FROST & SULLIVAN

INDEPENDENT MARKET REPORT FOR GEM AROMATICS

FINAL REPORT

A FROST & SULLIVAN REORT

14th JULY 2025

Contents

Key Considerations and Abbreviations

- 1 USD = INR 80
- GDP: Gross domestic product
- For the analysis years- E-Estimated (2024e); F-Forecasted(2029f); This definition will remain the same throughout the document.
- Consumer market includes both staples and discretionary product sectors
- DIY: Do IT Yourself
- FMCG: Fast Moving Consumer Goods, for the purpose of this report the following consumer market numbers are considered as part of FMCG- Food, Beverage, Tobacco Products, Beauty and Personal Care, OTC Pharmaceuticals and Home and laundry Care (Note: The value will be much lower if only processed foods and beverages are considered)
- OTC: Over the Counter- these include medicines sold without any prescriptions

Disclaimer

The market research process for this study has been undertaken through secondary / desktop research as well as primary research, which involves discussing the status of the market with leading participants and experts. The research methodology used is the Expert Opinion Methodology. Quantitative market information was sourced from interviews by way of primary research as well as from trusted portals, and therefore, the information is subject to fluctuations due to possible changes in the business and market climate. Frost & Sullivan's estimates and assumptions are based on varying levels of quantitative and qualitative analyses, including industry journals, company reports and information in the public domain.

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This study has been prepared for inclusion in the draft red herring prospectus, red herring prospectus and the prospectus of "**Gem Aromatics Pvt. Ltd.**" in relation to an initial public offering in connection with its listing on the Indian stock exchange.

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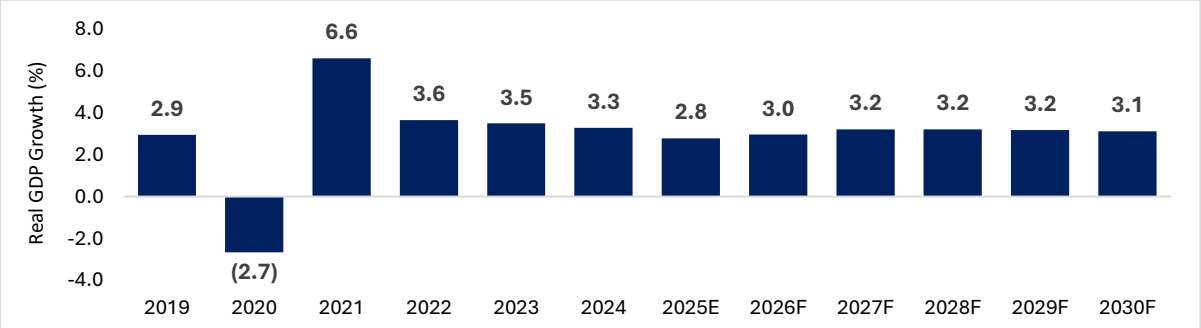
Frost & Sullivan has prepared this study in an independent and objective manner, and it has taken adequate care to ensure its accuracy and completeness. We believe that this study presents a true and fair view of the global and Indian Specialty Chemicals industry within the limitations of, among others, secondary statistics, and primary research, and it does not purport to be exhaustive. Our research has been conducted with an "overall industry" perspective, and it will not necessarily reflect the performance of individual companies in the industry. Frost & Sullivan shall not be liable for any loss suffered because of reliance on the information contained in this study. This study should also not be considered as a recommendation to buy or not to buy the shares of any company or companies as mentioned in it or otherwise."

1. Global Macroeconomic Overview

1.1. Real GDP Growth and Estimates – Global and Key Countries[1]

Exhibit 1.1.1: Real GDP Growth (%), Global, CY2019-CY2030F



Note: E: Estimate, F: Forecast; Chart shows baseline figures. Data in parentheses indicates negative value; Source: International Monetary Fund (IMF), Frost & Sullivan

Following a post-pandemic upswing of 6.6% in CY2021, the outbreak of the Russia-Ukraine war stoked inflationary pressures and rapid monetary policy tightening in CY2022. Curtailed business and consumer spending growth saw real GDP growth moderating to 3.6% in CY2022. In CY2023, growth tempered to 3.5% and it further softened slightly to 3.3% in CY2024 owing to persistent geopolitical tensions, the Gaza war, elevated prices, and interest-rate driven erosion of purchasing power. Russia's invasion of Ukraine in February 2022 and Gaza war in October 2023 dampened the pace of growth, exacerbated inflation, and pushed up global interest rates. Except for the United States, most developed nations, saw sluggish growth momentum, while emerging markets remained engines of global growth.

In the baseline, from CY2025 to CY2030, the global economy will maintain a steady growth momentum ranging between 2.8%-3.2%. Emerging market and developing economies will be the growth frontrunners owing to upbeat consumer demand, competitive labour costs, and prudent monetary policies, and conducive fiscal support. Advanced economies will witness a steady expansion amidst sizable fiscal support for sectors like clean energy, digitalization, and manufacturing. In the long-term an aging population, high debt burdens, and weaknesses in property markets may be the key risks on the downside.

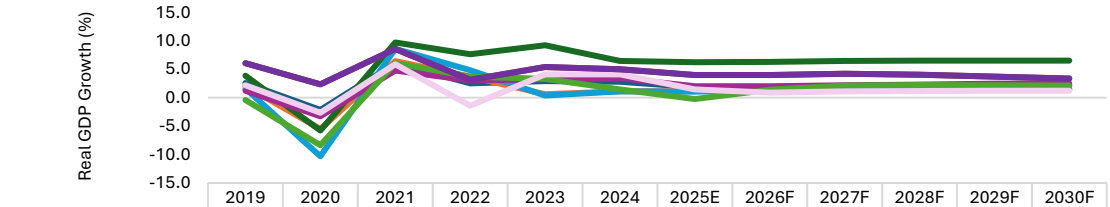
The US economy remained resilient in CY2024, with a real GDP growth of 2.8% and is likely to grow by 1.8% in CY2025. Easing interest rates and conducive policies will boost consumer and business investment growth in H1 CY2025. While the proposed tax and regulatory reforms during the upcoming Trump presidency will drive growth, high tariffs can push up domestic prices and put a hold on the pace of the monetary policy easing. In this case, US GDP growth can slow to 1.8-1.9% next year.

In the United Kingdom, improving household consumption will drive economic growth in CY2025. In CY2023, Germany experienced a recession owing to a slowdown in global exports and China's slow recovery, with a 0.3% contraction. Political uncertainty in key economies like Germany and France along with inflationary pressures have largely weighed on EU's growth performance. The EU is forecast to grow at 1.8% and 1.7% in CY2025 and CY2026, respectively. Consumer spending will recover amidst easing price pressures and improving credit conditions. Coupled with exports rebound to key trading partners such as China, growth within the European nations will be picking

[1] Key countries include India, China, US, Brazil, Russia, European Union, UK, and Indonesia

up CY2025 onwards. US trade policy moves could act as a growth restraint for the EU economy in CY2025, with real GDP growth pegged at 1.0% in case of high tariffs and weak China demand.

Exhibit 1.1.2: Real GDP Growth (%), Key Countries, CY2019-CY2030F



	2019	2020	2021	2022	2023	2024	2025E	2026F	2027F	2028F	2029F	2030F
United States	2.6	-2.2	6.1	2.5	2.9	2.8	1.8	1.7	2.0	2.1	2.1	2.1
European Union	2.0	-5.5	6.4	3.7	0.6	1.1	1.2	1.5	1.6	1.6	1.5	1.4
India	3.9	-5.8	9.7	7.6	9.2	6.5	6.2	6.3	6.5	6.5	6.5	6.5
United Kingdom	1.6	-10.3	8.6	4.8	0.4	1.1	1.1	1.4	1.5	1.5	1.4	1.4
Brazil	1.2	-3.3	4.8	3.0	3.2	3.4	2.0	2.0	2.2	2.3	2.4	2.5
Mexico	-0.4	-8.4	6.0	3.7	3.3	1.5	-0.3	1.4	2.1	2.2	2.2	2.1
Russia	2.2	-2.7	5.9	-1.4	4.1	4.1	1.5	0.9	1.1	1.1	1.2	1.2
China	6.1	2.3	8.6	3.1	5.4	5.0	4.0	4.0	4.2	4.1	3.7	3.4
Indonesia	6.1	2.3	8.6	3.1	5.4	5.0	4.0	4.0	4.2	4.1	3.7	3.4

Note: E: Estimate, F: Forecast; Chart shows baseline figures. India's data is presented for fiscal years i.e., 2024 data refers to FY2025 (April 2024 to March 2025); Source: IMF, Frost & Sullivan

In Latin America, Brazil, diverging from the global trend, has started monetary policy tightening since September 2024. The hikes are a pre-emptive response to the potential risk of a near-term resurge in inflation due to ongoing droughts and fires.

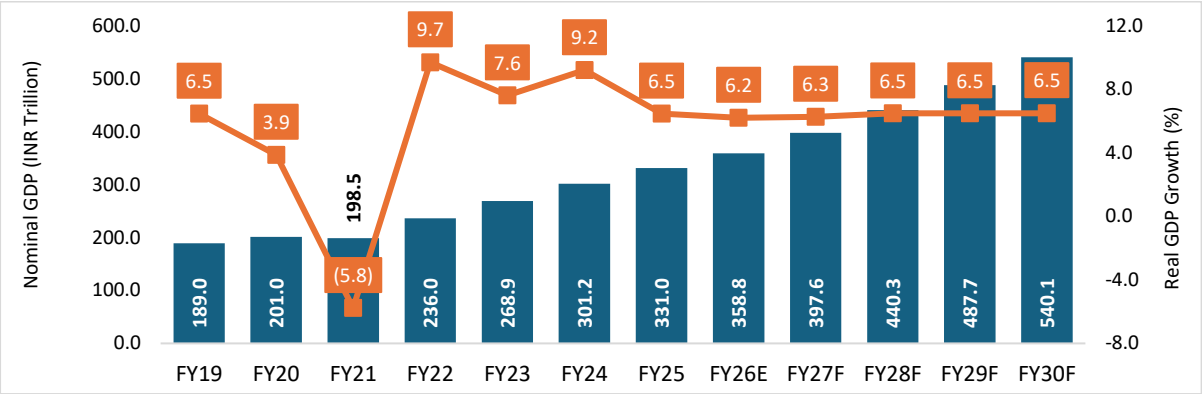
In Asia, China is forecasted to expand by 4.0% in both CY2025 and CY2026. The soft near-term growth is underpinned by weak manufacturing activity, deflation, high debt, and the domestic property market crisis. US tariffs under the upcoming Trump presidency will have a bearing on near-term trade and economic growth momentum. In a heated trade war scenario, China's domestic growth will fall below 4.0% in CY2025 as US consumer demand for Chinese imports dampens amidst high tariffs. Indonesia will maintain an upbeat growth trajectory with 5.0% growth in the near term amidst expansionary fiscal support and strong household spending.

India remains the fastest growing large economy with 6.5% growth in 2024 (i.e., FY 2025) and a forecast of 6.2% in 2025 (i.e. FY2026), despite global growth headwinds. India's growth will average 6.5% between FY2025 and FY2029. Capital expenditure-led growth model remains an essential driver for the economy. In the near to medium-term, adverse US tariffs on nations like China and Mexico can potentially spur exports demand for Indian goods and services amidst increased price competitiveness.

2. India Macroeconomic Overview

2.1 Real GDP Growth and Nominal GDP

Exhibit 2.1.1: Nominal GDP (in INR Trillion) and Real GDP Growth (%), India, FY2019-FY2030F



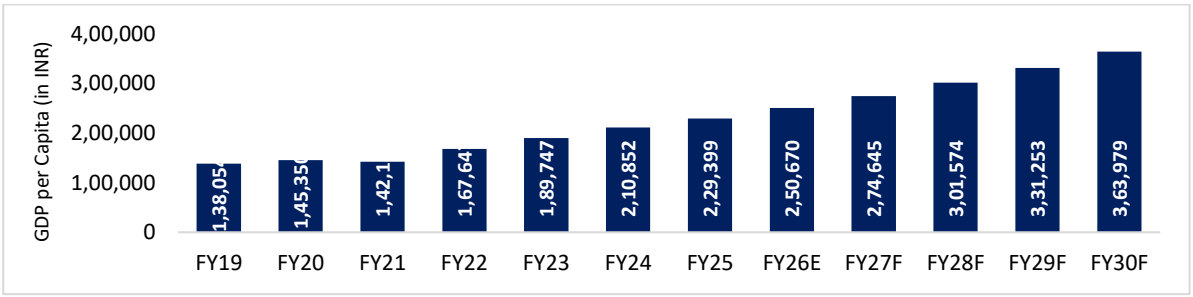
Note: E: Estimate, F: Forecast. Data in parentheses indicates negative value; India's data is represented in fiscal years. For e.g. FY19 stands for April 2018 to March 2019; Source: IMF, Ministry of Statistics and Programme Implementation (MOSPI) – India, Frost & Sullivan

In FY2025, India's real GDP growth was 6.5%, with India continuing to remain a global economic bright spot. With an average annual growth rate of 6.4% between FY2025 and FY2030, India is expected to overtake Japan in CY2025/ CY2026 ranking 4th globally and overtake Germany by CY2030 to become the 3rd largest economy in nominal GDP terms. Nominal GDP will surpass ~INR 540 trillion by the end of this decade. Massive consumer spending potential, availability of a highly cost-competitive and bilingual talent pool, steady growth in public capital expenditure, and strong manufacturing growth are some of the key long-term growth drivers.

2.2 Key Macroeconomic Growth Drivers for the Indian Economy

- **Growing capital expenditure:** India has consistently recorded a rise in capital expenditure (capex) in the recent past, with the government capex rising at a CAGR of 18.4% from INR 2.4 lakh crore in FY2016 to INR 9.1 lakh crore in FY2024. For FY2025-26, Capex Expenditure of ₹11.21 lakh crore (3.1% of GDP) has been earmarked in FY2025-26 budget.
- **Rising per capita income levels:** India's GDP per capita reached INR 229,399 (current prices) in FY2025 and is pegged at ~INR 363,979 by FY2030, rising at a CAGR of 9.7%. Technological integration, upbeat foreign and domestic investment streams, improving business policies, a conducive startup ecosystem, political stability, and a steady growth momentum will bolster domestic income levels and in turn consumer spending.

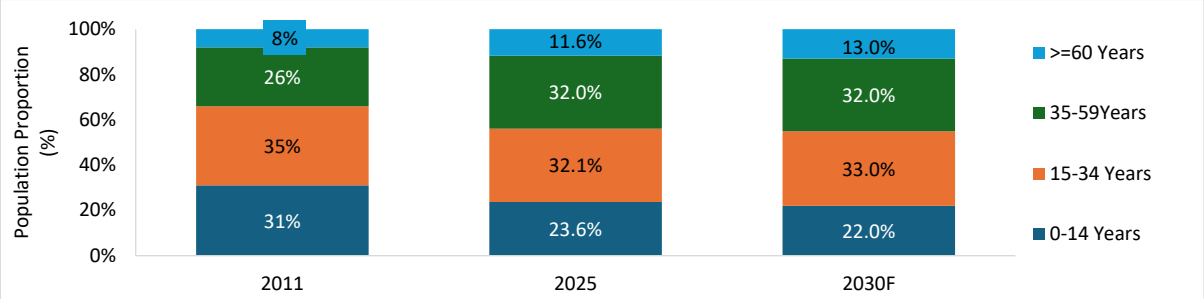
Exhibit 2.2.1: GDP per Capita (in INR), India, FY2019-FY2030F



Note: E: Estimate, F: Forecast, Data is represented for fiscal years i.e. FY19 stands for the period between April 2018 to March 2019. GDP per capita is derived by dividing nominal GDP by total population. Sources: MoSPI, World Bank, Frost & Sullivan

- **Demographic dividend and median age:** In CY2025, the 15-64 years age groups (i.e., the working age population) accounted for 68% of the Indian population and India's median age stood at 29.5 years compared to China's 39.8 years and Europe's 42.5 years. Comparatively high fertility rates will ensure that the young population sees steady growth through CY2030 – a trend that will maintain India's demographic dividend. Moreover, a skilled labour force will help establish economies of scale in manufacturing, healthcare, logistics, construction, mobility, and ICT segments.

Exhibit 2.2.2 Population Proportion by Age-Groups (% of Total Population), India, CY2011, CY2025, CY2030F



F: Forecast. Sources: United Nations Population Division – World Population Prospects 2024, Frost & Sullivan

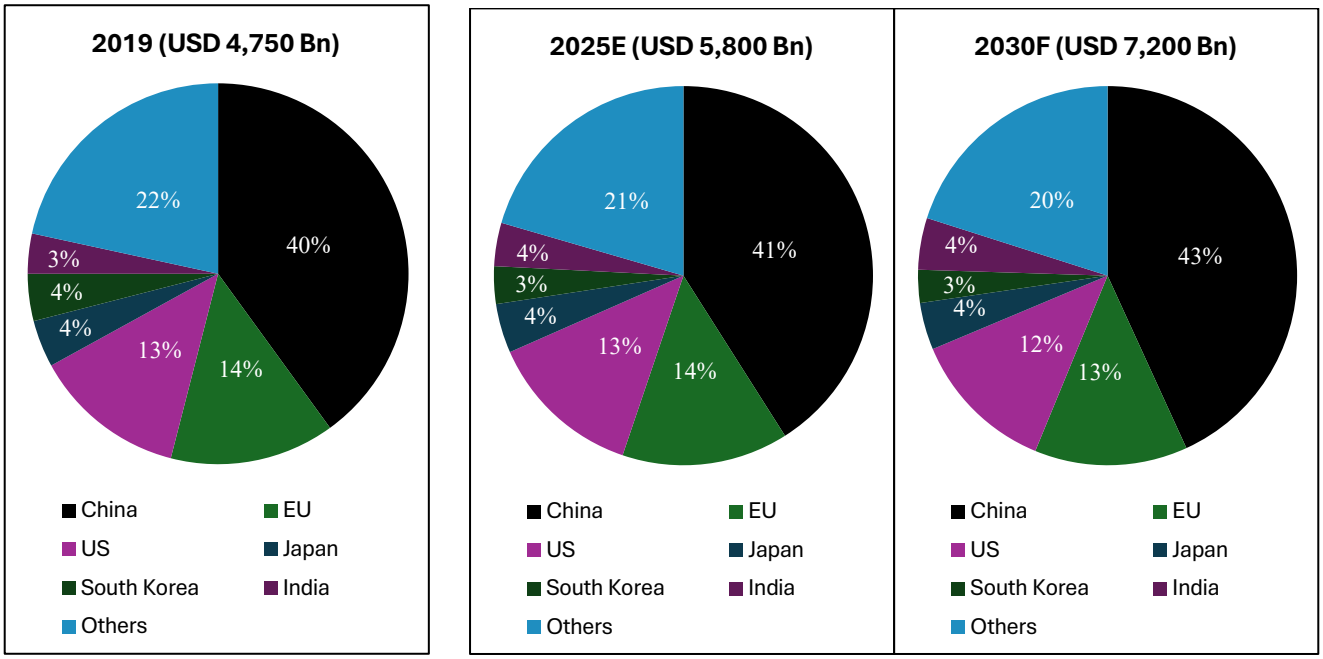
- **Promising export potential:** Rapid Special Economic Zones (SEZ) growth, expanding exports incentives, development of digital infrastructure, and greater scope for public-private partnerships will broaden India's export potential, helping it surpass USD2 trillion in exports by the end of this decade.
- **Burgeoning Indian middle class:** As per OECD projections India will have the highest number of middle-class consumers globally – 1,375 million – by CY2040 outpacing China's ~1,250 million. Rising per capita incomes and a steady economic growth momentum will buoy middle-class purchasing power over the coming decade, making them a key end-consumer target market for international and domestic firms. Robust GDP growth will also ensure that the national disposable income trajectory – for all income categories – remains upward bound through the end of this decade.
- **Expanding female labour force participation:** India is experiencing a changing socio-economic landscape with the workforce transitioning from being male dominated to rising contribution of females to national economic output. India is seeing rapid knowledge-based sectors' growth, higher female literacy rates, and conducive fiscal policies. The female labour force participation rose to 37.0% in 2022-23 compared to 23.3% in 2017-18.[2]
- **Steady skilling-centric investments and multilingual workforce:** Skilling investments have taken centre stage not only through National Skill Development Corporation's targeted reskilling/upskilling policies, but annual government budgets. For instance, the FY2025 Union Budget included a scheme for skilling of 20 lakh youth and upgradation of 1,000 Industrial Training Institutes. Along with India's bilingual/ multi-lingual education system, the nation will remain an attractive foreign investment destination in the long-term.

[2] MoSPI

3. Global Chemical Industry

The global chemicals market is valued at around USD 5,800 Bn in 2025E with China accounting for major market share (41%) in the segment followed by European Union (14%) and United States (13%). India accounts for ~4.5% market share in the global chemicals market. The global chemicals market is expected to grow at 4.4% CAGR, reaching USD 7,200 Bn by 2030. Going forward the APAC is anticipated to grow at the fastest rate during the forecast period (2024 - 29F). The chemicals markets in Europe & North America are relatively mature and hence would record comparatively slower growth.

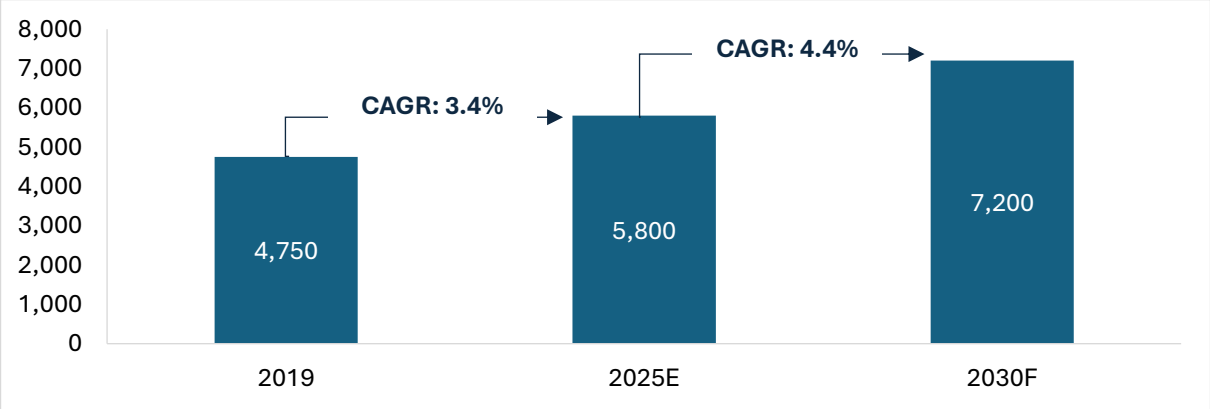
Exhibit 3A.1: Global Chemicals Market, CY2019, CY2025E and CY2030F, USD 4,750 Bn, USD 5,800 Bn and 7,200 Bn



Source: Frost & Sullivan Research & Analysis

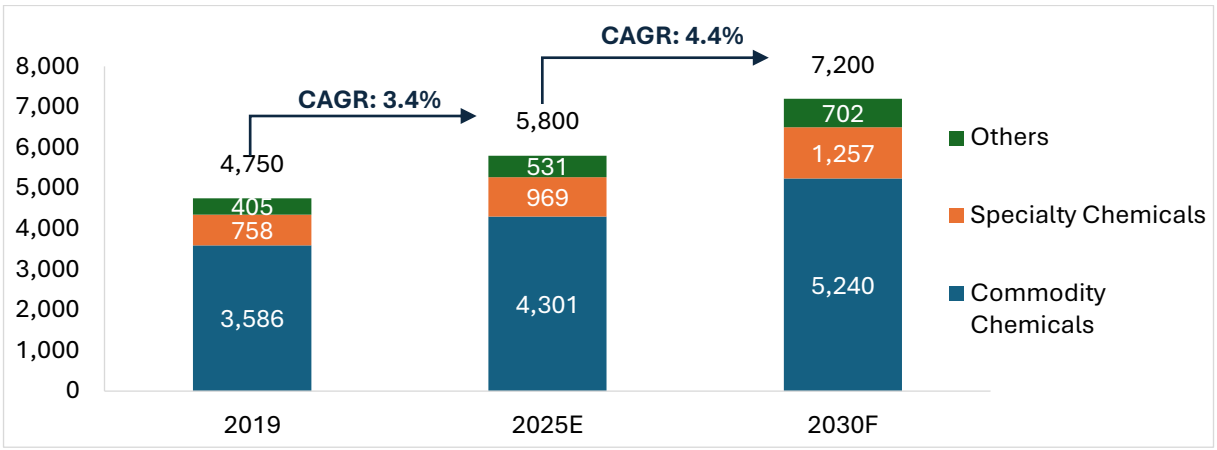
Source: Frost & Sullivan Research

Exhibit 3A.2: Global chemicals market, 2019, 2025E and 2030F (US$ Bn)



Source: Frost & Sullivan Research

Exhibit 3A.3: Global chemicals market, 2019, 2025E and 2030F



Source: Frost & Sullivan Research

Note: Others mainly include Biotech chemicals. Also note that the Indian chemical industry generally showcases Agrochemicals & Fertilizers and Pharmaceuticals API outside of Specialty chemicals and Petrochemicals outside of Commodity Chemicals. In the above graph the specialty chemicals section, however, is inclusive of the 2 categories (Agrochemical and Fertilizers and Pharmaceuticals API) and the Commodity Chemicals section is inclusive of Bulk chemicals and Petrochemicals.

	Commodity Chemicals	Specialty Chemicals	Other Chemicals
CAGR - 2019-25E	3.1%	4.2%	4.6%
CAGR - 2025E-30F	4.0%	5.4%	5.8%

Commodity Chemicals: The commodity chemicals market includes basic chemicals that are manufactured in large volumes. These include plastics, synthetic fibres, films, certain paints and pigments, explosives, and petrochemicals. There is limited product differentiation within the sector and products are sold for their composition. The commodities market is highly fragmented. The leading companies, The Dow Chemical and BASF SE, account for less than 5% of the total market each. Other industry leaders include Bayer AG, DuPont de Nemours, and AkzoNobel. More than 85% of the market share, however, is accounted for by a mix of other companies. The end user markets include other basic chemicals, specialties, and other chemical products; manufactured goods such as textiles, automobiles, appliances, and furniture; pulp and paper processing, oil refining, aluminium processing, and other manufacturing processes. Markets also include some non-manufacturing industries. The sector is presently valued at ~US$ 4,300 Bn and is expected to grow at 4% globally in the next five years to reach US$ 5,240 by 2030.

- **Petrochemicals** are chemical products that are derived from crude oil, crude products, or natural gas. Petrochemicals are used in the manufacture of numerous products such as synthetic rubber, synthetic fibres (e.g., nylon and polyester), plastics, fertilizers, paints, detergents, and pesticides. It is the basis for most organic chemistry. The global

petrochemicals market size was predicted at ~US$ 650 Bn in 2025E and is anticipated to witness a CAGR of 5-6% over the forecast period to reach to US$ 800-850 by 2030. The growth of the market for petrochemicals will be driven by rising demand for downstream products from end-use industries and capacity additions in the base chemical industry.

Specialty Chemicals: The specialty chemicals market is characterized by high value-added, low volume chemical production. These chemicals are used in a wide variety of products, including fine chemicals, additives, pharmaceuticals, advanced polymers, adhesives, sealants and specialty paints, pigments, and coatings. The specialty chemicals market is extremely fragmented. Consolidation of companies has been a major trend in this sector and is expected to continue. Similar to the commodity sector, the specialty sector is affected by high costs of energy and feedstock. Intangible factors affecting the specialty chemicals market include heightened emphasis on research, customer migration to alternative products, and the impact of regulations on products. The overall market stood at ~US$ 969 Bn in 2025 and is expected to showcase a growth between ~ 5-6% over the next five years to reach to US$ 1,257 by 2030.

- **Pharmaceutical (API):** APIs are generally considered a sub-sector of the specialty chemicals industry. Information and statistics on the chemical industry may or may not include the pharmaceutical sector, though it tends to be demarcated as a separate category. The global active pharmaceutical ingredients market size is estimated to be US$ 205– 220 Bn in 2024 and is projected to reach ~US$ 270-290 Bn by 2028 at a CAGR of 6-7% during the forecast period. The market growth is driven mainly by factors such as rising drug R&D, the increasing incidence of chronic diseases, the growing importance of generics, and the increasing uptake of biopharmaceuticals. On the other hand, unfavourable drug price control policies across various countries and high manufacturing costs are expected to restrain the growth of this market. Following are some of the critical success factors for the players involved in pharmaceutical chemicals and API –
  - **Marketing strategy** – Most leaders have a well-defined product marketing strategy to target right customer segment. Companies have invested in R&D to introduce new products beneficial to the end users.
  - **Reduced Dependence on China** – Both global and domestic drug companies have started to diversify their sourcing of APIs and KSMs
  - **Strong hold on the entire value chain** – Manufacturers are now positioning themselves at solution providers; starting with raw material intake from the supplier, culminating with storage of the finished product in automated warehouses to contractual agreements with distributors to market their products.
- **Agrochemicals & Fertilizers:** The global Agrochemicals Market is estimated to be around US$ 215-225 Bn in 2025 and is expected to garner revenue of ~US$ 300–325 Bn by 2030 with a CAGR of 5-6% during the forecast period of 2024-29. The major chemicals used in agriculture to regulate plant growth are synthetic fertilizers, pesticides, and hormones, amongst others. The growth of agriculture in the emerging markets such as South America, Africa, and the Middle East is paving the way for several profitable opportunities for the market players. Additionally, a strong focus of agrochemical manufacturers on product innovation is expected to render a higher competitive advantage to them over their rivals. The market of agrochemicals & fertilizers in China and India is expected to grow significantly owing to the increase in consumption and production of fertilizers, such as nitrogen based,

potassium-based fertilizers, in these countries. China and India are the major exporters of agrochemicals & fertilizers to the Latin America, Asia-Pacific and other regions. These factors are expected to create a robust platform for the growth of the China and India market.

A key success factor for the crop protection chemicals in the market is extensive R&D capabilities of a company to develop new molecules satisfying the government norms and stringent environment regulations (having higher pesticide biodegradability index). This essentially ensures a robust growth trajectory for traditional crop protection chemicals in high-volume-high-growth centres like India. Following are some of the critical success factors for the players involved in crop protection chemicals –

- **Backward integration of technical active ingredients** – Many formulators' needs to have backward integration of its technical AI's (Active Ingredients) to succeed in gaining high profit margins in the market.
- **Comprehensive product portfolio** – 'One stop solution' for farmers of all the agrochemical needs surely drives the success of one firm over another.
- **Strong distribution network** – Distribution network plays vital role in reaching at the fragmented farmers' base across the world, also enabling excellent feedback mechanism & deep customer relations.

World chemicals sales were valued at US$ 5800 Bn in 2025. China is the largest chemicals market in the world, contributing to 41% of global chemical sales in 2025. With 14%, the EU27 chemical industry ranked second in total sales and United States ranked third with 13%.

Worldwide, the competitive landscape has changed significantly over the last ten years. Today, next to the EU 27, US and Japan mostly emerging countries from Asia rank in the top 10 in terms of sales. The BRICS countries (Brazil, Russia, India, China, and South Africa) accounted for over 48 % of global chemical sales in 2025. Together with the EU27 and the USA and the BRICS accounted for more than 75% of global chemical sales, in 2025. The remaining global chemical sales were generated mainly by mainly emerging countries in Asia and the Middle East.

Super speciality chemicals are niche speciality chemicals with high performance. These chemicals are characterized by complex chemistries, low volume, very high prices, and limited number of suppliers. The applications for these products are also very specific. These include products like electronic chemicals, speciality catalysts (like phase transfer catalysts, precious metal catalysts etc), Structure Directing Agents, speciality electrolytes and additives for new age batteries etc. The products generally require special technology know-how and cutting-edge research that only few companies can manage, hence the entry barrier in this segment of speciality chemicals is very high. Considering the nature of the products, competition from China is also negligible. Europe and Japan lead the production and supply of super speciality chemicals.

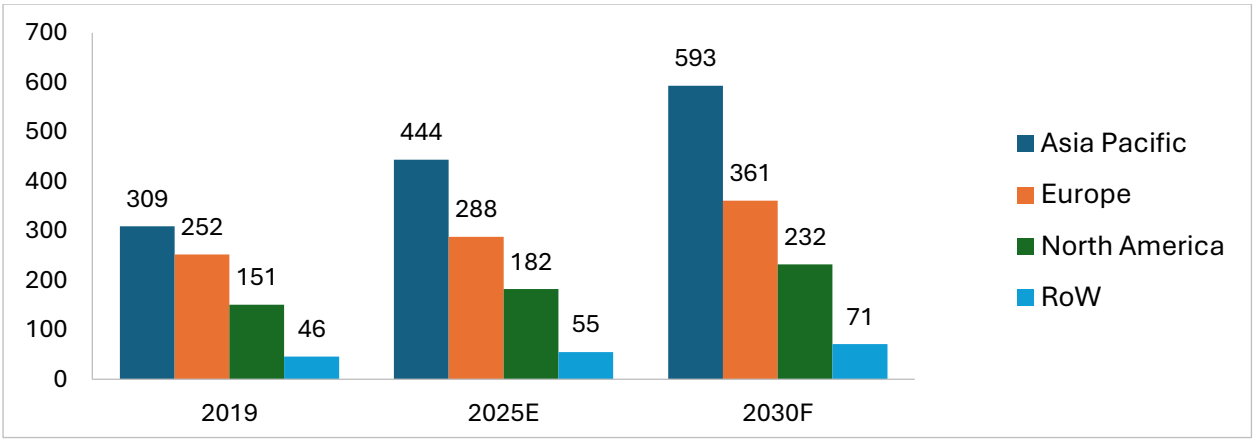
3.1. Global Specialty Chemicals Market

Specialty chemicals are low-volume and high-value products which are sold based on their quality or utility, rather than composition. Thus, they may be used primarily as additives or to provide a specific attribute to the product. Specialty chemicals are more likely to be prepared and processed in batches. The focus is on value addition to the end-product and the properties or technical specifications of the chemical.

Rapid industrialisation in India and China is expected to drive demand for specialty chemicals. The Asia Pacific (APAC) dominates the market across the world, with a share of 41%, owing to a huge

customer base, leading to high demand for specialty chemicals, increasing industrial production, and robust growth of the construction sector in the region. APAC is followed by Europe and North America.

Exhibit 3.1.1 : Global Specialty Chemicals Market by Geography, 2019, 2025E, 2030F Value (US$ 758, US$ 969 Bn, US$ 1257)



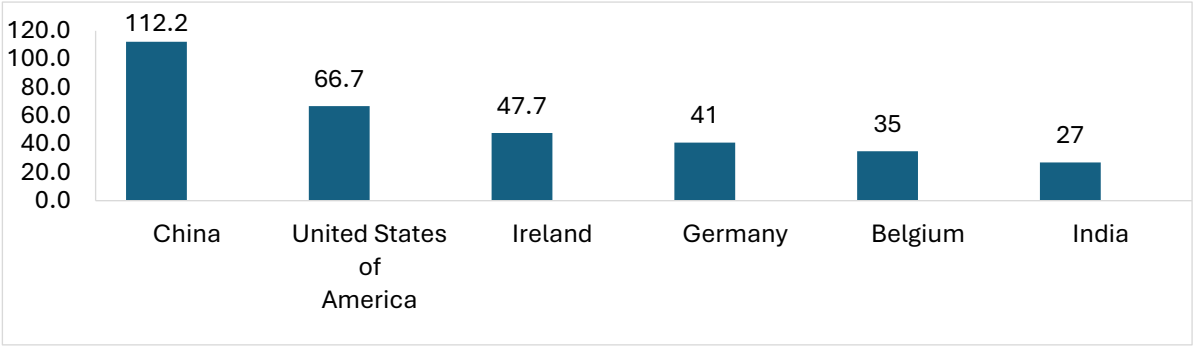
Source: Frost & Sullivan Research

	Asia Pacific	Europe	North America	RoW
2019-25E CAGR	6.2%	2.2%	3.2%	3.1%
2025E-30F CAGR	6.0%	4.6%	5.0%	5.2%

With a high population base and majority of countries being underdeveloped or developing nations in Asia Pacific (APAC), there is high rate of construction activities resulting in higher demand for construction chemicals and paints & coatings additives. Embracing modern practices in the fields, agrochemicals have seen tremendous growth particularly for pesticides and fertilizer consumption. China, India, and Japan represent the largest agrochemicals markets of the Asian continent. Currently, China is leading the market with its developing agricultural sector along with the need for its ever-growing population. Globally, China is not only the largest producer but also the largest consumer of fertilizers.

3.2. Global Trade scenario – Organic and Inorganic chemicals

Exhibit 3.2.1 : Global Chemicals Exports by top countries, 2024 (US$ Mn)



China has the largest share of exports of chemicals with 30% of the total traded value. India's share on overall basis is just about 7%. However, India leads has good share of exports of speciality chemicals, with main markets as USA, Europe and LATAM.

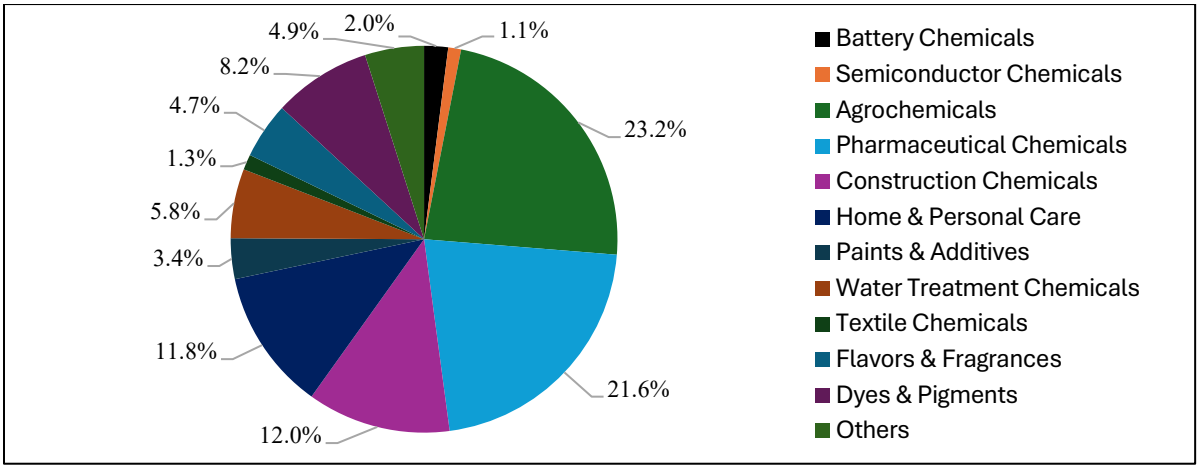
3.3. Global Specialty Chemical Market Segmentation – by Industry and Application Type

The global specialty chemicals industry can be segmented by the final end-user industry that these chemicals find applications in. Every end-industry varies in complexities of specialties required, and thus offer unique opportunities for specialty chemical players in terms of technology, competitive landscapes, profitability and corporate collaborations for growth and market penetration.

There's significant overlap in this characterization method. Market-oriented groups frequently encompass multiple functional chemicals serving the same market, whereas functional chemicals are typically utilized by various markets. This differentiation is primarily for the sake of convenience when discussing strategic aspects of business segments, rather than indicating a substantial variance in the products themselves.

Note: *There is considerable overlap in this method of segmenting specialty chemicals. Specialty chemicals often find use in more than one industry, and the segmentation below is purely to understand the size and potential of various end applications, as a part of business strategy and prioritization.*

Exhibit 3.3.1: Global Specialty Chemicals Market, Industries & Applications, CY2025E, Value (~ USD 969 Bn)



Source: Frost & Sullivan Research & Analysis

3.4. Growth Drivers

5 - Year Growth Forecast Split by Key Industries Highlighting Key Factors Driving Growth

Segments	Key Growth Drivers	(2025E-30F CAGR)
Battery Chemicals	The rising popularity of electric vehicles in the automotive market is driving a surge in demand for batteries. This will directly lead to demand for technologies and chemicals to support the segment.	**6.4%**
Semiconductor Chemicals	Advancements in technology like 5G wireless, artificial intelligence, the Internet of Things, cloud computing, and machine learning are fueling a sustained increase in demand for the chip industry in the long term. Continued government funding and incentives will further compliment the industry growth, and with it will grow the semiconductor specialty chemicals market.	**6.6%**
Agrochemicals & Fertilizers	Given the increasing rate of global population growth, the heightened necessity for additional crop protection measures to mitigate crop losses and enhance yields, and the escalating consumer preference for sustainably sourced food products, the demand for agrochemicals, with high focus on sustainability is expected to register robust growth in the coming decade.	**5.7%**
Pharmaceuticals Chemicals (APIs)	Global federal efforts to improve national healthcare systems, emphasis on development of generics to control drug costs and healthcare spending, increase in chronic disease prevalence combined with R&D on novel molecules and therapies will shape the vital pharmaceutical industry globally.	**6.1%**

Construction Chemicals	The swift pace of urbanization and infrastructure expansion will encompass various projects such as the development of smart cities, construction of highways and railways, as well as the facilitation of affordable housing initiatives, which will drive growth in this sector.	**4.9%**
Home & Personal Care Ingredients	The anticipated key driving forces shaping this segment in the forthcoming decade are the rising purchasing power alongside an increasing awareness and demand for personal care products.	**5.2%**
Paints & Coatings Additives	Increasing urbanization, improvement in spending capacities, growth of the automobile sector, and large-scale housing and infrastructure developments will contribute to robust growth.	**5.2%**
Water Treatment Chemicals	As populations grow, the demand for clean drinking water will also grow up, and treatment and purification technologies will also grow with this trend. Federal emphasis on quality of water and environment regulations will also support growth in this segment.	**5.0%**
Textile Chemicals	Increasing demands for quality and properties of final products such as longer life, wrinkle-free quality, better color retention on longer wash cycles etc., will raise demand for chemicals to support the development of products for these qualities.	**3.7%**
Flavors & Fragrances Ingredients	The increasing customer awareness regarding the potential long-term health effects of synthetic chemicals and additives in food products has spurred a surge in demand for natural and wholesome ingredients in food items. This trend stands as the primary catalyst propelling the growth of the flavors and fragrances market.	**5.4%**
Dyes & Pigments	Sustainability considerations are fueling innovation in eco-friendly dyes, while the emergence of digital printing and the development of functional textiles featuring unique properties such as water repellency are generating a need for specialized dyes to address these evolving requirements.	**5.1%**

3.5. Specialty chemicals - Value added products

Specialty chemicals are value added products that are used for specific applications that often involves high R&D investment and technical know-how. There are over 40-50 value chains covering a broad spectrum of products within this industry. The capability to handle multiple value chains that overlap with one another are available only with large conglomerates, while a single or double value chain is what most medium to small scale players are efficient with. This sector is witnessing a monetary corpus towards expansion investments.

India is the largest beneficiary for this segment since the US and European manufacturers are facing pressures from institutional investors to ensure supply security by focussing on China+1. This has forced several western manufacturers to re-base their supply chain away from China. Increasing labour costs and significant currency fluctuations along with the fear of resurgence of global pandemic has forced downstream industries to seek alternative manufacturing options such as India.

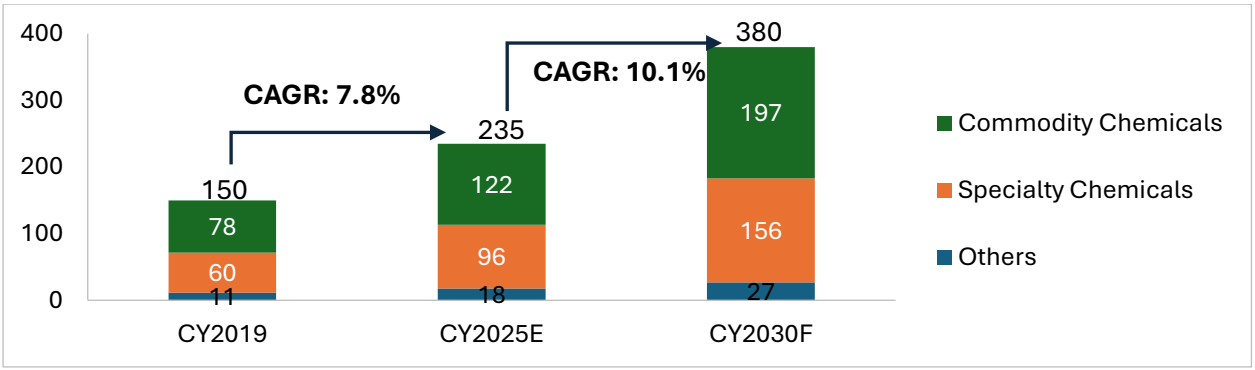
List of Key Global Specialty Chemical Companies

Sr. No.	Company Name	Headquarters
1	BASF	Germany
2	Solvay	Belgium
3	Evonik Industries	Germany
4	Clariant	Switzerland
5	Akzo Nobel	Netherlands
6	Henkel	Germany
7	LANXESS	Germany
8	Croda International	UK
9	Huntsman International	USA
10	The Lubrizol Corporation	USA
11	Albemarle Corporation	USA

4. India Chemical Industry

The Indian chemicals market is valued at USD 235 Bn in year CY 2025e (~4% share in the global chemical industry) with the commodity chemicals accounting for more than ~50%. It is expected to reach ~USD 380 Bn by CY 2030, with an anticipated growth of ~10% CAGR. Specialty chemicals industry forms ~40% of the domestic chemical market, which is expected to grow at a CAGR of around 10-12% between 2025 and 2030.

Exhibit 4A.1: Indian Chemicals Market, CY2019, 2025e and 2030f (USD Bn)



Source: Frost & Sullivan Research

Note: Indian chemical industry generally showcases Agrochemicals & Fertilizers and Pharmaceuticals API outside of Specialty chemicals. In the above graph the specialty chemicals section, however, is inclusive of the 2 categories to maintain consistency with the Global section. Agrochemical & Fertilizer and Pharmaceuticals API contribute to more than 55% of the specialty chemical space in India.Others mainly includes biotechnology.

	Commodity Chemicals	Specialty Chemicals	Others
2019-25E	7.6%	8.0%	7.5%
2025E-30F	10.1%	10.3%	8.8%

The Specialty chemicals industry is driven by both domestic consumption and exports. India's specialty chemical companies are gaining favour with global MNCs because of the geopolitical shift after the outbreak of Covid-19 as the world looks to reduce its dependence on China. In CY 2019, China accounted for ~15-17% of the world's exportable specialty chemicals, whereas India accounted for merely 1-2% indicating that the country has large scope of improvement and widespread opportunity. Post Covid scenario, India's share in specialty chemicals sector has doubled up and increased to 4%. It is anticipated that Specialty chemicals will be the next great export pillar for India.

Home and personal care chemicals, water treatment chemicals, construction chemicals, agrochemicals etc. are areas where specialty chemicals find their applications. The growth of the market is in conjunction with the overall growth of the Indian economy.

4.1 India's Opportunity in Specialty Chemicals

India's chemical industry is one of the most diversified globally, and the specialty chemicals segment represents a significant growth area. With the global shift towards sustainability, technological advancements, and changing market dynamics, India is uniquely positioned to capitalize on these opportunities. Following are the key opportunity drivers for India:

- **Growing domestic demand:** The rise in domestic demand for specialty chemicals is driven by the growth of end-user industries such as pharmaceuticals, personal care, and textiles. Increased healthcare spending and the expansion of the pharmaceutical industry are boosting demand for specialty chemicals used in drug formulation and manufacturing.
- **Export potential**: India has a significant opportunity to increase its share in the global specialty chemicals market through exports. India's cost advantage due to lower labour and production costs makes it an attractive supplier of specialty chemicals as well as conscious efforts of companies to diversify their supply chain to reduce dependence on China.
- **Government initiatives and support:** The production linked incentive scheme incentivizes domestic manufacturing of specialty chemicals, boosting production capacity and competitiveness. The outlay of PLI scheme is around 1.97 Lakh Crore for 14 key sectors. Till Nov 2023, over Rs. 1.03 lakh crore of investment was completed through PLI scheme.
- **Technological advancements:** Adoption of advanced technologies such as digitalization, automation, and green chemistry is transforming the specialty chemicals industry in India. Investment in R&D and technological advancements can lead to the development of innovative and high-performance specialty chemicals. Green chemistry and eco-friendly processes align with global sustainability goals, attracting environmentally conscious customers.

Comparison of India with others

- **Low operating costs:** India's operating costs are significantly lower compared to developed countries, providing a competitive advantage in manufacturing. Labour cost in India was around USD 1.00 / hour while it was USD 5.00 / hour in China in CY2024. With a large and young workforce, India offers high productivity at lower wages. Availability of locally sourced raw materials minimizes transportation costs and import dependencies. India's extensive agricultural sector provides a steady supply of feedstock for bio-based specialty chemicals.
- **Skilled labour:** Skilled researchers and scientists contribute to innovative product development and process improvements. A skilled workforce drives innovation and enhances the quality of specialty chemicals. Technical expertise ensures efficient and high-quality production processes.
- **Utilities and infrastructure:** India has been making significant strides in improving its utilities and infrastructure, which are critical for the specialty chemicals industry. Improvements in the energy sector ensure a stable and reliable power supply to

industrial units. Increasing investment in renewable energy sources supports sustainable manufacturing practices. A well-developed logistics network, including ports, railways, and roadways, facilitates efficient transportation of raw materials and finished goods.

- **Capital costs:** India offers several financial incentives and a favourable investment climate that reduce capital costs for setting up and expanding specialty chemical operations i.e. various subsidies and grants, tax incentives and exemptions and liberalized FDI policies
- **Intellectual property rights:** India has strengthened its IPR regime to provide better protection and enforcement, encouraging innovation and investment in the specialty chemicals sector. Robust patent laws (e.g. Patents (Amendment) Rules, 2021) protect innovations and proprietary technologies. Effective enforcement mechanisms deter infringement and provide legal recourse for violations. India's compliance with the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement aligns its IPR standards with global norms.

4.2 India the next chemical manufacturing hub

Traditionally, the European Union (EU) and United States (US) were the key chemical hubs globally. Together they contributed to nearly 40% of global chemical sales till 2006. However, the Great Recession of 2008 changed everything. Developing countries started faring better than the relatively mature economies of the West. Over the last decade, the core of the chemical industry has shifted from the West to Asia, with China being the key benefactor. Manufacturers in the Asian region enjoy low labour costs, relatively relaxed environmental norms and government subsidies.

China's chemicals industry continues to surpass all other nations. This is reflected in rising China's share in global chemical sales, which increased from 24% in 2010 to 37% in 2018. During this phenomenal growth period, the focus of China was more on infilling the huge and rapidly growing domestic demand. The domestic chemicals industry in China is witnessing a slowdown as a result of slower economic growth. The Chinese government is imposing strict norms on chemical manufacturers forcing them to shut-down their plants. As a result of this many multinationals are shifting their base to India. Triggered by the evolving geopolitical scenario in China there is a trend to diversify from the existing core manufacturing markets, firms are seeking to make their supply chains more resilient. With its strong value proposition, India is the preferred destination.

The COVID-19 pandemic exposed vulnerabilities in global supply chains, particularly the heavy reliance on China for specialty chemicals. Lockdowns, factory shutdowns, and logistical challenges in China led to supply shortages and increased prices worldwide. Companies across the globe started adopting the "China+1" strategy to mitigate risks associated with over-dependence on China. India emerged as a favourable alternative due to its growing manufacturing capabilities, strategic location, and government support.

The US-China Trade war led specialty chemical players to look beyond China as a raw material supplier and manufacturing hub. In order to reduce the risk in their supply chains, global companies are concentrating on a China+1 approach. Because of its cost advantage over China and its

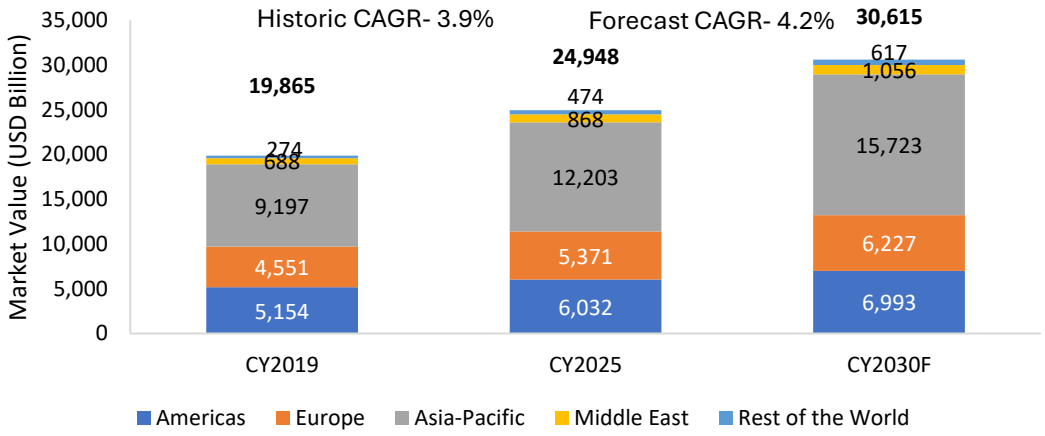
supportive laws and reforms, including the enabling of 100 % FDI in the chemical industry, India is uniquely positioned to gain from the shift away from China.

Indian chemicals sector is set for rapid growth, with specialty chemicals expected to be the most lucrative segment. India attracts investment as companies diversify away from China. Chemical industry revenue has been growing at an average rate of 15% in the last 5 years. The Indian chemicals sector stands out as one of the most rapidly advancing industries globally.

5. Global Consumer Market Overview

5.1. Market for consumer staple and consumer discretionary across regions

Exhibit 5.1.1: Global Consumer Market, Region, USD Billion, CY2019-CY2030F



Source: Statista, Frost & Sullivan Analysis

In 2025, Asia-Pacific constituted the largest consumer market and accounted for a market share of 48.9% at a global level, the trend is expected to continue in 2029. Asia-Pacific region would see a growth of CAGR of 5.2% during 2025-2030. Followed by Americans and Europe accounted for the second and third largest share with 24% and 22% shares respectively in 2025.

Table 5.1.2: Global Consumer Market, Sectors, USD Billion, CY2019-CY2030F

Market/Sector	CY2019	CY2025E	CY2030F	CAGR (2018 – 2024)	CAGR (2024 -2029)
Food	6,794	9,699	13,137	6.1%	6.3%
Beverage	3,008	3,430	3,938	2.2%	2.8%
DIY & Hardware Store	2,571	3,014	3,376	2.7%	2.3%
Apparel	1,623	1,862	2,117	2.3%	2.6%
Tobacco Products	841	996	1,120	2.8%	2.4%
Consumer Electronics	870	967	1,057	1.8%	1.8%
Furniture	635	794	966	3.8%	4.0%
Household Appliances	587	750	935	4.2%	4.5%
Beauty and Personal Care	565	664	791	2.7%	3.6%
Accessories	528	589	631	1.8%	1.4%
Footwear	520	522	535	0.1%	0.5%
Luxury Goods	298	385	480	4.3%	4.5%
Hygiene Products	275	370	483	5.0%	5.5%
Toys and Hobby	277	366	456	4.8%	4.5%
OTC Pharmaceuticals	165	210	263	4.2%	4.5%
Home and laundry Care	166	208	244	3.8%	3.3%
Eyewear	134	151	166	2.1%	2.0%
Total	**19,872**	**24,948**	**30,615**	3.9%	4.2%

Source: Statista, Frost & Sullivan Analysis

Note: Wellness especially services such as Spa are considered under Beauty and Personal Care segment

Food and Beverages (including alcoholic, non-alcoholic and hot beverages) were the two major sectors with highest consumption. Out of all the major categories in the consumer market, food dominates the with a market share of 39% in 2025 and is expected to be 43% by 2030. Food as a sector has also witnessed the highest CAGR of 6.1% during 2019-2025 and would continue to see a growth of CAGR 6.3% till 2030.

Beverage is the second largest sector after food and accounts for a market share of 14% in 2025. The segment registered a CAGR of 2.2% during 2019-2025 and is expected to grow at a CAGR of 2.8% till 2030. Asia Pacific and Americas are the largest markets for this sector with a significant consumption of both alcoholic and non-alcoholic beverages.

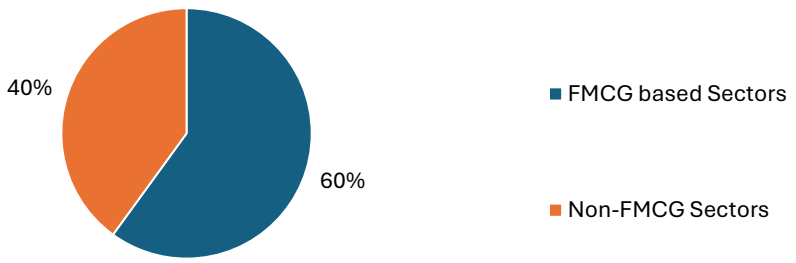
The global beauty & personal care market was valued at USD 664 billion in 2025 and is expected to reach USD 791 billion by 2030f, growing at a CAGR of 3.6% during the forecast period, 2025 to 2030. The beauty & personal care market offers a wide range of products. These include skin care products, color cosmetics, deodorants, bath & shower products, hair care products, oral care products, male toiletries, and sun care products. Key growth enablers include increasing demand for anti-aging products; rising awareness of children's oral hygiene; higher sales due to rising e-commerce; among others. The global beauty & personal care market observes significant demand for multifunctional products owing to their convenience in terms of time and function. The men's grooming market is expected to be one of the most prominent sectors.

Most of end use industries that GEM Aromatics caters to through its diverse range of product portfolio falls into Food & Beverage, Flavours & Fragrance, Beauty & Personal Care and Pharmaceuticals sectors. These sectors have minimal impact from any external factors like geopolitical situation, pandemic etc.

Apart from food and beverages, hygiene products registered significant CAGR of 5.0% between 2019-2025 and is expected to continue growth at CAGR 5.5% till 2030.

Food, Beverage, Tobacco Products, Beauty and Personal Care, OTC Pharmaceuticals and Home and laundry Care are considered as part of FMCG based sectors (Fast Moving Consumer Goods), which collectively contributes to over 60% of the total consumer market. **(Note: The share will be much lower if only processed foods and beverages are considered)**

Exhibit 5.1.3: Global Consumer Market, Sector Split, CY2025E, USD Billion



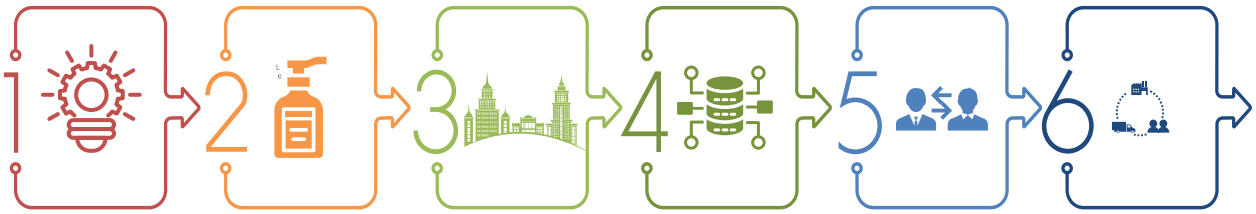
Source: Frost & Sullivan Research & Analysis

5.2. Global FMCG industry drivers for the next 5 years

1. **Expansion in the organized retail sector** – Organized retail sector is a customer-oriented segment within FMCG industry. The global increase in disposable income especially in developing economies along with factors such as changing lifestyles, expansion of the middle-income sectors in developing nations, increasing awareness among the consumers and strong influence of urban marketing is supporting the growth of organized retail sector and thereby providing the necessary push to the FMCG industry. The growth of organized retail sector is projected at over 8% in the next 5 years globally.

2. **Rising population with direct impact on the consumer staples**- The global rise in population is anticipated to increase, projected to reach 8.5 billion in 2030, and to increase further to 9.7 billion in 2050. Rise in consumer staples consumption is closely linked to population increase, which is considered a major driver for the FMCG sector.
3. **Higher Penetration of internet and social media**- The increased penetration of internet and social media among the mass population has propelled the growth of internet advertising, globally. 77% of small businesses use social media to connect with their customers. The internet and social media-based marketing is anticipated to register a CAGR of ~7% in the next five years. The convenience offered and wide range of product availability through the 'one-click' shopping experience and D2C model is driving the FMCG industry ahead.
4. **Frequent new product launches-** The food industry is the most significant industry which contributes to FMCG sector's growth. Growth strategies used by the established industry giants is product development and new product launches along with product premiumization.

5.3. Global FMCG key Trends



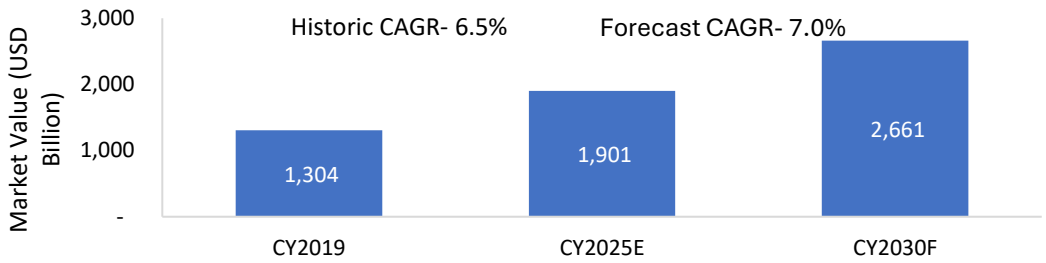
1. R&D investments leading to product innovations shaped by consumer's demand.
2. Rising demands for health and wellness products.
3. Growth in organized/ modern retail sector backed by urbanization.
4. Digital disruptions leading to growing trend of online shopping globally.
5. Emergence and penetration of social commerce, online-to-offline (O2O), direct to consumers (D2C), e-B2B and Customer to customer (C2C) type of business models.
6. Rising focus on sustainability through the value and supply chains.

Source: Frost & Sullivan

6. India Consumer Market Overview

6.1. Market for consumer staple and consumer discretionary in India

Exhibit 6.1.1: India Consumer Market, USD Billion, CY2019-CY2030F



Source: Statista, Frost & Sullivan Analysis

India is among the fastest growing consumer market with a growth CAGR of 6.5% between 2019-2025 and a continued growth of CAGR 7.0% till 2030f. The market is characterized by significant consumption expenditure because of increasing disposable income among the middle-class population, high awareness of FMCG products among the consumers and shift in lifestyles followed by product advertisement and marketing and strengthened supply chains.

Table 6.1.2: India Consumer Market, Sectors, USD Billion, CY2019-CY2030F

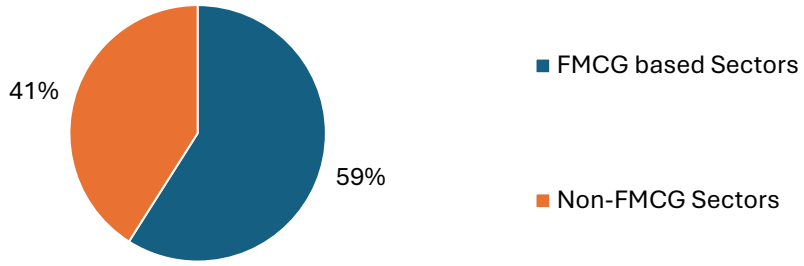
India	CY2019	CY2025e	CY2030F	CAGR (2019 - 2025)	CAGR (2025 - 2030F)
Food	577	967	1,422	9.0%	8.0%
DIY & Hardware Store	204	227	249	1.8%	1.9%
Luxury Goods	119	195	321	8.6%	10.5%
Apparel	112	128	151	2.2%	3.4%
Beverage	79	105	145	4.9%	6.7%
Consumer Electronics	52	70	93	5.0%	5.8%
Household Appliances	44	62	89	5.8%	7.3%
Beauty and Personal Care	26	33	47	4.2%	7.1%
Footwear	25	29	34	2.6%	3.3%
Toys and Hobby	21	28	41	5.1%	7.6%
Tobacco Products	10	14	18	4.5%	5.5%
Accessories	6	11	19	12.2%	11.2%
Home and laundry Care	6	8	12	4.9%	6.6%
OTC	5	7	11	5.8%	7.4%
Hygiene Products	5	7	8	5.8%	2.7%
Eyewear	5	6	8	3.1%	5.9%
Furniture	4	6	9	7.0%	5.9%
Total	**1,304**	**1,901**	**2,661**	**6.5%**	**7.0%**

Source: Statista, Frost & Sullivan Analysis

Mirroring the global trend, food as a consumer market is India contributes to over 51% of the total size and also among the high growth sectors. A CAGR of close to 8% is expected until 2030 in this sector. High DIY & Hardware Store value reflects high construction real estate segments in the country, however unlike other high growth sectors the market is mature and would see a CAGR of ~ 1-2% till 2030.

Food, Beverage, Tobacco Products, Beauty and Personal Care, OTC Pharmaceuticals and Home and laundry Care are considered as part of FMCG (Fast Moving Consumer Goods) The FMCG based sector contribute to over 59% among all the consumer market sectors. (Note: The share will be much lower if only processed foods and beverages are considered)

Exhibit 6.1.3: India Consumer Market, Sector Split, CY2025, USD 1,901 Billion



Source: Frost & Sullivan Research & Analysis

Luxury goods have been seeing higher growth due to change in consumer preferences and rising disposable incomes of the Indian middle class. The category is expected to grow at a CAGR of 10.5% from 2025-30.

6.2. FMCG spends across product categories in India

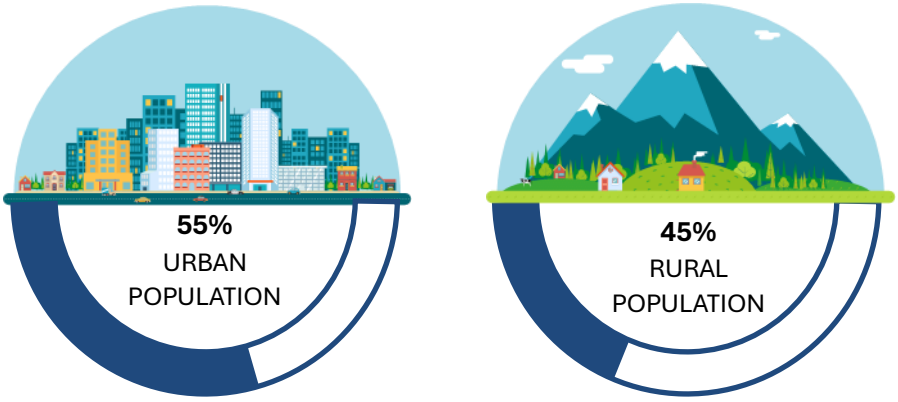
Increasing expenditure on packaged food is anticipated to be vital towards boosting the growth of the overall FMCG industry in India. The growth in FMCG sector is supported by inflation in prices and expansion in population. Other factors supporting the growth of the sector include increasing disposable income among the middle-class population, high awareness of FMCG products among the consumers and shift in lifestyles followed by product advertisement and marketing and strengthened supply chains.

The FMCG market is also driven by the retail industry in rural India and the rise in rural consumption. As a result, 36% of its overall expenditures are on FMCG. The market is also supported by various government programmes, such as the hygiene categories, high agricultural production, reverse migration, and packaged staples.

6.3. Spend across different income categories

The urban population dominates the Indian FMCG industry contributes ~55% of the market for FMCG sectors. While the consumer in rural settings hold high growth potential and contribute ~45% as of 2025. The distribution of consumers population in India is such that ~65% of Indians live in rural areas. The rural area population of consumers projected higher growth rate than the urban consumers as there is still high penetration scope. Increased marketing and advertising of products, rising awareness through online channels and ease of access are the major driving factors of growth in the rural economy.

Exhibit 6.2.1 : Contribution of Urban and Rural Population towards Indian FMCG sector



Source: Frost & Sullivan Analysis

6.4. Assessment of long-term drivers and trends supporting consumer market and personal consumption/discretionary spend in India

Demographic factors	• Largest working age population dominated by millennials • By 2030, around 140 million middle-income consumers along with 21 million high-income households will be added to the country • Approximately 25 million people will move out of poverty backed by the income growth; and it is projected that by 2030 • 40% of Indians will live in urban settings- cities by 2030 • Higher connectivity with improved road infrastructure
Consumer shift in lifestyle	• The private-label and grocery largely contributes to the organized retail sector's growth and is projected to contribute up to 50% of the sales through organized retail. • E-commerce is the fastest growing sectors in the organized retail sector growing at a CAGR of ~15-20% in the next five years
Growing Premiumisation Trend	• The premiumisation trend in India is being driven by India's primary consuming class, India 1, which consists of 30mn households (approximately 120mn people) and has a per capita income of USD 15,000. • Premiumisation in FY2025 resulted in profitability growth surpassing revenue growth, allowing investors to concentrate on sectors with significant growth potential to capitalise on this paradigm shift.

Surge in New Brand Entries in 2024	• Entry of international brands into the Indian market fuelled by increasing incomes of Indian consumers and their preference for premium products, as per retail analysts. • Franchise India Holdings Ltd. reports that up to 160 brands are currently in discussions and seeking partners to penetrate the Indian retail market. These brands are anticipated to invest approximately USD 250mn and establish 5,000 stores through the franchise route over the next five years.
Current trend in the segment- move towards natural products	• Consumers in India are moving towards natural and sustainable products with high investments seen in health and wellness sector. The current trend is anticipated to create high revenue generation opportunities for players operating in homecare, wellness, sustainable, organic, and dietary supplement segments. • Post-pandemic more than 50% of the Indian consumers have increased their expenses in healthcare products
Regulations, Incentives, Tax Benefits	• Indian government has taken several measures to revive the economy and to return to a normal to high growth trajectory post COVID-19 pandemic. These include: Aatmanirbhar Bharat Abhiyan and production linked incentive (PLI) schemes.

Source: Frost & Sullivan Analysis

6.5 Attractiveness of India as a destination for global FMCG players

The FMCG sector in India is the fourth largest sector in the Indian economy valued at approximately USD 1,125 Bn in 2025 (Includes all the consumer markets considered as part of FMCG) and is projected to grow at a CAGR of ~7.8% during 2025-2030. FMCG is among the top five GDP contributors in the country. India exhibits a stable economic growth, favourable demographics, and infrastructure which has led to global players investing in the country's growing FMCG sector. Rapid surge in population along with growing middle-income consumer group are other factors contributing largely to the growth of the sector making India an attractive economy to tap into.

Food and beverage, healthcare and personal care and homecare are the major segments to fuel the growth of FMCG sector in India, these contribute to over ~60% of the total consumer market. The FMCG sector is competitive and dominated by organized as well as unorganized entities in India.

The market in India is quite fragmented where the local or regional players hold significant market shares as compared to other established MNC giants in few major segments. The unorganised Mom and Pop stores dominates the Indian retail sector (~70%) largely and contributes significantly to the FMCG sector.

The trend of online food shopping has picked pace even more after the COVID-19 pandemic. The Indian e-commerce market is anticipated to grow from USD 125 billion in 2025 to USD 350 billion in 2030. Local players and brands, regional start-ups are placing a strong emphasis on brand development to gain consumers traction and increase their consumer base.

Government initiatives such as 51% foreign direct investment (FDI) in multi-brand retail and 100% FDI in food processing have further propelled the growth and inclination for global companies to look at India as a sourcing destination. Broad manufacturing base with cost-competitive product development and manufacturing are one of the key reasons for multinational FMCG players to look at India as a major sourcing hub.

According to a recent BCG report, the average cost (including the factory wages, productivity, logistics, tariffs, and energy) of Indian-made goods that are imported into the US is about 15% lower as compared to the goods manufactured in the US. India provides a workforce that is cost-effective and easy to train, as well as a domestic market with an expanding consumer base.

6.6 Current trends Indian FMCG industry

1. High emphasis on Health and Wellness – Food and beverage, household and personal care and healthcare are the three major segments of the FMCG industries where the demand for health and wellness products are at the peak and is increasing year-on-year. Consumer's demand for these products became highly significant post COVID-19 pandemic when the consumption of immunity boosting wellness products and supplements gained momentum. Consumers are becoming highly aware about these products and consider buying them with labels indicating organic, natural, superfood, 'free-from' etc. Healthier snacking built on familiar ingredients such as oats and millets is targeted to improve penetration levels. The ongoing trend among the consumers is expected to impact in the coming years and could be seen as an opportunity for players to enter the healthy ingredient/product space in the FMCG industry.

2. Growth of digital commerce and digital advertising- Digital advertising in India is valued above INR 620 billion in 2025 and anticipated to grow at ~20-25% CAGR over the next few years. FMCG industry is the biggest contributor (~45%) of the overall digital spends on advertising. Indian customers have become digitally inclined and FMCG companies can reap benefits of this trend by connecting with customers via e-commerce websites, social media, and mobile apps among others.

3. Fuelling growth in the personal care industry- Household and personal care accounts for over 50% of FMCG sales in India. The personal care industry is anticipated to experience high growth in India supported by increasing demands for skincare and cosmetic products. In the personal care and cosmetics space, naturally derived substances from plants and other natural sources are gaining popularity among the consumers. India's rising standard of living and economic growth is fuelling the market for personal care business in the country.

4. Focus shifting from Millennials and GenZ population of consumers to 45+ age group- The population of Gen Z and millennials in India though together is ~51% which had made them key consumers to focus on. The new trend is to look at age group of 45+ and focus on product providing specific health benefits. According to experts, by 2050, 40% of India will be 45+ age. Due to the mental and bodily changes happening with age, people are consciously looking to make specific food choices that could act as medicine. This consumer segment has the proclivity to spend, and food accounts for the bulk of the share of their wallet. This has led to higher marketing of healthy and convenience products along with efficient and quick delivery modes to suit the consumer demands.

5. The Rise of Quick Commerce in India: Revolutionising Retail and Last-Mile Delivery - The Indian e-commerce scene has recently changed due to quick commerce. Beyond traditional ready-made meals, the idea of fast deliveries has spread to cover a variety of goods like groceries, medications, cosmetics, and gadgets, fusing the ease of home shopping with the quickness of

instant market purchases. This creative concept promises to transform the market by meeting consumer demand for everyday necessities like groceries, fruits, veggies, etc. Convenience, urbanization, and hectic lifestyles are some of the major issues that have impacted consumer behaviour and led businesses to prioritize faster delivery times. Due to social isolation and work-from-home policies that discouraged in-store visits, the pandemic further exacerbated these needs. This rise of quick commerce is further driving growth across all FMCG categories.

7 Global market overview for food, home, and personal care

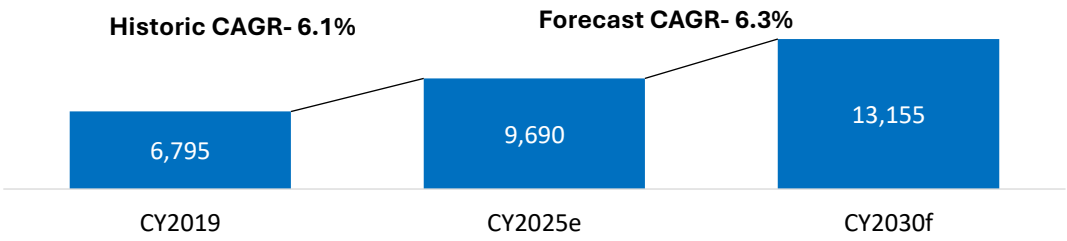
The Food, Home and Personal Care industries have been among the high growth sectors in both developed and emerging economies. Categories like Instant foods and ready-to-eat snacking items with nutritional offerings saw higher penetration during the pandemic. Retailers saw continued growth in health and hygiene category products as well as in food, personal care, and home care items unlike in apparels or cosmetics.

The global food industry saw a growth CAGR of 6.1% between 2019 and 2025. In India the total growth was not impacted, and it continued to grow at CAGR 9.0% for the same period. Even during pandemic, some segments like convenience food, confectionery and snacks saw double digit growth of over 10%. Globally, the home care sector also saw a growth of CAGR 3.1% during the pandemic whereas the Indian market grew at 6.6% for the same period.

Most products find applications in these industries and thus is more resilient to external factors such as pandemic, geopolitical tensions, trade wars etc. The company has observed growth in sales over the years and the same is expected moving forward with addition of new products in the portfolio catering to Food and Home and Personal Care industries.

7.1 Global food industry overview

Exhibit 7.1.1 : Global Food Industry, USD Billion, CY2019-CY2030F

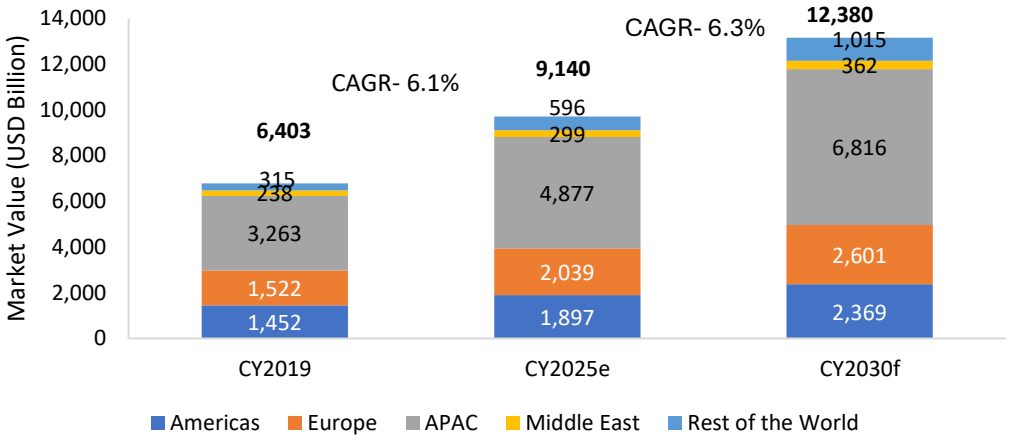


Source: Frost & Sullivan Analysis

Note: Above numbers are production figures

The global food industry is valued at USD 9,690 billion in 2025 and has witnessed a CAGR of 6.1% during 2019-2025e. The market is anticipated to further register a CAGR of over 6.3% during the forecast period of 2025e to 2030f. Economic growth leading to rise in disposable income is expected to increase the sales of food products through online channels thus impacting the revenue generation positively. Global demand for food is anticipated to continue to increase at a steady pace over the coming years. Rising food demand is majorly from the low- and middle-income countries due to economic development, growth in young population, and non-saturation of food consumption.

Exhibit 7.1.2: Global Food Industry, By Region, USD Billion, CY2019-CY2030F



Source: Frost & Sullivan Analysis

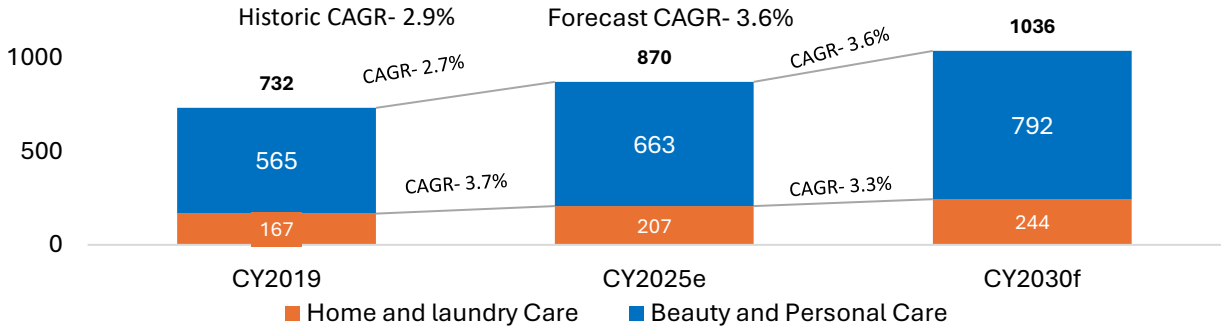
Asia-Pacific region account for ~50% of the overall market share in 2024e. Followed by APAC, Europe, and Americas together account for a market share of ~41% in the global food industry.

Table 7.1.3: Global Food Industry, By product type, USD Billion, CY2019-CY2030F

	CY2019	CY2025e	CY2030f	2019-25 CAGR	2025-30 CAGR
Baby Food	51	72	94	6.0%	5.5%
Bread & Cereal Products	921	1,324	1,814	6.2%	6.5%
Confectionery & Snacks	1,233	1,693	2,255	5.4%	5.9%
Convenience Food	427	632	858	6.8%	6.3%
Dairy Products & Eggs	773	1,129	1,561	6.5%	6.7%
Fish & Seafood	456	651	884	6.1%	6.3%
Fruits & Nuts	572	835	1,133	6.5%	6.3%
Meat	1,027	1,409	1,886	5.4%	6.0%
Oils & Fats	177	244	331	5.5%	6.3%
Pet Food	87	149	195	9.2%	5.6%
Sauces & Spices	175	253	342	6.3%	6.2%
Spreads & Sweeteners	175	262	367	6.9%	7.0%
Vegetables	718	1,043	1,429	6.4%	6.5%
Total	**6,794**	**9,698**	**13,162**	**6.1%**	**6.3%**

7.2 Global home and personal care industry overview

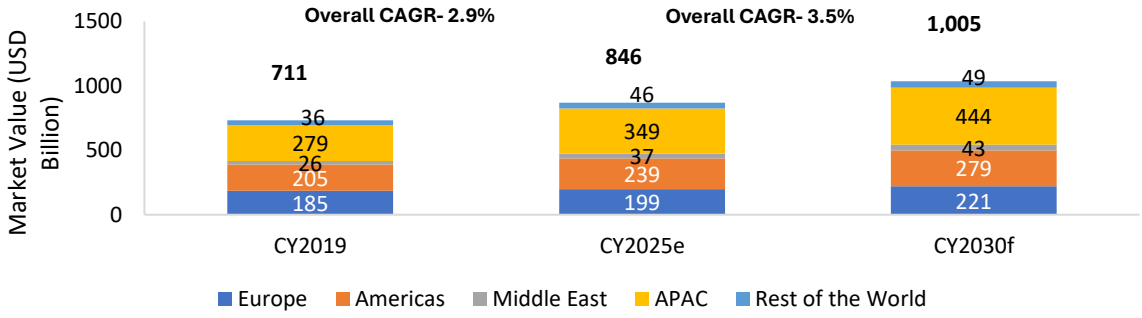
Exhibit 7.2.1: Global Home and Personal Care Industry, USD Billion, CY2019-CY2030F



Source: Frost & Sullivan Analysis

The global home and personal care industry is valued at USD 870 billion in 2025e and has witnessed a CAGR of 2.9% during 2019-2025e. The market is anticipated to further register a CAGR of over 3.6% during the forecast period. By 20230, the beauty and personal care industry is projected to be valued at USD 792 billion holding a major share of 77%. While home and laundry care is evaluated to reach USD 244 billion with a CAGR of 3.3% during 2025e-2030f.

Exhibit 7.2.2: Global Home and Personal Care Industry, By Region, USD Billion, CY2019-CY2030F



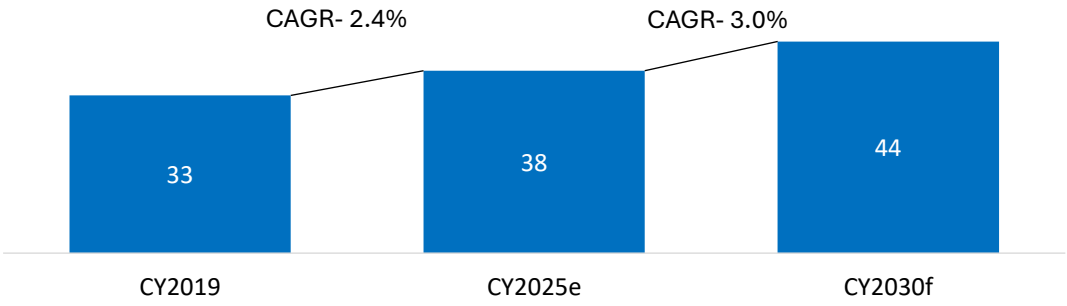
Source: Frost & Sullivan Analysis

Asia-Pacific region contributes largely to the home and personal care industry accounting for ~40% of the overall market share in 2025e. The region generated a revenue of USD 349 billion during the stated period and registered a CAGR of 3.8% from 2019-2025e. Followed by APAC, Americas and Europe accounted for a share of 27% and 23% respectively in 2025e. By 2030, APAC is estimated to retain its dominance in the segment with ~43% market share and is projected to register a CAGR of 4.9% during 2025e and 2030f.

7.3 Global Oral Care Industry

The global oral care industry is valued at USD 38 billion in 2025 and has witnessed a CAGR of 2.4% during 2019-2025e. The market is anticipated to further register a CAGR of over 3.1% during the forecast period of 2025e to 2030f. Global oral care forms part of personal care segment & constitutes 5.7% of the total market in CY25 and will constitute for 5.5% of the total market in CY30.

Exhibit 7.3.1: Global Oral Care Industry, USD Billion, CY2019-CY2030F



Source: Frost & Sullivan Analysis

Some of the key factors driving the market growth are the increasing prevalence of dental diseases, the ageing population susceptible to dental caries, unhealthy food habits, and product innovation. The increasing prevalence of mouth cancer, tooth decay, and other periodontal diseases globally contributes to the consumer demand for oral care products, such as toothpaste, toothbrushes, and mouth rinses. For instance, the WHO 2022 report projected that oral diseases affect close to 3.5 billion people globally.

Regionally, Asia Pacific is the largest global market, valued at USD 13.0 billion in 2025e contributing 33% to the overall market. The aged population is more likely to suffer tooth loss, tooth decay, and gum problems. The market dominance of the Asia Pacific region is attributed to the large presence of the aged population in countries, such as China and Japan, which results in the large consumption of oral care products. Additionally, higher people's preferences toward consuming herbal toothpaste products further drive the market's growth.

By product type, the market is segmented into toothpaste, toothbrush, mouthwash, and others. Toothpaste segment led the market in 2025e due to the availability of several toothpaste flavours along with its different categories, such as sensitivity control, mouth freshener, whitening, tooth decaying control, gum protection, and others, result in a significant share of the toothpaste segment. Additionally, the availability of toothpaste in paste, gel, liquid, spray, and capsule variations largely drives the segment growth. However, the toothbrush segment witnessed significant growth due to the introduction of advanced teeth cleaning brush items by prominent companies that acted as a reason for consumers' attraction toward these products.

Some of the major players in toothpaste market includes Colgate, Close-up, Pepsodent, Sensodyne, Oral-B, Meswak, Dabur Red Toothpaste, Patanjali, Himalaya, among others. There is substantial presence of GEM Aromatics in the oral care segment with customers such as Colgate, Dabur, Patanjali.

7.4 Global Wellness Industry

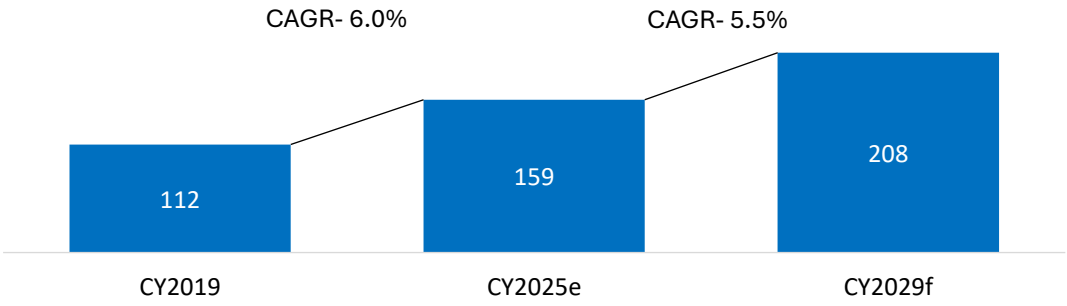
By focusing on health, beauty has increasingly integrated itself into the wellness economy. The increasing consumer focus on self-care amid the pandemic has furthered the growth of the wellness market. Moreover, the concept of wellness has extended to areas such as skincare, which in the past was positioned within the beauty segment. One of the most recent trends is ingestible beauty, namely, products that promise weight loss, clearer skin, and stronger hair through vitamins and supplements. Already popular in Asia, this trend is starting to gain traction around the globe.

Alongside companies that promise beauty through ingestible products, other companies promote the health benefits that come with the adaptation of specific products and lifestyles and use their scientific expertise in the health sector to penetrate the market.

Global wellness market forms part of personal care segment & constitutes 23% of the total market in CY25 and will constitute for 25% of the total market in CY30.

The global wellness market size accounted for USD 159 billion in 2025e and is expected to be worth around USD 208 billion by 2030f, at a CAGR of 5.5% from 2025e to 2030f.

Exhibit 7.4.1: Global Wellness Industry, USD Billion, 2019-2030F



Source: Frost & Sullivan Analysis

The Asia Pacific wellness market size held a market share ~35% in 2025. Asia Pacific, owing to the presence of huge population, rising urbanization, rapid industrialization, favourable government policies to attract FDIs, and huge potential for growth of various sectors of the wellness industry has become the most lucrative market. The major economies such as China, India, Japan, and South Korea are the major contributors to the growth of the wellness market.

GEM Aromatics has been dealing with one of the major players in the health and wellness industry viz., doTERRA. It offers Essential Oils for people who care about improving their Health. It sources essential oils from all over the world. GEM Aromatics is a leading provider of essential oils to doTERRA

7.5 Drivers and trends in global food, home and personal care industries

- **High demands for sustainably sourced ingredients and products-** Consumers increasing awareness about the carbon footprint has been driving the demand for sustainable products, globally. Traceability and transparency are among the top trends being adopted readily by the entities in the food industry to meet the consumers preferences. Emphasis on product traceability along with positive influence from social media channels is anticipated to gain traction based on the ongoing trend in the food, home, and personal-care industry.
- **Shift in food consumption pattern and demands-** Economic growth leading to increase in purchasing power is positively influencing the demand for better quality and variety of food products at a global level. Consumers are becoming more inclined towards natural, organic, and plant-based products. The demand for clean-label is also witnessing surge across the regions.

- **Integrated supply chains –** The just-in-time delivery trend has changed the dynamics of the global supply chain. The supply chain is influenced by globalization where the entities are engaging in low-cost local sourcing to suffice the customers demand for quick and on-time deliveries. This trend has resulted in companies investing in integrating their supply chains to improve the traceability and assisting in strengthening the supply chain.
- **Rise in demand for 'better-for-you' premium products**- As consumers are increasingly inclining towards health and wellness trend, they seek ingredient transparency. Consumers are looking for less-toxic, chemical-free, natural, and organic products in the homecare and personal care sectors. This has also led to the emergence of "professional" or "premium" personal care products in the global market. The trend can be ascribed to customers' growing awareness of the importance of product quality, ingredients, and sustainability when making purchasing decisions.

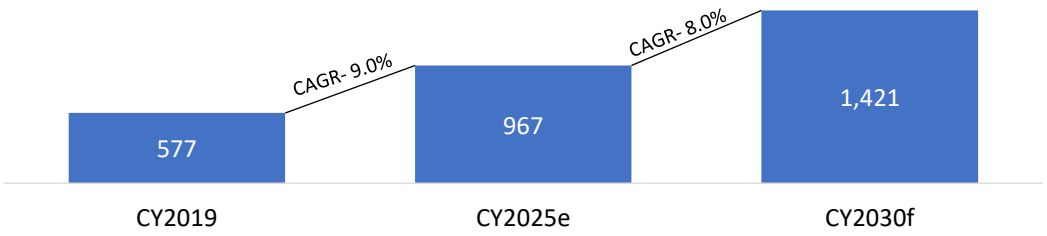
7.6 Consumer insights on food, home and personal care industries

- **Contribution of economic growth**- In developing countries like India, the growing middle-class population and rising disposable income are the key growth drivers for food, home and personal care segment. In India, the premium beauty and personal care products is anticipated to witness a CAGR of above 50% during FY21-26 and fragrances, makeup and cosmetics, and men's grooming are expected to register a CAGR of 20-40% between FY21-26. (Invest India)
- **Impact of online shopping**- post-pandemic online shopping culture grew exponentially where consumers readily adopted the e-commerce channels. The beauty and personal care industries benefited highly from this trend making margins as high as 60-70%. The direct-to-consumer trend in the beauty and personal care industry is pacing and has become a necessity for the consumers. Food, home and personal care industry is accelerating at a higher CAGR due to the consumers shift towards digitalization.
- **The consumers have become highly focused towards health and well-being** – This trend is increasing consistently post pandemic. They are willing to pay premium prices for quality and clean-labelled products. Today, globally consumers are curious to know the origin of the products they use and hence are highly inclined towards sustainable brands across the food, home, beauty and personal care sectors.

8. Domestic market overview for food, home and personal care

8.1 Indian food industry overview

Exhibit 8.1.1: Indian Food Industry Size, USD Billion, CY2019-CY2030F



Source: Frost & Sullivan Analysis

The Indian food industry is valued at USD 967 billion in 2025 and has witnessed a CAGR of ~9% during 2019-2025e. The market is anticipated to continue to pace with the CAGR of ~8.0% during the forecast period of 2025e to 2030f. In 2030, India will account for 10.5% of global Food industry and 20.5% of APAC Food industry.

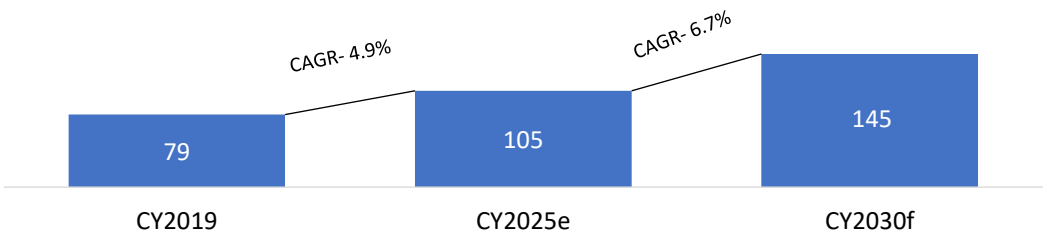
Table 8.1.2: Indian Food Industry Size by product type, USD Billion, CY2019-CY2030F

Key Segments	CY2019	CY2025e	CY2030f	2019-25 CAGR	2025-30 CAGR
Bread & Cereal Products	110	188	276	9.3%	8.0%
Confectionery & Snacks	69	119	180	9.6%	8.5%
Convenience Food	38	72	110	11.4%	8.8%
Dairy Products & Eggs	101	168	247	8.8%	8.1%
Fruits & Nuts	77	131	193	9.1%	8.1%
Others	180	289	419	8.2%	7.7%
Total	**577**	**967**	**1,421**	**9.0%**	**8.0%**

Economic growth followed by increased support to expand the production of locally sourced sustainable and traceable food is supporting the food industry in India. Government's approval on PLI scheme in 2021 supports local production and sales along with boosting opportunities in the Indian food sector. Based on the incentives being offered to the manufacturers operating in the Indian food industry, the market is quite lucrative and holds high growth potential.

8.2 Indian beverage industry overview

Exhibit 8.2.1: Indian Beverage Industry, USD Billion, CY2019-CY2030F



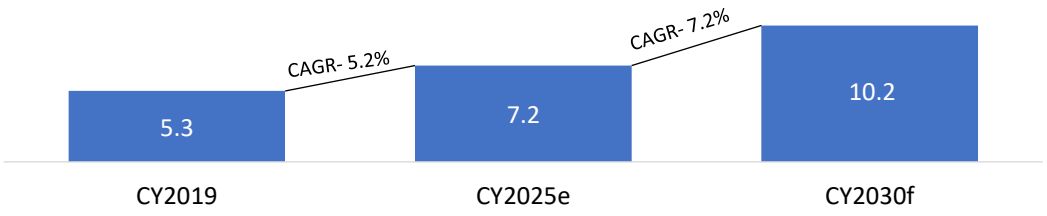
Source: Frost & Sullivan Analysis

The Indian beverage industry is valued at USD 105 billion in 2025e and is anticipated to witness a CAGR of ~6.7% during the forecast period of 2025e to 2030f and projected to be valued at USD 145 Bn. Sales of herbal tea and other functional hot beverages, other health drinks, witnessed high sales during the pandemic which supported the growth of hot beverages in the local market.

Indian beverage industry in India is driven by product innovations. Consumers have more inclination towards uniquely flavoured products available in new formats. Both in alcoholic and non-alcoholic segments, consumers readily experiment with new formats such as RTD (ready-to-drink) beverages, ciders in new flavours, low-sugar and no-calorie options such as those in sparkling water. The trend has been supporting the beverage industry over years and will continue to support the sales further.

8.3 Indian OTC drugs industry overview

Exhibit 8.3.1: Indian OTC Drugs Industry, USD Billion, CY2019-CY2030F



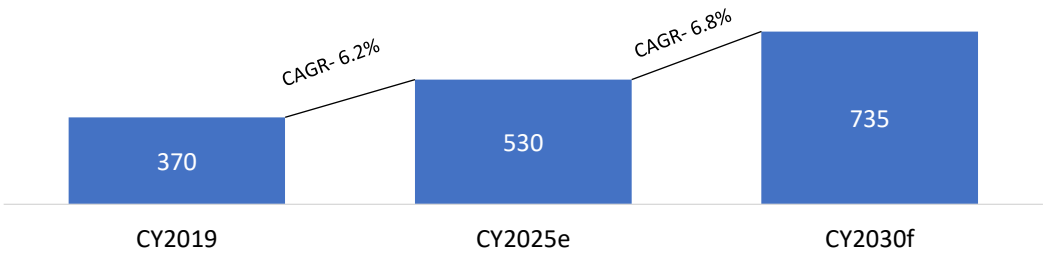
Source: Frost & Sullivan Analysis

The Indian OTC drugs industry is valued at USD 7.2 billion in 2025e and is anticipated to witness a CAGR of ~7.3% during the forecast period and will reach a market value of USD 10.2 billion by 2030f. The vitamins and mineral segment of OTC drug is anticipated to register the highest CAGR of 9.1% during the forecast period and will contribute largely to the OTC drug industry. A major strategy followed by pharma companies in India is seen to be launching products in new and improved flavours followed by focus on packaging, and delivery systems to create product differentiation. These key strategies are supporting the entities to gain consumer traction in the OTC drug/pharmaceuticals segment.

8.4 India pain management market

The pain management market (cream, gel, spray, and balm) size is estimated at USD 530 million in 2025, and is expected to reach USD 735 million by 2030, growing at a CAGR of 6.8% during the forecast period (2025-2030)

Exhibit 8.4.1: India Pain Management Industry, USD Billion, CY2019-CY2030F

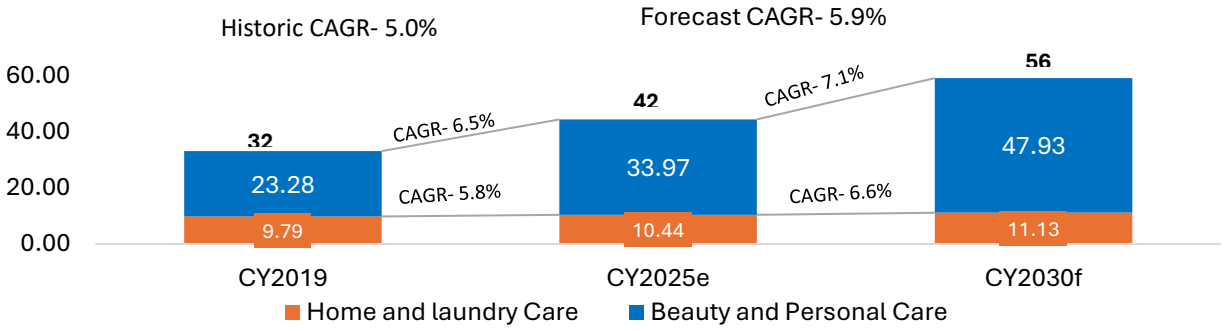


Source: Frost & Sullivan Analysis

Many of the products supplied by GEM Aromatics are used in this segment of OTC drugs. Pain management (cream, gel, spray, and balm) market forms about ~7% of the OTC drug market in India.

8.5 Indian home and personal care industry overview

Exhibit 8.5.1: Indian Home and Personal Care Industry, USD Billion, 2019-2030F



Source: Frost & Sullivan Analysis

The Indian home and personal care industry is valued at USD 42 billion in 2025e and is anticipated to register a CAGR of over 5.9% during the forecast period of 2025e to 2030f. By 2030, the beauty and personal care industry is projected to be valued at USD 47 billion holding a major share of ~80%. India will account for 5.6% of global Home and Personal Care Industry and 13% of APAC in 2030. While home and laundry care is to reach USD 11 billion with a CAGR of 6.6% during 2025e-2030f. Both the segments are driven by increasing demands for new and innovative products by consumers. The demand for products from naturally derived ingredients is fuelling the growth of this home and personal care industry. The application of fragrances is surging in the personal and home care industries. This is also supported by the rise in purchasing power for premium products majorly in the personal care sector (Cosmetics) where the application of fragrance is high.

9. Global Flavours and Fragrances Market

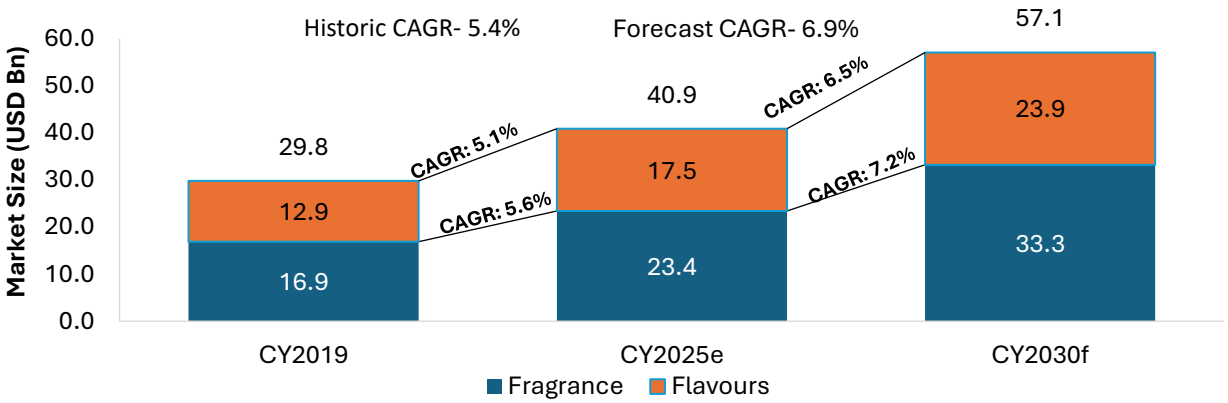
9.1 Global flavours and fragrances market value analysis

The global flavours and fragrances market was estimated at USD41 Bn in 2025e and is expected to reach at USD57 Bn by 2030. The market is expected to grow at a CAGR of 6.9% during the forecast period (2024-2029).

The growth is majorly propelled by rising demand for personal care products, brand recognition, rising disposable income, growing demand from middle-class section, and low product prices in the form of mass-produced perfumes and deodorants, and other flavouring products.

In addition to this, growing inclination towards synthesis of natural products using various biotechnology methods is providing a new direction to the industry.

Exhibit 9.1.1: - Global Flavours and Fragrances Market Value, 2019-2030F (USD Billion)



E-Estimated; F-Forecasted; This definition will remain the same throughout the document.

Source: IHS, Frost & Sullivan Internal Analysis

Globally, the consumption of various flavours and fragrance products have gradually increased over the past several years. Every country with its own geo-climatic diversity and demand, becomes the home for production and consumption of various products. For instance, according to the Ministry of Micro, Small & Medium Enterprises (MSME), there are about 300 significant natural raw ingredients for fragrances used globally. Only 50% of these are cultivated, and the remaining are found in wild habitat (e.g. Nagrarmotha, Kewra etc). 110 naturally occurring, farmed fragrant raw ingredients account for 95% of the world's current use of scent and flavour. Out of them, 31 are the ones for which India is well recognised around the world, and there are close to 21 more that have grown but not to the point where they are relevant to the world. With its essential oils of menthol mint, eucalyptus, clove, sandalwood, jasmine, tuberose, and spices, India has had an impact on the world.

Similarly, Europe being a hub for fragrance industry, is a major exporter of fragrance products and ingredients. According to an article published by Centre for the Promotion of Imports from developing countries (CBI), Ministry of Foreign Affairs, the Netherland contributes ~20-25% of total fragrance products exports, U.K. ~15%, France with major contribution of ~30%, and among others. On the other hand, according to the Word Exports Analysis, Asian countries also contribute significantly toward the export of flavours and fragrances products and ingredients with the lucrative share of ~14%.

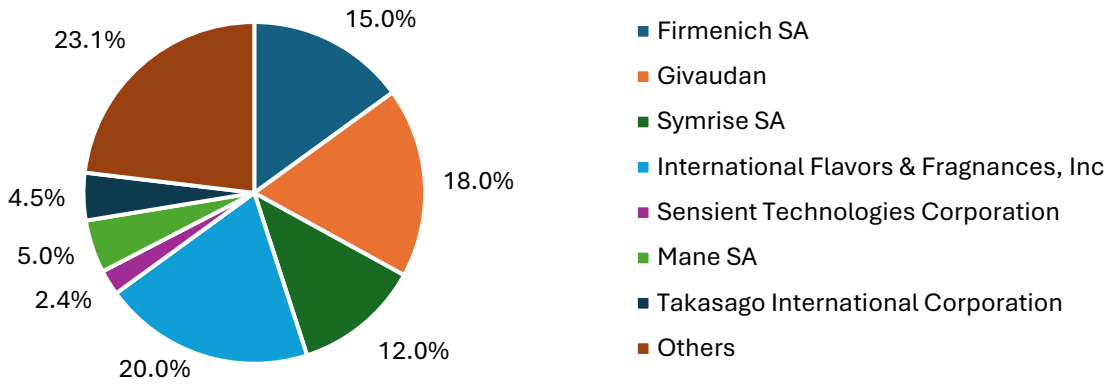
The growth of the flavours segment is driven by the demand from end-users such as manufacturers of beverages, dairy products, bakery products, soups, meat, confectionery, snacks, and oral care products.

Fragrance market has a 57% of F&F market and it is expected to continue to have a similar share during the forecast period with expected high growth of 7.2%.

The growth of the fragrance market is majorly attributed to the growing demand for the products, rising inclination towards natural and biosynthesized products. Biosynthetic products mean production of a chemical compound by a living organism. Biosynthesis is a multi-step, enzyme-catalysed process where substrates are converted into more complex products in living organisms. In biosynthesis, simple compounds are modified, converted into other compounds, or joined together to form macromolecules.

Geographical barriers have been eliminated by the globalization of various economies, bringing distant regions of the world closer than before.

Exhibit 9.1.2: - Global Flavours and Fragrances Market, Company Share Analysis, CY2025E (%)

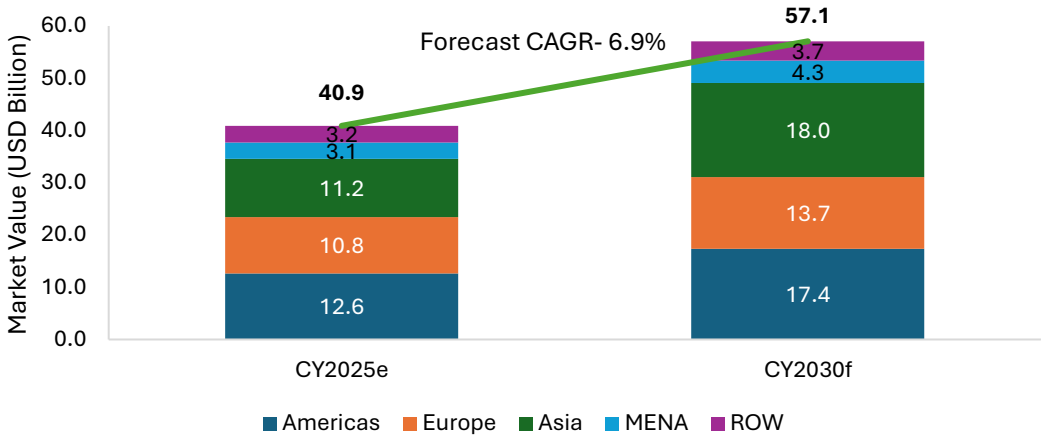


Source: Investor Presentation, Annual Reports, Leffingwell & Associates Survey, Frost and Sullivan Analysis

On the basis of competition, currently, the firms including Firmenich SA, Givaudan, Symrise AG, and International Flavours & Fragrances, Inc, account for more than 60% share of the global market. All other companies, both internationally and locally, make up the remaining 40%. Some of the other companies includes Sensient Technologies Corporation, Mane SA, Takasago International Corporation, Frutarom, Roberter SA, and among others. GEM Aromatics supplies their essential oil products to all the above mentioned companies/flavour & fragrance ingredient houses.

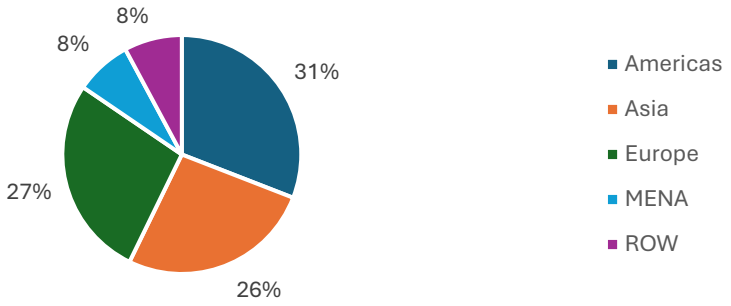
9.2 Global flavours and fragrances market: geographic analysis

Exhibit 9.2.1: - Global Flavour and Fragrances Market, by Geography CY2025E & CY2030 (USD Billion)



Source: Investor Presentation, Annual Reports, Internal Analysis, New articles, Blogs, Leffingwell & Associates Survey, IHS,

Exhibit 9.2.2: - Global Flavour and Fragrances Market Share, by Geography, CY2025E (%)



Source: Investor Presentation, Annual Reports, Internal Analysis, New articles, Blogs, Leffingwell & Associates Survey, IHS, IBEF

Americas dominates the market as majority of the key players are based primarily in the North American and European regions. Furthermore the growth is driven by the escalating demand for flavours and fragrances in food & beverages, pharmaceuticals, dietary supplements, nutraceuticals, and tobacco . Countries such as the USA and Canada are the leading contributors to the flavours and fragrances market from the region.

As of 2025, Asia has been the second largest market followed by Europe. Originally Europe has been the second largest market for decades, however majority of the global firms focus on key strategies, such as market expansions, new geography establishment, product launches, and mergers and acquisitions, to uphold their market share. Owing to which the share of Asia has increased over the years and is expected to continue going forward.

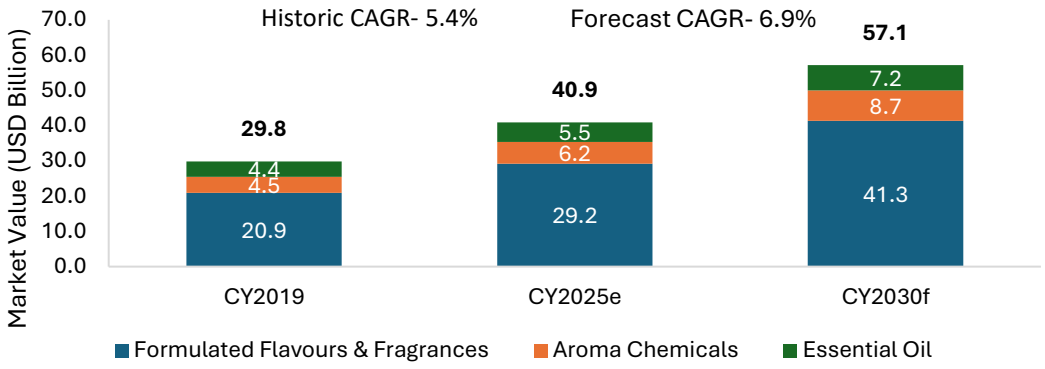
During the forecast period Asia will continue to overtake Europe and Americas to become the largest demand region, from a moderate share of 27% to 32% . Many companies have shifted base to Asia to cater to the growing demand. Key vendors are expanding their footprint in untapped Asian countries. For instance, in April 2024, Takasago International Corp. (Takasago) announced the launch of its new facility Takasago International India Fragrance Centre (TIIFC) in Mumbai, India. Similarly, in December 2022, Mane SA announced to open two new facilities in India. Rapid development in the economies and increasing spend by the large middle class population to enhance their lifestyle are the key reasons for growth in Asia.

9.3 Global flavours and fragrances market: segmental analysis

The food and cosmetics industries heavily rely on flavours and fragrances (F&F). They are made up of a variety of substances, such as attar, essential oils, absolutes, oleoresins, isolates, and specific fragrance compounds. The industrialised nations have a sophisticated flavour, and the food and beverage industry, as well as the home and personal care industry, both depend on the fragrance business. Although the penetration of finished flavour and fragrance goods in developing nations is still in its infancy, however due to the continuously growing demand, the F&F ingredient manufacturing industry is quite developed across the nations.

Both the industries (flavours and fragrances) have a distinct choices when it comes to usage of ingredients. In flavouring industry, the uptake of natural ingredients for making various flavours is more, on the other hand fragrances industry rely more on synthetic ingredients, however the trend is changing towards natural ingredients.

Exhibit 9.3.1: - Global Flavours & Fragrance Market, by Segment CY2019-CY2030 (USD Billion)



Source: Investor Presentation, Annual Reports, Internal Analysis

Formulated flavours form the largest segment with ~71% share under flavours & fragrance market. These are complex mixtures of aromatic compounds such as natural extracts, essential oils, and aroma chemicals. These formulations are available in various forms, such as liquid and concentrates, depending on the usage.

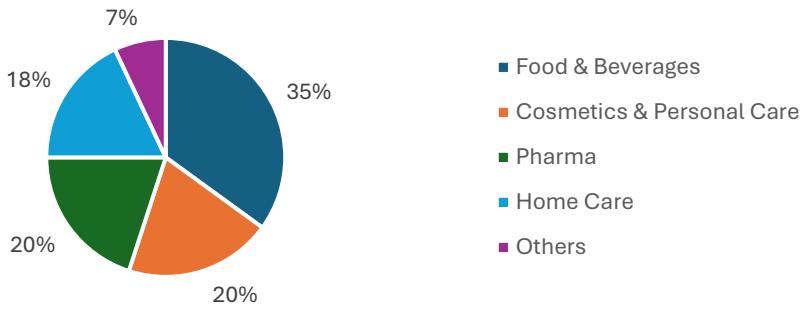
Aroma Chemicals have a share of ~ 15% by value, these are organic compounds derived from petrochemicals, natural resource isolation, and turpentine fractionation. Aroma chemicals can be categorized into terpenes, benzoids, musk chemicals, and others based on their structure.

About 14% is contributed by Essential Oils. **Essential oils are concentrated hydrophilic liquids obtained from plants. Solvent extraction and expression, and steam distillation are some of the common extraction methods for essential oils. Products produced and marketed by GEM**

Aromatics fall under this segment. GEM Aromatics caters to both aroma chemicals and essential oils. The demand for essential oils is expected to increase at a rapid rate due to the increased demand for new varieties of foods and the growing adoption of essential oils in the food and beverage, and cosmetics industries.

The largest segments under essential oil is – Orange oil, Mint oil , Clove oil, and Eucalyptus oil. **GEM Aromatics is present in three of the four major categories. Peppermint Oil, Menthol, Clove Oil, Eugenol and Eucalyptus oil form about ~35-40% of the total essential oil market by value. GEM Aromatics is one of the prominent essential oils and Value-Added Derivatives manufacturers in India, based on value and volume manufactured, specializing in products that are derived from mint and clove oil**

Exhibit 9.3.2: - Global Flavours & Fragrance Market, by Application CY2025E (USD Billion)



Source: Frost & Sullivan Analysis

Food and beverages are the major end applications of the flavours & fragrance market. With growing segment of processed foods there is an increasing need of flavours & fragrance ingredients in the segment. This is followed by the cosmetics and personal care segment.

9.4 Global flavours and fragrances market: key drivers and trends

MARKET DRIVERS

- Rising demand for personal care products
- Growing preference for ayurvedic ingredients and other natural herbs, and plant-based products
- Increasing disposable income, and brand recognition amongst all income levels
- Growing demand for ready-to-eat and packaged food and beverages, especially from developing nations

TRENDS

- Growing use of biotic ingredients in flavouring products
- Corporate agreements between manufacturers and biotech companies for natural synthesis of products
- Growing inclination towards premium fragrances
- Constant demand for new, innovative ad fresh products from consumers

Source: News articles, blogs, company press releases, Frost and Sullivan Analysis

Key Drivers

In recent years, fragranced personal care, laundry care, and household care products have seen a meteoric surge in demand, which has had a significant knock-on effect on the resulting demand for fragrances. Also, consumers have shown a marked preference for perfumes that are both intense and long-lasting.

High incomes and urbanisation are spurring interest in convenient packaged foods and fast food. Packaged goods require high flavour loadings to prevent the loss of taste that occurs during large-scale manufacturing. More recently, there has been a rising interest in natural, organic foods and beverages, leading to increased demand for essential oils and natural extracts.

Further, in the non-food area, laundry agents account for around 29% of the market share. 75% of this total is comprised of detergent, powders, and bars. In India, detergents may have a unique component or be priced differently, but it is the fragrance's medicinal properties that make the product more desirable and appealing. The size of liquids, conditioners, and other washing aids is very diminutive.

Shift in sourcing / supply chain strategies

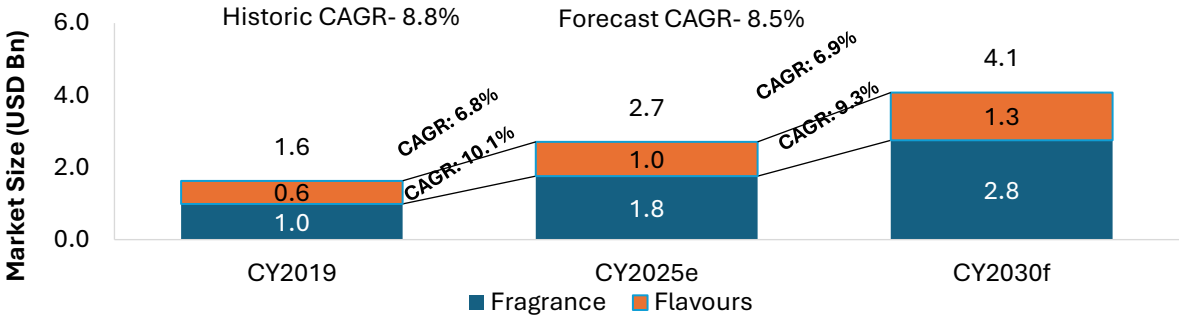
Companies are focusing their sales expansion plans to cater to increasing demand from Tier II and Tier III cities that eventually drive growth. Companies are launching a range of affordable deodorants, perfumes, and colognes for consumers willing to spend on fragrances.

10. India Flavours and Fragrances Market

10.1 India flavours and fragrances market value analysis

The Indian Flavours and fragrances market was estimated at USD 2.7 Bn in 2025e and is expected to reach at USD 4.1 Bn by 2030. The market is expected to grow at a CAGR of 8.5% during the forecast period (2025-2030).

Exhibit 10.1.1: - India Flavours and Fragrances Market Value, CY2019-CY2030 (USD Billion)



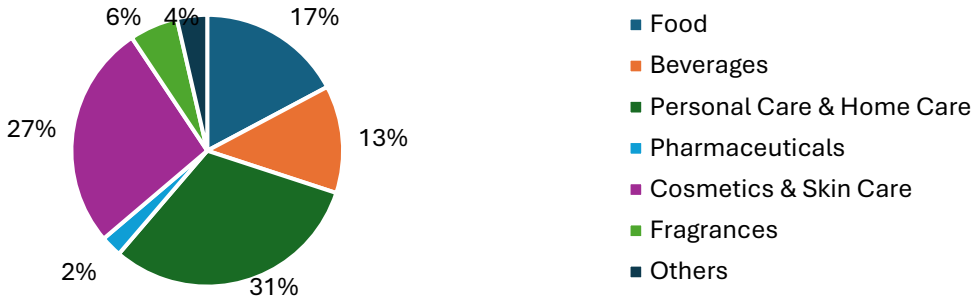
E-Estimated; F-Forecasted; This definition will remain the same throughout the document.

Source: Ministry of Micro, Small & Medium Enterprises, India, IHS, Internal Analysis

India due to its large consumer population has been the focus of many FMCG companies. It has been attracting many global manufacturing companies to produce perfumes, soap & detergents and home care products due to the economic advantage and huge demand within. This has been the main reason of growth in the Flavours and Fragrances market in the country.

~67% of the demand is of fragrances, with a growth rate of CAGR 8.9%. Aspirational inclinations increased disposable income levels, growth in spending proclivities within the new generation consumer segment, and evolving lifestyle preferences are some of the key drivers of growth.

Exhibit 10.1.2: - Indian Flavours and Fragrances Market, Application Split, CY2025E (%)



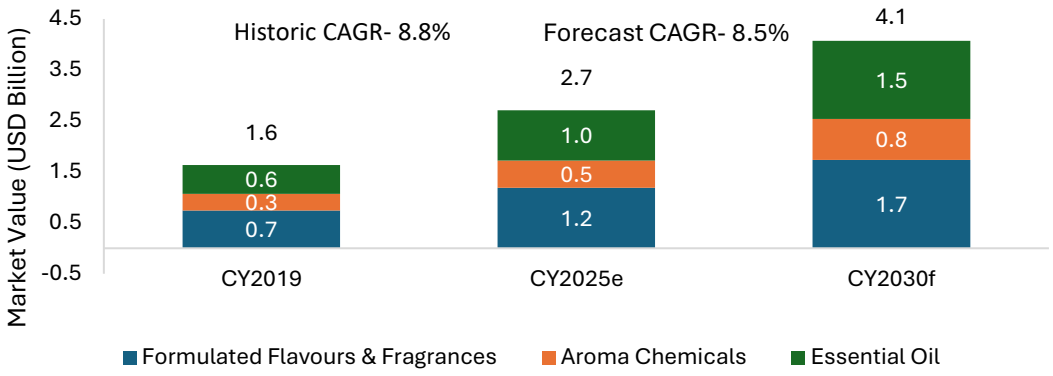
Source: Frost and Sullivan Analysis

Personal care and home care are the key end application segments with ~31% demand share. This is followed by cosmetics and skin care. Increased awareness on sensitivity in these applications have resulted in higher adoption of bio-based products.

10.2 India flavours and fragrances market: segmental analysis

Unlike in the global developed market formulated flavours and fragrances has a lower share in the market. Aroma chemicals and Essential oils see a higher uptake due to their usage in incense sticks a unique market specific to India, with some specific single aroma requirements. Highest growth of CAGR 8.8% is expected in Essential oils as they are perceived natural, environment friendly without any adverse effect on health.

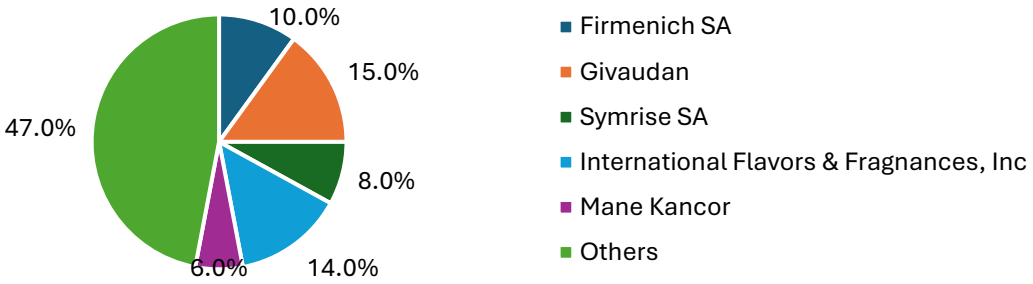
Exhibit 10.2.1: - India Flavours & Fragrance Market, by Segment CY2019-CY2030 (USD Billion)



Source: Investor Presentation, Annual Reports, Internal Analysis, MSME White Paper

India imports significant value (~USD 350 Mn[3] as of FY 2025) of essential oils and aromatic ingredients. The imports are from various geographic locations based on the type of oil or ingredients. The main exporting countries to India include- USA, Indonesia, China, etc.

Exhibit 10.2.2: - Indian Flavours and Fragrances Market, Company Share Analysis, CY2025E (%)



Source: Investor Presentation, Annual Reports, Frost and Sullivan Analysis. Shares are only indicative and are based on imports/production and global shares

Others include Keva Flavours; FAB Flavours & Fragrances Pvt. Ltd.; Oriental Aromatics; Mane SA; Kalpsutra Chemicals Pvt. Ltd.; Flavorade India; Symega Ingredients; Matrix Flavours & Fragrances; among others

The formulated flavours and fragrance/ F&F blends segment is dominated by global suppliers as this segment requires considerable investment in Research and product development. Intellectual property safeguarding, loyal customer base, strong branding are some of the major requirements

[3] HSN 3301

apart from R&D in this segment, which act as major entry barriers for new players. FMCG companies risk losing customers in the event of any change in fragrance or flavour profile of the product. Thus, once onboarded and having delivered results as a supplier, FMCG companies are reluctant to change suppliers. Givaudan, IFF, Symrise, Mane SA and Firmenich dominate this segment.

Aroma chemicals and Essential oils are mainly dominated by companies in India. India is strongly positioned especially in supply of natural ingredients and products. The segment is export driven with ~80% of the produce being exported to other regions.

GEM Aromatics is among the prominent manufacturers of essential oil-based products and derivatives in India, specializing in products that are derived from mint, clove, eucalyptus oils and other essential oils. This industry has high entry barriers in India for reasons mentioned above

10.3 India flavours and fragrances market: key drivers and trends

MARKET DRIVERS

- Urbanization rate in India is set to increase to 45% in next four decades. This would propel retail and consumer spend on FMCG products to a larger extent
- Flavours and Fragrances are being used as a differentiator in many of the food and personal care products. Considering the huge consumer population the penetration levels and acceptance of such products have been considerably high in India
- Significant export market also acts as a key driver

TRENDS

- Increasing demand for natural, natural inspired and organic F&F products.
- Stringent FSSAI regulations for food safety enhancing higher quality of products produced in India
- Global companies moving from in-house production to outsourcing from Indian companies with better economies and IPO protection compared to other countries
- Increasing focus on R&D- with dedicated facilities like that of Fragrances and Flavours Association of India (FAFAI)

- The Indian market currently has a 60:40 share of synthetic v/s natural ingredients, but with growing global preferences for natural products and abundant availability of natural resources the market is shifting towards natural ingredients, aligning with global trends in personal care, food processing, and other applications.
- Key sub-segments of growth in the market include natural Flavours, sustainable fragrances, and innovative aroma chemicals.
- Cost control and stability of natural products is a primary challenge, as the market is highly price sensitive. It is important to have raw material sourcing as well as the customers in the vicinity to avoid high logistics and handling charges and any possible contamination or stability issues.

Major threats:

- **Supply and Quality Issues:** Global supply requires tremendous investments on maintaining quality. Natural resources tend to vary in yield and quality with every crop standardizing process to get acceptable quality every time is a major challenge. With consumers demanding better transparency of ingredients, certifications and process standardizations

would help to position the products better. Also considering supply chain disruptions due many uncontrollable factors like weather, crop cycles, soil quality etc having sustainable supply of raw materials becomes very important.

- **Counterfeit products:** Counterfeit products cause a great threat to the fragrance industry and cost the industry billions in lost revenues. Clear imitations of a particular fragrance can make it hard to differentiate between the original and counterfeit products as well as the ingredients used. Hence stringent quality checks play a major role.
- **Export Market challenges:** Though geopolitical issues have lower impact on consumption in major end user industries, price fluctuations are inevitable. Currency fluctuations, logistical constraints and route blockages also impact supply and pricing. Having a diversified geographical market presence with a good share in domestic market sales would help the revenues to sustain.

In India, GEM Aromatics has a dominant presence in essential oil-based products and derivatives that are manufactured from mint, clove, eucalyptus oils and other essential oils. During FY 2025 in India, the Company was one of the largest procurers of Piperita oil, and one of the largest processors of DMO, Clove oil, Eugenol and Eucalyptus Oil in terms of volume manufactured. As on FY 2025, Company's share of DMO and Eugenol in India was 12% and 65%, respectively, in terms of volume manufactured.

One of the primary raw materials which is Natural Mint oil is available in abundance in India. GEM Aromatics' Badaun Facility is located in the heart of the Mint cultivation belt of India which includes Mentha Arvensis, Piperita, Spearmint and Mentha Citrata (Bergamot Mint) (species of flowering plant in the Mint family), and the Silvassa Facility is strategically located close to Jawaharlal Nehru Port in Nhava Sheva, Maharashtra.

GEM Aromatics' Bundan Facility, is located near the mint growing belt, while Silvassa Facility is located close to Jawaharlal Nehru Port providing strategic advantage. The Dahej Facility is strategically located in the hub of chemical manufacturing with common effluent treatment plant and other facilities

GEM Aromatics' Silvassa facility is strategically located close to Jawaharlal Nehru Port in Nhava Sheva, Maharashtra and help reduce time for export shipments. This also reduces the company's import costs for raw materials that are imported from Indonesia, Germany, China, Rwanda and Madagascar.

The manufacturing facility of the Company which is being established through its wholly owned subsidiary viz., Krystal Ingredients Private Limited) at Dahej, Gujarat (Dahej Facility) will produce products derived from Phenol as a key raw material.

The Dahej Facility will provide the Company access to phenol, with one of the largest suppliers of phenol in the vicinity. The facility has an already established effluent discharge eco-system which will provide the Company in effectively discharging effluents that may be generated in manufacturing of certain products. This facility is strategically located close to Mumbai-Delhi Expressway and Jawaharlal Nehru Port, Hazira.

11. Essential oils and select chemicals

11.1 Mint oil and derivatives

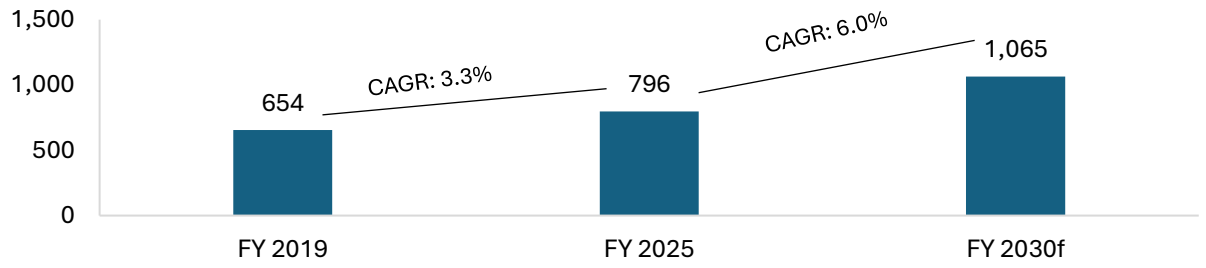
Product introduction

Mint oil is obtained from the leaves of the perennial herb, *Mentha piperita L.*, *Spearmint* and *M. arvensis var. piperascens*, a member of the Labiatae family. It is also known as Mentha oil or Corn Mint Oil. It is a colourless, pale yellow or pale greenish-yellow liquid having characteristic odour and taste followed by a sensation of cold, freely soluble in 70% ethanol. The solution may show an opalescence. The oil is found on the undersides of the leaf stems, is extracted by steam distillation and is generally followed by rectification and fractionation before use. There are also synthetic methods of manufacturing the same.

Global market demand: FY 2025

The Global market demand for Mint oil was estimated to be around USD 796 Mn in FY 2025. In volume terms, the market was ~52,000 MT. ~ 70% of this is converted to Menthol and other derivatives. The numbers discussed in this chapter include both- Mint oil converted to menthol and derivatives and that used "as-is". The market is expected to grow at a CAGR of 6.0% by 2030F owing to increased interest in natural ingredients usage in FMCG products across globe.

Exhibit 11.1.1 : Global Mint Oil Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

The numbers presented include both natural and synthetic variants.

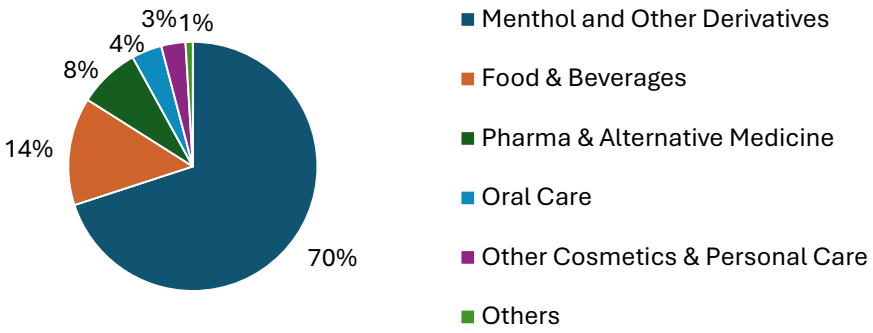
Applications and uses

Mint oil has a wide variety of applications across Food and Beverages, Alternative medicine and Pharmaceuticals, Cosmetics and Personal Care (specifically in oral care) and Home care products. In oral care, mint oil finds use in mint flavoured toothpastes and in mouthwashes. In oral care it is used as both a mouth freshener (due to the cold and refreshing sensation it provides) as well as an anti-bacterial agent to prevent halitosis and as an anti-inflammatory agent to prevent gingivitis progressing to gum disease. Alternative medicine uses includes its use in Aromatherapy, Ayurveda, and Chinese medicine, including its use in over-the-counter products such as Dabur's Pudin hara etc.

Use of Mint oil for Menthol is the prominent usage as most oil producers are forward integrated into Menthol. Once Mint oil is processed for Menthol, Dementholized oil (DMO) and other derivatives

(Pulegone, peppermint oil, Neo Menthol, Menthone, Menthofuran, L-Methyl Acetate, Di-Methyl Acetate Iso Pulegol among others) are produced.

Exhibit 11.1.2 : Global Mint Oil Application by Segment, FY 2025, USD 796 Million



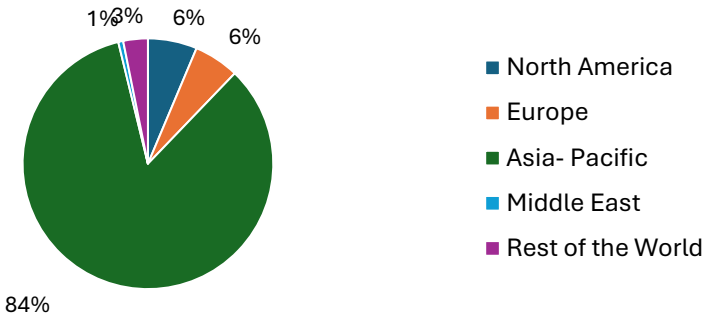
Source: Frost & Sullivan Research & Analysis

Note: Others is primarily the use of Mint Oil in Homecare Products etc.

Global market demand, FY 2025, split by geography:

In terms of demand, Asia Pacific was the largest consuming region in FY 2025, followed by North America and Europe. Production in India of Mint oil is almost 75% of the global demand and was estimated around ~39,000 MT for FY 2025. Mentha Arvensis/ Corn Mint Oil production accounts for over 98% of the natural Mint Oil production. Exports are about 25-30% and hence most of the consumption takes place in India for Menthol production, as such the demand is consumption driven and in Asia Pacific it is ~84% followed by other regions.

Exhibit 11.1.3 : Global Mint Oil Demand Split by Geography, FY 2025, USD 796 Million

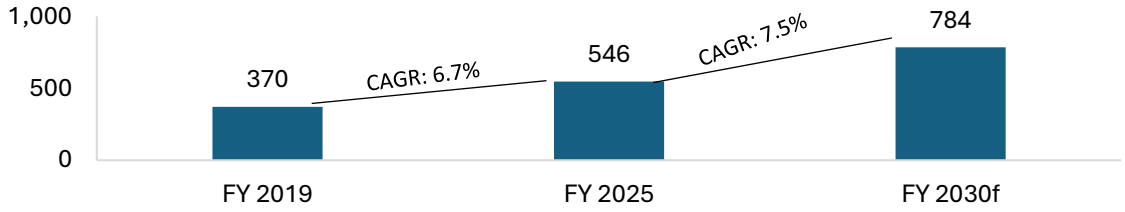


Source: Frost & Sullivan Research & Analysis

Indian Mint Oil Market FY 2025

The India Mint Oil market was valued at USD ~546 million in FY2025 and it constitutes more than two-third of the global market. In volume terms, the market demand was around 34,000 MT.

Exhibit 11.1.4 : India Mint Oil Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India market, FY 2025, local production, imports and exports:

Exhibit 11.1.5: India Mint Oil Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~561	~11	~158	**546**

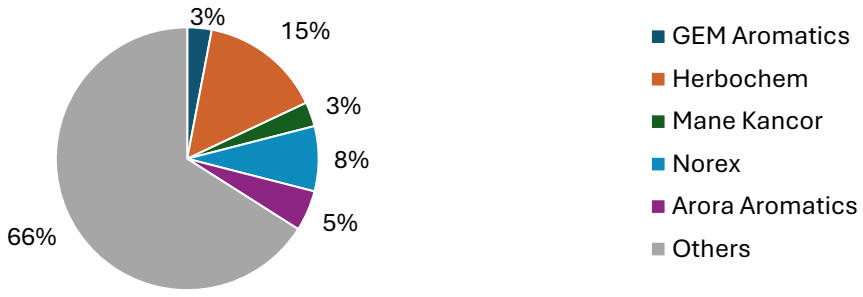
Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

India maintains its position as the world's largest exporter of Mint Oil. Imports into India were comparatively negligible.

Local Production of Mint Oil

India produced approximately USD 561 Mn worth of Mint Oil in FY 2025. The Indian Mint Oil production market is highly fragmented with the top 5 players accounting for just about 34% of the total Mint oil production share. **GEM Aromatics is among the large producers of Mint oil in India. They are one of the largest buyers for Piperita oil in India. The company is among the leading companies to utilise crude mint oil from Mentha arvensis in the production of mint-based derivatives and one of the largest processors of DMO During Fiscal 2025, the Company was one of the largest procurer of piperita *in India by volume***

Exhibit 11.1.6 : Indian Mint Oil Production - Production Share of Key Companies, FY 2025, USD 561 Million



Source: Frost & Sullivan Research & Analysis

Others Include: Bharat Aromarics, Naturachem Organics, Swati Menthol etc.

11.2 Menthol

Product introduction

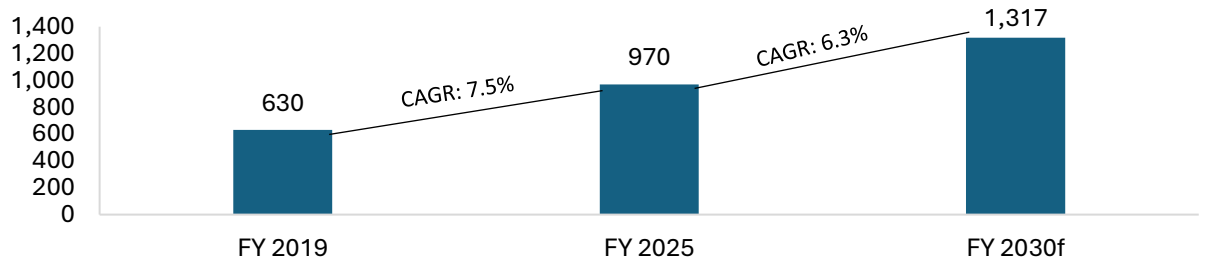
Menthol is a substance naturally found in Mint plants, such as Corn mint and Mint. It gives a cooling sensation and is often used to relieve minor pain and irritation. Menthol is a Monoterpenoid and can also be made synthetically by various processes. It is a waxy, clear or white crystalline substance, which is solid at room temperature and melts slightly above.

The Menthol molecule can exist as one of eight enantiomers. The naturally occurring material is the laevorotatory form, called l-Menthol. Synthetic Menthol is available both as racemic (DL Menthol) and L-Menthol forms. Synthetic L-Menthol is produced primarily for use in pharmaceuticals (as a nasal decongestant, antitussive topical analgesic, and local anaesthetic) and oral care products such as toothpastes and mouthwash.

Global Market Demand: FY 2025

The Global market for Menthol was estimated to be around ~ 60,600 MT in FY 2025. In value terms, the market was valued at USD 970 Mn.

Exhibit 11.2.1: Global Menthol Market Demand, USD Million, FY 2019-2030f

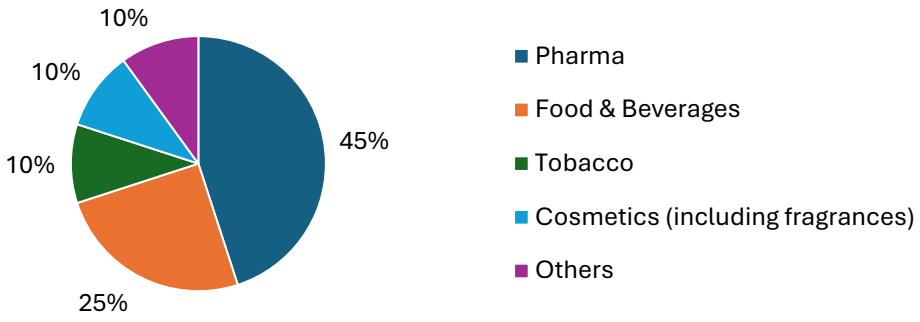


Source: Primary Interviews with Key Manufacturers Note: Market size includes both natural & synthetic

Applications and uses

Menthol has a wide variety of applications across Food, Pharmaceuticals, Cosmetic and FMCG products. It is used medicinally in ointments, cough drops, nasal inhalers etc. It is also used as flavouring agent in foods, cigarettes, liqueurs, cosmetics, and perfumes.

Exhibit 11.2.2 : Global Menthol Application by Segment, FY 2025, USD 970 Million



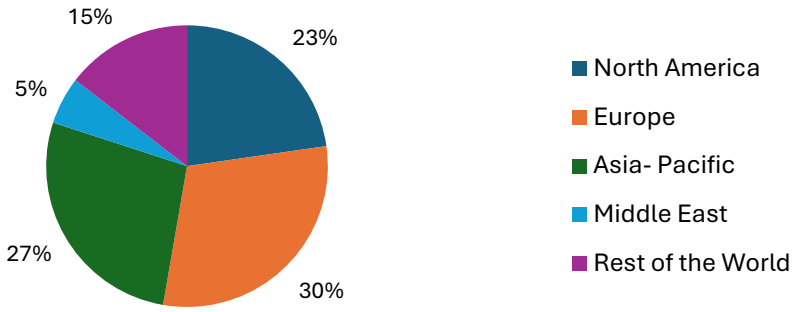
Source: Frost & Sullivan Research & Analysis

Others is primarily the use of Menthol in a variety of FMCG products including shampoos, body washes, disinfectants and cleaners etc.

Global market demand, FY 2025, split by geography:

In terms of demand, Europe and Asia Pacific are the largest consuming regions in FY 2025.

Exhibit 11.2.3: Global Menthol Demand Split by Geography, FY 2025, USD 970 Million



Source: Frost & Sullivan Research & Analysis

Industry Trends and Dynamics:

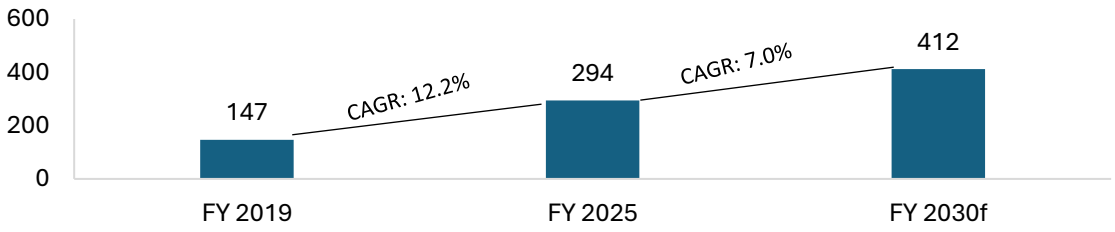
Key Growth Drivers for Menthol

- Increasing demand for natural products, especially in food and cosmetic products
- Awareness regarding health and wellness
- Demand from pharmaceutical industries to mitigate regulatory risks and due to the preference of natural ingredients in developed countries.
- Demand for Menthol cigarettes in developing markets such as India, China, Indonesia, etc.
- Usage of Mint fragrances as top notes in many of the cosmetic products will further drive demand.

Indian menthol market FY 2025

The India menthol market was valued at USD ~294 million in FY2025.

Exhibit 11.2.4: India Menthol Market Demand, USD Million, FY 2019-2030



Source: Primary Interviews with Key Manufacturers

India Market, FY 2025, Local Production, Imports and Exports:

Exhibit 11.2.5 : India Menthol Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~304	~182	~192	~294

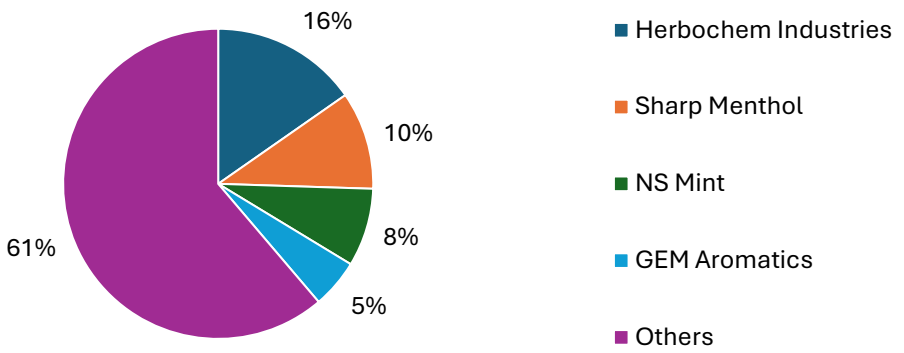
Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

India maintains its position as the world's largest exporter of natural Menthol, despite the fluctuations of Mint crop production over the years.

Local production of menthol

India produced approximately ~19,000 MT of Menthol in FY 2025. 100 kgs of Mentha oil produces ~66 kgs of Menthol. The Indian Menthol production market is fairly fragmented with the top 5 players accounting ~ 40% of the total Menthol production share.

Exhibit 11.2.6: Indian Menthol Production Volume- Production Share of Key Companies , FY 2025, USD 304 Mn



Source: Frost & Sullivan Research & Analysis

Others Include: Arora Aromatics, Bharat Mint, , Swati Menthol etc.

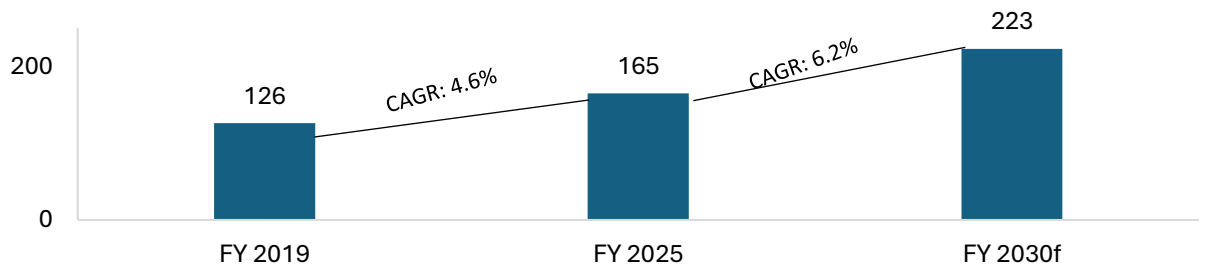
<u>Dementholized mint oil (DMO)</u>

Dementholised mint oil is a type of essential oil that is treated to remove some or all of the menthol content. It is a by-product obtained in the process of producing menthol crystals in integrated facilities that produce both Mint oil and Menthol. It is a clear, pale yellow free flowing liquid and having terpinic, minty characteristic odour. As Menthol can cause skin irritation in certain individuals, DMO is used as a replacement product in many pharmaceutical and personal care applications.

Global market demand:

The Global market for DMO was estimated to be around ~ 13,260 MT in FY 2025. In value terms, the market was valued at USD 165 Mn.

Exhibit 11.3.1: Global DMO Market Demand, USD Million, FY 2019-2030f



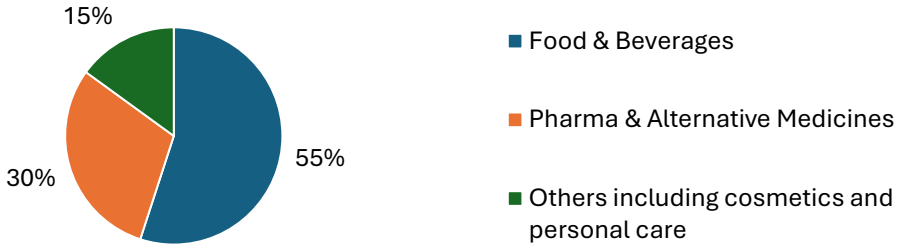
Source: Primary Interviews with Key Manufacturers

Applications and uses

DMO has a wide variety of applications. It is used as flavouring agents for liquors, chewing gums & other processed food products. In personal care applications where there is a requirement of mild menthol flavour that does not cause any allergic effect post usage DMO is a substitute. DMO's inherent cleaning and deodorizing properties make it a preferred choice for usage in air fresheners and all-purpose cleaners.

It is helpful to treat flu, cold and cough, sinusitis, asthma and other respiratory problems hence used in Pharmaceuticals and alternative medicines.

Exhibit 11.3.2 : Global DMO Application by Segment, FY 2025, USD 165 Million

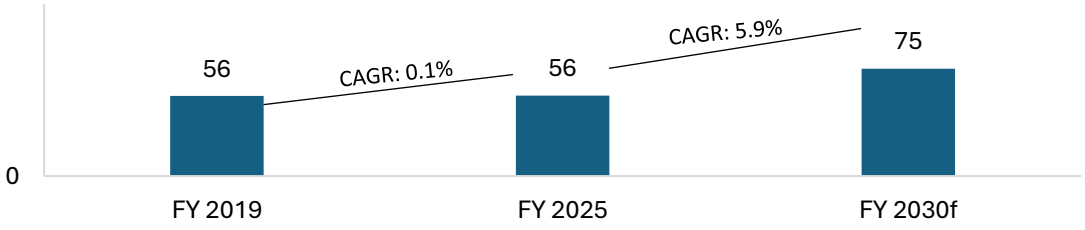


Source: Frost & Sullivan Research & Analysis

Indian DMO market FY 2025

The India DMO market was valued at USD ~56 million in FY2025 In terms of volume it accounts for ~34% of the global market

Exhibit 11.3.3: India DMO Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India Market, FY 2025, Local Production, Imports and Exports:

Exhibit 11.3.4 : India DMO Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~131	0	~75	56

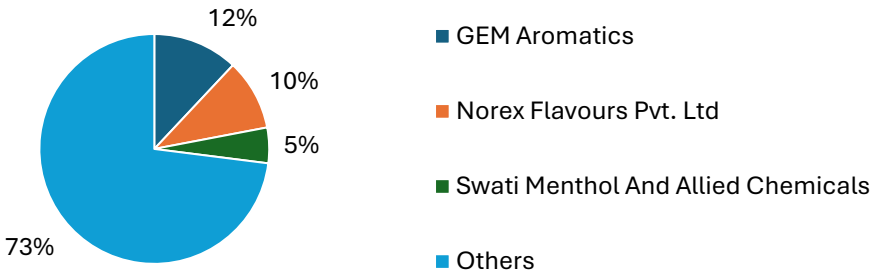
Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

India's largest export market was USA followed by China in FY 2025. It is followed by Spain, Japan, Brazil and Canada. Imports are negligible.

Local production of DMO

India produced approximately ~10,500 MT of DMO in FY 2025. The market like most oils based on mint is highly fragmented. However, **GEM Aromatics has been able to carve a niche in this segment with a share of over 12% of Indian production.**

Exhibit 11.3.5: Indian DMO Production Volume- Production Share of Key Companies , FY 2025, USD 131 Mn



Source: Frost & Sullivan Research & Analysis

Others Include: Jindal Drugs, Arora Aromatics etc.

11.3 Clove oil and derivatives

Product introduction

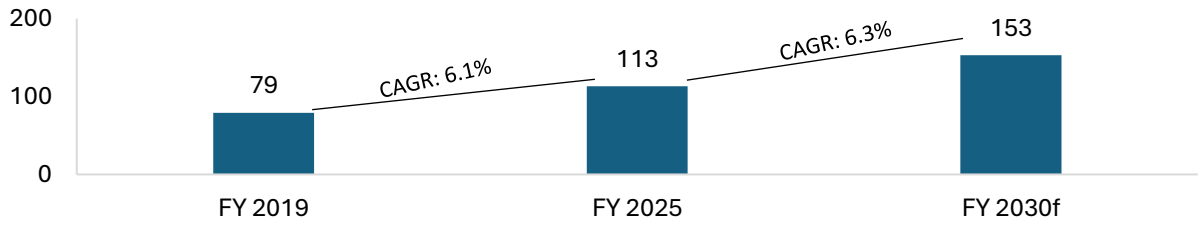
Clove oil is colourless or pale-yellow oil with the characteristic aroma and taste of cloves. It is extracted from the clove plant, *Syzygium aromaticum*. Clove oil is a mixture of different compounds, with the three main active ingredients being Eugenol, Eugenyl Acetate and Caryophyllene.

Clove oil can be obtained from distillation of buds, leaves, or stems, each resulting in an oil having different characteristics – with the percentage of eugenol in the range of 60% to 80%. The yield and quality of the oil are influenced by origin, variety, post-harvest processing, pre-treatment before distillation, distillation method and post-distillation treatment. The yield of clove oil from the crop ranges from 1% - 5% for the leaves and stems.

Global market demand: FY 2025

The Global market for Clove oil was estimated to be around USD 113 Mn in FY 2025. In volume terms, the market was around ~8,715 MT in 2025. The demand for Clove oil excluding what goes for Eugenol production is estimated to be around ~1,800 MT valued at USD 23-24 Mn. The numbers discussed in this chapter include both- Clove oil converted to Eugenol and derivatives and that used "as-is".

Exhibit 11.4.1: Global Clove Oil Market Demand, USD Million, FY 2019-2030F



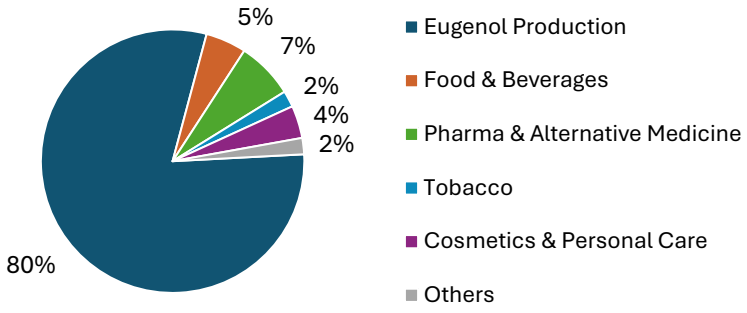
Source: Primary Interviews with Key Manufacturers

Applications and uses

Clove oil is commonly used for flavouring food and some medicines and in traditional medicine. Clove oil is also used in tobacco to Flavour Cigarettes, however, this is more common in South-East Asia, specifically Indonesia, than the rest of the world. In traditional medicine, Clove Oil finds multiple uses in pain management, as a digestion aid and for toothache management.

Most Clove oil producers are forward integrated into Eugenol and there is limited commercial trade of Clove oil for Eugenol production.

Exhibit 11.4.2: Global Clove Oil Application by Segment, FY 2025, USD 113 Million



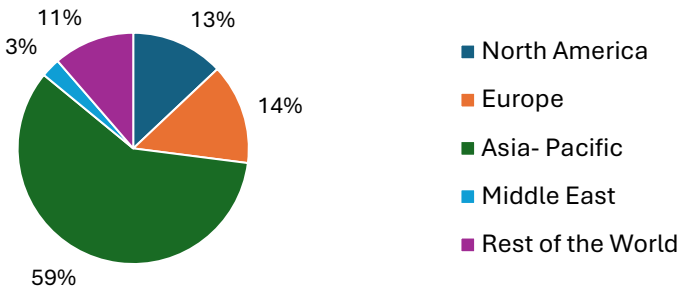
Source: Frost & Sullivan Research & Analysis

Others is primarily the use of Clove oil as a cleaning agent and an anti-bacterial agent in home care products etc.

Global market size, FY 2025, Split by Geography:

In terms of demand, Asia Pacific was the largest consuming region in FY 2025, followed by Europe and North America

Exhibit 11.4.3 : Global Clove Oil Split by Geography, FY 2025, USD 113 Million



Source: Frost & Sullivan Research & Analysis

Operations Insights

Raw Material Sourcing and cost

The chief raw material for Clove oil production is the crop, which accounts for ~75-80% of the production cost, given the low yield of oil in the plant. While producers do not necessarily set-up processing facilities right next to the farmland area, they need to ensure ease of access to the farms. Long standing relationships with raw material suppliers (farms) is critical to the success of any player in the industry. Given the nature of the product the quality and specifications of raw materials used is of paramount importance and therefore ensuring availability of raw materials is critical for any Clove oil manufacturers.

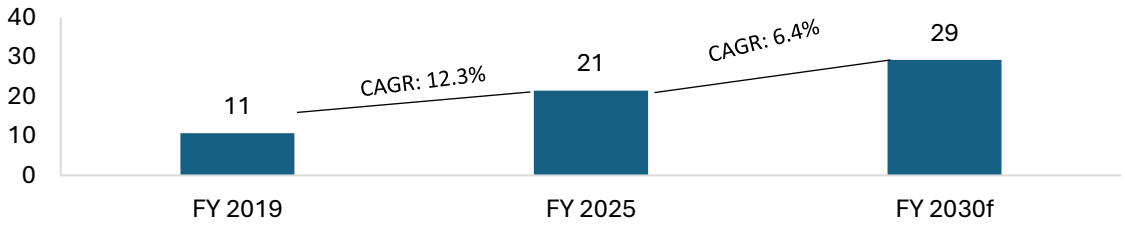
Manufacturing and R&D Expenses

Other manufacturing costs are relatively insignificant for Clove Oil. R&D focus for Clove Oil producers is primarily on the improvement of yields from the plant and focus on sustainable farming practices to ensure longer term supply of the raw material.

Indian Clove Oil Market

The India Clove Oil market was valued at USD ~21 million in FY2025 and it constitutes 15% of global demand. In volume terms, the market was 1,650 MT in FY2025.

Exhibit 11.4.4: India Clove Oil Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India market, FY 2025, local production, imports and exports:

Exhibit 11.4.5: India Clove Oil Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
N/A*	~22	~1	~21

Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

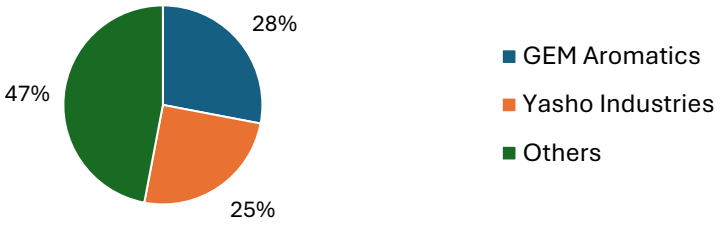
** Only Rectified Clove Oil from Clove Leaf Oil imported is manufactured by companies in India*

Imports into India were primarily from Madagascar and Indonesia. Of the total demand ~ 24% was utilized for the production of Eugenol and the balance was sold as Clove Oil/ rectified Clove oil in the merchant market.

Domestic Competition of Clove Oil

Supply to the Indian Clove oil production of rectified oil is fairly consolidated with the top 2 players accounting for ~51% of the total production share**. Indian market is dominated by top 2 players GEM Aromatics and Yasho Industries in FY 2025. GEM Aromatics has sustained their market leadership over the last two years. GEM Aromatics has been ranked number one among the processors of clove oil in India based on volume of rectified clove oil manufactured**

Exhibit 11.4.6 : Indian Clove Oil Production (Rectified Clove Oil) Volume - Market Share of Key Companies , FY 2025



Source: Frost & Sullivan Research & Analysis

Others Include:, Flavco Natural Products, Synthite industries etc

11.4 Clove oil derivative: Eugenol

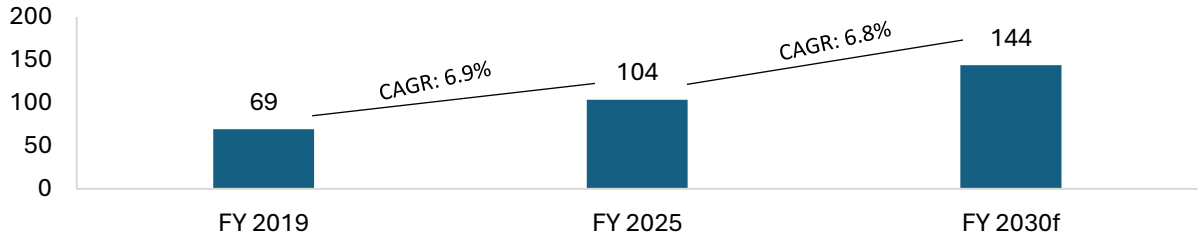
Product introduction

Eugenol is a colourless to pale yellow, aromatic oily liquid extracted from certain Essential oils especially from Clove, Nutmeg, Cinnamon, Basil and Bay leaf. Cloves account for more than 99% of the total Eugenol production, as production from other sources is not economically viable. It has pleasant, spicy, clove-like scent. It is usually produced by further purification of clove oil (which contains 60% to 80% Eugenol) to 98% purity.

Global market demand: FY 2025

The global market for Eugenol was estimated to be around ~ 4,935 MT in FY 2025. The market was valued at USD 104 Mn.

Exhibit 11.5.1 : Global Eugenol Market Demand, USD Million, FY 2018-2029F



Source: Primary Interviews with Key Manufacturers, the market numbers include both natural and synthetic varieties

Applications and uses

Eugenol is used as a flavour or aroma ingredient in teas, meats, cakes, perfumes, cosmetics, flavourings, and essential oils. It is also used as a local antiseptic and anaesthetic. Eugenol can be combined with zinc oxide to form zinc oxide eugenol which has applications in dentistry. Eugenol is also used as an ingredient in some insecticides.

Exhibit 11.5.2: Global Eugenol Application by Segment, FY 2025, USD 104 Million

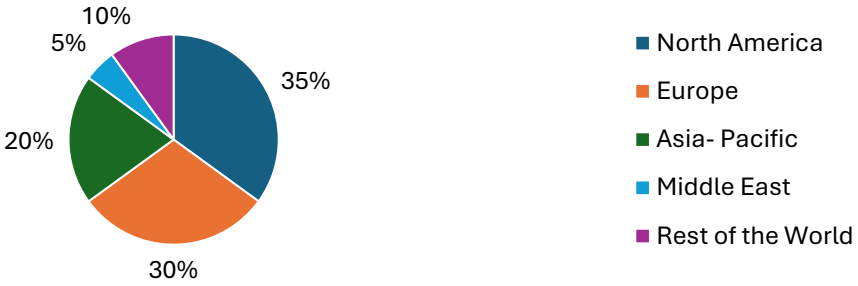
Source: Frost & Sullivan Research & Analysis

Others is primarily the use of Eugenol in insecticides, bio-pesticides, laundry products, cleaning agents etc.

Global market size, FY 2025, split by geography:

In terms of demand, Asia Pacific was the largest producing and consuming regions in FY 2025.

Exhibit 11.5.3: Global Eugenol Split by Geography, FY 2025, USD 104 Million

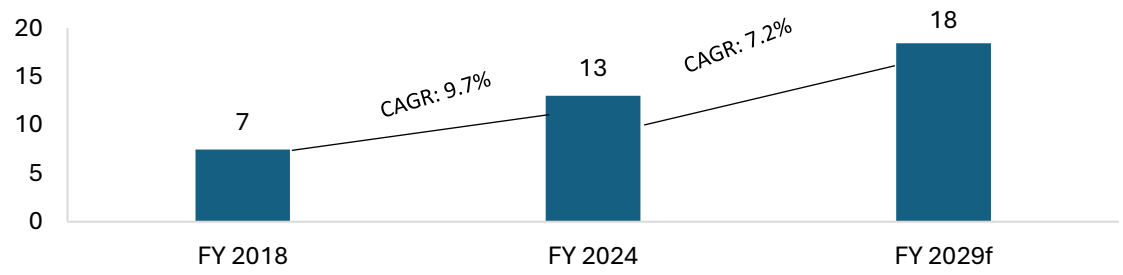


Source: Frost & Sullivan Research & Analysis

Indian Eugenol market FY 2025

The India Eugenol market was valued at USD ~13 million in FY2025 and it constitutes ~13% of global demand. In volume terms, the market was estimated to be around 620 MT.

Exhibit 11.5.4: India Eugenol Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India market, FY 2025, local production, imports and exports:

Exhibit 11.5.5: India Eugenol Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~9.4	~4.2	~0.6	~13

Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

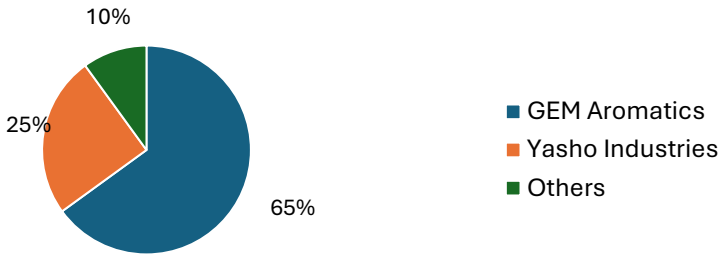
More than 95% of the imports are from Indonesia and Madagascar, while key export partners are other South Asian countries and the Middle east.

Local production of eugenol

The Indian Eugenol production market is fairly consolidated with the top two players accounting for more than 99% of the total natural Eugenol production share. **GEM Aromatics is the largest producer of Eugenol in India with a 65% share, followed by Yasho Industries.**

Exhibit 11.5.6: Indian Eugenol Production Volume- Production Share of Key Companies ,

FY 2025 USD 8.4 Mn



Source: Frost & Sullivan Research & Analysis

Others Include: Champaran Agro Foods, Natural Aroma Products, Synthite industries, etc.

11.5 Anisole

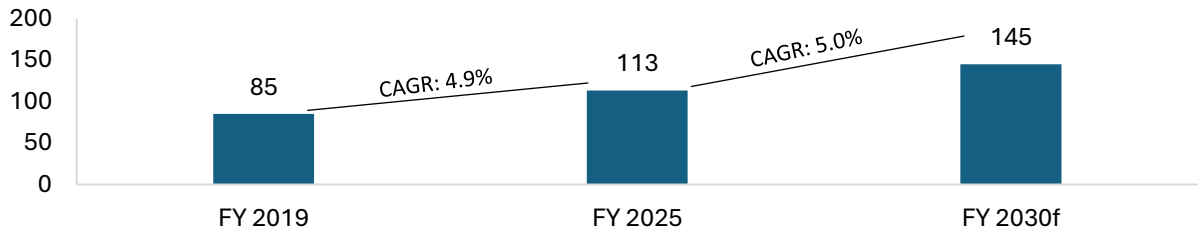
Product introduction

Anisole, or methoxybenzene, is a colourless organic compound with the formula $CH_3OC_6H_5$. It has a smell reminiscent of anise seed, and many of its derivatives are found in natural and artificial fragrances.

Global market size: FY 2025

The global market for Anisole was estimated to be around ~ US$ 113 million in FY 2025. In volume terms, the market was more than 40,000 MT. The Global Anisole market is expected to grow at a rate of ~ 5% from 2025 to 2030f. The use of anisole in a as precursor for manufacturing chemicals has boosted the demand. Rising urbanisation and the increase in disposable income globally has led to a growing demand for personal care and cosmetics products. Also, the application of anisole in numerous other industries such as pharmaceuticals and dyes has been growing.

Exhibit 11.6.1: Global Anisole Market Size, US$ Million, FY 2018-2029f

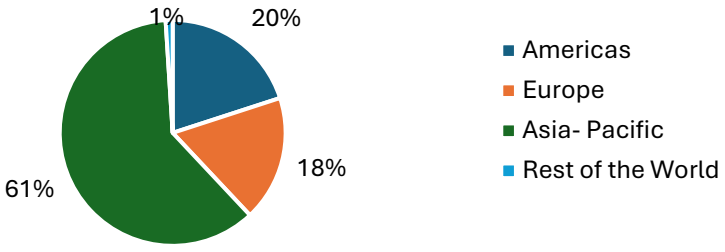


Source: Frost & Sullivan Research & Analysis

Global market size, FY 2025, split by geography:

In terms of demand, Asia Pacific was the largest consuming region in FY 2025 and will continue to be the fastest growing region for forecasted period.

Exhibit 11.6.2: Global Anisole market by Geography, FY 2025, US$ 113 Million

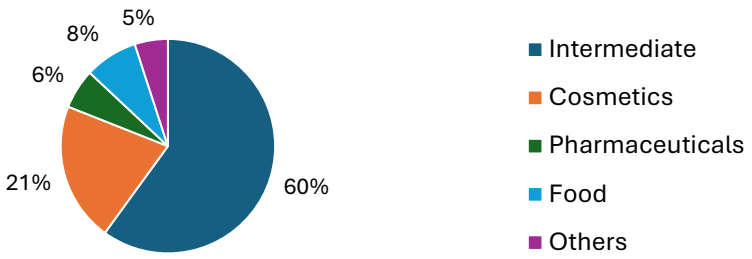


Source: Frost & Sullivan Research & Analysis

Applications and uses

Anisole is an important raw material for the manufacturing of fragrances, pesticides, perfumes, and flavours. Anisole is also used as a precursor to perfumes, pharmaceuticals, and insect pheromones. Synthetic anethole is formulated from anisole. The compound is mainly made synthetically and is a precursor to other synthetic compounds. Anisole is primarily used in the fragrance industry.

Exhibit 11.6.3: Global Anisole market by Application, FY 2025, US$ 113 Million

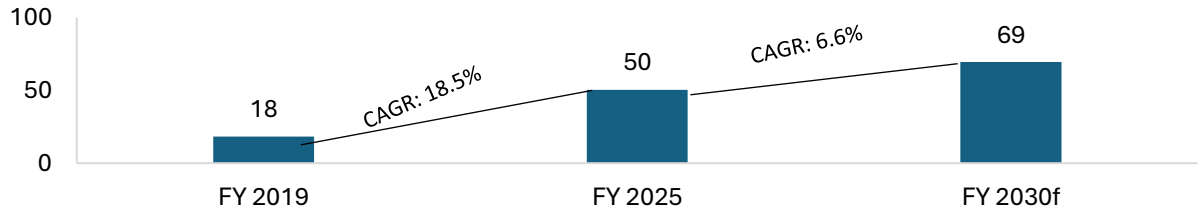


Clean Science and Technology Limited is the largest manufacturer in the world (in terms of manufacturing capacities) accounting for 45% - 55% of the global capacity. Other key competitors in the industry include Solvay, Atul Limited, and Westman Chemicals Private Limited, (Mithila Rasayan Private Limited). The players in the global anisole market have been focusing on improving the manufacturing processes and technologies in order to increase their margins.

Indian anisole market FY 2025

The India Anisole market was valued at USD ~50 million in FY2025. In volume terms, the market was estimated be around 30,000 MT. The overall market of Anisole in APAC region is dominated by Indian players such as Clean Science and Technology Limited and Atul Ltd. Clean Science and Technology Limited is the largest manufacturer of Anisole in India in 2025. There is a higher CAGR growth registered between 2019 to 2025 in Anisole owing to Clean Science Technology doubling it production capacity during the time period. The Indian Anisole market is expected to grow with a CAGR of 6.6%, over the forecast period through 2030. The growth is attributed to growing demand from cosmetics and pharmaceutical industry.

Exhibit 11.6.4: India Anisole Market, US$ Million, FY 2019-2030f



Source:Frost & Sullivan Analysis

Anisole generally results in the discharge of sulphate based hazardous effluents; GEM Aromatics proposes to manufacture these products through environmentally friendly manufacturing process which is expected to result in zero discharge of hazardous effluents with water being the only by-product. By employing clean technologies of producing Anisole from Phenol, the company distinguishes its manufacturing process from conventional manufacturing processes and optimize use of non-toxic raw materials, resulting in lower effluent generation.

GEM Aromatics will have the second largest capacity in India manufacturing Anisole with a capacity of 7,000 MT via clean green vapor phase method. Most of the Anisole that GEM Aromatics manufactures will be consumed captively in the production of their key products, including MEHQ, Guaiacol, 4-MAP, and BHA.

11.6 Anethole

Product introduction

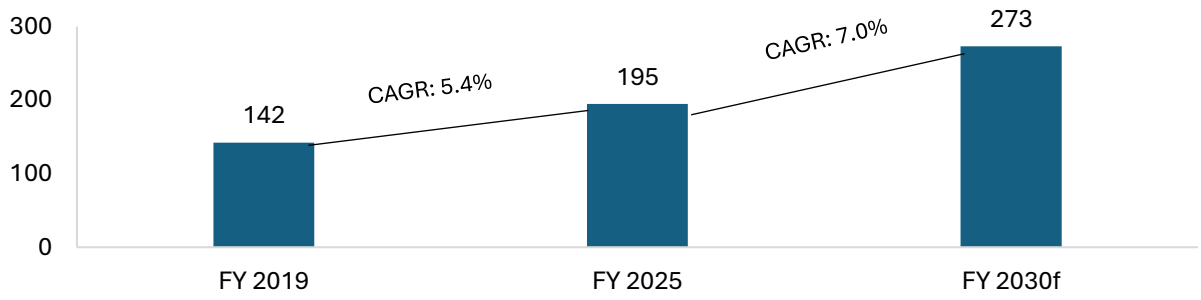
Anethole is an organic compound that is widely used as a flavouring substance. It is a derivative of Phenylpropene, a type of aromatic compound that occurs widely in nature, in Essential oils. It is in the class of Phenylpropanoid Organic Compounds.

It exists as both Cis and Trans-Isomers, where the Trans-Isomer is preferred for commercial use as a flavouring agent. An additional isomer, Estragole (differing from Anethole with respect to the location of the double bond), is available naturally in basil and tarragon, and is sold as fragrance grade Anethole or Anethole (Methyl chavicol grade). It also converts to Anethole on treatment with Potassium Hydroxide.

Global market demand: FY 2025

The Global market demand for Anethole was estimated to be around USD 195 Mn in FY 2025. In volume terms, the market was ~12,975 MT. The market is expected to grow at a CAGR of 7.0% by 2030F.

Exhibit 11.7.1 : Global Anethole Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers, Note: Market size constitutes both natural and synthetic

Applications and uses

Anethole is primarily used as a sweetening agent in Foods & Beverages and oral care applications. In the Food segment, Anethole is primarily used in confectionaries and baked goods as a sweetening agent. There is also a significant demand for Anethole in the beverages segment, specifically for sweetening alcoholic liquors and aperitif wines. Within the oral care segment, the primary application is in toothpastes.

Exhibit 11.7.2 : Global Anethole Application by Segment, FY 2025, USD 195 Million

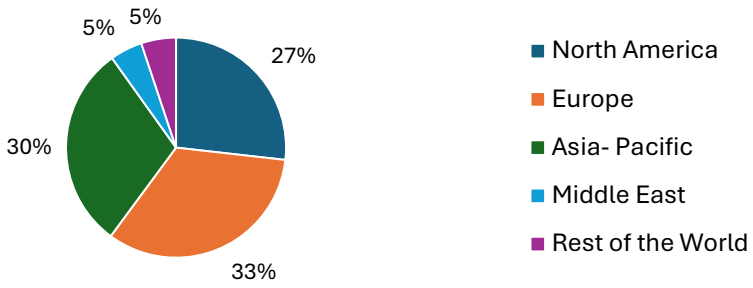
Source: Frost & Sullivan Research & Analysis

Others is primarily the use of Anethole in perfumery applications, use as a anti-microbial agent and use in insecticides.

Global market demand, FY 2025, split by geography:

In terms of demand, APAC and Europe are the largest consuming regions in FY 2025 followed by Americas. Production in India of Anethole is 8% of the global demand and was estimated around ~1,000 MT for FY 2025. Exports are about ~400 MT.

Exhibit 11.7.3 : Global Anethole Demand Split by Geography, FY 2025, USD 195 Million

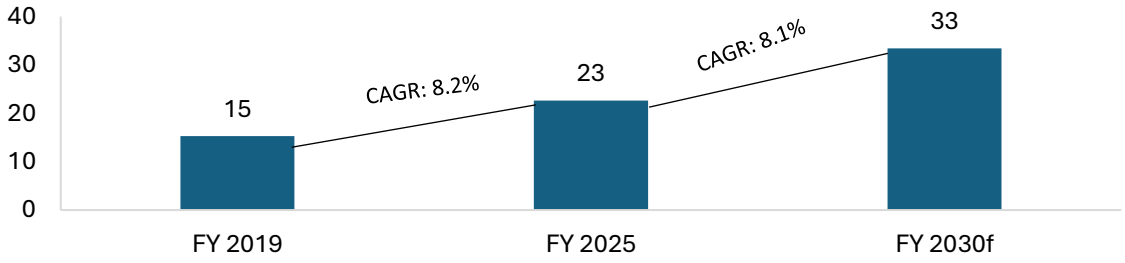


Source: Frost & Sullivan Research & Analysis

Indian anethole market FY 2025

The India Anethole market was valued at USD ~23 million in FY2025. In volume terms, the market demand was around 1,510 MT.

Exhibit 11.7.4 : India Anethole Market Demand , USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India market, FY 2025, local production, imports and exports:

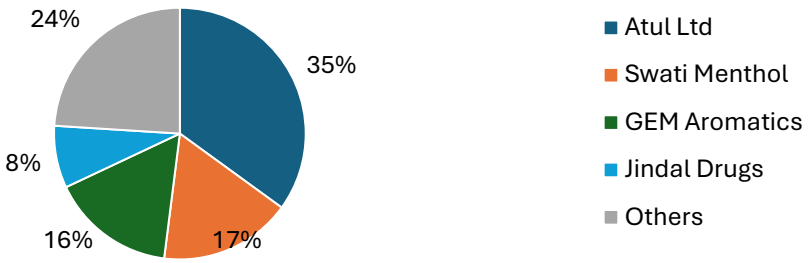
Exhibit 11.7.5: India Anethole Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~15.0	~13.5	~5.9	~22.6

Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

India produced approximately USD 15 Mn worth of Anethole in FY 2025. The Indian Anethole production market is fairly concentrated with the top 2 players accounting for about two-third of the total Anethole production share

Exhibit 11.7.6 : Indian Anethole Production - Production Share of Key Companies , FY 2025, USD 15.0 Million



Source: Frost & Sullivan Research & Analysis

India is a net importer of Anethole, with the majority of imports coming in from China (75%-80%). Companies like Symrise import from their own plants in Germany and Spain and sell to the local market in India.

11.7 MEHQ

Product introduction

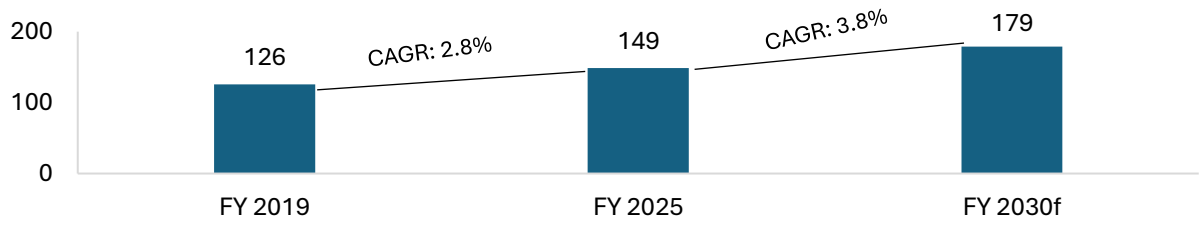
Mono methyl ether of hydroquinone ("MEHQ") also known as Mequinol is a member of phenols and a member of methoxybenzenes. MEHQ is an organic compound and synthetic derivative of hydroquinone. MEHQ is commercially manufactured by the hydroxylation of anisole or by free radical reaction between p-benzoquinone and methanol.

MEHQ is used for Polymerization inhibitor in the manufacturing of various monomers such as acrylics, methacrylics and other acrylates, vinyl acetate monomers, along with unsaturated polyesters. Also used as a stabilizer for cosmetics, liquid detergents, and cellulose materials.

Global market demand: FY 2025

The Global market demand for MEHQ was estimated to be around USD 149 Mn in FY 2025. In volume terms, the market was ~18,585 MT. The market is expected to grow at a CAGR of 3.8% by 2030F.

Exhibit 11.8.1 : Global MEHQ Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

Applications and uses

MEHQ is an inhibitor for Acrylic monomers and Acrylonitirles. It has application as a as an ultraviolet inhibitor, and stabilizer for chlorinated hydrocarbons and ethyl cellulose. It has a widespread application as a chemical intermediate for manufacturing antioxidants, pharmaceuticals, plasticizers, and dyestuffs. It is used as an active ingredient in topical drugs where the application is for used for skin depigmentation (treatment of solar lentigines).

Dermatology: MEHQ is widely used in dermatology as the main ingredient in topical drugs which are used for skin depigmentation. The drug is generally prescribed by dermatologists for the treatment of solar liver spots, age spots, or solar lentigines.

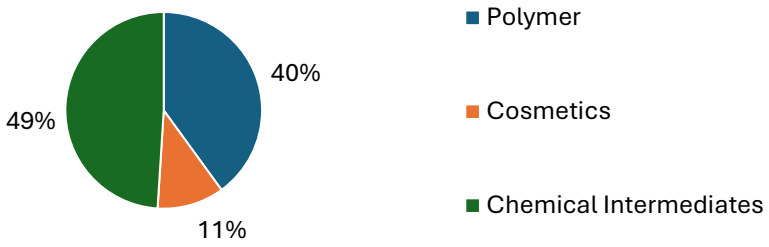
Polymers & Monomers: MEHQ is also widely used as a polymerization inhibitor in the manufacturing of various monomers such as acrylics, methacrylics and other acrylates, vinyl acetate monomers, etc., along with unsaturated polyesters. MEHQ is also used as a stabilizer for cosmetics, liquid detergents, and cellulose materials. Polymers are finding new applications, due to which, their demand is increasing day by day.

Ink: MEHQ is also used in the ink industry as a polymerization inhibitor.

Agrochemicals: MEHQ is the building block for agrochemical and organic chemical manufacturing industries. Increasing consumption of agrochemicals and organic chemicals is boosting the MEHQ market. The agrochemical industry is showing good growth, which makes it a prominent market for MEHQ. It forms a part of active agrochemical ingredients.

Intermediate: MEHQ is used as an intermediate to manufacture BHA. There are certain regulations on the exposure limit for MEHQ. According to the National Institute for Occupational Safety and Health, the recommended exposure limit for MEHQ is 5mg/m3 for an 8-hour workday. There are many regulations pertaining to Hydroquinone as it is classified as a drug and is banned for the use in cosmetic products in Europe and in many countries such as Japan, Australia and several African states.

Exhibit 11.8.2 : Global MEHQ Application by Segment, FY 2025, USD 149 Million



Source: Frost & Sullivan Research & Analysis

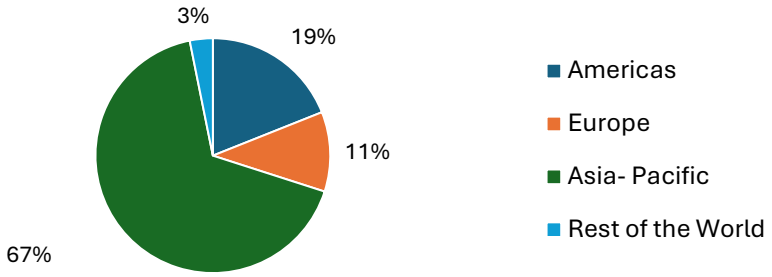
Global market demand, FY 2025, split by geography:

In terms of demand, Asia Pacific was the largest consuming region in FY 2025, followed by North America and Europe. Production in India of MEHQ is almost 55% of the global demand and was estimated around ~10,200 MT for FY 2025. Exports are about ~5,038 MT.

On a geographic basis, the Asia-Pacific region dominated the market in 2025 with a share of 67%. The market dominance of the Asia-Pacific region is due to the growing demand for MEHQ in countries

such as China and India, due to the growth of the end-user industries including agrochemicals, polymers, and cosmetics industries, among others.

Exhibit 11.8.3 : Global MEHQ Demand Split by Geography, FY 2025, USD 149 Million

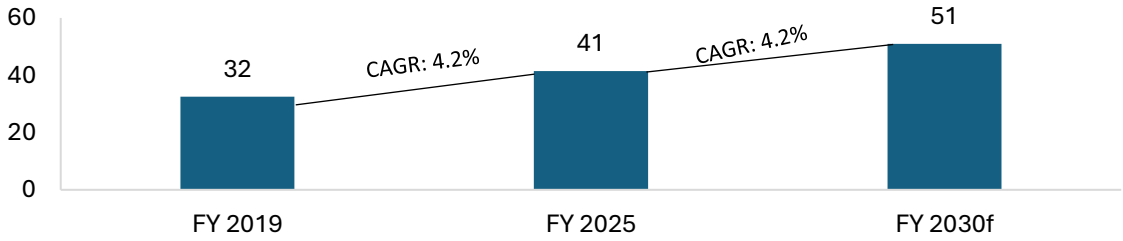


Source: Frost & Sullivan Research & Analysis

Indian MEHQ market FY 2025

The India MEHQ market was valued at USD ~41 million in FY2025. In volume terms, the market demand was around 5,187 MT.

Exhibit 11.8.4 : India MEHQ Market Demand, USD Mn, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India market, FY 2025, local production, imports and exports:

Exhibit 11.8.5: India MEHQ Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~81.6	~0.2	~40.3	**~41.5**

Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

India maintains its position as the world's largest exporter of MEHQ. Imports into India were comparatively negligible. In volume terms, the market (demand) was estimated be around 5,187 MT. The overall market of MEHQ in APAC region is dominated by Indian players such as Clean Science and Technology Limited and Camlin Fine Sciences. Clean Science and Technology Limited is the largest manufacturer of MEHQ in India and accounts for ~51% of the global capacity for the product in 2025.

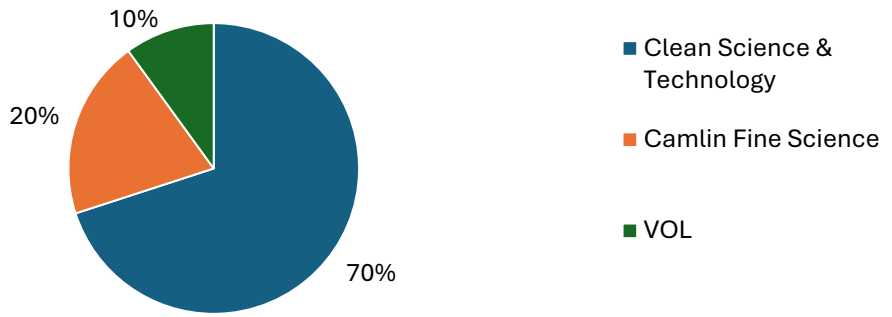
Local production of MEHQ

Globally there are three large players in MEHQ market including Clean Science & Technology, Solvay and Camlin Fine Science.

India produced approximately USD 81.6 Mn worth of MEHQ in FY 2025. The Indian MEHQ production market is fairly concentrated with the top 2 players accounting for majority of the production. Vinati

Organics Limited (VOL) through Veeral Organics Ltd (fully owned subsidiary) declared in 2022 that it is planning to set-up a 2,000 MT plant for MEHQ. The total Capex is approximately INR 480 Cr. and the products include 2,000 MT of MEHQ, 1000 MT of Guaiacol, 30,000 MT of Isoamylene, 4-methoxyacetophenone and anisole. VOL will be making MEHQ from anisole plus hydrogen peroxide.

Exhibit 11.8.6 : Indian MEHQ Production - Production Share of Key Companies , FY 2025, USD 81.6 Mn



Source: Frost & Sullivan Research & Analysis

11.8 Guaiacol

Product introduction

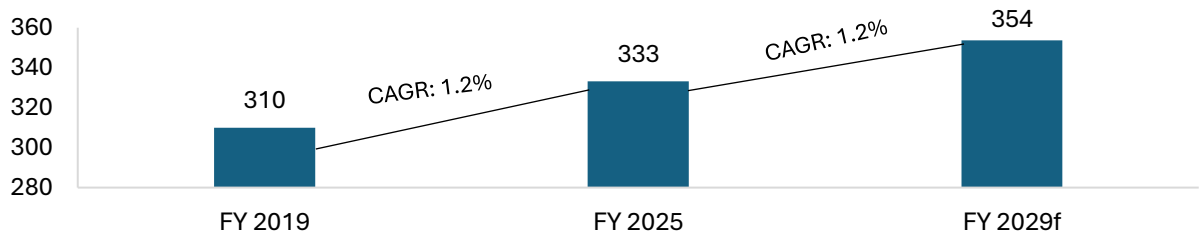
Guaiacol is a phenolic organic compound containing methoxy functional group with the formula C_6H_4. Guaiacol appears as a viscous colourless oil, widely available in nature and is a common product of the pyrolysis of wood.

It is used as a precursor in the manufacture of vanillin and is also used in the synthesis of pharmaceuticals. Guaiacol is majorly used as expectorant, antiseptic and used as cough suppressant.

Global market demand: FY 2025

The Global market demand for Guaiacol was estimated to be around USD 333 Mn in FY 2025. In volume terms, the market was ~66,640 MT. The market is expected to grow at a CAGR of 1.2% by 2030F.

Exhibit 11.9.1 : Global Guaiacol Market Demand, USD Million, FY 2019-2029F



Source: Primary Interviews with Key Manufacturers

Applications and uses

Guaiacol is a versatile chemical compound with uses across numerous sectors. Guaiacol is a pre-cursor/ chemical intermediate to manufacture active pharmaceutical ingredients (“**APIs**”), such

methocarbamol, ranolazine, carvedilol, and guaifenesin. It is primarily used in the pharmaceutical industry in the production of cough syrups. It is also used as a key raw material for Vanillin, a food and flavour enhancer. Additionally, the synthesis of food ingredients and aroma products uses guaiacol.

It is also used in synthesis for food materials and perfumery products. The unique aromatic odour of guaiacol makes it suitable for acting as perfumery as well as flavouring agents. Guaiacol also finds applications in the agriculture sector as it protects the crop from damage and improves the crop yield. Guaiacol serves as a reducing agent for bio catalytic reactions also.

The key raw materials used to manufacture Vanillin Products are Guaiacol and Guethol. Synthetic Vanillin has been further segmented into Lignin Vanillin, Guaiacol Vanillin and Ethyl Vanillin. Guaiacol Vanillin currently represents the biggest segment. Given the favourable growth of Global Vanillin market in coming years, the Guaiacol market is expected to witness a consistent demand in future.

Guaiacol is used as a key starting material to produce APIs like Guaifenesin, Carvedilol, Ranolazine and Methocarbamol.

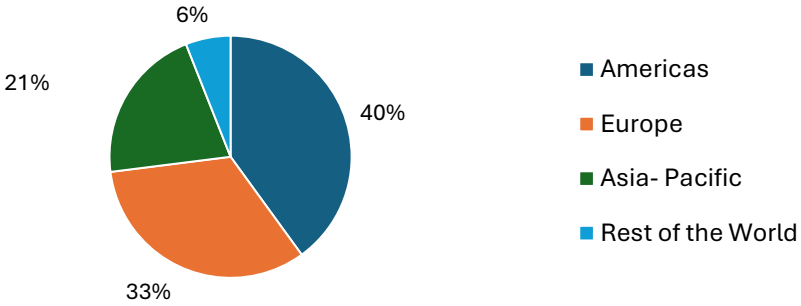
Exhibit 11.9.2 : Global Guaiacol Application by Segment, FY 2025, USD 333 Million

Source: Frost & Sullivan Research & Analysis

Global market demand, FY 2025, split by geography:

In terms of demand, Americas was the largest consuming region in FY 2025, followed by Europe and APAC. Production in India of Guaiacol is almost 13% of the global demand and was estimated around ~8,320 MT for FY 2025. Exports are about 550 MT.

Exhibit 11.9.3 : Global Guaiacol Demand Split by Geography, FY 2025, USD 333 Million

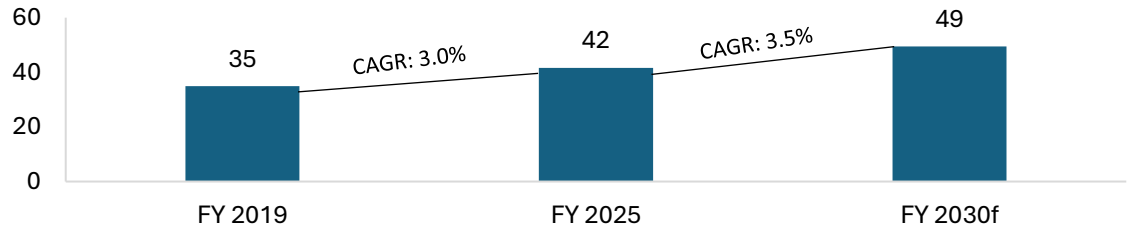


Source: Frost & Sullivan Research & Analysis

Indian guaiacol market FY 2025

The India Guaiacol market was valued at USD ~42 million in FY2025. In volume terms, the market demand was around 8,320 MT. Some of the key players in Guaiacol market in India are Camlin Fine Sciences and Clean Sciences and Technology.

Exhibit 11.9.4 : India Guaiacol Market Demand , USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India market, FY 2025, local production, imports and exports:

Exhibit 1.9.5: India Guaiacol Market, Production vs Demand, USD Mn, FY 2025

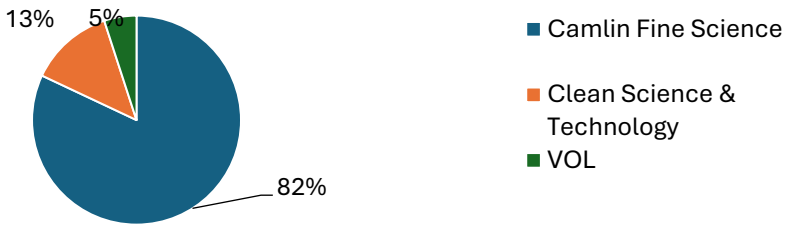
Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~42.0	~2.4	~2.8	41.6

Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

Solvay is the largest producer of Guaiacol globally followed by Indian players such as Clean Science & Technology, Camlin Fine Sciences, etc.

India produced approximately USD 42 Mn worth of Guaiacol in FY 2025. The Indian Guaiacol production market is fairly concentrated with the two players accounting for majority of Indian market. Vinati Organics Limited (VOL) is planning to set-up a 1,000 MT plant for Guaiacol.

Exhibit 11.9.6 : Indian Guaiacol Production - Production Share of Key Companies , FY 2025, USD 42 Mn



Source: Frost & Sullivan Research & Analysis

GEM Aromatics has achieved forward integration from Guiacol to Eugenol derivatives, marking a significant breakthrough in the industry. This achievement is made possible through the in-house development of a specialized catalyst. Leveraging its engineering prowess in clean methylation reactions, the company has successfully attained this feat, setting a global benchmark in innovation and sustainable chemical processes.

11.9 4-Methoxy Acetophenone (4MAP)

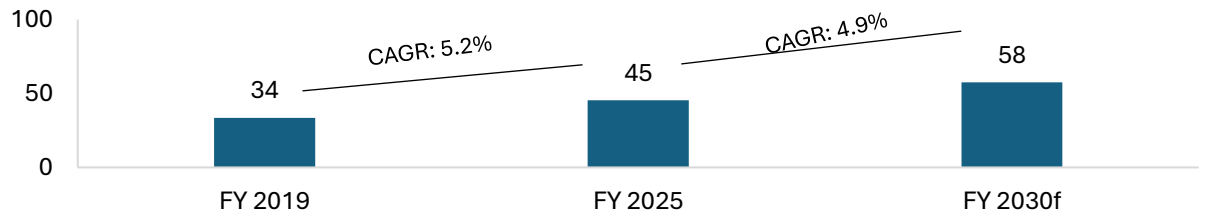
Product introduction

4-MAP is an aromatic chemical compound with an aroma described as sweet, fruity, nutty, and similar to vanilla. 4-MAP occasionally also has the aroma of butter or caramel. 4-MAP is a specialty chemical with UV blocker properties, primarily used in the cosmetics industry.

Global market demand: FY 2025

The Global market demand for 4MAP was estimated to be around USD 45 Mn in FY 2025. In volume terms, the market was ~7,560 MT. The market is expected to grow at a CAGR of 4.9% by 2030F

Exhibit 11.10.1 : Global 4MAP Market Demand, USD Million, FY 2019-2030F

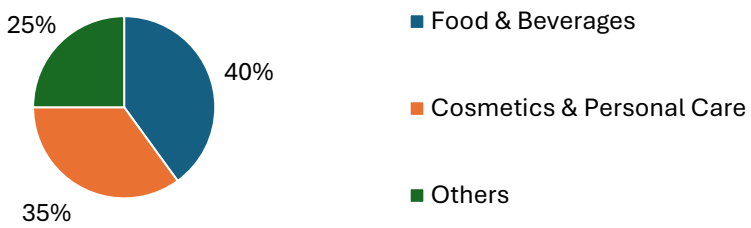


Source: Primary Interviews with Key Manufacturers

Applications and uses

4-MAP is a specialty chemical with UV blocker properties, primarily used in the cosmetics industry. It is one of the most common UVA filters in sunscreens and can absorb the full spectrum of UVA rays. It is also used in spices, medicine and make-up intermediate, cigarette additive, and flavouring in food. It is also used as a chemical intermediate in manufacturing cosmetic additives. It is also used as a chemical intermediate in manufacturing cosmetic additives like Avobenzone.

Exhibit 11.10.2 : Global 4MAP Application by Segment, FY 2025, USD 45 Million

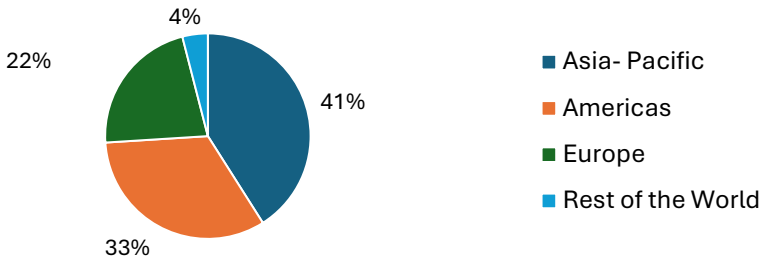


Source: Frost & Sullivan Research & Analysis

Global market demand, FY 2025, split by geography:

In terms of demand, Asia Pacific was the largest consuming region in FY 2025, followed by North America and Europe. Production in India of 4MAP is almost 22% of the global demand and was estimated around ~855 MT for FY 2025.

Exhibit 11.10.3 : Global 4MAP Demand Split by Geography, FY 2025, USD 45 Mn

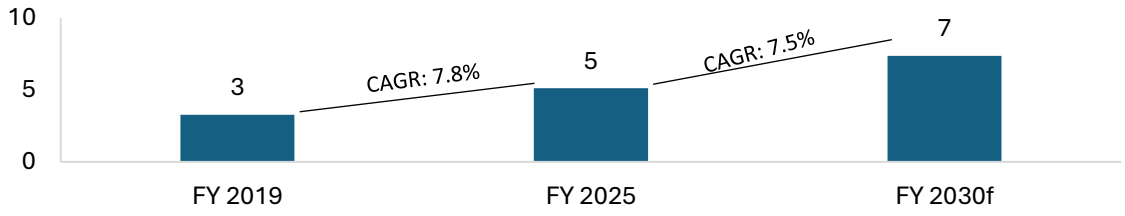


Source: Frost & Sullivan Research & Analysis

Indian 4MAP market FY 2025

The India 4MAP market was valued at USD ~5 million in FY2025. In volume terms, the market demand was around 855 MT.

Exhibit 11.10.4: India 4MAP Market Demand , USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India market, FY 2025, local production, imports and exports:

Exhibit 11.10.5: India 4MAP Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~9.8	~0	~4.7	5.1

Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

India produced approximately USD 9.8 Mn worth of 4MAP in FY 2025. The Indian 4MAP market is largely catered by Clean Science & Technology. Globally other manufacturers of 4-MAP include Haining Sino Fine Chemical Company Limited (China) and Cosmos Nanjing (China)

11.10 Eucalyptus oil

Product introduction

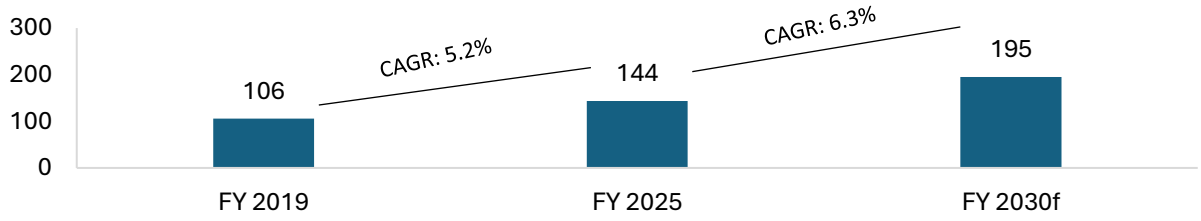
Eucalyptus oils are clear liquids with aromas characteristic of the particular species from which they are obtained. The oils are colourless when refined, but usually slightly yellow when first distilled from the leaf. Eucalyptus oil is extracted from fresh or partially dried leaves and young twigs and undergoes steam distillation. Like other essential oils they are mixtures of organic compounds - mainly terpenes - the individual components of which, and their proportions, determine the chemical and olfactory characteristics of the oil. The oil can be further refined to produce Eucalyptol.

The composition of the oil is dependent, mainly, on genetic rather than environmental factors. The species of Eucalyptus from which the oil is obtained is, therefore, the most important factor determining its quality and the use.

Global market demand: FY 2025

The global market for Eucalyptus oil was estimated to be around ~ USD 144 million in FY 2025. In volume terms, the market was around 9,910 MT. Prices vary by source plant and grades. While normal medicinal grades are around USD 8-12/kg, organic grades can go up to USD 35-40/kg. USD 8-12 has been considered to estimate the market size.

Exhibit 11.11.1: Global Eucalyptus oil Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

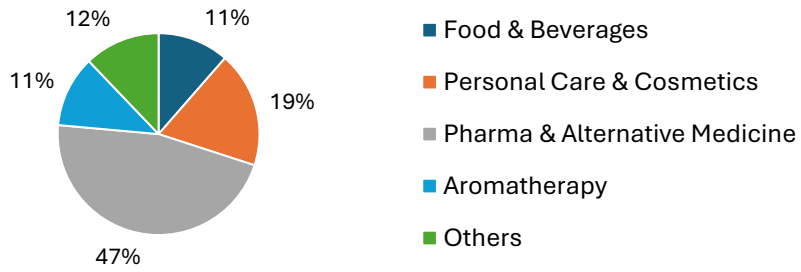
Applications and uses

The oils are classified in the industry into three broad types according to their composition and main end-use: Medicinal, Perfumery and Industrial. Of these, the most important in terms of volume of production and trade is the Medicinal type, characterized by a high Eucalyptol content in the oil, followed by Perfumery oils. Industrial grades are small volumes and a de-growing market.

The value of Eucalyptus oil for medicinal purposes lies in its eucalyptol content. This largely determines, also, the price that it fetches. While many other Essential oils are referred to simply by name Medicinal Eucalyptus oil is invariably specified in terms of Eucalyptol content.

Eucalyptus oil is used as a flavouring at low levels (0.002%) in various products, including baked goods, confectionery, meat products and beverages, in addition to its use as a food preservative. Eucalyptus oil is also used as a fragrance component to impart a fresh and clean aroma in soaps, detergents, lotions, and perfumes.

Exhibit 11.11.2 : Global Eucalyptus Oil Application by Segment, FY 2025, USD 144 Mn



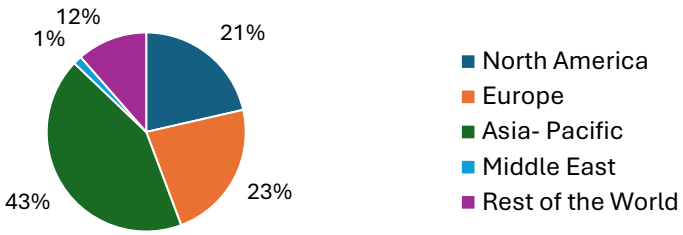
Source: Frost & Sullivan Research & Analysis

Others is primarily the use of Eucalyptus Oil as an insect repellent, bio-pesticide and as a cleaning agent in laundry products.

Global market demand, FY 2025, split by geography:

In terms of demand, Asia Pacific was the largest consuming regions in FY 2025, followed by Europe and North America.

Exhibit 11.11.3: Global Eucalyptus Market Demand by Geography, FY 2025, USD 144 Mn

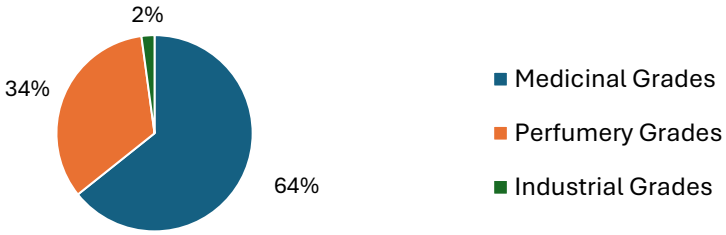


Source: Frost & Sullivan Research & Analysis

Global market demand, FY 2025, split by type:

The oils are classified in the industry into three broad types according to their composition and main end-use: Medicinal, Perfumery and Industrial. Medicinal oils are dominated by Eucalyptus oils obtained from *Eucalyptus globulus;* however other various species are also available. The key ingredient in medicinal grades in eucalyptol. Perfumery grades differ from medicinal oils in containing citronellal as the major component (usually around 65%-85%).

Exhibit 11.11.4 : Global Eucalyptus oil Market Demand by type, FY 2025, Value USD ~144 Mn



Source: Frost & Sullivan Research & Analysis

China is the world's largest producer, trader and consumer of Eucalyptus oil and is estimated to account for around 60%-65% of the world's total production. Other key producing regions are Europe (specifically Portugal and Spain), Southern Africa (mainly Swaziland), East Africa, Australia, Brazil and India. This is in-line with the global cultivation hotspots of the Eucalyptus crop.

Eucalyptus Oil is extracted from fresh or partially dried leaves and young twigs and undergoes steam distillation. Accordingly, most producers to set-up processing facilities close to farms.

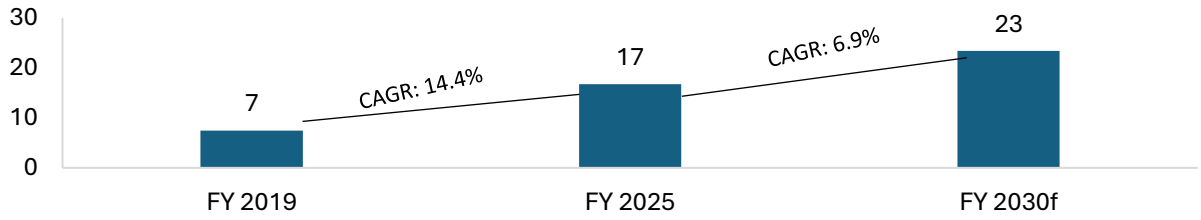
The key raw material for Eucalyptus Oil production is the Eucalyptus crop, which accounts for 60% - 65% of the total cost of production.

Supply of the raw material and prices of the oil have been relatively stable over the last few years.

Indian eucalyptus oil market FY 2025

The India Eucalyptus Oil market was valued at USD ~17 million in FY2025. In volume terms, the market was estimated be around 1,155 MT.

Exhibit 11.11.5: India Eucalyptus Oil Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

India market, FY 2025, local production, imports and exports:

Exhibit 11.11.6 : India Eucalyptus Oil Market, Production vs Demand, USD Mn, FY 2025

Production (USD Mn)	Import (USD Mn)	Export (USD Mn)	Demand (USD Mn)
~5.1	~16.8	~5.2	16.7

Source: Primary Interviews with Key Manufacturers, Impex databases and Frost & Sullivan Analysis

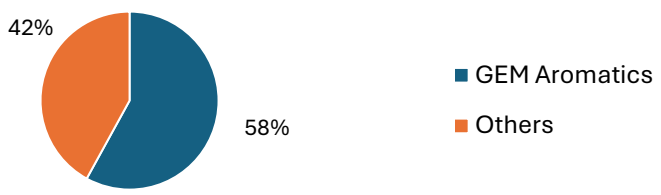
More than 70% of the imports is from China, while most of the exports for Eucalyptus Oil from India are to USA.

Eucalyptus crops are grown primarily in Andhra Pradesh, Telangana, Tamil Nadu, Punjab and Haryana. Oil production plants are typically located close to farms.

Local production of eucalyptus oil

The Indian Eucalyptus Oil production market is highly consolidated with **GEM Aromatics having over 58% of the market.** There have been substantial imports from 2023 to 2025 with higher imports of 60-65% oil, this has led to slash in prices for refined oil. However, GEM Aromatics has been able to sustain its position.

Exhibit 11.11.7 : Indian Eucalyptus Oil Volume- Production Share of Key Companies , FY 2025, USD 5.1 Mn



Source: Frost & Sullivan Research & Analysis

Others Include: Kambay aromatics, Greenleaf extractions, Bhagat Aromatics, etc.

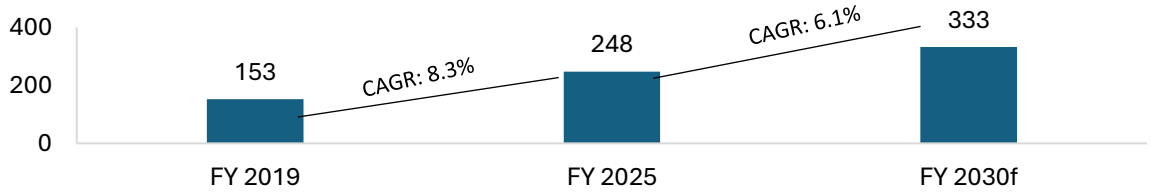
11.11 Cooling agents

Cooling agents are synthetic chemicals that is widely used in the food, beverage, and cosmetic industries. They are generally crystalline powders that have cooling effect like menthol but without the associated taste or odour. For the purpose of this report WS-23, WS-3, WS-5 and WS-12 have been considered. WS-23 is considered to be a next-generation cooling agent that is more effective and longer-lasting than traditional cooling agents like menthol or peppermint oil.

Global Market Demand: FY 2025

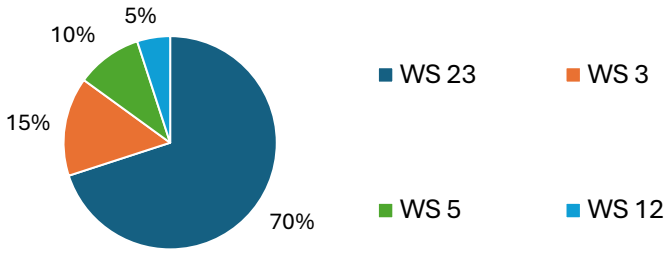
The global market for WS cooling agents was estimated to be around ~ USD 248 million in FY 2025. In volume terms, the market was around 4,950 MT.

Exhibit 11.12.1: Global WS Cooling Agents Market Demand, USD Million, FY 2019-2030F



Source: Primary Interviews with Key Manufacturers

Exhibit 11.12.2: Global WS Cooling Agents Market Demand by Type, USD 248 Mn, FY 2025



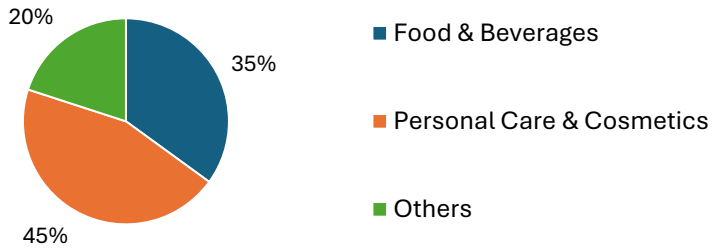
Source: Frost & Sullivan Analysis

Applications and uses

WS cooling agents are commonly used to enhance the cooling sensation of products such as chewing gum, candies, beverages such as sports drinks and carbonated soft drinks, oral care products and tobacco, specifically in vapes and e-cigarettes. It is also used in skincare and cosmetic products to provide a cooling and refreshing sensation on the skin.

WS-23 is considered safe for consumption and is approved for use by regulatory agencies such as the FDA in the United States and the EFSA in Europe.

Exhibit 11.12.3: Global WS-23 Cooling Agent Application by Segment, FY 2025, USD 248 Mn

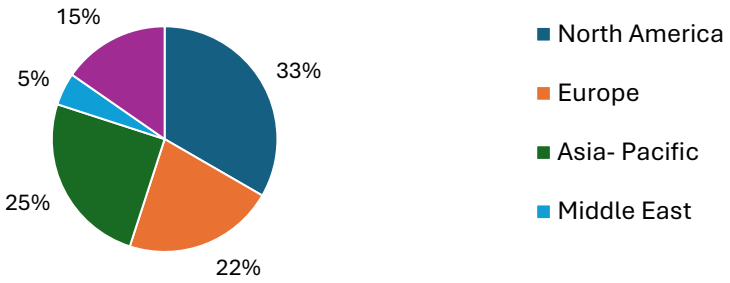


Source: Frost & Sullivan Research & Analysis

Global market demand, FY 2025, split by geography:

In terms of demand, North America was the largest consuming region in FY 2025, followed by Asia-Pacific (primarily China) and Europe.

Exhibit 11.12.4: Global WS Cooling Agents Market Demand by Geography, FY 2025, USD 248 Mn

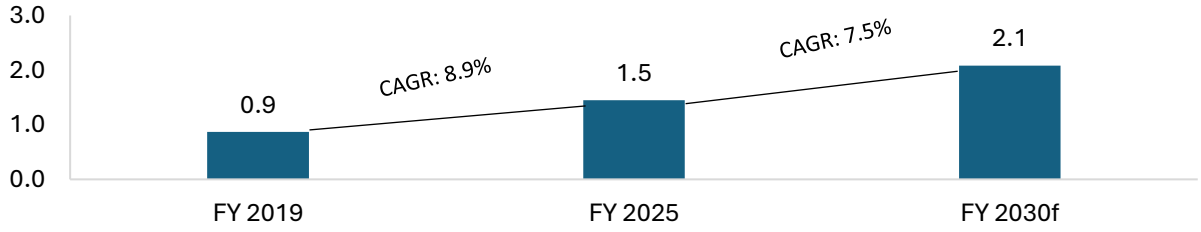


Source: Frost & Sullivan Research & Analysis

Indian WS cooling agent market FY 2025

The India WS Cooling Agents market was valued at USD ~1.5 million in FY2025. In volume terms, the market was estimated be around 29 MT.

Exhibit 11.12.5: India WS Cooling Agents Market Demand, USD Million, FY 2019-2030F



The market in India is highly import dependent for WS cooling agents. Indian producers find it hard to compete with Chinese suppliers on the price of the product. Further the lack of local raw material production means that the Indian suppliers are dependent on Chinese manufacturers for the raw

material as well. Key global suppliers include Anhui Chinaherb Flavours and Fragrances Co., Asia Aroma Holding Inc., Apple Flavour and Fragrance, Symrise, etc.

GEM Aromatics to have one of the largest capacities of about 500 MT for cooling agents in India as part of their planned expansion

12. Total addressable market in the identified products

Exhibit 12.1 Total Addresable Market : Global and India

Product Category	Key End User Industries	Global Market Size (USD Million) -2025	India Market Size (USD Million) -2025	India Production Size (USD Million)- 2025	India Positioning (% share of global supply)- 2025	GEM Aromatic's production Value FY 25 (USD Million)	GEM Aromatic 's producti on Volume FY 24	India Production Current Market Share of GEM (%)- 2024 Volume
Peppermint Oil	Food & Beverages, Pharma & Alternative Medicine, Cosmetics & Personal Care, Tobacco, Aromather apy	796	546	597	75%	21.0	1,347	3%
Menthol		970	294	304	31%	12.8	989	5%
DMO		166	56	131	79%	19.13	1,257	12%
Clove Oil		113	21	20	18%	5.5	435	28%
Eugenol		104	13	9	9%	5.2	291	65%
Eucalyptus Oil		144	17	5	3%	1.8	202	58%
Anethole		195	23	15	8%	1.6	163	16%
MEHQ		149	41	82	55%	Future strategy		
Guaiacol		333	42	42	13%			
4MAP		45	5.1	10	22%			
BHA		155	97	50	32%			
Cooling Agents		248	1.5	NA	Negligible			

GEM Aromatics is among the leading supplier in many of the product lines that they operate in.

The customers of the company are from diversified industries including personal care, flavour and fragrance formulation houses, cosmetic manufacturers, food and beverages etc both in domestic as well as global markets. Most of these industries have not seen impact of either the pandemic or the geopolitical changes on their demand and has helped GEM Aromatics' financial growth. This consistency also shows lower business risk even in the coming years.

A total potential of over ~US$ 1750 Mn in 2030 at a global level and ~US$ 840 Mn at India level for the select products, based on market demand is expected for essential oils (Peppermint Oil, Clove Oil, Eucalyptus Oil and Cooling Agents) Further a potential of ~US$ 865 Mn and ~US$ 140 Mn for Global and Indian markets respectively, is expected for other aroma chemicals (Anethole, MEHQ, Guaiacol, and 4MAP)

GEM Aromatics is well positioned to leverage their experience and reach to further explore the existing opportunities as well as new products

13. Competitive Benchmarking

1. A list of Key Performance Indicators for the Relevant Period:

Particulars	Financial Year ended March 31, 2025	Financial Year ended March 31, 2024	Financial Year ended March 31, 2023
Revenue from Operations (₹ million)	5,039.53	4,524.52	4,247.93
Growth in revenue from operations (%)	11.38%	6.51%	35.14%
Gross Profit (₹ million)	1,280.08	1,112.96	1,074.10
Gross Margin (%)	25.40%	24.60%	25.29%
EBITDA (₹ million)	884.52	783.54	661.86
EBITDA Margin (%)	17.55%	17.32%	15.58%
Profit for the Year (₹ million)	533.84	501.04	446.72
Total Income (₹ million)	5,056.40	4,542.25	4,250.93
PAT Margin (%)	10.56%	11.03%	10.51%
Return on Equity (%)	18.80%	21.73%	24.88%
Return on Capital Employed (%)	16.02%	21.10%	22.85%
Gross Fixed Assets Turnover Ratio (in times)	2.51	4.76	7.66
Net Debt to Total Equity (in times)	0.78	0.36	0.44
Net Working Capital Cycle (days)	205.61	162.51	172.71

Notes –

i. *Revenue from operations means the Revenue from operations for the year*
ii. *Growth in Revenue from operations (%) is calculated as a percentage of Revenue from operations of the year minus Revenue from operations of the preceding year, divided by Revenue from operations of the preceding year*
iii. *Gross profit is calculated as Revenue from operations minus cost of raw materials consumed minus purchase of stock-in-trade (traded goods) minus (increase)/decrease in inventories of finished goods, work-in-progress and stock-in-trade*
iv. *Gross Margin is calculated as Gross Profit divided by Revenue from operations*
v. *Earnings before interest, tax, depreciation and amortization (EBITDA) is calculated as profit/ (loss) for the /year plus finance costs, depreciation and amortization, exceptional items and total income tax expenses less other income.*
vi. *EBITDA Margin is calculated as EBITDA divided by Revenue from operations.*
vii. *Profit after tax (PAT) Margin is calculated as profit/ (loss) for the year divided by total income*
viii. *Return on Equity is calculated as profit/ (loss) for the year (Excluding share of minority in profits) divided by total equity (Excluding non-controlling interest).*

ix. *Return on Capital Employed is calculated as EBIT divided by capital employed. Capital employed is calculated as total equity plus current borrowings (including current maturities of non-current borrowings), non-current borrowings and deferred tax liability while EBIT is calculated as EBITDA less depreciation and amortization.*

x. *Gross Fixed Assets Turnover Ratio is calculated as Revenue from operations for the year divided by cost of property, plant and equipment, capital work-in-progress, right-of-use assets, goodwill, other intangible assets & intangible assets under development.*
In case of unavailability of cost of right-of-use assets, we have taken the carrying value.

xi. *Net Debt to Total Equity is calculated as net debt divided by total equity. Net Debt is calculated as current borrowings (including current maturities of non-current borrowings) plus non-current borrowings less cash and cash equivalents less other bank balances.*

xii. *Net Working Capital Cycle (days) is calculated as net working capital divided by revenue from operations multiplied by 365 (year). Net Working Capital is calculated as inventories plus trade receivables minus trade payables.*

2. Comparison of KPI's of listed peers:

a. For financial year ended March 31, 2025

Particulars	Gem Aromatics Limited	Clean Science & Technology Limited	Privi Speciality Chemicals Limited	Camlin Fine Sciences Limited	Yasho Industries Limited	S H Kelkar and Company Limited	Oriental Aromatics Limited
Revenue from Operations (₹ million)	5,039.53	9,666.44	21,011.91	16,665.27	6,685.00	21,234.00	9,282.56
Growth in revenue from operations (%)	11.38%	22.13%	19.91%	3.31%	12.62%	10.02%	10.98%
Gross Profit (₹ million)	1,280.08	6,159.32	9,696.99	8,172.68	2,784.40	9,275.30	3,687.99
Gross Margin (%)	25.40%	63.72%	46.15%	49.04%	41.65%	43.68%	39.73%
EBITDA (₹ million)	884.52	3,876.15	4,535.14	1,987.40	1,095.20	2,350.00	933.90
EBITDA Margin (%)	17.55%	40.10%	21.58%	11.93%	16.38%	11.07%	10.06%
Profit for the Year (₹ million)	533.84	2,644.05	1,847.50	(1,581.19)	61.10	730.10	343.28
Total Income (₹ million)	5,056.40	10,052.31	21,218.37	16,809.79	6,772.50	21,472.50	9,315.32
PAT Margin (%)	10.56%	26.30%	8.71%	(9.41)%	0.90%	3.40%	3.69%
Return on Equity (%)	18.80%	18.67%	16.74%	(17.54)%	1.46%	5.74%	5.18%
Return on Capital Employed (%)	16.02%	22.90%	14.61%	8.70%	6.02%	6.82%	6.69%
Gross Fixed Assets Turnover Ratio (in times)[#]	2.51	NA	1.00	NA	NA	NA	NA
Net Debt to Total Equity (in times)	0.78	(0.01)	0.97	0.55	1.31	0.52	0.51
Net Working Capital Cycle (days)	205.61	95.88	135.55	104.66	181.87	141.57	187.56

[#] Data for the calculation of Gross Fixed Assets Turnover Ratio for Listed Peers is not available.

Source: All the financial information for listed industry peers mentioned above is on consolidated basis and is sourced from the annual reports as available on BSE Limited for the Financial Year ending March 31, 2025

b. For financial year ended March 31, 2024

Particulars	Gem Aromatics Limited	Clean Science & Technology Limited	Privi Speciality Chemicals Limited	Camlin Fine Sciences Limited	Yasho Industries Limited	S H Kelkar and Company Limited	Oriental Aromatics Limited
Revenue from Operations (₹ million)	4,524.52	7,914.85	17,522.35	16,130.62	5,935.64	19,299.90	8,364.05
Growth in revenue from operations (%)	6.51%	(15.42)%	8.98%	(4.07)%	(11.61)%	14.44%	(1.49)%
Gross Profit (₹ million)	1,112.96	5,144.02	7,428.52	6,994.41	2,134.54	8,495.40	2,649.30
Gross Margin (%)	24.60%	64.99%	42.39%	43.36%	35.96%	44.02%	31.67%
EBITDA (₹ million)	783.54	3,320.65	3,249.63	241.11	998.05	3,068.40	469.37
EBITDA Margin (%)	17.32%	41.95%	18.55%	1.49%	16.81%	15.90%	5.61%
Profit for the Year (₹ million)	501.04	2,440.26	954.30	(1,048.75)	579.37	1,235.50	91.04
Total Income (₹ million)	4,542.25	8,327.71	17,785.34	16,286.18	6,009.70	19,360.20	8,436.85
PAT Margin (%)	11.03%	29.30%	5.37%	(6.44)%	9.64%	6.38%	1.08%
Return on Equity (%)	21.73%	20.28%	10.32%	(12.13)%	19.66%	10.19%	1.44%
Return on Capital Employed (%)	21.10%	23.20%	10.71%	(3.56)%	9.90%	11.59%	3.14%
Gross Fixed Assets Turnover Ratio (in times)	4.76	0.91	0.97	1.38	0.76	1.42	1.45
Net Debt to Total Equity (in times)	0.36	(0.01)	1.03	0.65	1.82	0.42	0.30
Net Working Capital Cycle (days)	162.51	82.74	151.30	107.37	127.70	150.07	164.42

Source: All the financial information for listed industry peers mentioned above is on consolidated basis and is sourced from the annual reports as available on BSE Limited for the Financial Year ending March 31, 2024.

c. For financial year ended March 31, 2023

Particulars	Gem Aromatics Limited	Clean Science & Technology Limited	Privi Speciality Chemicals Limited	Camlin Fine Sciences Limited	Yasho Industries Limited	S H Kelkar and Company Limited	Oriental Aromatics Limited
Revenue from Operations (₹ million)	4,247.93	9,357.99	16,078.20	16,815.64	6,715.52	16,865.20	8,490.73
Growth in revenue from operations (%)	35.14%	36.64%	14.54%	19.08%	9.61%	7.82%	(2.27)%
Gross Profit (₹ million)	1,074.10	6,098.44	6,468.30	8,683.33	2,563.36	6,818.40	2,723.02
Gross Margin (%)	25.29%	65.17%	40.23%	51.64%	38.17%	40.43%	32.07%
EBITDA (₹ million)	661.86	4,020.95	1,859.21	1,955.95	1,149.80	1,968.90	542.13
EBITDA Margin (%)	15.58%	42.97%	11.56%	11.63%	17.12%	11.67%	6.39%
Profit for the Year (₹ million)	446.72	2,951.76	212.78	398.10	678.68	629.50	197.43
Total Income (₹ million)	4,250.93	9,656.24	16,292.42	16,873.63	6,825.95	16,983.30	8,548.01
PAT Margin (%)	10.51%	30.57%	1.31%	2.36%	9.94%	3.71%	2.31%
Return on Equity (%)	24.88%	29.23%	2.57%	4.86%	28.52%	5.91%	3.16%
Return on Capital Employed (%)	22.85%	35.41%	4.14%	8.25%	16.95%	6.93%	3.95%
Gross Fixed Assets Turnover Ratio (in times)	7.66	1.52	0.97	1.51	1.65	1.33	1.94
Net Debt to Total Equity (in times)	0.44	(0.01)	1.25	0.83	1.27	0.47	0.34
Net Working Capital Cycle (days)	172.71	68.06	181.85	126.85	118.97	146.35	202.41

Source: All the financial information for listed industry peers mentioned above is on consolidated basis and is sourced from the annual reports as available on BSE Limited for the Financial Year ending March 31, 2023.