge upward, supported by its sustained use in pulp & paper and photographic industries. Modest input cost inflation and steady demand have led to incremental growth in pricing.

Chart 36: Domestic Price trend of Sodium Sulphite



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

3.7.4 Ammonium Bisulphite (NH₄HSO₃)

Product Overview

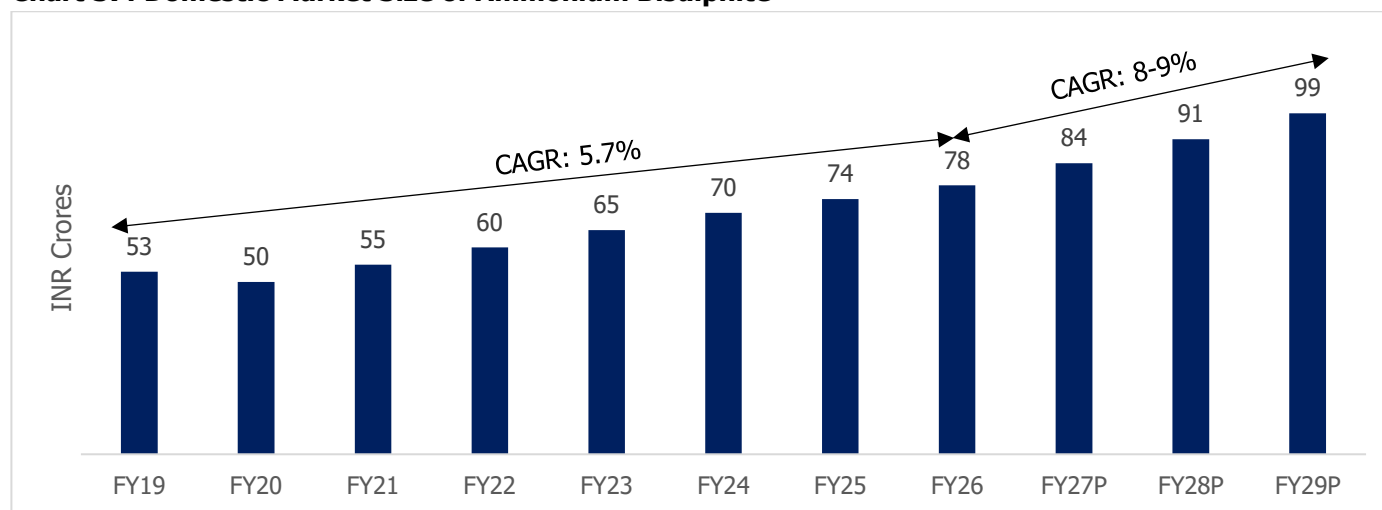
Ammonium bisulphite is used extensively in India's oil & gas, power generation, and water treatment sectors. Its principal use is as an oxygen scavenger to prevent corrosion in pipelines, boilers, and refineries.

With India pushing domestic oil & gas production and expanding thermal power generation capacity, demand for ammonium bisulphite has grown steadily. Indian manufacturers also supply the product for export markets in the Middle East and Southeast Asia.

Domestic Market Size

Ammonium bisulphite has gained traction in oil and gas production and refinery operations, where it is used as a corrosion inhibitor and oxygen scavenger. Increased domestic E&P activity and investments in power plants and industrial boilers have supported growth to reach Rs. 78 crores by FY26. With India's continued push for energy self-reliance and rising focus on maintenance of legacy thermal assets, demand is expected to remain robust and is expected to reach Rs. 99 crores by FY29 at a CAGR of 8-9%.

Chart 37: Domestic Market Size of Ammonium Bisulphite

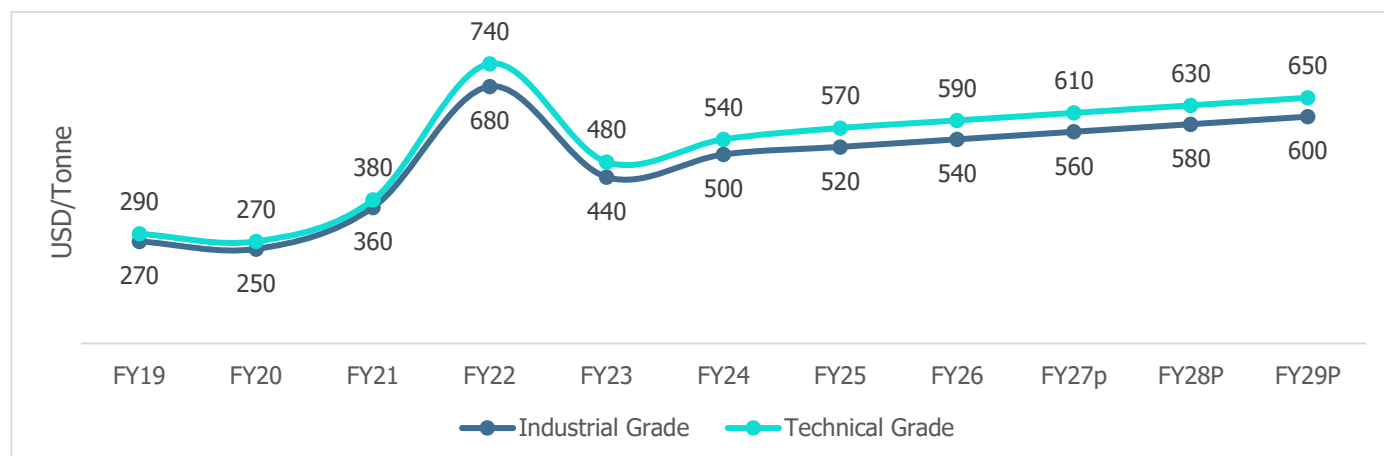


Source: CareEdge Research & Analysis; P: Projected

Domestic Price Assessment

Prices of ammonium bisulphite have been rising gradually, supported by stable demand from oilfield services and wastewater treatment applications. Limited supplier base and specialized end uses continue to exert mild upward pressure on prices.

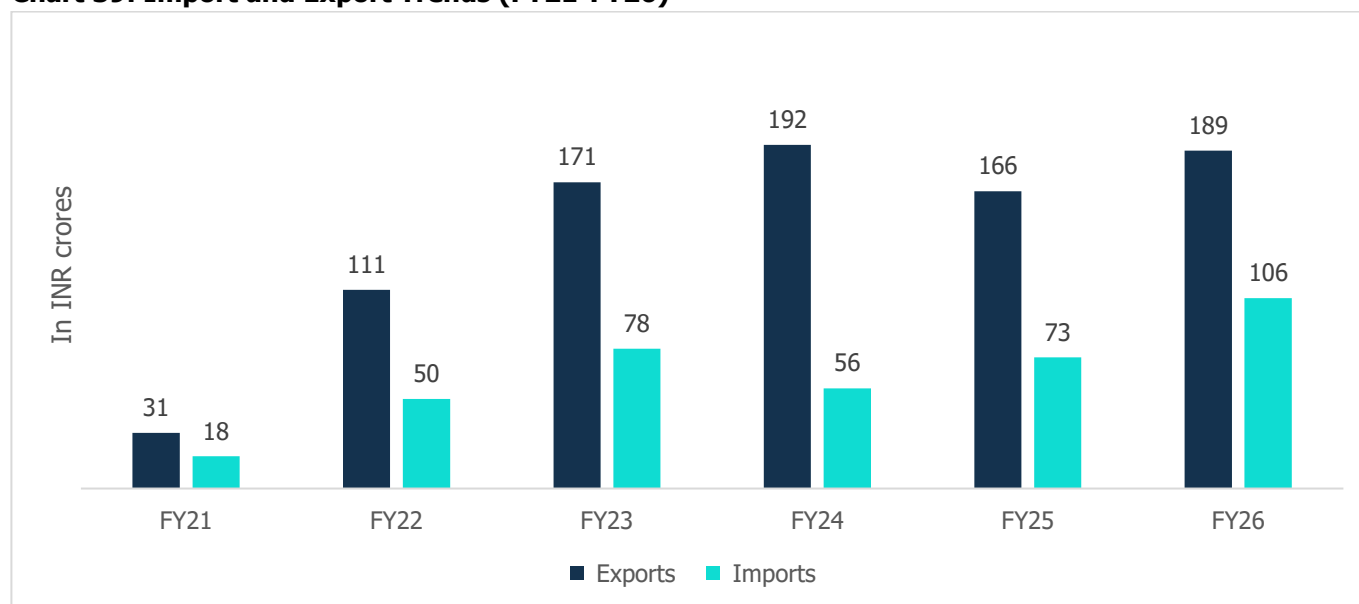
Chart 38: Domestic Price trend of Ammonium Bisulphite



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

3.8 Import and Export Trend by Products

Chart 39: Import and Export Trends (FY21-FY26)



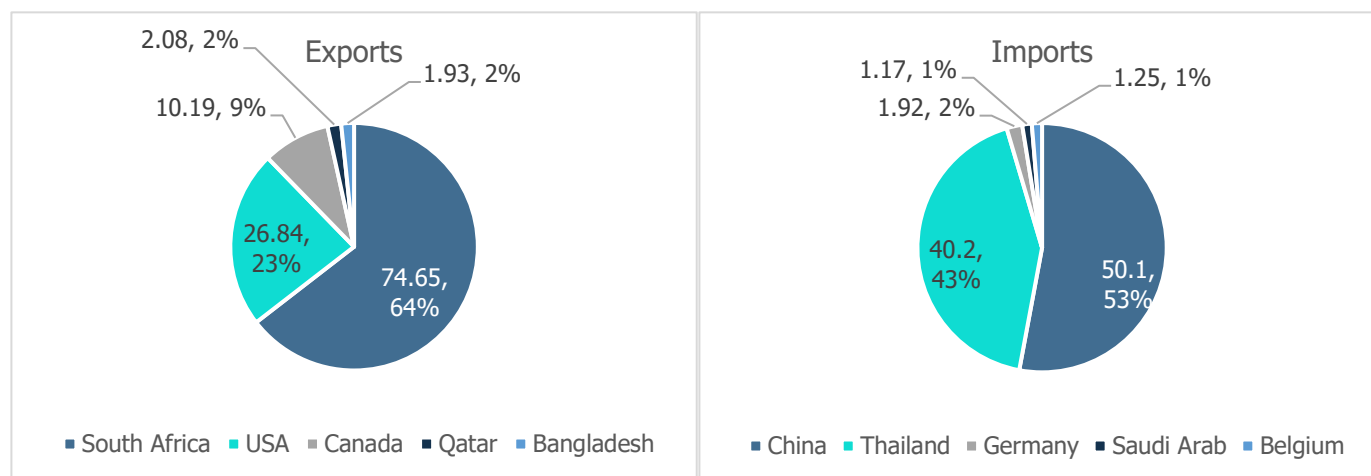
Source: Ministry of Commerce and Industry, CareEdge Research; The import and export trends are based on combined data for HS Codes 28321010, 28321090, and 28322090.

India's trade in inorganic chemicals has witnessed significant growth over the last few years, reflecting increasing integration with global supply chains and rising domestic industrial demand. Exports increased sharply from Rs. 31 crore in FY21 to Rs. 192 crore in FY24, driven by recovery in global manufacturing activity following the pandemic, strong demand from overseas markets, capacity additions by domestic manufacturers, and India's improving cost competitiveness. Although exports moderated to Rs. 166 crores in FY25 amid weak global demand, inventory corrections, and lower international chemical prices, they recovered to Rs. 189 crore in FY26, supported by improving export demand and normalization of global trade.

On the import front, imports rose from Rs. 18 crores in FY21 to Rs. 106 crore in FY26, highlighting continued dependence on imported raw materials, intermediates, and high-purity inorganic chemicals that are not manufactured in sufficient quantities domestically. Imports increased steadily until FY23, eased in FY24 due to softer commodity prices and

inventory rationalization by downstream industries, and subsequently rebounded in FY25 and FY26 as domestic manufacturing activity strengthened, demand from end-user industries such as chemicals, electronics, water treatment, and specialty manufacturing improved, and production requirements increased. Overall, while India continues to maintain a positive trade balance in inorganic chemicals, the simultaneous rise in imports indicates growing domestic consumption and expanding industrial activity.

Chart 40: Top Importers and Exporters for sulphur-based chemicals (Rs Crore)

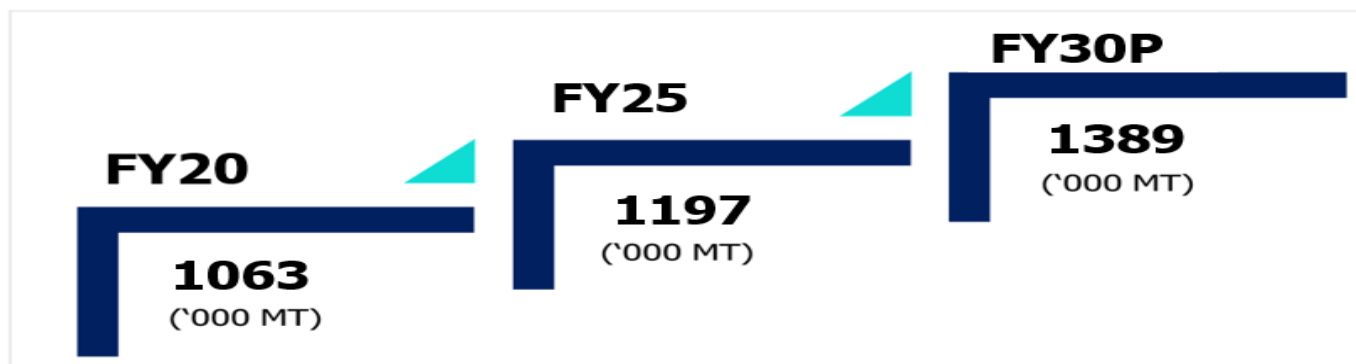


Source: Ministry of Commerce and Industry, CareEdge Research; The import and export trends are based on data for HS Codes 28321090

3.9 Forecast of Production of Inorganic Chemicals in India

India's inorganic chemical production increased from 1,063 thousand metric tonnes in FY20 to 1,197 thousand metric tonnes in FY25, supported by rising demand from industrial, water treatment, fertilizer, and construction sectors. Going forward, production is estimated to further increase to 1,389 thousand metric tonnes by FY30, driven by capacity expansion, import substitution initiatives, and growing domestic as well as export demand.

Chart 41: Production of Inorganic Chemicals in India



Source: Statistics at a Glance 2025, Department of Chemicals and Petrochemicals, CareEdge Research; P: Projected

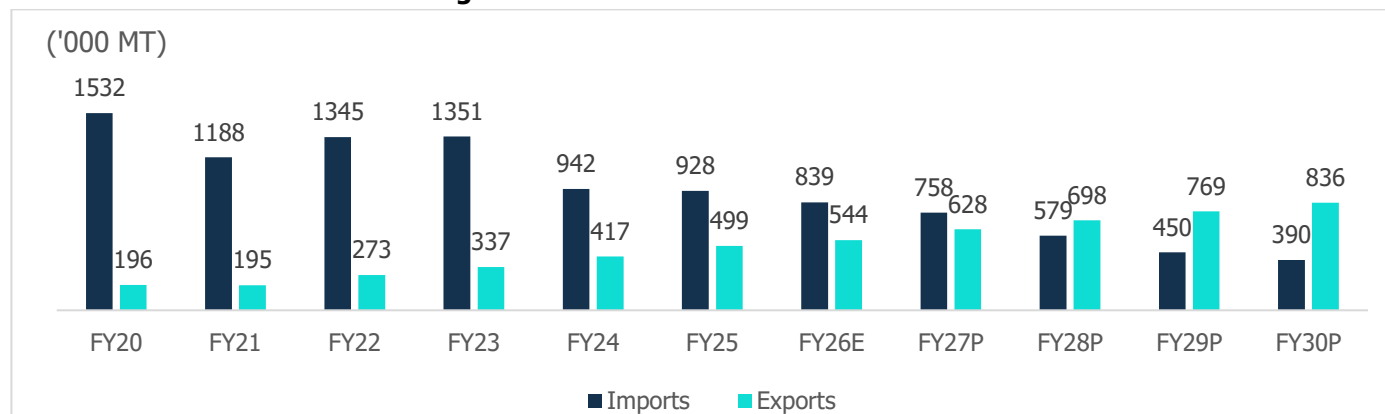
3.10 Forecast for Imports / Exports of Inorganic Chemicals of India

India's trade dynamics for inorganic chemicals continue to witness a structural shift towards export competitiveness. Between FY20 and FY24, imports remained significantly higher than exports, reflecting India's dependence on overseas suppliers for key inorganic chemicals. However, the gap between imports and exports has narrowed considerably in FY25, supported by improving domestic production capabilities, rising capacity additions, and stronger demand for Indian inorganic chemicals in global markets.

Exports of inorganic chemicals increased from 417 thousand metric tonnes in FY24 to 499 thousand metric tonnes in FY25, while imports moderated from 942 thousand metric tonnes to 928 thousand metric tonnes during the same period. This trend is supported by increasing backward integration, government initiatives promoting domestic manufacturing under the "Atmanirbhar Bharat" initiative, and India's growing position as an alternative manufacturing hub amid global supply chain diversification.

Going forward, exports are expected to continue growing steadily and are likely to surpass imports by FY28. Export volumes are projected to grow at a healthy pace over FY25–FY30, while imports are expected to decline gradually, driven by capacity expansion in segments such as caustic soda and soda ash, along with increasing self-sufficiency in domestic production.

Chart 42: Trade Scenario for Inorganic Chemicals

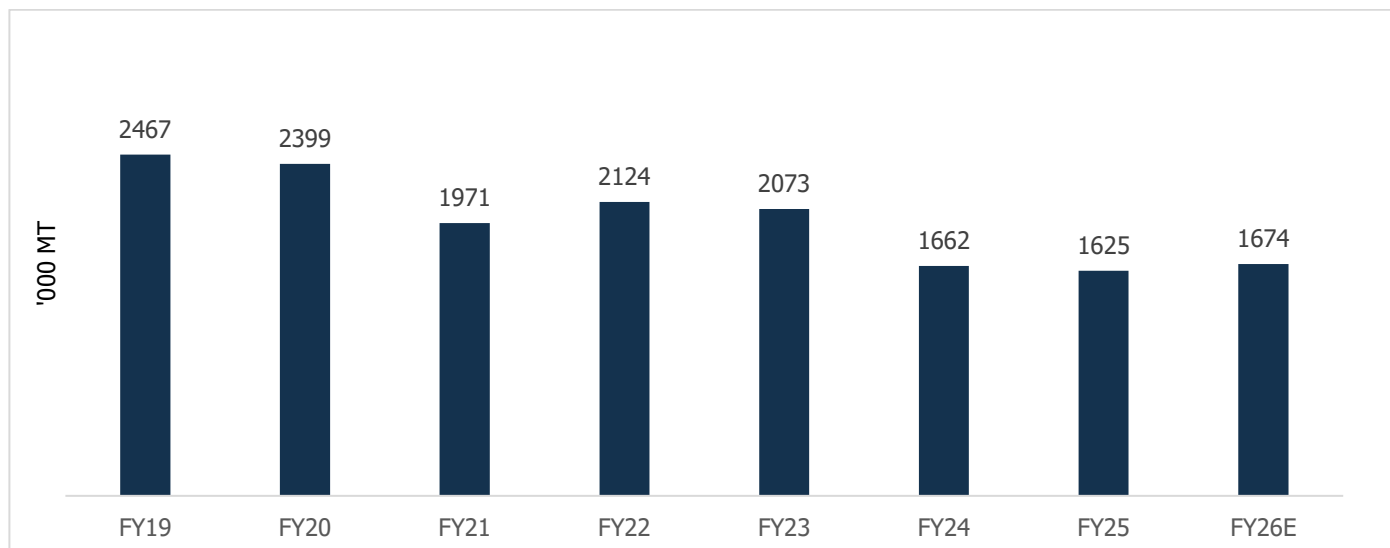


Source: Statistics at a Glance 2025, Department of Chemicals and Petrochemicals, CareEdge Research; P: Projected

3.11 Consumption Trend of Inorganic Chemicals in India

Consumption of inorganic chemicals in India continued to witness a declining trend in FY25, decreasing from 1,662 thousand metric tonnes in FY24 to 1,625 thousand metric tonnes in FY25. The moderation in consumption can be attributed to improved production efficiency, increased recycling practices, and gradual substitution by alternative chemicals in certain applications. Additionally, rising exports and increasing global demand for Indian inorganic chemicals have resulted in a larger share of domestic production being directed towards international markets, thereby impacting domestic consumption trend.

Chart 43: Consumption trend of Inorganic Chemicals

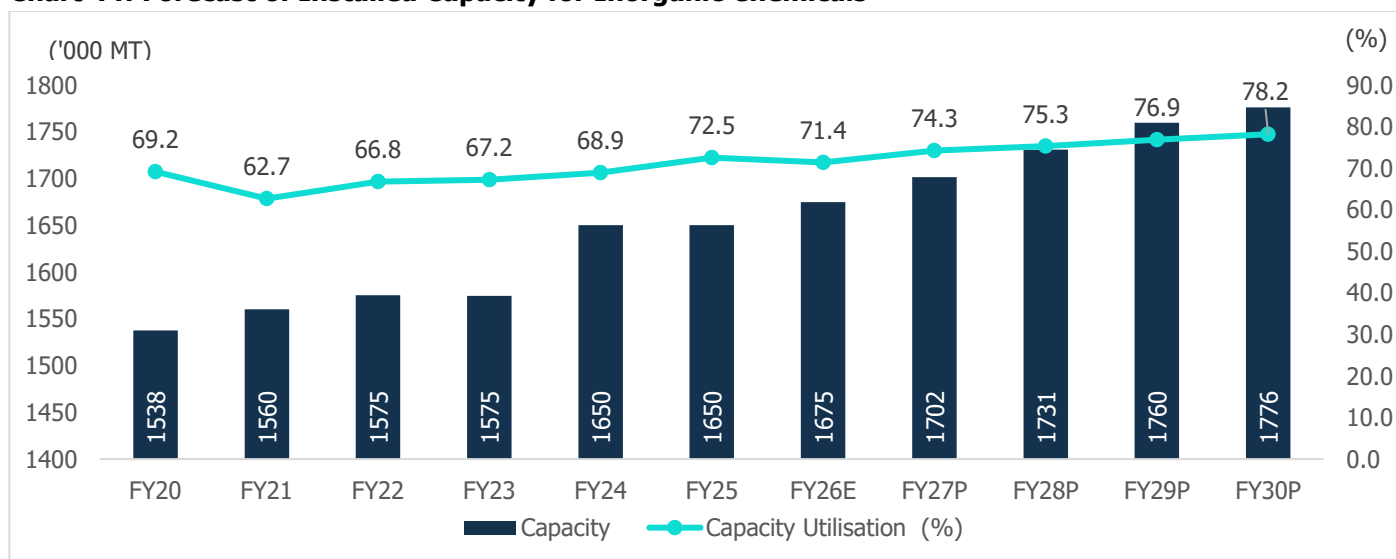


Source: Statistics at a Glance 2025, Department of Chemicals and Petrochemicals, CareEdge Research

3.12 Forecast of Installed Capacity for Inorganic Chemicals

The installed capacity for inorganic chemicals is expected to continue witnessing steady growth over the forecast period, increasing from 1,650 thousand metric tonnes in FY25 to 1,776 thousand metric tonnes by FY30. The growth in capacity additions reflects increasing domestic manufacturing capabilities aimed at reducing import dependence and strengthening export competitiveness. Capacity utilisation is also expected to improve gradually from 72.5% in FY25 to 78.2% by FY30, supported by rising industrial demand, improving operating efficiencies, and higher export opportunities. Manufacturers are continuing to expand capacities to cater to long-term demand growth and strengthen supply chain resilience.

Chart 44: Forecast of Installed Capacity for Inorganic Chemicals



Source: Statistics at a Glance 2025, Department of Chemicals and Petrochemicals, CareEdge Research

3.13 Key growth drivers for the Inorganic Chemical Industry

Growth in End-Use Industries

The demand for inorganic chemicals is directly linked to India's expanding infrastructure and manufacturing sectors. According to DPIIT, construction and allied infrastructure attracted over Rs 2.5 lakh crore in investments in FY24 under the National Infrastructure Pipeline (NIP). The growth of the cement, glass, and textiles industries is driving demand for inputs like sodium silicate, calcium carbonate, and alum. For instance, India's glass industry has seen steady expansion, supported by the government's push for smart cities and affordable housing schemes (Ministry of Housing & Urban Affairs).

Environmental Compliance & Wastewater Treatment

As per the Central Pollution Control Board (CPCB), over 70% of India's surface water is polluted, prompting stricter enforcement of effluent treatment standards. The National Mission for Clean Ganga (NMCG) and AMRUT 2.0 have significantly increased demand for chemical-based treatment solutions. Inorganic coagulants such as alum and ferric chloride are essential in water and sewage treatment, with CPCB identifying them as standard reagents in municipal and industrial effluent protocols.

Fertiliser Demand from the Agriculture Sector

According to the Fertiliser Association of India (FAI), total fertiliser sales in India reached approximately 64.7 million tonnes in FY24, with rising usage of secondary and micronutrients such as zinc sulphate and borates. The government's continued subsidy support under the Nutrient Based Subsidy (NBS) scheme and targeted initiatives like PM-PRANAM are expected to drive demand for inorganic fertiliser inputs, including phosphates and ammonium salts, especially in customised fertiliser blends.

Export Growth Backed by Global Diversification

India exported inorganic chemicals worth over USD 4.7 billion in FY24 (DGCI&S, Ministry of Commerce & Industry), with top-performing categories including aluminium compounds, chlorides, silicates, and borates. Major export markets include the UAE, Bangladesh, the USA, and Vietnam. India's strong chemical manufacturing base, cost advantage, and improved environmental compliance have enhanced its competitiveness globally, supported by recent bilateral trade agreements such as the India-UAE CEPA.

Emergence of Lithium–Sulphur (Li–S) Battery Technology

Growing adoption of next-generation lithium–sulphur batteries is expected to create new avenues for sulphur consumption

Lithium–Sulphur (Li–S) batteries are emerging as one of the most promising next-generation energy storage technologies, owing to their significantly higher theoretical energy density, lower material costs and reduced reliance on critical minerals such as nickel, cobalt and manganese. Unlike conventional lithium-ion batteries, Li–S batteries utilize elemental sulphur as the cathode material, making sulphur a strategic raw material in the evolving battery value chain. The technology is attracting significant investments from battery manufacturers, research institutions and defence agencies for applications in electric vehicles (EVs), aerospace, unmanned systems, drones and long-duration energy storage.

Although Li–S batteries are currently in the advanced research, pilot-scale and early commercialization phase, continuous improvements in cycle life, energy efficiency and battery stability are expected to accelerate their commercial adoption over the coming decade. The abundance, low cost and environmental advantages of sulphur further strengthen the long-term commercial viability of this technology. As commercialization expands, lithium–sulphur batteries are expected

to create an incremental source of demand for high-purity sulphur, complementing traditional applications such as sulphuric acid and fertilizers and reinforcing the strategic importance of the global sulphur value chain.

The commercialization of lithium–sulphur battery technology has the potential to transform sulphur from a conventional industrial feedstock into a strategic energy-transition material. While the technology remains in its early commercialization phase, its superior energy density, lower raw material costs and reduced reliance on critical minerals position it as a significant long-term growth driver for the global sulphur value chain.

Parameter	Lithium–Ion Battery	Lithium–Sulphur Battery
Cathode Material	Lithium cobalt oxide (LCO), NMC, NCA, LFP	Elemental Sulphur
Anode Material	Graphite	Lithium metal
Energy Density	~250–300 Wh/kg	Up to 500–600 Wh/kg (theoretical >2× higher)
Raw Material Cost	Higher due to nickel, cobalt and manganese	Lower due to abundant and inexpensive sulphur
Critical Mineral Dependence	High	Significantly lower
Weight	Relatively heavier	Lighter, enabling longer operating range
Commercial Status	Fully commercialized	Pilot-scale and early commercialization
Key Applications	EVs, consumer electronics, stationary storage	Aerospace, defence, drones, eVTOLs, next-generation EVs

3.14 Impact of Recent Geopolitical Conflicts on the Sulphur-Based Chemicals Sector

The recent geopolitical tensions in the Middle East, particularly the Iran–Israel conflict, intermittent U.S. military involvement in the region, and continued disruptions to shipping routes through the Red Sea, have heightened uncertainty across global sulphur and sulphur-based chemical supply chains. Sulphur, the primary feedstock for manufacturing sulphuric acid and downstream sulphur-based inorganic chemicals such as sodium metabisulphite, sodium bisulphite, sodium sulphite and ammonium bisulphite, is predominantly recovered as a by-product of crude oil refining and natural gas processing. Consequently, geopolitical developments affecting refinery operations, energy markets and maritime logistics have a direct bearing on global sulphur availability, pricing and trade flows.

The Middle East accounts for a significant share of global elemental sulphur exports, making the region critical to the international sulphur supply chain. Ongoing geopolitical uncertainties, coupled with logistics disruptions through the Red Sea and Strait of Hormuz, have tightened global sulphur availability, elevated sulphur and sulphuric acid prices, longer lead times and higher freight and marine insurance costs. While these disruptions have not resulted in a structural shortage of sulphur, they have increased feedstock price volatility and procurement risks for downstream manufacturers across global markets.

For India, which remains structurally dependent on imported elemental sulphur to bridge the gap between domestic production and industrial demand, these developments have heightened raw material cost pressures for sulphur-based inorganic chemical manufacturers. Rising feedstock prices, coupled with elevated logistics costs, may compress

operating margins, particularly for commodity-grade products where pricing flexibility is relatively limited. Nevertheless, India's diversified import sourcing, integrated refining capacity, established chemical manufacturing ecosystem and growing position as a global manufacturing alternative continue to provide resilience against prolonged supply disruptions.

Overall, while geopolitical conflicts are expected to increase input cost volatility and create short-term supply-side challenges, the long-term outlook for the sulphur-based inorganic chemicals industry remains favourable. Sustained demand from water and wastewater treatment, pulp & paper, food processing, mining, pharmaceuticals and other industrial applications, together with increasing environmental compliance requirements and opportunities arising from global supply chain diversification, are expected to support steady growth in the sector over the medium to long term.

4. End-User Industry Assessment

4.1 Pharmaceutical Industry

4.1.1 Industry Overview

The Indian pharmaceutical industry (IPI) ranks 3rd globally in terms of volume and 13th in terms of value. Its lower market share by value is largely due to the dominance of generic medicines, which make up around 70% of the industry's revenue and are priced lower.

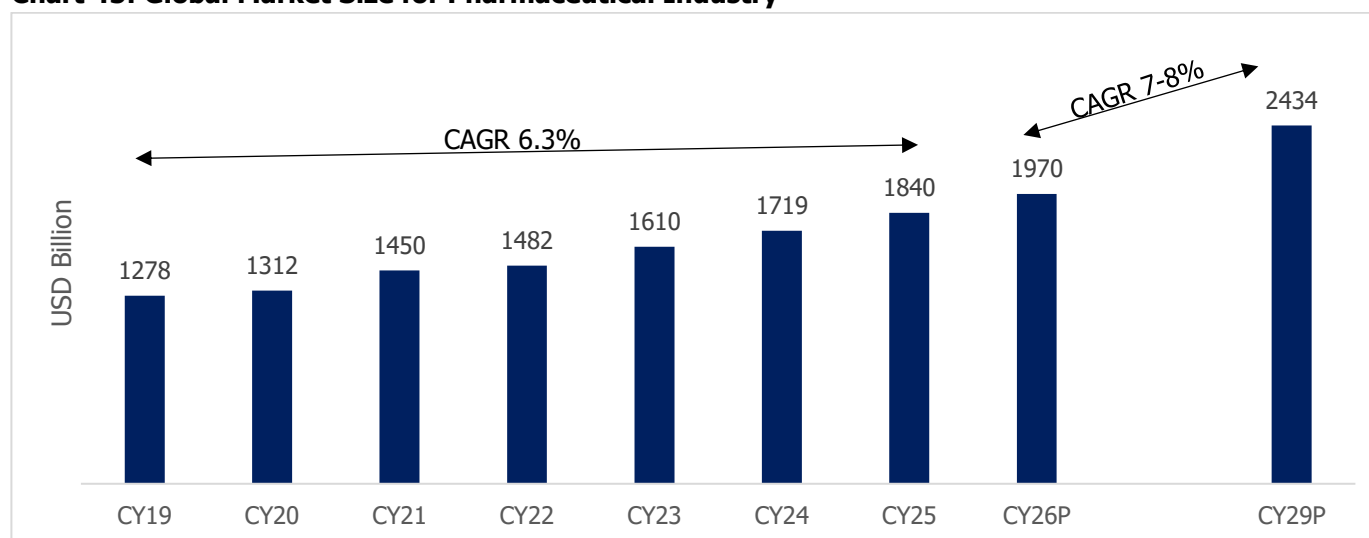
The pharmaceutical industry in India is a significant consumer of inorganic chemicals, which serve as reactants, catalysts, pH adjusters, and excipients in drug formulation and manufacturing. Compounds like aluminium hydroxide, magnesium stearate, sodium bicarbonate, and phosphates are widely used in antacids, tablets, and injectable formulations. Whereas sulphur-based compounds such as sodium metabisulphite and sulphur dioxide are used as reducing agents, preservatives, and intermediates in the synthesis of active pharmaceutical ingredients (APIs) and antibiotics.

With India being a global hub for generic drugs and APIs, the demand for high-purity inorganic chemicals remains strong. Regulatory emphasis on GMP-compliant raw materials is also pushing manufacturers toward more refined and consistent chemical inputs.

4.1.2 Global Industry Market Size

The global pharmaceutical market has demonstrated steady expansion, increasing from USD 1,278 billion in CY19 to USD 1,840 billion in CY25, driven by rising healthcare expenditure, an ageing population, increasing prevalence of chronic diseases, growing access to healthcare services, and continued innovation in biologics, specialty medicines, and advanced therapeutics. The market reached USD 1,840 billion in CY25 and is projected to grow further to USD 2,434 billion by CY29, supported by increasing demand for innovative drugs, expanding vaccination and preventive healthcare programmes, greater adoption of precision medicine, and improving healthcare infrastructure across emerging economies. Additionally, sustained investments in research and development, favourable regulatory support for novel therapies, and increasing penetration of generic medicines are expected to underpin long-term growth in the global pharmaceutical industry.

Chart 45: Global Market Size for Pharmaceutical Industry

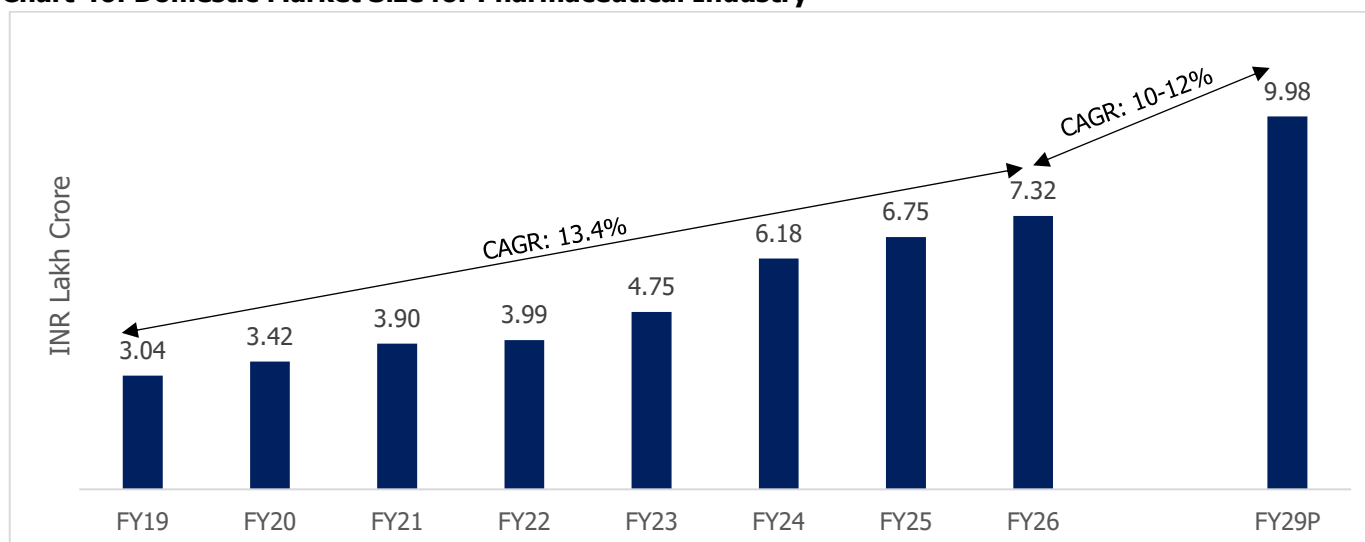


Source: Pharma Company Reports, CareEdge Research; P: Projected

4.1.3 Domestic Industry Market Size

The Indian pharmaceutical market has witnessed robust growth over the past few years, expanding from Rs. 3.0 lakh crore in FY19 to Rs. 7.3 lakh crore in FY26 at a CAGR of 13.4%, driven by increasing healthcare awareness, rising prevalence of chronic diseases, expanding health insurance coverage, and improving access to quality healthcare services. The market is projected to further grow to approximately Rs. 10.0 lakh crore by FY29, supported by rising domestic pharmaceutical consumption, increasing penetration of generic medicines, growing demand for specialty and biologic therapies, and continued government initiatives to strengthen healthcare infrastructure. Additionally, India's strong manufacturing capabilities, expanding export footprint, increasing investments in research and development, and favourable demographic trends are expected to sustain long-term growth, reinforcing the country's position as one of the world's fastest-growing pharmaceutical markets.

Chart 46: Domestic Market Size for Pharmaceutical Industry



Source: IBEF, Department of Pharmaceuticals, CareEdge Research; P: Projected

4.1.4 Key growth drivers

Growth in the chronic diseases segment: The chronic disease segment is poised for sustained growth in the medium term, driven by the need for long-term treatments and recurring prescriptions. Chronic care drugs, addressing non-communicable diseases like cancer, cardiovascular ailments, diabetes, and mental disorders, see higher prescription frequency due to their prolonged treatment cycles and the interconnected pharmaceutical supply chain.

Government support via PLI schemes: The support under PLI schemes is expected to promote the production of high-value products in the country and increase the value addition in exports as well as generate employment for both skilled and unskilled personnel, estimated at 20,000 direct and 80,000 indirect jobs because of growth in the sector.

Growing Infrastructural development: India has the greatest number of FDA-regulated drug manufacturing facilities after the U.S. Around 650 plants, constituting a quarter of all USFDA-approved facilities outside the United States, highlight its significant role in pharmaceutical production.

With life expectancy improving and changing demographic profile, healthcare services a must: India's improving life expectancy and demographic shift are driving increased healthcare needs. By 2031, 13% of the population is projected to be aged 60 or older, compared to 8% in 2011. According to the UNFPA's 2023 report, over 30% of elderly women and 28% of men suffer from chronic conditions such as arthritis, hypertension, and diabetes, with one-fourth experiencing multiple morbidities.

4.2 Oil Drilling Industry

4.2.1 Industry Overview

India's oil drilling industry plays a critical role in meeting the country's energy demand, with increasing focus on domestic exploration and production. The oil drilling industry in India relies heavily on inorganic chemicals for exploration and production activities.

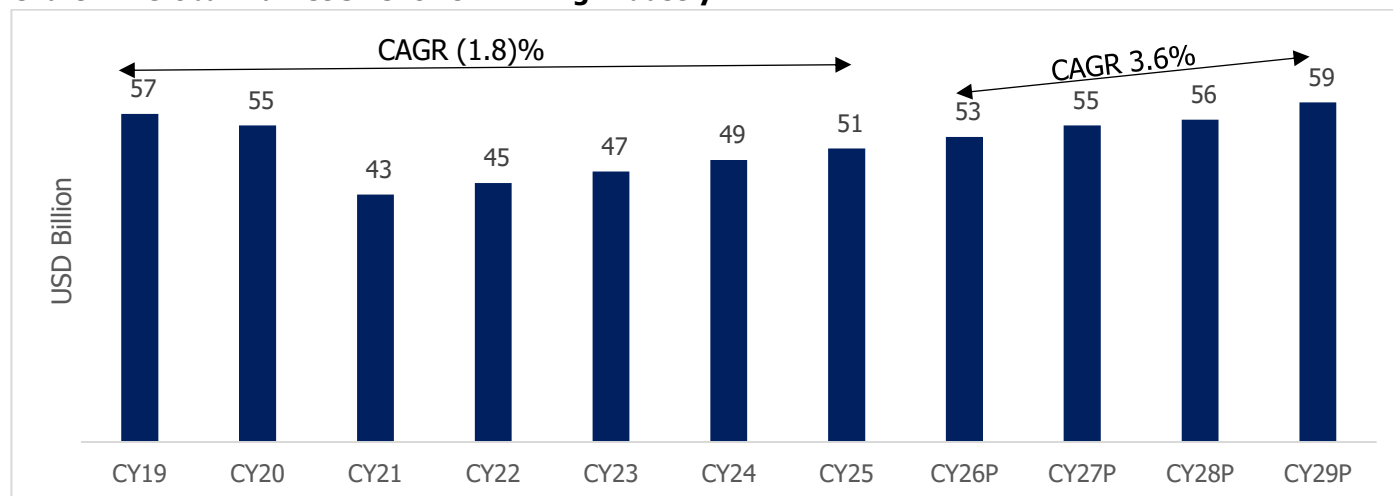
Key chemicals such as bentonite, barite, calcium chloride, and sodium silicate are used in drilling fluids and mud systems to control pressure, lubricate the drill bit, and stabilize boreholes while sulphur-based chemicals like sodium bisulphite are used for oxygen scavenging in drilling fluids and to control corrosion in oilfield water injection systems and production pipelines.

With increased focus on domestic oil and gas exploration, particularly in offshore and deepwater blocks, demand for these drilling additives is expected to grow. Additionally, India's shift toward energy security and enhanced recovery techniques is further driving the need for high-performance inorganic drilling chemicals.

4.2.2 Global Industry Market Size

The global oil drilling market experienced a volatile trajectory during the historical period, declining from USD 57 billion in CY19 to USD 51 billion in CY25, at a CAGR of -1.8%. The contraction was primarily driven by the sharp decline in drilling activity during the COVID-19 pandemic, lower crude oil prices, capital expenditure cuts by exploration and production (E&P) companies, and an increasing focus on capital discipline and energy transition initiatives. Although drilling activity recovered gradually following the pandemic, investments remained below pre-COVID levels. Looking ahead, the market is projected to increase from USD 53 billion in CY26 to USD 59 billion by CY29, registering a CAGR of 3.6%. Growth is expected to be supported by stable global energy demand, increasing investments in offshore and deepwater exploration, rising drilling activity in key oil-producing regions, and the adoption of advanced drilling technologies to improve operational efficiency. However, the pace of growth is likely to remain moderate due to the continued expansion of renewable energy, decarbonization initiatives, oil price volatility, and a disciplined approach to upstream capital spending by major energy companies.

Chart 47: Global Market Size for Oil Drilling Industry

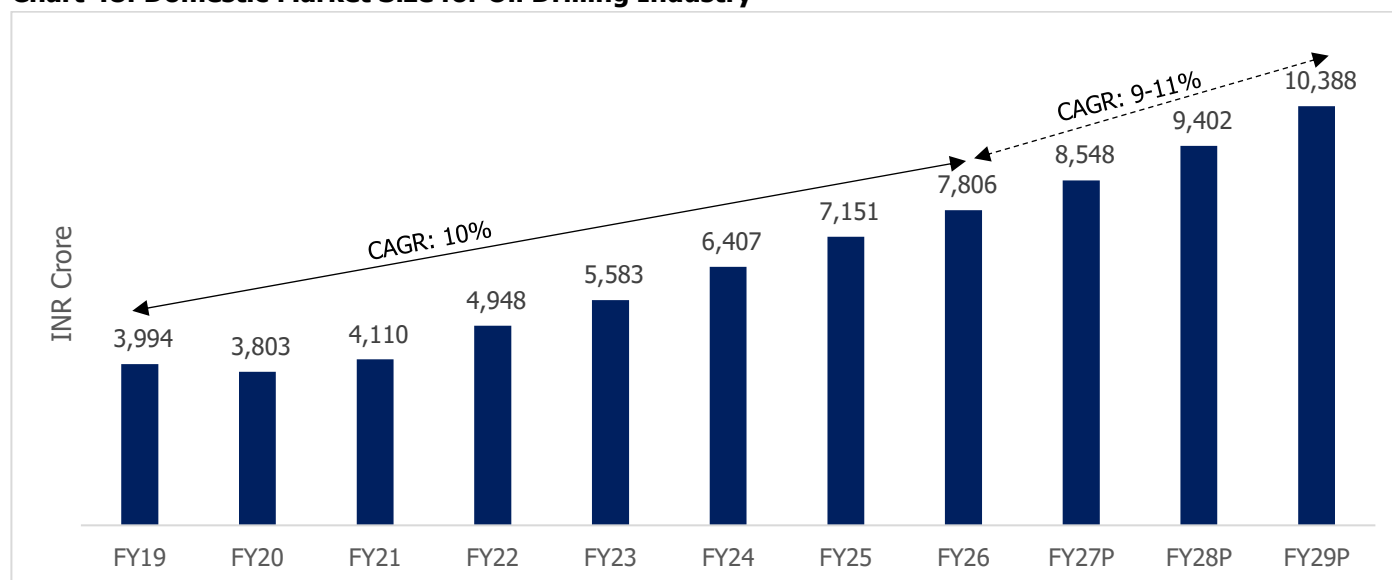


Source: The Business Research Report on Food & Beverages Industry from EMIS Professional Database, CareEdge Research; P: Projected

4.2.3 Domestic Industry Market Size

The domestic oil drilling industry has exhibited steady growth, expanding from Rs. 3,994 crores in FY19 to Rs. 7,806 crores in FY26, at a CAGR of 10%, driven by increasing exploration and production (E&P) activities, higher investments in upstream oil and gas projects, and policy initiatives aimed at enhancing domestic hydrocarbon production. The market reached Rs. 7,806 crores in FY26 and is projected to further grow to Rs. 10,388 crores by FY29, supported by continued government focus on reducing import dependence, increased allocation of exploration blocks under the Open Acreage Licensing Policy (OALP), expansion of offshore and onshore drilling activities, technological advancements in drilling techniques, and sustained investments by public and private sector operators. Additionally, rising energy demand, efforts to improve recovery from mature oilfields, and increasing emphasis on domestic energy security are expected to underpin the long-term growth of the Indian oil drilling industry.

Chart 48: Domestic Market Size for Oil Drilling Industry



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

4.2.4 Key growth drivers

Growing Energy Demand: India's expanding economy and rising population are driving higher energy consumption, increasing the need for domestic crude oil production. This is translating into greater drilling activity across both onshore and offshore basins.

Policy Support and Import Substitution: The government's emphasis on reducing crude oil imports—currently over 85% of total demand—is pushing upstream investment. Schemes like HELP and Open Acreage Licensing Policy (OALP) are streamlining exploration efforts, encouraging more drilling activity.

Focus on Unconventional and Deepwater Resources: With conventional fields maturing, companies are shifting focus to deepwater, ultra-deepwater, and unconventional reserves such as shale and tight oil. These complex operations require greater use of specialized inorganic chemicals like drilling fluids, cementing agents, and completion fluids.

Increased Private and Foreign Investment: Liberalized FDI norms, attractive licensing terms, and improving ease of doing business are drawing international oil companies and private players into India's upstream sector. This is catalysing drilling activity and boosting demand for chemical-intensive exploration operations.

4.3 Food & Beverages Industry

4.3.1 Industry Overview

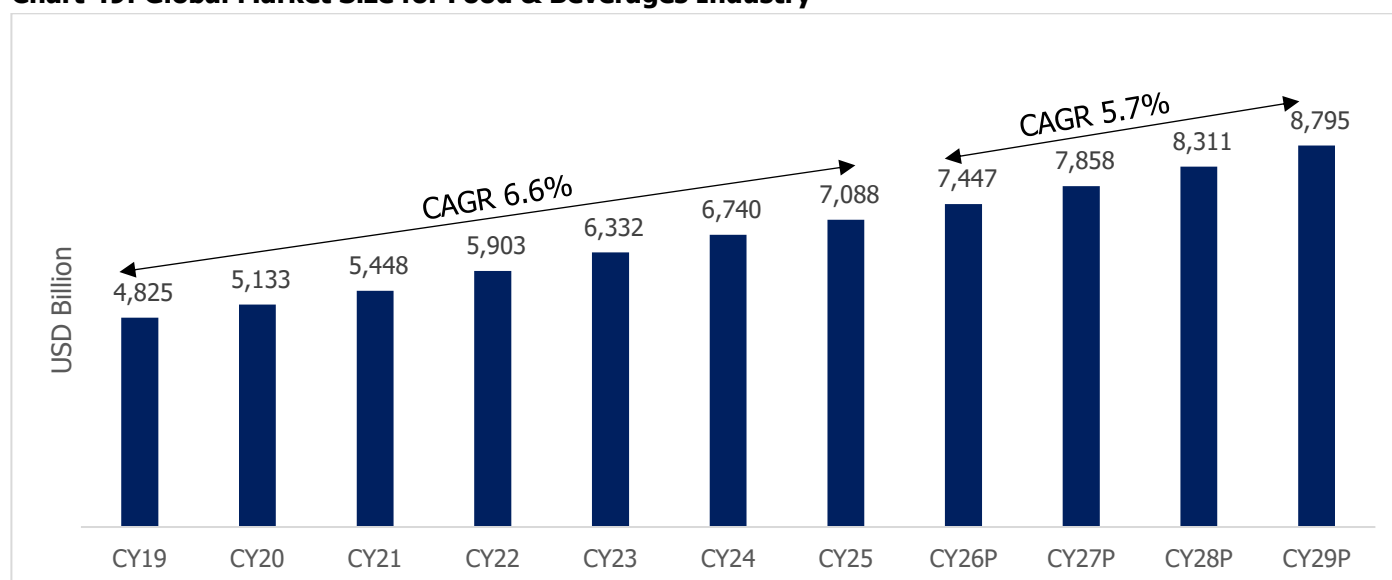
India's food & beverages industry is expanding steadily, supported by rising incomes, urbanization, and increased processed food consumption. Inorganic chemicals such as phosphates, carbonates, and acids play a crucial role in food preservation, pH regulation, leavening, and mineral fortification. Sulphur based chemicals such as sulphur dioxide and sodium metabisulphite are also used as preservatives and antimicrobial agents, particularly in dried fruits, juices, wines, and processed foods to prevent spoilage and microbial growth.

Regulatory focus on food safety and shelf-life enhancement has led to greater use of food-grade inorganic compounds. With rapid growth in packaged foods, bakery, dairy, and beverages, the demand for consistent, high-quality inorganic inputs is expected to grow in tandem.

4.3.2 Global Industry Market Size

The global food and beverage (F&B) market expanded steadily from USD 4,825 billion in CY19 to USD 7,088 billion in CY25, registering a CAGR of 6.6%. Growth during the historical period was supported by rising disposable incomes, rapid urbanization, changing consumer lifestyles, increasing demand for packaged and convenience foods, expansion of organized retail, and the accelerated adoption of online food delivery and e-commerce channels. Looking ahead, the market is projected to grow from USD 7,447 billion in CY26 to USD 8,795 billion by CY29, at a CAGR of 5.7%. The outlook remains positive, driven by sustained population growth, premiumization of food products, increasing health and wellness consciousness, rising demand for functional and plant-based foods, technological advancements in food processing and supply chains, and continued expansion across emerging economies. However, moderating growth compared with the historical period reflects market maturity in developed economies, evolving consumer spending patterns, and persistent inflationary and supply chain challenges.

Chart 49: Global Market Size for Food & Beverages Industry

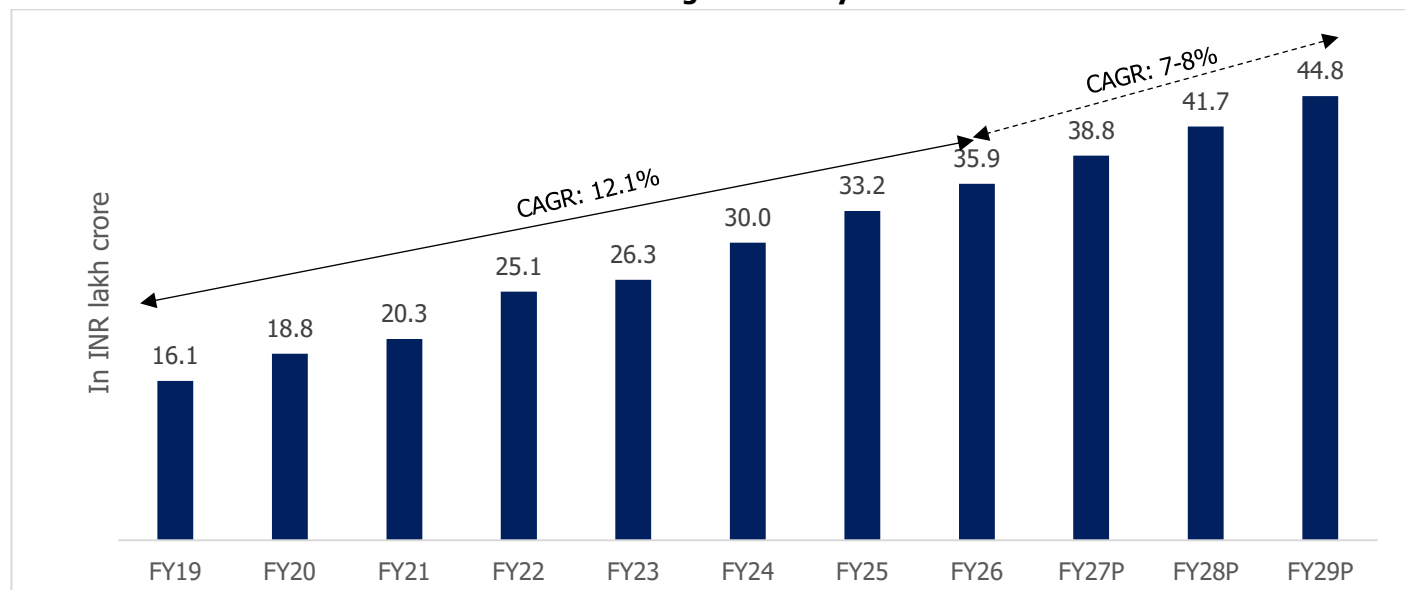


Source: The Business Research Report on Food & Beverages Industry from EMIS Professional Database, CareEdge Research; P: Projected

4.3.3 Domestic Industry Market Size

The domestic food and beverage industry has witnessed strong and sustained growth, expanding from Rs. 16.1 lakh crore in FY19 to Rs. 35.9 lakh crore in FY26, registering a CAGR of approximately 12.1% during the period. Growth has been driven by rising disposable incomes, rapid urbanization, changing dietary preferences, increasing demand for packaged and convenience foods, expansion of organised retail and e-commerce channels, and growing consumer preference for branded products. The market is projected to continue its upward trajectory, reaching Rs. 44.8 lakh crore by FY29, growing at a CAGR of around 7.7% from FY26 to FY29. The growth outlook is supported by favourable demographics, increasing penetration into rural markets, rising health and wellness consciousness, premiumisation of food products, continued investments in food processing and cold-chain infrastructure, and government initiatives such as the Production Linked Incentive (PLI) Scheme for Food Processing and PM Kisan SAMPADA Yojana. Despite a moderation in growth compared to the historical period owing to the larger market base, the Indian food and beverage industry is expected to remain one of the fastest-growing consumer sectors over the medium term.

Chart 50: Domestic Market Size for Food & Beverages Industry



Source: CareEdge Research & Analysis, P: Projected

4.3.4 Key growth drivers

Rising Disposable Incomes and Urbanization: As urban middle-class households expand, there is a clear shift in dietary habits toward packaged, ready-to-eat, and convenience foods. Higher disposable income is enabling consumers to spend more on branded and premium food products, boosting demand across categories like dairy, snacks, beverages, and processed foods.

Rapid Growth of Organized Retail and E-commerce: The proliferation of modern retail formats, supermarkets, and online grocery platforms is improving product accessibility and widening distribution reach. This structural change is enabling faster market penetration for packaged F&B products, particularly in Tier 2 and Tier 3 cities.

Shift Toward Health, Nutrition & Fortified Foods: Consumers are increasingly opting for foods with added nutritional value, such as fortified staples, functional beverages, low-sugar or gluten-free products. This is driving the use of food-grade inorganic chemicals like phosphates, citrates, and mineral salts for fortification and stability.

Government Initiatives and Food Processing Push: Policies such as the PMFME (Pradhan Mantri Formalisation of Micro Food Processing Enterprises) and incentives under the PLI scheme for food processing are encouraging capacity expansion, formalization, and innovation across the sector. This is spurring upstream demand for food additives, preservatives, and pH regulators.

4.4 Pulp and Paper Products Industry

4.4.1 Industry Overview

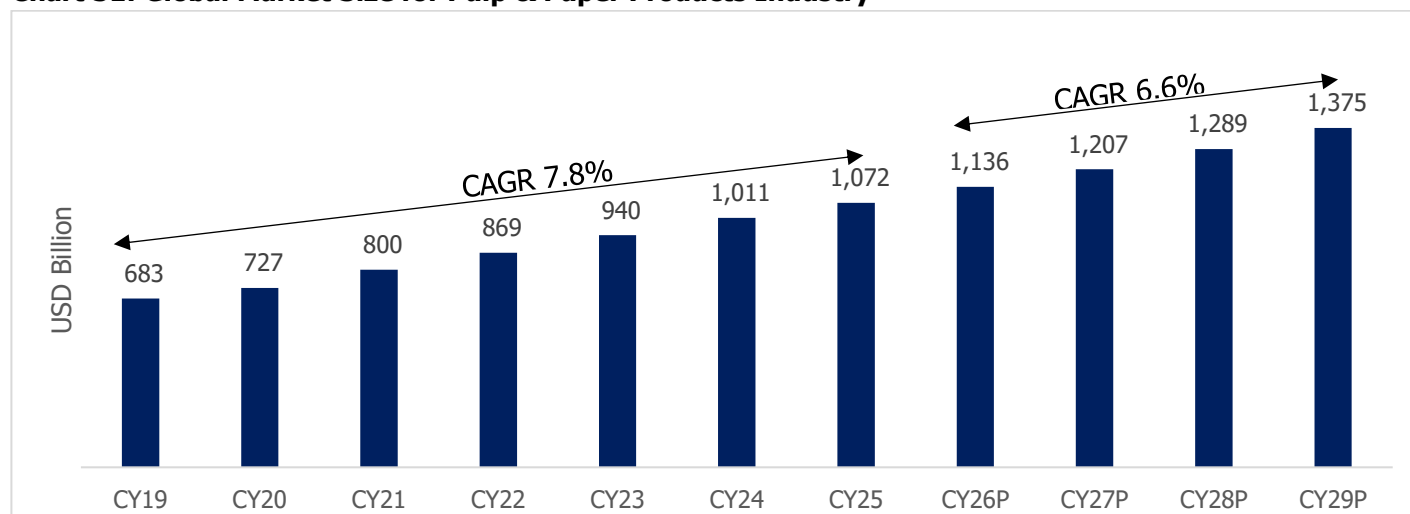
The pulp and paper industry in India is undergoing structural transformation, driven by rising domestic consumption, packaging demand, and export opportunities. Inorganic chemicals such as caustic soda, chlorine, hydrogen peroxide, and lime are integral to pulping, bleaching, and wastewater treatment processes. Sulphur compounds such as sulphur dioxide and sodium bisulphite are utilized in pulping processes to break down lignin and bleach pulp, enhancing paper whiteness and softness.

With growing emphasis on sustainability and cleaner processing, the demand for high-purity and specialty-grade chemicals is rising. Additionally, capacity additions in kraft and packaging paper are expected to sustain chemical consumption growth in the medium term.

4.4.2 Global Industry Market Size

The global pulp and paper market witnessed steady expansion, increasing from USD 683 billion in CY19 to USD 1,072 billion in CY25, registering a CAGR of 7.8%. Historical growth was supported by rising demand for packaging materials driven by e-commerce expansion, increasing consumption of tissue and hygiene products, growth in food and beverage packaging, and the gradual replacement of plastic with paper-based sustainable alternatives. Additionally, higher industrial activity and expanding paperboard demand across logistics and consumer goods sectors contributed to market growth. Going forward, the market is projected to grow from USD 1,136 billion in CY26 to USD 1,375 billion by CY29, at a CAGR of 6.6%. Growth is expected to be driven by continued demand for sustainable packaging solutions, increasing adoption of recyclable and biodegradable paper products, rising consumption in emerging economies, and technological advancements in pulp processing and paper manufacturing. However, the relatively moderate growth outlook reflects the maturity of printing and writing paper segments, digitalization trends, and volatility in raw material, energy, and freight costs.

Chart 51: Global Market Size for Pulp & Paper Products Industry



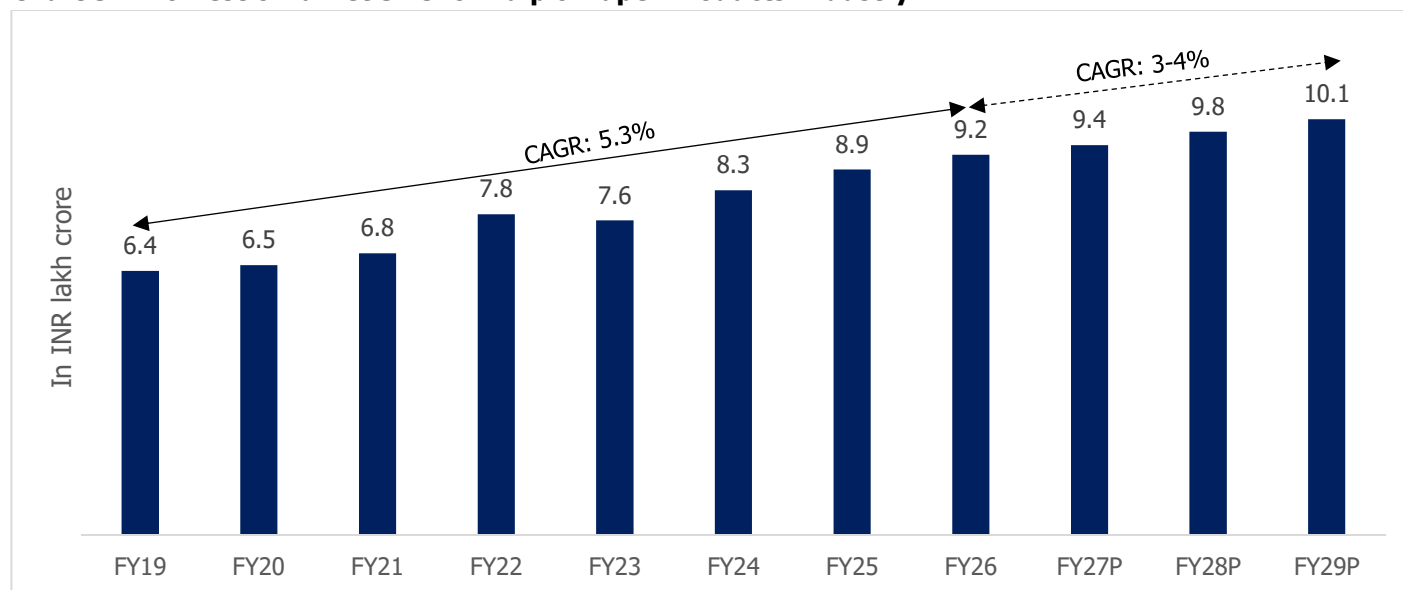
Source: The Business Research Report on Food & Beverages Industry from EMIS Professional Database, CareEdge Research; P: Projected

4.4.3 Domestic Industry Market Size

India's pulp and paper products industry is witnessing a steady growth trajectory. The market grew at a steady CAGR of 5.3% from FY19 to FY26, reaching Rs. 9.2 lakh crore reflecting structural challenges such as digitization-driven decline in printing paper and raw material constraints.

However, the outlook is turning positive, with an expected CAGR of 3-4% from FY26 to FY29, driven by rising demand for sustainable packaging, expansion in e-commerce, and increasing sanitary paper consumption. This growth is likely to support demand for inorganic chemicals such as bleaching agents, fillers, and sizing chemicals that are integral to paper manufacturing processes.

Chart 52: Domestic Market Size for Pulp & Paper Products Industry



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

4.4.4 Key growth drivers

Surge in Packaging Demand: The rapid growth of e-commerce, food delivery platforms, and FMCG sectors is significantly boosting demand for kraft paper, corrugated boards, and flexible packaging. In a move toward eco-friendly packaging materials, paper-based solutions are being increasingly opted for instead of plastics, promoting robust offtake of packaging-grade paper.

Rising Per Capita Paper Consumption: India's paper consumption per capita (around 15–16 kg) remains well below the global average (~55 kg), indicating vast untapped potential. As literacy rates improve, rural consumption grows, and organized retail expands, demand across writing, printing, and tissue segments is expected to accelerate steadily.

Recovery in Education and Office Segments: The reopening of schools, colleges, and workplaces post-COVID has revived demand for printing and writing paper, which had contracted during the pandemic. This structural rebound is aiding capacity utilization and improving product mix across integrated paper mills.

Policy and Environmental Tailwinds: Regulations phasing out single-use plastics and incentives for sustainable alternatives are boosting demand for paper straws, cups, cartons, and food wraps. This transition is encouraging capacity additions in specialty and recyclable paper segments.

4.5 Steam Boilers Industry

4.5.1 Industry Overview

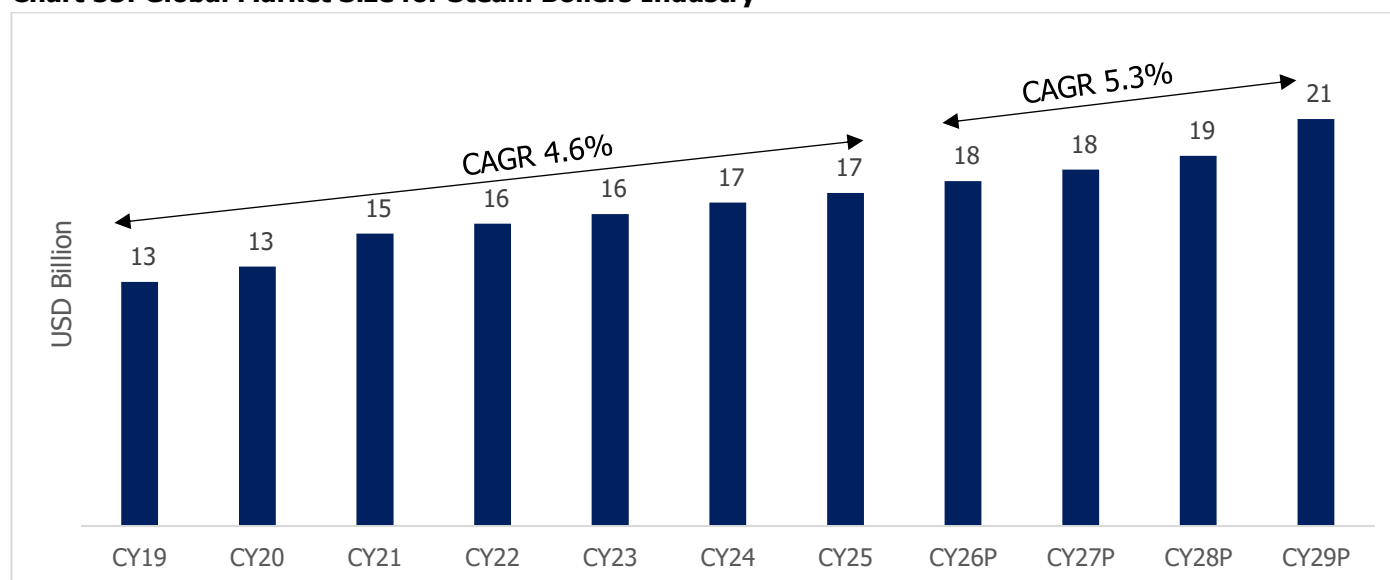
The steam boilers industry in India is closely linked to industrial growth across sectors like textiles, chemicals, power, and food processing. Inorganic chemicals such as phosphates, hydrazine, sodium sulphite, and ammonia are vital for boiler water treatment used to prevent scaling, corrosion, and foaming. Sodium bisulphite is used as an oxygen scavenger in boiler feedwater treatment to prevent oxidative corrosion and scaling inside boiler tubes and condensate systems.

As industries increasingly adopt energy-efficient and high-pressure boilers, the need for precise chemical conditioning has grown. Stricter environmental norms and focus on operational efficiency are also driving steady demand for high-performance inorganic water treatment chemicals.

4.5.2 Global Industry Market Size

The global steam boiler market expanded from USD 13 billion in CY19 to USD 17 billion in CY25, reflecting steady growth during the period. Market expansion was driven by increasing industrialization, rising demand for process steam across industries such as power generation, chemicals, food & beverages, pharmaceuticals, pulp & paper, oil & gas, and textiles, along with growing investments in manufacturing infrastructure. In addition, the replacement of ageing boiler systems with energy-efficient and low-emission technologies, coupled with stringent environmental regulations, has supported market growth. Going forward, the market is projected to reach USD 21 billion by CY29. The market is expected to witness sustained growth, supported by expanding industrial production, increasing adoption of high-efficiency and digitally monitored boiler systems, growing demand for clean energy solutions, and continued investments in industrial process heating and utility infrastructure across emerging economies.

Chart 53: Global Market Size for Steam Boilers Industry

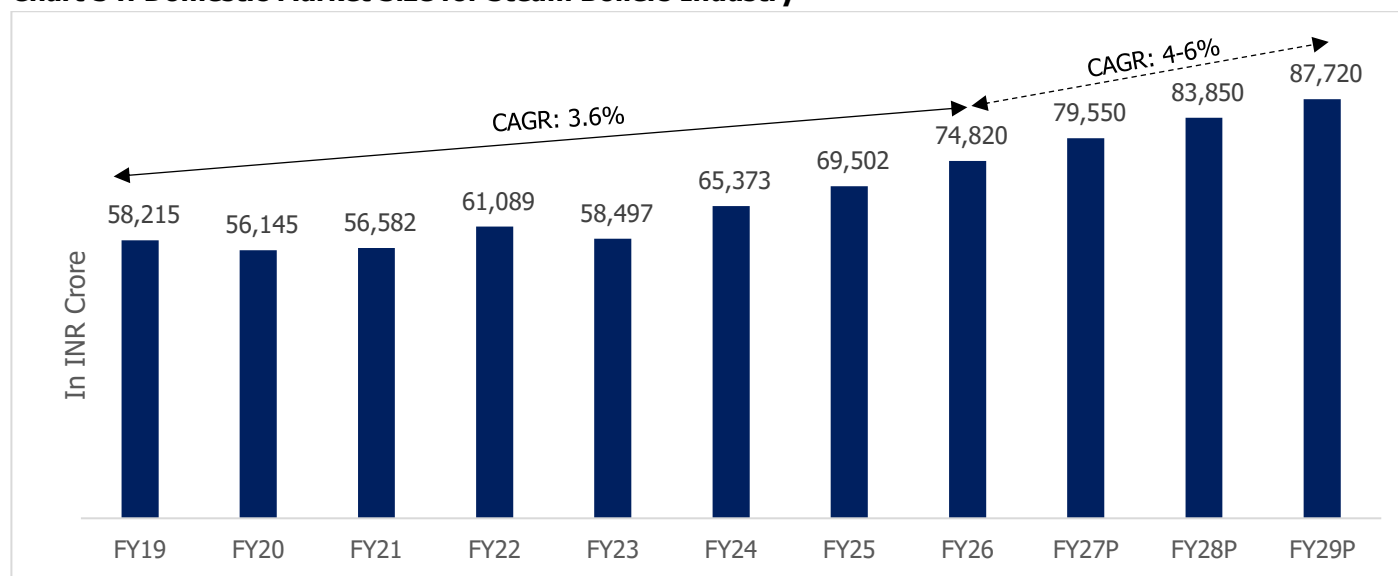


Source: Technavio Research Report on Food & Beverages Industry from EMIS Professional Database, CareEdge Research; P: Projected

4.5.3 Domestic Industry Market Size

The steam boilers industry in India witnessed a decline in growth at a CAGR of 3.6% between FY19 to FY26 reaching Rs. 74,820 crores, largely due to subdued industrial activity during the pandemic years and slower capex cycles. However, the industry is poised for recovery, with growth projected at 4-6% CAGR from FY26 to FY29, backed by industrial production rebound, energy efficiency upgrades, and growing process steam requirements.

Chart 54: Domestic Market Size for Steam Boilers Industry



Source: Custom Market Insights (CMI), CareEdge Research & Analysis; P: Projected

4.5.4 Key growth drivers

Expanding Industrial Base Across Sectors: Sectors like textiles, food processing, chemicals, and pharmaceuticals are witnessing steady growth, all of which require reliable process heat. This industrial expansion is directly driving demand for steam boilers, especially in small and medium-sized enterprises adopting automation and scale efficiency.

Focus on Energy Efficiency and Process Optimisation: With rising fuel costs and emission norms tightening, industries are replacing legacy boilers with high-efficiency, low-emission models. This transition is also increasing demand for inorganic boiler treatment, like phosphates, hydrazine, and sodium sulphite to enhance operational efficiency and longevity.

Urbanisation and Infrastructure Growth: Urban infrastructure projects—such as hospitals, commercial complexes, and residential high-rises—require centralized heating and hot water systems. This is boosting the adoption of compact and modular steam boilers, especially in Tier 1 and Tier 2 cities.

Government Push for Cleaner Technologies: Through policies like PAT (Perform, Achieve, and Trade) under the National Mission on Enhanced Energy Efficiency (NMEEE), the government is encouraging industries to adopt greener boiler technologies. This is accelerating demand for newer generation boilers along with high-purity water treatment chemicals to meet efficiency and emission targets.

4.6 Waste Water Treatment Industry

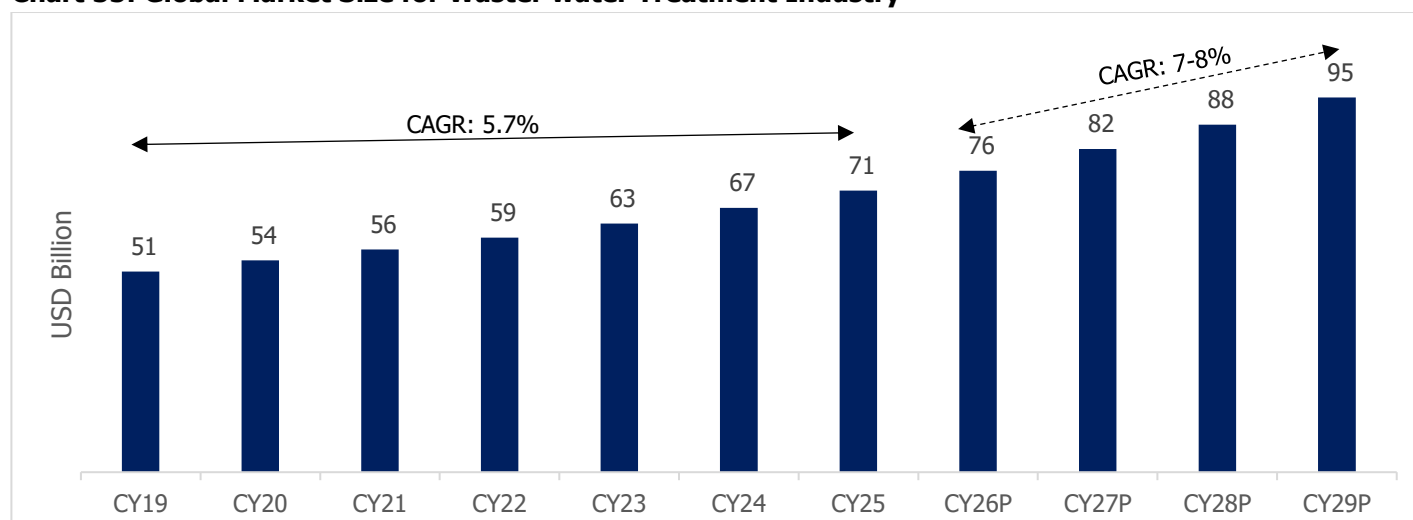
4.6.1 Industry Overview

The wastewater treatment industry comprises technologies, systems and chemicals used for the treatment and purification of municipal and industrial wastewater to meet environmental discharge standards and enable water reuse. The industry plays a critical role in mitigating water pollution, conserving freshwater resources and supporting sustainable industrial and urban development. Demand for wastewater treatment is primarily driven by stringent environmental regulations, increasing industrialization, rapid urbanization, growing water scarcity and rising adoption of zero liquid discharge (ZLD) and water recycling practices across industries. Major end-use sectors include municipal corporations, power generation, oil & gas, chemicals, pharmaceuticals, textiles, food & beverages, pulp & paper, steel and mining. In India, the sector is witnessing robust growth, supported by government initiatives such as the Jal Jeevan Mission, Namami Gange Programme, AMRUT, Swachh Bharat Mission, and stricter effluent discharge norms prescribed by the Central Pollution Control Board (CPCB), thereby driving sustained investments in wastewater treatment infrastructure, treatment chemicals and advanced water management solutions.

4.6.2 Global Industry Market Size

The global wastewater treatment market expanded from USD 51 billion in CY19 to USD 71 billion in CY25, registering a CAGR of 5.7% during the period. Growth was primarily driven by increasing urbanization, rising industrial wastewater generation, stringent environmental regulations governing effluent discharge, and growing investments in water recycling and reuse infrastructure across both developed and emerging economies. In addition, heightened concerns over water scarcity and sustainability have accelerated the adoption of advanced wastewater treatment technologies across municipal and industrial applications. Going forward, the market is projected to reach USD 95 billion by CY29, growing at a CAGR of 7-8% during CY26–CY29. While growth is expected to moderate compared with the historical period due to market maturity in developed regions, continued investments in wastewater infrastructure, tightening environmental compliance, increasing industrialization in developing economies, and the rising adoption of circular water management practices are expected to support sustained market expansion.

Chart 55: Global Market Size for Waster water Treatment Industry

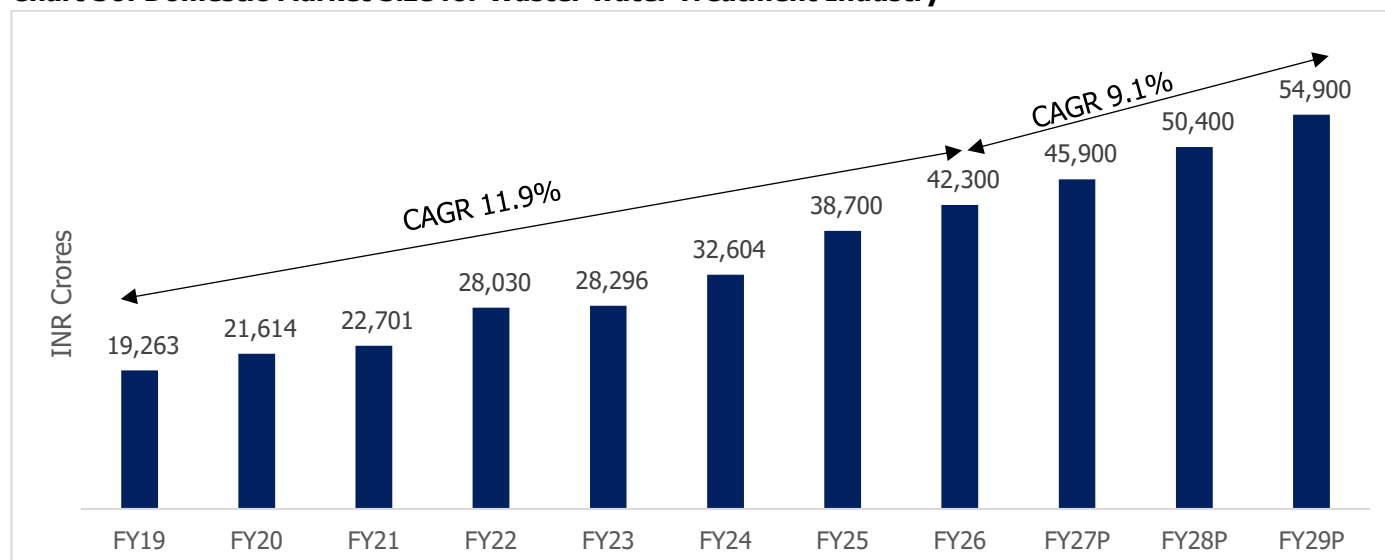


Source: Technavio Research Report on Food & Beverages Industry from EMIS Professional Database, CareEdge Research; P: Projected

4.6.3 Domestic Industry Market Size

The Indian wastewater treatment market expanded from Rs. 19,263 crores in FY19 to Rs. 42,300 crores in FY26, registering a CAGR of 11.9% during the period. Growth was driven by rapid urbanization, increasing industrial wastewater generation, stringent environmental regulations, and sustained government investments in water and sanitation infrastructure through initiatives such as the Jal Jeevan Mission, AMRUT, Namami Gange Programme, and Swachh Bharat Mission. Rising industrial adoption of wastewater recycling, zero liquid discharge (ZLD) systems, and advanced treatment technologies across sectors such as chemicals, pharmaceuticals, power, textiles, food & beverages, and oil & gas further supported market expansion. Going forward, the market is projected to reach Rs. 54,900 crores by FY29, growing at a CAGR of 9.1% during FY26–FY29. Although the pace of growth is expected to moderate as the industry matures, continued investments in municipal wastewater infrastructure, increasing regulatory compliance, growing emphasis on water conservation and reuse, and expanding industrial treatment requirements are expected to sustain long-term market growth.

Chart 56: Domestic Market Size for Waster water Treatment Industry



Source: Technavio Research Report on Food & Beverages Industry from EMIS Professional Database, CareEdge Research; P: Projected

4.6.4 Key growth drivers

1. Stringent Environmental Regulations

Tightening effluent discharge norms by the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) are compelling industries to invest in advanced wastewater treatment and recycling systems to ensure regulatory compliance.

2. Increasing Water Scarcity and Water Reuse

Declining freshwater availability, rising groundwater depletion, and increasing water stress across industrial clusters are driving the adoption of wastewater recycling, reuse, and Zero Liquid Discharge (ZLD) technologies to optimize water consumption.

3. Government Investments in Water Infrastructure

Flagship government programmes such as Jal Jeevan Mission, Namami Gange Programme, AMRUT, Swachh Bharat Mission, and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) continue to drive investments in municipal sewage treatment plants (STPs), wastewater treatment infrastructure, and sewerage networks.

4. Rapid Industrialization and Urbanization

Expansion of industries such as chemicals, pharmaceuticals, textiles, food & beverages, power generation, steel, pulp & paper, and oil & gas, coupled with rapid urban population growth, is significantly increasing wastewater generation, thereby boosting demand for treatment solutions.

5. Growing Adoption of Advanced Treatment Technologies

Industries are increasingly deploying advanced technologies such as membrane bioreactors (MBR), reverse osmosis (RO), ultrafiltration (UF), biological treatment systems, and digital monitoring solutions to improve treatment efficiency, reduce operating costs, and enable water reuse.

4.7 Desalination Industry

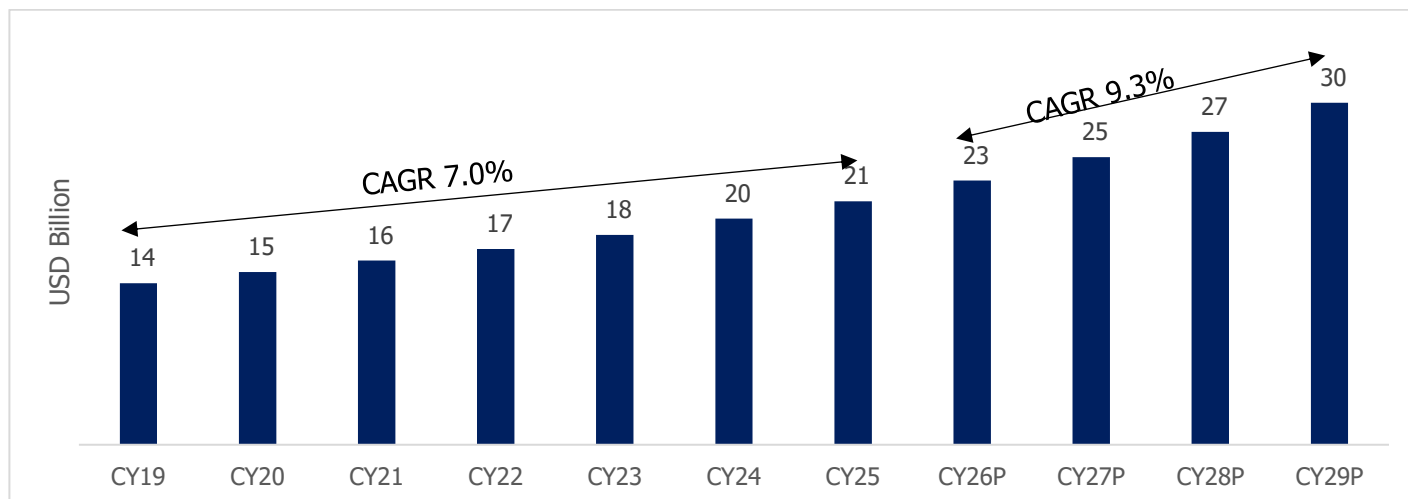
4.7.1 Industry Overview

The desalination industry comprises the technologies, equipment and services used to remove dissolved salts and other impurities from seawater or brackish water to produce freshwater suitable for municipal, industrial and agricultural applications. The industry plays a critical role in addressing freshwater scarcity by providing a reliable and climate-resilient source of water, particularly in water-stressed coastal regions. Reverse osmosis (RO) is the most widely adopted desalination technology due to its high efficiency and lower energy consumption. Demand for desalination is driven by increasing water scarcity, rapid urbanization, growing industrial water requirements, climate change, and rising investments in sustainable water infrastructure and water security initiatives across the globe.

4.7.2 Global Industry Market Size

The global desalination market expanded from USD 14 billion in CY19 to USD 21 billion in CY25, registering a CAGR of 7.0% during the period. Growth was driven by increasing freshwater scarcity, rapid urbanization, rising industrial water demand, and growing investments in seawater and brackish water desalination projects, particularly across water-stressed regions such as the Middle East, North Africa, Asia-Pacific, and parts of North America. Advancements in membrane technologies, improved energy efficiency, and supportive government initiatives aimed at strengthening water security have further accelerated market adoption. Looking ahead, the market is projected to reach USD 30 billion by CY29, growing at a CAGR of 9.3% during CY26–CY29. The market is expected to be supported by continued investments in large-scale desalination infrastructure, increasing adoption of renewable energy-powered desalination systems, expanding industrial applications, and rising emphasis on sustainable water resource management to address long-term water scarcity challenges.

Chart 57: Global Market Size for Desalination Industry

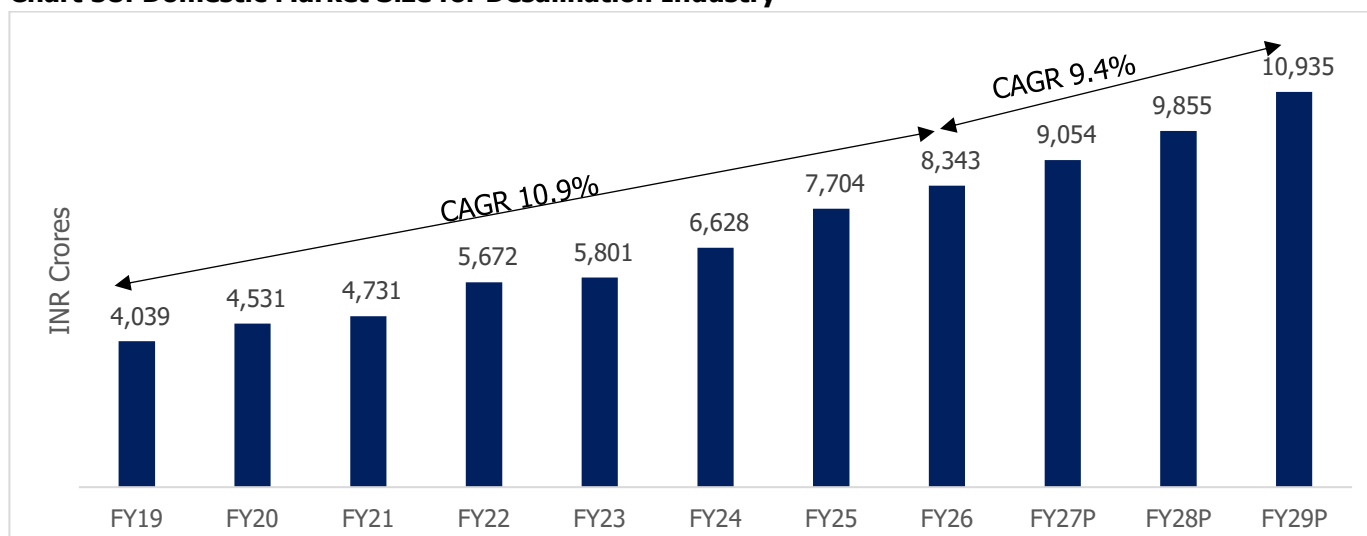


Source: Technavio Research Report on Food & Beverages Industry from EMIS Professional Database, CareEdge Research; P: Projected

4.7.3 Domestic Industry Market Size

The Indian desalination market expanded from Rs 4,039 crore in FY19 to Rs 8,343 crore in FY26. The market grew at CAGR of 10.9% from FY19 to FY26. The market growth was driven by increasing water scarcity, rising freshwater demand from industrial and municipal sectors, and growing investments in seawater desalination projects, particularly across water-stressed coastal states such as Tamil Nadu and Gujarat. Rising industrial water consumption from sectors including power generation, oil & gas, chemicals and refineries, coupled with government initiatives promoting water security and sustainable water resource management, further supported market expansion. Going forward, the market is projected to reach Rs 10,935 crore by FY29, growing at a CAGR of 9.4% during FY26–FY29. While growth is expected to moderate as existing capacities mature, continued investments in large-scale desalination infrastructure, increasing adoption of energy-efficient membrane technologies, expanding industrial demand, and the growing emphasis on water reuse and climate resilience are expected to drive sustained growth in the domestic desalination market.

Chart 58: Domestic Market Size for Desalination Industry



Source: Technavio Research Report on Food & Beverages Industry from EMIS Professional Database, CareEdge Research; P: Projected

4.7.4 Key growth drivers

1. Rising Water Scarcity

Increasing depletion of freshwater resources, declining groundwater levels, and growing water stress across coastal and arid regions are driving the adoption of desalination as a sustainable alternative water source.

2. Growing Municipal Water Demand

Rapid urbanization, population growth, and increasing domestic water consumption are encouraging governments and urban local bodies to invest in large-scale desalination plants to augment potable water supply.

3. Expanding Industrial Water Requirements

Water-intensive industries such as power generation, oil & gas, chemicals, refineries, steel, mining, and pharmaceuticals are increasingly adopting desalination to secure a reliable source of process water and reduce dependence on freshwater resources.

4. Government Investments in Water Infrastructure

Central and state government initiatives aimed at enhancing water security, coupled with investments in desalination projects under public-private partnership (PPP) models, are supporting market growth, particularly in water-stressed coastal regions.

5. Technological Advancements

Continuous improvements in reverse osmosis (RO) membranes, energy recovery devices, and advanced treatment technologies have enhanced plant efficiency, lowered operating costs, and improved the commercial viability of desalination projects.

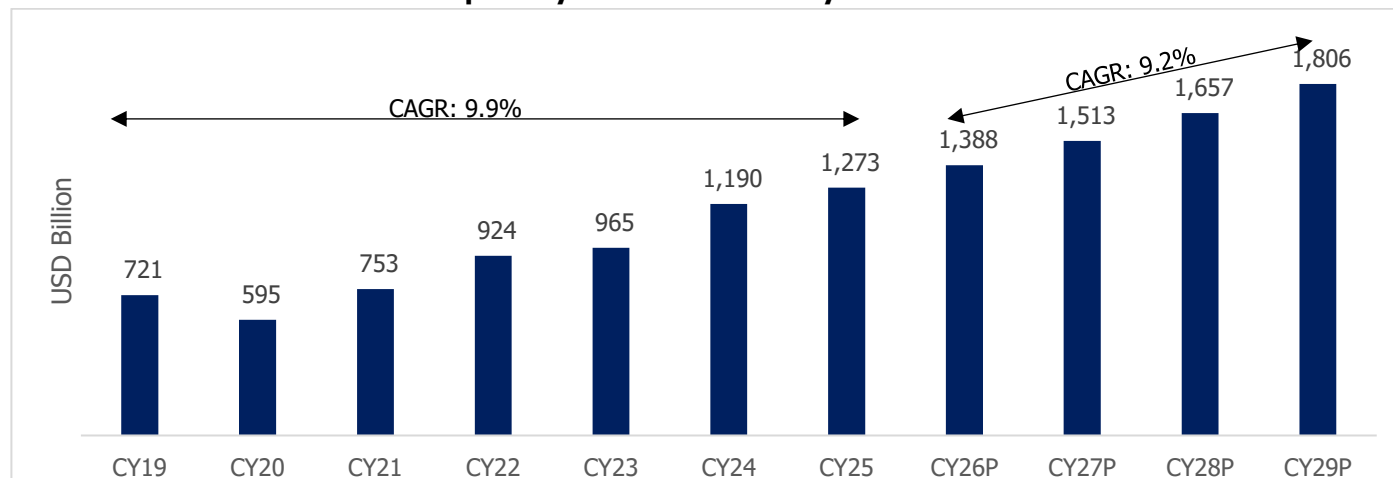
4.8 Specialty Chemicals Industry

4.8.1 Industry Overview

Specialty chemicals are specifically produced or formulated substances designed for functions and applications. Unlike commodity chemicals, which are mass-produced, specialty chemicals are manufactured in smaller quantities, with a strong emphasis on quality, performance, and customization to meet the unique demands of various industries. The quality of these chemicals is crucial, as it directly impacts the performance and safety of the end products.

4.8.2 Global Industry Market Size

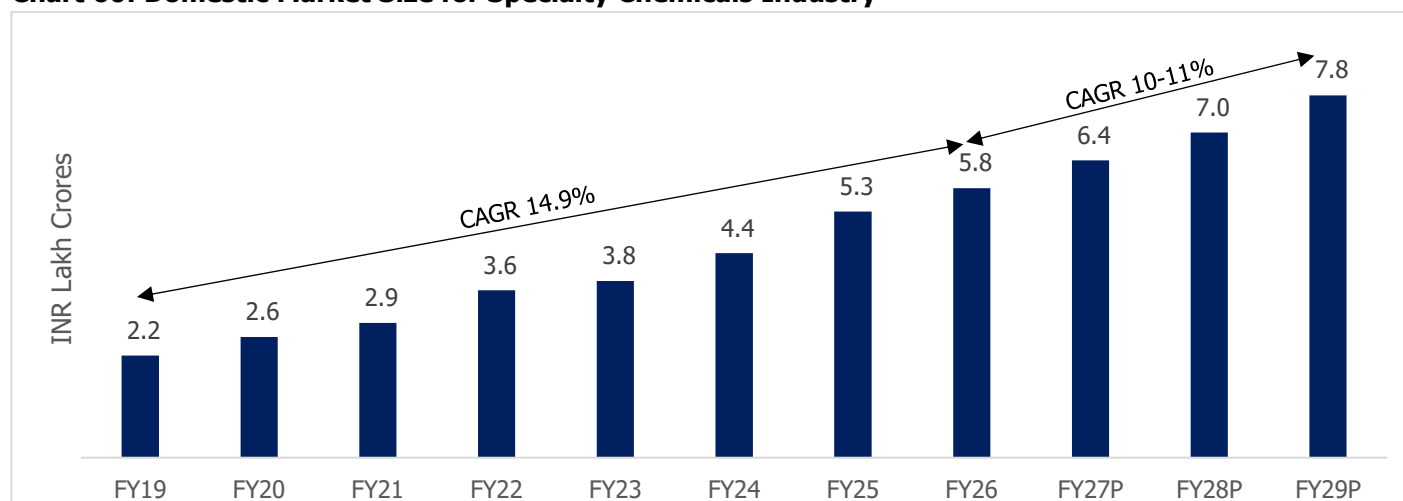
The global specialty chemicals market demonstrated resilient long-term growth, expanding from USD 721 billion in CY19 to USD 1,273 billion in CY25, reflecting a CAGR of approximately 10.0% despite a temporary contraction in CY20 due to pandemic-led disruptions across manufacturing and global supply chains. The subsequent recovery was driven by the resumption of industrial activity, robust demand from end-use sectors such as construction, automotive, electronics, healthcare and agriculture, along with increasing adoption of high-performance and application-specific chemical formulations. Looking ahead, the market is projected to reach USD 1,806 billion by CY29, supported by sustained investments in sustainable and specialty formulations, tightening environmental regulations, rising demand for advanced materials, and continued innovation across sectors including water treatment, electronic chemicals, life sciences and renewable energy. The industry's transition towards value-added, performance-driven products is expected to remain a key growth catalyst over the forecast period.

Chart 59: Global Market Size for Specialty Chemicals Industry


Source: CareEdge Research & Analysis; P: Projected; CY- Calendar Year

4.8.3 Domestic Industry Market Size

The Indian specialty chemicals market expanded from Rs. 2.2 lakh crore in FY19 to Rs. 5.8 lakh crore in FY26. The market grew at a robust CAGR of 14.9% from FY19 to FY26. The robust growth was driven by increasing domestic consumption, strong export demand, rising investments in high-value chemical manufacturing, and the diversification of global supply chains under the China+1 strategy. Additionally, favourable government initiatives, expanding end-use industries such as pharmaceuticals, agrochemicals, personal care, construction, textiles, and electronics, coupled with increasing emphasis on innovation and product customization, have further supported market growth. Going forward, the market is projected to reach Rs. 7.8 lakh crore by FY29, growing at a CAGR of approximately 10-11% during FY26–FY29. Although growth is expected to moderate from the historical period, sustained capacity additions, increasing localisation of specialty chemical manufacturing, rising demand for performance and sustainable chemicals, and continued investments by both domestic and multinational companies are expected to underpin the market's long-term growth trajectory.

Chart 60: Domestic Market Size for Specialty Chemicals Industry


Source: Arizton Advisory, Global Specialty Chemicals Market Analysis Report from EMIS Professional Database, CareEdge Research; P: Projected

4.8.4 Key growth drivers

1. China+1 Supply Chain Diversification

Global customers are increasingly diversifying their sourcing base beyond China to enhance supply chain resilience. India's cost competitiveness, strong manufacturing capabilities, and improving regulatory compliance have positioned it as a preferred alternative for specialty chemical production.

2. Expanding End-user Industries

Robust growth across end-use sectors such as pharmaceuticals, agrochemicals, personal care, food processing, construction, automotive, textiles, electronics, and water treatment is driving sustained demand for high-performance and application-specific specialty chemicals.

3. Rising Domestic Consumption

Increasing urbanization, rising disposable incomes, changing consumer preferences, and expanding industrial activity are supporting higher consumption of specialty chemicals across consumer and industrial applications.

4. Government Support and Manufacturing Push

Government initiatives such as Make in India, the Production Linked Incentive (PLI) Scheme for select chemical value chains, ease of doing business reforms, and investments in industrial corridors and chemical parks are encouraging domestic manufacturing and capacity expansion.

5. Increasing Focus on Research & Development

Manufacturers are investing in product innovation, process optimization, and custom synthesis capabilities to develop value-added specialty chemicals tailored to evolving customer requirements, thereby enhancing competitiveness and profitability.

4.9 Other End-Use Industries

1. Textile Industry

The textile sector remains one of the largest end-users of sulphur-based inorganic chemicals, particularly sodium hydrosulphite and sulphur dioxide, used as reducing agents in vat dyeing and desizing processes. These chemicals are integral to enabling consistent colour fixation and fibre preparation in natural and synthetic fabrics.

India's textile industry contributing ~2% to GDP and 11–12% of total exports are undergoing structural modernisation, driven by government initiatives such as the PLI Scheme and PM MITRA Parks. As of FY26, the textiles and apparel market stands at roughly around USD 200 billion as of FY26 and is expected to reach USD 300 million by FY30 at a CAGR of 9.5%. As demand shifts towards value-added segments like technical textiles and synthetic blends, the requirement for precision chemical processing intensifies, sustaining demand for sulphur-based agents that offer controllable redox behaviour and compatibility with automated dyeing systems.

2. Leather Processing Industry

Sulphur-based chemicals such as sodium sulphide and sodium hydrosulphite play a pivotal role in the beamhouse operations of leather processing, notably in dehairing, unhairing, and liming. India, being a top global exporter of leather goods, operates in a compliance-sensitive environment dictated by international norms such as REACH and ISO 14001.

The growing demand for 'green leather' has led to process optimisation, where controlled use of sulphur-based inputs enables efficient unhairing with reduced effluent load. The Indian footwear and leather market is expected to almost double from around USD 25 billion in FY26 to USD 50 billion FY30. Additionally, the rise in demand for lightweight, high-quality leather from automotive and fashion sectors necessitates uniform chemical processing, reinforcing the relevance of high-purity sulphur-based intermediates.

3. Food Preservation Industry

In the food processing value chain, sulphur-based preservatives like sulphur dioxide and sodium metabisulphite are essential for microbial control and oxidation prevention in dried fruits, juices, and pickled goods. These compounds inhibit enzymatic browning and maintain product stability during storage and distribution. India's food processing industry expected to grow at robust rate doubling from around USD 430 billion in FY26 to almost USD 700 billion by FY30. The growth is likely to be backed from rising packaged food demand, export incentives under the Agriculture Export Policy, and infrastructure expansion under schemes such as the Mega Food Park initiative. Sulphur-based preservatives, being cost-effective and regulatory-approved at controlled doses, remain preferred agents for meeting extended shelf-life requirements while adhering to FSSAI and Codex Alimentarius limits.

5. Regulatory Framework

5.1 Policy Landscape for Indian Chemicals Industry

The policy landscape for India's chemicals industry is evolving rapidly to foster self-reliance, align with global best practices, and address sustainability imperatives. The following sections outline the key regulatory and policy initiatives impacting the sector:

1. Chemical Management and Safety Regulations

Chemical (Management and Safety) Rules, 2024 (CMSR):

Introduced to replace the MSIHC Rules, 1989, the CMSR will:

- Mandate pre-registration and registration for substances exceeding 1 tonne per annum.
- Require submission of Safety Data Sheets (SDS), exposure scenarios, and risk assessments.
- Apply to domestic manufacturers, importers, and downstream users.
- Align India with frameworks such as EU REACH, facilitating better trade compliance.

2. Investment Promotion – PCPIR Policy

- The revised Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) policy supports infrastructure-led development in designated clusters:
- Key regions: Dahej (Gujarat), Paradeep (Odisha), Cuddalore (Tamil Nadu), and Visakhapatnam (Andhra Pradesh).
- Focus on integrated logistics, CETPs, effluent management, and common utilities.
- States to act as nodal authorities for infrastructure and approvals.

3. Trade Measures and Import Substitution

- Customs duties increased on select feedstocks and intermediates to reduce import dependency (e.g., ethylene dichloride, phenol).
- Anti-dumping duties extended on products such as soda ash, caustic soda, and aniline.
- Mandatory BIS standards implemented for several chemicals (e.g., titanium dioxide, acetic acid) to curb low-quality imports.

4. Environmental and Safety Regulations

Enhanced enforcement of EHS norms under:

- Environment Protection Act, 1986
- Factories Act, 1948
- Hazardous and Other Wastes Rules, 2016

Focus on:

- Zero Liquid Discharge (ZLD) systems in industrial clusters.
- Real-time monitoring of emissions and effluents.
- Adoption of green chemistry practices and waste minimization.

5.2 Policy Initiatives by the government for Chemicals Industry

1. Proposed Production Linked Incentive (PLI) Scheme for Chemicals

The government has considered extending the PLI scheme to the specialty chemicals sector, with a proposed financial outlay in the range of Rs. 6,000–Rs. 8,000 crore. The aim of this proposed scheme is to incentivize domestic

manufacturing of critical chemical intermediates such as fluorochemicals, agrochemical ingredients, and high-performance polymers. Although the Department of Chemicals and Petrochemicals (DCPC) submitted the proposal to the Ministry of Finance, the scheme has not yet been approved or notified. As such, while industry stakeholders have expressed strong support, the PLI framework for chemicals remains under evaluation and is yet to be rolled out.

2. Revised PCPIR (Petroleum, Chemicals and Petrochemicals Investment Region) Policy

The revised PCPIR policy promotes infrastructure-led growth by developing integrated chemical clusters in identified regions like Dahej (Gujarat), Paradeep (Odisha), Cuddalore (Tamil Nadu), and Visakhapatnam (Andhra Pradesh). These zones are supported with common infrastructure such as water supply, effluent treatment systems, logistics networks, and captive power. The policy also streamlines environmental and industrial clearances through single-window mechanisms, thereby improving ease of doing business. This cluster-based approach aims to enhance economies of scale, attract global players, and facilitate integrated value chain development in chemicals.

3. Chemical Management and Safety Rules (CMSR), 2024

The CMSR, notified in 2024, replaces the legacy MSIHC Rules and introduces a comprehensive framework for safe chemical management. It mandates registration and risk assessment for all substances manufactured or imported above 1 tonne per annum. The rules require detailed data submissions such as Safety Data Sheets (SDS), exposure scenarios, and hazard classifications. By aligning closely with international systems like EU REACH, the CMSR aims to improve transparency, promote safe usage of chemicals across the value chain, and facilitate smoother trade with regulatory-compliant markets.

4. Tariff Reforms and Import Substitution

To curb import dependence and promote local manufacturing, the government has rationalized customs duties on several chemical intermediates. Higher import duties have been levied on products like ethylene dichloride, phenol, and acetone to make domestic production more viable. In addition, anti-dumping duties have been imposed or extended on chemicals such as soda ash, caustic soda, and aniline to protect Indian manufacturers from low-priced imports. These measures support the competitiveness of local players and enable capacity expansion in critical segments.

5. BIS Quality Standards and Environmental Norms

To ensure quality compliance and safeguard domestic industry standards, the Bureau of Indian Standards (BIS) has made certification mandatory for a growing list of chemical products. This move helps reduce the influx of substandard imports while improving customer confidence in Indian-made chemicals. Simultaneously, environmental regulations have become stricter, with emphasis on Zero Liquid Discharge (ZLD), continuous emissions monitoring, and solid waste management in industrial clusters. These measures encourage the adoption of sustainable practices and green chemistry across the industry.

6. Skill Development and R&D Support

The government is also focusing on human capital and innovation to drive long-term competitiveness. Through collaborations with the National Skill Development Corporation (NSDC) and the Sector Skill Councils, several training programs have been launched to build capabilities in chemical handling, safety protocols, and process optimisation. Additionally, financial support is being extended for setting up R&D centres and chemical technology parks, with the aim of strengthening innovation, improving product quality, and enabling faster adoption of advanced technologies in the sector.

6. Threats and Challenges for Inorganic Chemicals Industry

Environmental Compliance Pressure on Industry

The inorganic chemical industry faces acute regulatory pressure due to the inherently pollutive nature of its processes. High salinity wastewater, gaseous emissions (like SO₂, Cl₂), and sludge disposal attract strict scrutiny under CPCB norms. Delays in obtaining environmental clearances frequently lead to production halts.

Global Feedstock Dependency and Supply Instability

India imports a large portion of essential inputs such as sulphur, soda ash, and potash, leaving domestic producers exposed to global price volatility. Disruptions in maritime trade, geopolitical crises, or export restrictions by major producers like China or Russia cause raw material shocks. These fluctuations are hard to absorb in a price-sensitive, low-margin environment, particularly for basic inorganics.

Rising Energy Costs and Infrastructure Bottlenecks

The chemical sector is highly energy-intensive, and fluctuations in industrial power tariffs and fuel prices (e.g., natural gas, coal) can significantly affect margins. While some large players have invested in captive power plants or renewable energy, many mid-sized firms rely on state electricity boards, where power reliability and pricing remain inconsistent. Additionally, inland logistics inefficiencies, lack of dedicated chemical transport corridors, and underdeveloped pipeline infrastructure contribute to higher freight costs and longer turnaround times, especially for exporters.

Rising Compliance Costs for Handling and Transport

Inorganic chemicals are often corrosive, reactive, or hazardous in nature, requiring specialized storage, handling, and transport. Compliance with transport safety regulations and hazardous cargo norms has become more stringent. Lack of availability of certified logistics infrastructure and corrosion-resistant tankers adds to operational risk and increases distribution costs.

Limited R&D and Innovation in Product Value Chain

Compared to specialty chemicals, the inorganic segment in India sees minimal research toward product innovation or application development. As global demand shifts toward higher-purity, custom-grade inorganic materials (e.g., battery-grade sulphates, electronic-grade chlorides), Indian players are struggling to move up the value chain. Low R&D intensity limits long-term competitiveness.

Geopolitical and Global Market Risks

The Indian chemical industry is heavily integrated into global supply chains, making it vulnerable to geopolitical tensions and trade disruptions. The ongoing trade disputes between major economies (such as the US-China trade war and the Russia-Ukraine conflict) have led to volatility in chemical prices and supply shortages. In addition, anti-dumping tariffs imposed by foreign countries, particularly for products like caustic soda and phenol, pose significant risks to Indian exporters. As global markets shift and competition increases, the industry faces the challenge of maintaining its position as a cost-competitive supplier while balancing environmental and social expectations.

7. Competitive Landscape

1. Shanti Inorganics Limited

Shanti Inorganics, is a Gujarat-based manufacturer of sulphur-based inorganic chemicals, established in 1998 in Ahmedabad. The company began with Sodium Bisulphite in powder form and later innovated its solution form through in-house R&D. The company holds one of the largest domestic production capacities for bisulphites with capacity of 18,800 MTPA. During FY26, the company's overall production capacity stood at 18,800 MTPA, of which Sodium Bisulphite Solution/Powder accounted for 8,200 MTPA, Ammonium Bisulphite was at 9,000 MTPA and Sodium Meta Bisulphite was at 1,600 MTPA.

Financial indicators	FY23	FY24	FY25	FY26
Net Sales (Rs. Lakhs)	4,573	4,488	5,711	7,122
Operating Profit (EBITDA) (Rs. Lakhs)	713	865	1,211	1,541
Operating Margin (in %)	15.58%	19.27%	21.21%	21.63%
Net Profit (Rs. Lakhs)	476	522	828	1,025
Net Profit Margin (in %)	10.41%	11.63%	14.50%	14.40%
Total Debt (Rs. Lakhs)	563	2,434	2,538	3,067
Debt -to- Equity	0.43	1.35	0.98	0.63
Current Ratio	1.35	1.12	0.78	1.24
Return on Capital Employed (ROCE) (in %)	49.11%	25.85%	32.83%	21.35%
Return on Equity (ROE) (in %)	36.42%	29.06%	31.97%	21.22%
Return on Assets (ROA) (in %)	17.18%	9.91%	12.54%	10.57%

Source: Company Reports

2. Shalibhadra Dyechem Private Limited

Founded in 1989, Shalibhadra Dyechem Private Limited (part of the Shalibhadra Group of Industries) is a manufacturer and exporter of chemicals like Sodium Sulphite, Potassium Sorbate, and Sodium Phosphate. Based in Ahmedabad, Gujarat, the company is known for delivering pure, reliable, and long-lasting products. With a modern facility, strong distribution network, and experienced leadership under Darshan Sanghvi and Pankaj Sanghvi, it ensures timely service and consistent quality to its clients.

Financial indicators	FY23	FY24	FY25
Net Sales (Rs. Lakhs)	3,119	3,117	2,931
Operating Profit (EBITDA) (Rs. Lakhs)	69	133	2,983
Operating Margin (in %)	2.21%	4.27%	5.49%
Net Profit (Rs. Lakhs)	46	44	141
Net Profit Margin (in %)	1.46%	1.42%	1.51%
Total Debt (Rs. Lakhs)	765	977	927
Debt -to- Equity	0.56	0.96	3.62
Current Ratio	1.61	1.59	1.07
Return on Capital Employed (ROCE) (in %)	12.09%	10.21%	13.94%
Return on Equity (ROE) (in %)	3.37%	4.37%	17.53%

Return on Assets (ROA) (in %)	2.74%	2.55%	3.01%
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Source: Company Reports

3. Nilkanth Organics Private Limited

Nilkanth Organics was established in 1996 and based in Mumbai. The company specializes in sodium chemical compounds, industrial chemicals, inorganic chemicals and pharmaceutical intermediates. The company has a wide market presence, supplying products across Europe and Asia with timely and consistent delivery.

Financial indicators	FY23	FY24	FY25
Net Sales (Rs. Lakhs)	5,486	7,859	12,265
Operating Profit (EBITDA) (Rs. Lakhs)	123	531	1,639
Operating Margin (in %)	2.24%	6.76%	13.37%
Net Profit (Rs. Lakhs)	80	123	800
Net Profit Margin (in %)	1.45%	1.57%	6.46%
Total Debt (Rs. Lakhs)	9,663	9,466	9,343
Debt -to- Equity	2.64	2.47	1.93
Current Ratio	0.99	1.30	1.01
Return on Capital Employed (ROCE) (in %)	2.41%	4.11%	12.81%
Return on Equity (ROE) (in %)	2.18%	3.22%	16.50%
Return on Assets (ROA) (in %)	0.42%	0.75%	4.43%

Source: Company Reports

8. Financial Benchmarking

8.1 Net Sales

Net sales performance across the specialty chemical companies showed varied trends over FY23–FY25. Shanti Inorganics Limited recorded gradual growth, with revenues rising steadily from Rs. 4,573 lakh in FY23 to Rs. 5,711 lakh in FY25, reflecting a healthy CAGR of 11.8% recording the highest CAGR amongst the peer set. Whereas Shalibhadra Dyechem Private Limited posted modest growth, with sales growing at a CAGR of 2.4%. Nilkanth Organics Private Limited posted strongest revenue growth over the same period.

Net Sales (Rs. In Lakhs)	FY23	FY24	FY25	CAGR (FY23-25)
Shanti Inorganics Limited	4,573	4,488	5,711	11.8%
Shalibhadra Dyechem Private Limited	3,119	3,117	2,931	-3.1%
Nilkanth Organics Private Limited	5,486	7,859	12,265	49.5%

Source: Company Reports

8.2 Operating Margins

Operating margin indicates how efficiently a company converts revenue into operating profit after covering core expenses. Among the three, Shanti Inorganics Limited maintained the strongest margins across FY23–FY25, showing consistent operational efficiency. Shalibhadra Dyechem Private Limited posted gradual improvement in margins over the years. Nilkanth Organics Private Limited showed some volatility, with a dip in FY23 followed by recovery in FY25.

Operating Margin (in %)	FY23	FY24	FY25
Shanti Inorganics Limited	15.58%	19.27%	21.21%
Shalibhadra Dyechem Private Limited	2.21%	4.27%	5.49%
Nilkanth Organics Private Limited	2.24%	6.76%	13.37%

Source: Company Reports

8.3 Net Profit Margin

Net profit margin measures the proportion of revenue that remains as profit after accounting for all expenses, including taxes and interest. Shanti Inorganics Limited maintained stable and healthy margins over FY23–FY25, indicating consistent profitability. Shalibhadra Dyechem Private Limited showed marginal improvement from FY22 to FY23, though the margin remained nearly flat in FY24. Nilkanth Organics Private Limited witnessed a sharp decline in FY23 and a slight recovery in FY25.

Net Profit Margin (In %)	FY23	FY24	FY25
Shanti Inorganics Limited	10.41%	11.6%	14.50%
Shalibhadra Dyechem Private Limited	1.46%	1.42%	1.51%
Nilkanth Organics Private Limited	1.45%	1.57%	6.46%

Source: Company Reports

8.4 Return on Capital Employed (ROCE)

Return on Capital Employed (ROCE) indicates how effectively a company generates profits from its overall capital base. Shanti Inorganics Limited reported a strong ROCE in FY23 but saw a decline in FY24, however recovered in

FY25. Shalibhadra Dyechem Private Limited maintained moderate returns, with slight fluctuations over the period. Nilkanth Organics Private Limited experienced a steep drop in FY24, followed by a improvement in FY25.

Return on Capital Employed (ROCE) (In %)	FY23	FY24	FY25
Shanti Inorganics Limited	49.11%	25.85%	32.83%
Shalibhadra Dyechem Private Limited	12.09%	10.21%	13.94%
Nilkanth Organics Private Limited	2.41%	4.11%	12.81%

Source: Company Reports

8.5 Return on Equity

Return on Equity (ROE) measures how effectively a company generates profit from shareholders' funds. Shanti Inorganics Limited maintained strong returns over the years, though it moderated in FY24, indicating stable profitability. Shalibhadra Dyechem Private Limited witnessed improvement in FY25. Nilkanth Organics Private Limited followed a similar trend, with returns falling significantly after FY22 and recovering gradually.

Return on Equity (In %)	FY23	FY24	FY25
Shanti Inorganics Limited	49.11%	25.85%	31.97%
Shalibhadra Dyechem Private Limited	12.09%	10.21%	17.53%
Nilkanth Organics Private Limited	2.41%	4.11%	12.81%

Source: Company Reports

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