INDIAN SPECIALTY CHEMICALS INDUSTRY
BIGGEST BENEFICIARY OF THE GLOBAL PARADIGM SHIFT
Message

The Indian Chemicals and Petrochemicals Sector is a vital component of the Indian economy and plays a catalytic role in accelerating the country’s GDP. A consistent value creator, the chemicals and petrochemicals industry continue to remain an attractive hub of opportunities in an uncertain global environment even in present day scenario of Covid-19 Pandemic. The chemical industry contributes significantly to India’s trade volumes and has played an important role in strengthening India’s position as a strong export hub.

2. The specialty chemicals industry, in particular, have played a pivotal role in the growth story of the chemical industry in India. I strongly believe that India’s specialty chemicals industry truly has the potential to become the next growth engine for achieving the target of US$ 1 trillion manufacturing economy by 2025. Abundant availability of skilled manpower, prolific process expertise and lower manufacturing costs offer India a significant competitive edge in the world. Furthermore, favourable events in the global markets coupled with strong growth outlook in domestic markets is likely to put India’s specialty chemicals industry on track to register unprecedented growth in future.

3. India’s ability to capture emerging opportunities in the global supply chain will determine our position, as a force to reckon with, in the Global chemicals industry. The department is geared up for taking all the required initiatives to support the stakeholders of the industry and facilitate the investments required for the specialty chemicals industry to realize its true potential.

4. I am pleased to note that this report has been jointly prepared by FICCI and Avendus Capital, in order to highlight the growth outlook for various segments of the specialty chemicals industry in India.

(R. K. Chaturvedi)
India’s Chemical and Petrochemical industry plays a pivotal role not only in the economic health of the country but also in meeting the basic needs of the people and improving their quality of life. Driven by the vision of Hon'ble Prime Minister of India, Shri Narendra Modi, of making India a USD 5 trillion economy through flagship initiatives like Make in India, Start-Up India, Skill India and Digital India, the sector is making rapid progress and expected to become a significant player in the Global specialty chemicals Industry.

I believe that domestic as well as foreign investments in the specialty chemicals industry would be crucial for supporting the vision of ‘Atmanirbhar Bharat’. As consumers across the globe look to diversify their supply chains, India’s specialty chemicals industry is well positioned to take advantage of this new world order, and cement its position in the Global markets.

FICCI is delighted to present this report “Indian Specialty Chemical Industry – Biggest Beneficiary of the Global Paradigm Shift” in partnership with Avendus Capital, with a sincere hope that this report benefits the stakeholders of the Indian specialty chemicals industry. This report outlines the growth outlook for various segments of the Indian specialty chemicals industry, while highlighting some of the most attractive segments. It also underlines the emerging opportunity for India to emerge as a key player in the Global Specialty Chemicals industry.

I am confident that the report will prove to be insightful for all the stakeholders.
The specialty chemicals industry in India has witnessed a secular growth over the past few years, driven by a strong traction in the end-user markets, and emergence of India as the preferred manufacturing destination for companies across the globe. It has been one of the best performing segments in the Indian manufacturing sector.

We believe that there have been a number of favorable events in the recent past, which have significantly disrupted the global supply chain, thereby creating an inflection point for the chemicals sector in India. We believe that India is well placed to take advantage of this
We believe that there have been a number of favorable events in the recent past, which have significantly disrupted the global supply chain, thereby creating an inflection point for the chemicals sector in India. We believe that India is well placed to take advantage of this opportunity, and to strengthen its position in the global specialty chemicals industry. The Indian specialty chemicals industry currently stands at USD 32 bn and, driven by these macro tailwinds, is expected to grow at 12% CAGR over the next five years, reaching USD 64 bn by 2025.

In this report, we have tried to provide the readers with a comprehensive overview of the specialty chemicals industry in India, while sharing our thoughts on some highly attractive sub-segments and some emerging business models in India.

We have also tried to evaluate India's ability to become self-reliant in the specialty chemicals industry by highlighting the factors that led to China's emergence in the global specialty chemicals industry, the subsequent disruptions and geo-political events which led to re-evaluation of the supply chain and eventually, put out our thoughts on key factors that will determine India's ability to leverage this opportunity.

As we all know, the global outbreak of novel coronavirus (COVID-19) has disrupted industries across the globe at various levels. While specialty chemicals industry has been one of the best performing segments within the manufacturing sector, we believe that the overall impact of COVID-19 would be different across various parts of this industry. In this report, we have also tried to outline the supply-side disruptions caused by the pandemic - both in the initial period and subsequently. Also, we have tried to evaluate the immediate demand-side impact of the pandemic, while sharing our thoughts on the long-term outlook for the sub-segments basis the degree of benefit that we believe they will derive from the supply chain realignment, globally.

We believe that the Government of India will have to play a pro-active role and work in tandem with the private sector to ensure that India is able to leverage this strong growth opportunity. We have specified a few recommendations that we believe are crucial for ensuring the growth of this industry.

We have attempted to cover the above points from diverse perspectives, and sincerely hope that the report proves to be insightful for all the stakeholders of the specialty chemicals industry in India.
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Overview of the Various Segments in the Indian Specialty Chemicals Industry .................................................. 11
The chemical industry is one of the most pervasive industries in manufacturing, with its products being critical to a wide range of end-use applications. It is central to the world economy given its role of converting raw materials (such as oil, natural gas, metals, minerals etc.) into products which are extensively used in all facets of daily life (agriculture, food and beverages, health, personal care, automotive, electronics, water etc.). The chemical industry, thus, plays a vital role in the economic development of any country and the quality of life enjoyed by its people.

The global chemicals market was estimated to be around USD 4.0 trillion in 2019. Commodity chemicals make up ~80% of the global chemical industry, with the balance 20% being constituted by specialty chemicals. Specialty chemicals are different from commodity chemicals in terms of the extensive product R&D and innovation involved, which often get translated into better margins, profitability and lesser capex intensity. While commodity chemicals are largely characterized by chemicals that are used in bulk quantities, specialty chemicals are usually defined as chemicals which are used in low quantities (not bulk) but have a higher value, and also greatly influence the performance of the end-product.

Globally, the specialty chemicals industry grew at 5.7% CAGR over the last 5 years, reaching USD 805 billion in 2019. It is estimated to grow at 6.4% over the next 5 years to reach ~USD 1.2 trillion by 2025, led by the growth in Asian markets. The past couple of decades have seen a significant shift in the manufacturing of chemicals from EU and North America, to Asia, particularly in the specialty chemicals space. The specialty chemicals industry is estimated to grow faster in emerging markets, such as China and India, on the back of strong growth in end-user industries.

Exhibit 1: Global Specialty Chemicals Industry Size (USD billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>610</td>
</tr>
<tr>
<td>2019</td>
<td>805</td>
</tr>
<tr>
<td>2025</td>
<td>1,171</td>
</tr>
</tbody>
</table>

Exhibit 2: Specialty Chemicals Industry - By Segment (2019)

<table>
<thead>
<tr>
<th>Segment</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agrochemicals</td>
<td>30%</td>
</tr>
<tr>
<td>Food Additives</td>
<td>12%</td>
</tr>
<tr>
<td>Construction</td>
<td>9%</td>
</tr>
<tr>
<td>Electronic</td>
<td>9%</td>
</tr>
<tr>
<td>Water</td>
<td>8%</td>
</tr>
<tr>
<td>Polymer Additives</td>
<td>6%</td>
</tr>
<tr>
<td>Dyes and Pigments</td>
<td>6%</td>
</tr>
<tr>
<td>Surfactants</td>
<td>5%</td>
</tr>
<tr>
<td>Nutra Ingredients</td>
<td>5%</td>
</tr>
<tr>
<td>F&amp;F Ingredients</td>
<td>4%</td>
</tr>
<tr>
<td>Others</td>
<td>5%</td>
</tr>
</tbody>
</table>
Overview of the Industry

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One of the most prominent trends in the global chemicals industry has been the emergence of China as a dominant player. This is reflected in an increase in China’s share in the global chemicals industry from 6% in 2000 to around 36% in 2019. China continues to be a clear leader across a wide range of chemicals, with a significantly higher production capacity than its peer countries.

Exhibit 1: Global Specialty Chemicals Industry Size (USD billion)

Exhibit 2: Specialty Chemicals Industry- By Segment (2019)
Trade Flows in Specialty Chemicals

As the manufacturing activity and the consumption growth shifted in favor of the Asian markets over the last couple of decades, there has been a paradigm shift in the dynamics of international trade. Asia has gone on to become a net exporter for a wide range of specialty chemicals, which were erstwhile being imported from EU and North America. Globally, around 25% of the total specialty chemical production is exported, amounting to a total of around USD 200 billion.

China has firmly established its position as the leading supplier of specialty chemicals to countries across the globe, exporting specialty chemicals worth USD 35 billion in 2019 (which represents almost 18% of the total specialty chemical exports and is almost 4x of India’s specialty chemical exports). Rapid industrialization, large scale manufacturing capabilities, and low manufacturing costs have propelled China to become a prominent supplier for a large number of chemical intermediates, even being the sole supplier for a few of them.

International trade, however, is currently undergoing significant disruptions on account of geo-political events across the globe, and this has the potential of realigning the supply chain in a meaningful way in the long run.

Consolidation Activity in Specialty Chemicals

The specialty chemicals industry has always been a hotbed of M&A activity as a robust inorganic growth strategy is imperative for sustaining competitive advantage across segments. Over the past 5 years, there have been a number of transformative acquisitions undertaken by global giants, with 50+ M&A transactions of over USD 1 billion in value.¹

Historically, the transactions in the industry have primarily been driven by objectives such as broadening of product portfolio towards high-growth/high-margin products, obtaining access to technological know-how or consolidation of market position. Some of the marquee transactions during this period are highlighted below:

¹ Does not include PE, pharma, bulk chemicals, or petroleum transactions
Trade Flows in Specialty Chemicals

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### Exhibit 3: Select List of marquee M&A transactions in the specialty chemicals industry

<table>
<thead>
<tr>
<th>Acquirer</th>
<th>Target</th>
<th>Target Segment</th>
<th>Transaction Value (USD mn)</th>
<th>Completion Date</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>DuPont</td>
<td>Dow</td>
<td>Diversified</td>
<td>76,971</td>
<td>Aug-17</td>
<td>Streamlining businesses and leveraging significant operational and cost synergies</td>
</tr>
<tr>
<td>Bayer</td>
<td>Monsanto</td>
<td>Agrochemicals</td>
<td>63,403</td>
<td>Jun-18</td>
<td>Consolidation of market position with significant cost synergies through integration of operations</td>
</tr>
<tr>
<td>ChemChina</td>
<td>Syngenta</td>
<td>Agrochemicals</td>
<td>45,860</td>
<td>May-17</td>
<td>Enhancing manufacturing and technical competencies and consolidating presence in pesticides</td>
</tr>
<tr>
<td>BASF</td>
<td>Bayer (a part of crop care division)</td>
<td>Agrochemicals</td>
<td>9,047</td>
<td>Aug-18</td>
<td>Consolidating of market position in agrochemicals segment and entry into seeds business</td>
</tr>
<tr>
<td>IFF</td>
<td>Frutarom</td>
<td>F&amp;F ingredients</td>
<td>7,036</td>
<td>Oct-18</td>
<td>Broadening product portfolio and strengthening presence in natural solutions</td>
</tr>
<tr>
<td>Solvay</td>
<td>Cytec</td>
<td>Specialty materials and additives</td>
<td>5,996</td>
<td>Dec-15</td>
<td>Expanding presence in high growth advanced materials, composites and mining chemicals businesses</td>
</tr>
<tr>
<td>UPL Corporation</td>
<td>Arysta Lifescience Corporation</td>
<td>Agrochemicals</td>
<td>4,200</td>
<td>Jan-19</td>
<td>Enhancing R&amp;D capabilities and obtaining access to a host of high-quality patented products</td>
</tr>
<tr>
<td>BASF</td>
<td>Chemetall Group</td>
<td>Surface treatment chemicals</td>
<td>3,200</td>
<td>Dec-16</td>
<td>Broadening of product portfolio by entering high growth surface treatment segment</td>
</tr>
<tr>
<td>Firmenich</td>
<td>DRT SA</td>
<td>F&amp;F ingredients</td>
<td>1,917</td>
<td>May-20</td>
<td>Broadening of engineering plastics capabilities and backward integration</td>
</tr>
<tr>
<td>BASF</td>
<td>Solvay (Polyamide)</td>
<td>Construction chemicals</td>
<td>1,917</td>
<td>Jan-20</td>
<td>Broadening of engineering plastics capabilities and backward integration</td>
</tr>
<tr>
<td>Givaudan</td>
<td>NatureX</td>
<td>F&amp;F ingredients</td>
<td>1,812</td>
<td>Aug-18</td>
<td>Strengthening of capabilities in natural flavors ingredients segment</td>
</tr>
<tr>
<td>Avient Corp</td>
<td>Clariant (Masterbatches)</td>
<td>Masterbatches and pigment additives</td>
<td>1,500</td>
<td>Jul-20</td>
<td>Increasing presence in higher margin specialty segments</td>
</tr>
</tbody>
</table>
Section 2

Overview of the Indian Specialty Chemicals Industry

India’s chemicals industry, which stood at USD 180 billion in 2019, represents one of the bright spots within the Indian manufacturing sector. The specialty chemicals segment, at USD 32 billion in 2019, constitutes about 18% of the total chemical industry in India. It has been consistently growing faster than the overall chemicals industry, with a CAGR of 11% from 2014-2019 period. This growth has been driven by a combination of an increase in domestic demand from end-user segments and strong export growth.

Market Landscape

India’s specialty chemicals industry is quite fragmented, with most sub-segments having only a handful of scaled up players, as highlighted in Exhibit 6 below. Notably, UPL is the only domestic specialty chemicals manufacturer having revenue of more than USD 1 billion, and a global manufacturing network. Scale of operations is a critical differentiating factor across sub-segments, as that helps in gaining a larger share of customer’s wallet, while also helping generate economies of scale. Customers across the globe expect their suppliers to adhere to the compliance norms acceptable across the globe, which serves as a significant entry barrier for scaled up companies in the industry.

Indian specialty chemicals industry is also characterised by presence of a large unorganized market, which in some sub-segments such as base ingredients, is estimated to be larger than the organized market, but is difficult to quantify. The unorganized players largely cater to smaller/unorganized customers in their respective end-user segments. For instance, in flavours & fragrances, the unorganized players largely cater to the tobacco and incense sticks market, whereas in surfactants, these players cater to the local unbranded soap and detergent manufacturers. The size of unorganized market in the specialty chemicals industry is inversely related to the level of R&D and innovation required. As a result, sub-segments such as agrochemicals, nutraceuticals, functional ingredients for flavours & fragrances and construction chemicals, have much smaller share of unorganized players.
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Exhibit 4: Indian Specialty Chemicals Industry Size (USD billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (USD billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>18</td>
</tr>
<tr>
<td>2019</td>
<td>32</td>
</tr>
<tr>
<td>2025</td>
<td>64</td>
</tr>
</tbody>
</table>

Exhibit 5: Specialty Chemicals Industry - By Segment (2019)

- Agrochemicals: 29%
- Dyes and Pigments: 22%
- F&F - Functional Ingredients: 6%
- Surfactants: 6%
- F&F Base Ingredients: 4%
- Textiles: 7%
- Polymer: 6%
- Construction: 6%
- Personal Care Ingredients: 4%
- Nutra - Functional Ingredients: 3%
- Water: 3%
- Others: 3%

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**Geographical Spread**

Gujarat and Maharashtra have emerged as the most preferred manufacturing destinations for leading chemical manufacturers, with 15 out of Top 25 specialty chemical companies¹ in India having their manufacturing units in these states. Some of factors which have contributed to the emergence of chemical sector in these states include (a) excellent international connectivity by way of ports, which facilitates better movement of raw materials and finished goods, (b) abundant availability of skilled manpower (c) business-friendly policies and (d) presence of adequate infrastructure facilities. However, increased impetus provided by the Indian Government through announcement of a PCPIR in Orissa coupled with the region's proximity to export markets, such as SEA, could lead to an increased chemical manufacturing activity on the East coast.

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¹ Top 25 specialty chemical companies by market capitalization
Trade Flow
Overall, India is a net importer of chemicals. However, this does not hold true across all of the chemicals value chain.

**Exhibit 9: India's trade position across the specialty chemicals value chain**

<table>
<thead>
<tr>
<th>Segment</th>
<th>India's Trade Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petrochemical Building Blocks</td>
<td>Self-Sufficient</td>
</tr>
<tr>
<td>Petrochemical Intermediates</td>
<td>Net Importer</td>
</tr>
<tr>
<td>Bulk Chemicals (Organics and Inorganic)</td>
<td>Net Importer</td>
</tr>
<tr>
<td>Specialty Chemicals</td>
<td>Net Exporter</td>
</tr>
</tbody>
</table>

Some key highlights of India's trade balance across the segments (INR billion):

India is largely self-sufficient when it comes to petrochemical building blocks (such as ethylene, propylene, benzene etc.) with RIL and public sector majors, such as ONGC, IOCL, HPCL, GAIL having large refining capacities. However, majority of the petrochemical building blocks manufactured by India are channelized towards bulk polymers, thereby making the other specialty chemical sub-segments dependent upon imports for their feedstock requirements. As a result, India continues to be a net importer of petrochemical intermediates and bulk chemicals. As we move downstream, though, towards value-added specialty chemicals, India is a net exporter, being a key supplier for a wide array of specialty chemicals for players across the globe.

**Key Characteristics of the Indian Specialty Chemicals Industry**

1. **Strong export presence:** India's low-cost manufacturing capabilities, strong process engineering skills and abundant availability of manpower has made it a preferred manufacturing destination for players across the globe. As a result, Indian specialty chemicals industry is emerging as an export hub, with the export-oriented businesses growing faster than domestic ones. The exports of the country's top 10¹ specialty chemical manufacturers have grown at a

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¹ Top 10 domestic specialty chemical companies by market cap
CAGR of 20.8% between FY15-FY20 as compared with revenue growth of 17.1% during the same period. The leading players in India enjoy a strong reputation amongst the consumers across the globe, which is aided by strong standards of environmental compliance and an increased number of products meeting the globally acceptable registration requirements, such as REACH.

2. **Strong growth potential in domestic market:** India’s per capita specialty chemical consumption continues to be significantly lower than developed markets. At the same time, growing disposable incomes and rapidly increasing urbanization are fuelling growth in end-user segments, such as paints, textiles, adhesives, personal and home care products, which in turn bodes well for the domestic consumption outlook of the specialty chemicals industry in India.

3. **Lower focus on R&D activities:** While globally, there is a clear differentiation between bulk and specialty chemicals on the basis of R&D and innovation, this demarcation in India is not as evident. The domestic specialty chemical industry is largely ‘genericized’ with only a handful of companies developing truly innovative and unique products. Even some of the larger players in India spend less than 3% of their revenue towards R&D activities vis-à-vis 6-10% spent by their global counterparts.

4. **Emergence of businesses focusing on sustainable chemistry:** The concept of ‘green’ chemicals or ‘sustainable chemistry’ has been rapidly evolving in India. Increasing awareness about the impact of harmful chemical elements on human health and environment has led to an increased concern about the environmental impact of chemicals. This has prompted governing bodies as well as the stakeholders in India to actively consider a shift towards adoption of sustainable methods of manufacturing chemicals.
Overview of various segments in the Indian Specialty Chemicals Industry

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Agrochemicals

Market Landscape: Agrochemicals is the largest sub-segment of the Indian specialty chemicals market. At USD 9.2 billion, it is the fourth largest agrochemical production market globally. The segment has historically grown at 10.0% between 2014 and 2019. About 45% of India’s agrochemical production is exported. While many large MNCs such as Bayer, BASF and Syngenta operate in the Indian market, the market is dominated by Indian majors. 6 out of the top 10 companies in India are domestic players, and domestic companies account for 80% of the total agrochemical market in India.

Key Success Factors: Indian agrochemical industry is predominantly generic in nature and hence strong brand equity, distribution network and product portfolio are key success factors in this segment.

Exhibit 10: Agrochemical Industry in India (USD bn)

Ingredients: Flavours and Fragrances

Market Landscape: Flavours and Fragrances industry in India forms a relatively small part of the global F&F industry. Indian F&F industry stood at USD 1.4 billion as of 2019. The segment has witnessed a high historical CAGR of 14.2% between 2014 and 2019. While the base ingredient market is unorganized, with a large number of small players, the functional ingredients market in India is largely organized. Global giants such as Firmenich, Givaudan, IFF and Symrise dominate the Indian F&F market, with ~65% market share, with the balance being constituted by the domestic players.

Key Success Factors: Consistent innovation to develop unique combinations coupled with an ability to develop and maintain strong customer relationships are critical to succeeding in this segment.

Exhibit 11: F&F Industry in India (USD bn)

Ingredients: Nutraceuticals

Market Landscape: Nutraceutical ingredients industry in India is still at a very nascent stage, forming just about 3% of the global nutraceutical ingredients industry. Nutraceutical ingredients industry in India has registered strong growth over the past 5 years and stood at USD 1.0 bn as of 2019. Majority of the ingredients manufactured in India continue to be exported, with USA and Europe being the largest consumers for these products. Given the significant amount of R&D and innovation required, the market is dominated by organized players. Only a handful of MNCs operate in this segment, and the market is largely dominated by domestic companies.

Exhibit 12: Nutraceutical Ingredients Industry in India (USD bn)
**Key Success Factors:** Reliable raw material sourcing, strong R&D capabilities, appropriate product selection and strong marketing capabilities are some of the critical success factors for this segment.

### Dyes and Pigments

**Market Landscape:** Dyes and Pigments is the second largest sub-segment of the Indian specialty chemicals industry. The segment has registered a growth of 7.3% from 2014-2019 period and stood at USD 7.0 billion as of 2019. Given the large volume of demand from end-user markets such as textiles, a major part of the dyes and pigments production is sold domestically. The dyes and pigments market in India is dominated by domestic players, with only a handful of MNCs, such as Heubach and Archroma operating in this segment.

**Key Success Factors:** Given the polluting nature of the manufacturing process in this segment, strong environmental compliance standards and ability of the players to move up the value chain for offering more value added-high performance solutions are critical success factors in this segment.

**Exhibit 13: Dyes & Pigments Industry in India (USD bn)**

![Graph showing growth of Dyes & Pigments Industry in India](image)

### Personal Care Chemicals

**Market Landscape:** Personal care chemicals industry has been one of the fastest growing segments in the Indian specialty chemicals industry, having registered a 15%+ CAGR during the 2014-2019 period. The personal care chemicals industry in India stood at USD 1.0 bn as of 2019. Given the strong growth in the Indian cosmetics and personal care products market, this segment is expected to continue to grow at 15% CAGR over the next 5 years. The personal care chemicals market in India is characterized by a healthy mix of MNCs such as BASF, Croda and Clariant, and domestic players such as Kumar Organics and Rossari Biotech among others.

**Key Success Factors:** Product innovation and relationship with clients are key success factors in this segment. Product innovation is essential not only for creating differentiation but also to comply with changing regulations around various synthetic active ingredients.

**Exhibit 14: Personal Care Chemicals Industry in India (USD bn)**

![Graph showing growth of Personal Care Chemicals Industry in India](image)

### Surfactants

**Market Landscape:** Surfactants industry in India stood at USD 2.0 bn as of 2019 and is estimated to grow at 11% CAGR over the next 5 years. Increasing penetration of products, such as cleaning agents, detergents and is expected to drive a strong growth in this segment. The surfactants market is characterized by a large number of unorganized players who cater to the unbranded soap and detergent manufacturers. The organized market is largely dominated by domestic companies and only a handful of MNCs have been able to establish meaningful presence in India. About 70% of the surfactants are used in home and personal care products.
Key Success Factors: Scale of operations is important to stay cost competitive, and ability to tap into niche high-margin product segments is an important driver for profitability in this segment.

### Textile Chemicals

**Market Landscape:** Textile chemicals industry in India registered a growth of 10%+ CAGR from 2014-2019 period and stood at USD 1.8 bn as of 2019. India is amongst the largest producers of textiles and garments in the world, underlining the strong domestic demand for textile chemicals. The textile chemicals market in India is highly fragmented and is characterized by a large number of unorganized players. Steady growth in textile industry and increasing value addition in the textile chemicals segment are expected to drive the growth in this segment.

**Key Success Factors:** Ability to offer differentiated and value-added chemicals can be a key success factor as the players largely tend to compete on price due to significant presence of unorganized players.

### Construction Chemicals

**Market Landscape:** Indian Government's initiatives towards development of infrastructure has been a key driving factor for growth in the Indian Construction chemicals market. The segment registered 13%+ CAGR from 2014-2019 period and stood at USD 1.4 billion as of 2019. The construction chemicals market in India is largely organized players with a healthy mix of domestic players and MNCs. MNCs such as Sika and Fosroc tend to dominate the B2B segment, whereas domestic companies, such as Pidilite dominate the B2C segment. Concrete admixtures (40%) account for majority of the construction chemicals market in India followed by adhesives and sealants (20%) and water proofing chemicals (15%).

**Key Success Factors:** Brand is a key success factor in B2C segment, whereas technical capabilities and strong product portfolio are critical in B2B segment.
Polymer Additives

**Market Landscape:** Strong growth in end-user markets, such as consumer durables, pipes, wires and cables, and packaging has translated into a strong growth for polymer additives industry in India. Polymer additives market in India registered 12%+ CAGR during the 2014-2019 period and stood at USD 1.3 billion as of 2019. The Indian market is largely dominated by MNCs such as BASF, Chemtura, and Bayer especially in value added segments such as flame retardants, heat stabilizers and antioxidants. Indian companies largely dominate the low margin segments such as plasticizers. Plasticizers (40%) account for largest share of the Indian market, followed by heat stabilizers (20%).

**Key Success Factors:** Ability to provide high-margin products, diversification of product portfolio and strong customer base are critical differentiating factors in this segment.

---

**Water Chemicals**

**Market Landscape:** The tightening of environmental norms on industrial effluents and their strict implementation by the Central Pollution Control Board has been fueling growth in the water chemicals segment in India. Indian Water chemicals market registered ~15% CAGR from 2014-2019 period and stood at USD 0.8 billion as of 2019. The market is largely organized and is usually dominated by domestic players, who offer water chemicals as a part of the entire water treatment solution. Coagulants and flocculants (33%) account for largest share of the market, followed by disinfectants (15%).

**Key Success Factors:** Integrated value chain with an ability to provide end-to-end water solutions is the key success factor for this segment.

---

**Exhibit 18: Polymer Additives Industry in India (USD bn)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (USD bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>0.7</td>
</tr>
<tr>
<td>2019</td>
<td>1.3</td>
</tr>
<tr>
<td>2025</td>
<td>2.3</td>
</tr>
</tbody>
</table>

---

**Exhibit 19: Water Chemicals Industry in India (USD bn)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (USD bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>0.4</td>
</tr>
<tr>
<td>2019</td>
<td>0.8</td>
</tr>
<tr>
<td>2025</td>
<td>1.9</td>
</tr>
</tbody>
</table>
### Segment Attractiveness:

While the overall specialty chemicals market in India is highly attractive, certain segments stand out on account of scale, presence of scaled up Indian players, and growth potential. Exhibit 20 below summarizes the segments on these parameters. Four sub-segments: agrochemicals, F&F and nutraceutical ingredients, dyes & pigments, and personal care chemical are particularly attractive and have been elaborated in detail in next section.

#### Exhibit 20: Summary of segment-wise attractiveness within specialty chemicals

<table>
<thead>
<tr>
<th>Segment</th>
<th>Market Size (USD bn)</th>
<th>2014-2019 CAGR</th>
<th>2019-2025 CAGR</th>
<th>Entry Barriers</th>
<th>Product Specialization</th>
<th>Presence of scaled up Indian players</th>
<th>End market growth potential</th>
<th>Overall Attractiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agrochemicals</td>
<td>9.2</td>
<td>10.0%</td>
<td>12.0%</td>
<td>H</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>●</td>
</tr>
<tr>
<td>F&amp;F and Nutra Ingredients</td>
<td>2.4</td>
<td>16.1%</td>
<td>17.1%</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>●</td>
</tr>
<tr>
<td>Dyes and Pigments</td>
<td>7.0</td>
<td>7.3%</td>
<td>10.0%</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>●</td>
</tr>
<tr>
<td>Personal Care Chemicals</td>
<td>1.0</td>
<td>15.5%</td>
<td>15.0%</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>H</td>
<td>●</td>
</tr>
<tr>
<td>Surfactants</td>
<td>2.0</td>
<td>6.4%</td>
<td>11.0%</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>●</td>
</tr>
<tr>
<td>Textile Chemicals</td>
<td>1.8</td>
<td>10.4%</td>
<td>11.5%</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>●</td>
</tr>
<tr>
<td>Construction Chemicals</td>
<td>1.4</td>
<td>13.5%</td>
<td>15.0%</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>●</td>
</tr>
<tr>
<td>Polymer Additives</td>
<td>1.3</td>
<td>12.8%</td>
<td>10.0%</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>●</td>
</tr>
<tr>
<td>Water Chemicals</td>
<td>0.8</td>
<td>14.9%</td>
<td>15.0%</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>●</td>
</tr>
</tbody>
</table>

*H - High, M - Medium, L - Low*
Section 4

Attractive Segments in the Indian Specialty Chemicals Industry

Exhibit 20: Summary of segment-wise attractiveness within specialty chemicals

<table>
<thead>
<tr>
<th>Segment</th>
<th>Market Size (USD bn)</th>
<th>2014-2019 CAGR (%)</th>
<th>2019-2025 CAGR (%)</th>
<th>Entry Barriers</th>
<th>Product Specialization</th>
<th>Presence of scaled up Indian players</th>
<th>End market growth potential</th>
<th>Overall Attractiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agrochemicals</td>
<td>9.2</td>
<td>10.0%</td>
<td>12.0%</td>
<td>H</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>M</td>
</tr>
<tr>
<td>F&amp;F and Nutraceutical Ingredients</td>
<td>2.4</td>
<td>16.1%</td>
<td>17.1%</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Dyes &amp; Pigments</td>
<td>7.0</td>
<td>7.3%</td>
<td>10.0%</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
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<td>1.0</td>
<td>15.5%</td>
<td>15.0%</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>H</td>
<td>L</td>
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<td>Surfactants</td>
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<td>6.4%</td>
<td>11.0%</td>
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<td>M</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
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<td>1.8</td>
<td>10.4%</td>
<td>11.5%</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>L</td>
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<tr>
<td>Construction Chemicals</td>
<td>1.4</td>
<td>13.5%</td>
<td>15.0%</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Polymer Additives</td>
<td>1.3</td>
<td>12.8%</td>
<td>10.0%</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Water Chemicals</td>
<td>0.8</td>
<td>14.9%</td>
<td>15.0%</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>H</td>
</tr>
</tbody>
</table>
Agrochemicals

Brief Overview of the Market

At 16% GDP contribution, 12% share of India’s exports and a source of livelihood for half the Indian population, agriculture is the backbone of Indian economy. Agrochemicals or crop care chemicals have played a vital role in improving the agricultural productivity in India. As of 2019, India is the 4th largest manufacturer and 5th largest exporter of agrochemicals in the world. Despite India being one of the fastest growing agrochemicals markets globally, the headroom for further growth is massive. Consumption of agrochemicals in India is still very low, on a per hectare basis, with USA and UK consuming ~10x, and Japan and China consuming ~20x of the agrochemicals consumed by India. Indian crop yield losses range between 15-20% on account of weeds, pests, diseases and rodents - which can be minimized through usage of agrochemicals.

Agrochemicals industry in India is worth USD 9.2 billion in 2019, with almost 45% of the production being exported. Between 2014 and 2019, the agrochemicals industry in India grew at 10% CAGR (in rupee terms) despite slower than expected demand in both global as well as domestic markets. The industry is well poised to sustain its momentum and grow at 12% to reach USD 18.1 billion by 2025.

Indian agrochemicals market is dominated by pesticides (54% of the market), whereas globally, herbicides enjoy the largest share (40% of the market). The mix, however, is expected to change in the future, on account of growing labour scarcity and increasing costs of manual weeding, which will translate in herbicides and fungicides outpacing the growth in pesticides in the Indian market. Top 5 states in India account for more than 65% of the total agrochemical consumption in India, led by Maharashtra with 25% share. Rice and Cotton are the two largest consumers of agrochemicals together accounting for about 40% of the total consumption.

Indian agrochemical industry is almost entirely a branded generics market, and Indian players have a low focus on R&D, with majority of the players focusing on generic or licensed products. R&D spending for even some of the largest players in India is lower than 2% of revenue, as compared to global majors, who spend anywhere between 6-10% of their revenues on R&D activities. In the absence of significant R&D activities, strong brand equity, widespread distribution network and a robust product pipeline are some of the most critical success factors for Indian agrochemical companies.

Value Chain

Exhibit 21 below represents the agrochemicals value chain. The process of discovering a new molecule involves a significant amount of time (>10 years) and capital investment (>USD 300 million); and the same has been consistently increasing over the years. As a result, only a handful of global majors predominantly drive R&D in the agrochemicals value chain. Technical grade manufacturing involves production of active ingredients, which are then used by formulators to manufacture formulations which are eventually used by the farmers. Dealers and distributors also play a very crucial role in the agrochemicals value chain and apart from brand equity, strength of distribution network is a key differentiator in Indian agrochemicals market.
Key Market Trends

1. **Make-in-India and import substitution**: Indian agrochemical companies depend heavily on imports for meeting their raw materials and intermediate requirements, with China constituting almost 50% of these imports. Indian companies are increasingly looking at reducing their dependence on China and substituting imports by manufacturing key intermediates locally. Leading agrochemical players in India, such as PI Industries and Rallis among others have announced greenfield projects for manufacturing of intermediates.

2. **Increased focus on CRAMS**: New molecule R&D has become increasingly complex and costly, which has warranted global innovators to look at outsourcing research and manufacturing to strategic partners. India's low-cost manufacturing capabilities, established track record in process chemistry and strong IPR protection policies have made India a preferred destination for global innovators looking to outsource their manufacturing operations.

3. **Changing product mix**: Unlike the rest of the world, Indian agrochemical market has historically been dominated by insecticides. However, growth in herbicides and fungicides is estimated to outpace the growth in insecticides on account of (a) rising farm labour costs, which have made the manual removal of weeds uneconomical, and (b) strong growth in horticulture cultivation activities, which involve higher adoption of herbicides and fungicides.

### Growth Drivers

1. **Need for an improvement in farm productivity to achieve food security**: While India is home to 18% of the world's population, it has only 11% of world’s total arable land. At the same time, India's farm productivity continues to be significantly low as reflected in per hectare yield of 0.6 kg/hectare in 2016 vis-à-vis 7.0 kg/hectare in USA and 13.0 kg/hectare in China. With a growing population, India's per capita arable land has been declining over the years, underlining the need for improved farm productivity. Agrochemicals play a very vital role in improving farm productivity by preventing crop losses arising from weeds, insects, fungus etc.

2. **Improved farmer awareness and increase in farm incomes**: Initiatives undertaken by government and private sector entities towards farmer education and digitization has led to increased awareness among farmers regarding usage of the right crop care solutions. Additionally, improvement in farmer incomes coupled with increased availability of credit is likely to translate into additional investment in agrochemicals for improvement of farm productivity.
3. Policy reforms to accelerate the growth in agriculture sector: In March 2020, the Indian Government announced several reforms for the Agriculture sector, which is likely to boost sector's growth and, in turn, demand for agrochemicals. Some of the key reforms include - (a) Free trade for agricultural produce across country, as against earlier limitation of sale through APMCs, (b) Exclusion of various categories from Essential Commodities Act which will enable better supply chain management and (c) Increase in outlay for previously announced schemes such as crop insurance scheme, launch of direct income support by way of PM-Kisan Samman Nidhi.

4. Strong export outlook driven by a robust pipeline of molecules going off-patent: India has emerged as a strong exporter of generics for agrochemicals, with exports constituting 45% of the total production. Ability of Indian manufacturers to offer low-cost products while meeting international quality requirements is likely to drive growth of exports in the agrochemicals sector. This coupled with a strong pipeline of agrochemicals worth USD 8 billion going off-patent, between 2020-2025, is likely to create a huge growth opportunity for the Indian agrochemicals industry.

Key Transactions

Over the years, Indian agrochemical players have received a lot of interest from both strategic as well as financial investors. Some of the key objectives for strategic investors have been to gain access to the distribution network and registration capabilities of the Indian players, which helps expedite the time-to-market. At the same time, acquisitions allow them to establish a meaningful manufacturing presence, which can also be used for exports to other markets. Exhibit 22 below summarizes key transactions in the Indian agrochemicals space over the past decade.

Exhibit 22: List of key M&A transactions in the Indian agrochemicals industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Acquirer, Country</th>
<th>Target</th>
<th>Target's Segment</th>
<th>Stake</th>
<th>Deal Value (USD mn)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>PI Industries, India</td>
<td>Isagro Asia Agrochemicals</td>
<td>Mostly formulation</td>
<td>100%</td>
<td>48</td>
<td>Manufacturing capacity and hedging the supply chain</td>
</tr>
<tr>
<td>2016</td>
<td>Sumitomo, Japan</td>
<td>Excel Crop Care</td>
<td>Mostly formulation</td>
<td>65%</td>
<td>135</td>
<td>Distribution network for penetrating Indian market</td>
</tr>
<tr>
<td>2015</td>
<td>Godrej Agrovet, India</td>
<td>Astec Lifesciences</td>
<td>Only technical</td>
<td>52%</td>
<td>30</td>
<td>Product portfolio expansion &amp; backward integration (intermediates)</td>
</tr>
<tr>
<td>2015</td>
<td>Valagro, Italy</td>
<td>Sri Biotech Laboratories</td>
<td>Mostly formulation</td>
<td>80%</td>
<td>36</td>
<td>Access to high-growth Indian market and potential product synergies</td>
</tr>
<tr>
<td>2014</td>
<td>Nihon Nohyaku, Japan</td>
<td>Hyderabad Chemicals</td>
<td>Mostly formulation</td>
<td>74%</td>
<td>73</td>
<td>Establish a distribution network and manufacturing base in India</td>
</tr>
<tr>
<td>2012</td>
<td>SDS Biotech, Japan</td>
<td>Sree Ramicides Chemicals</td>
<td>Mostly technical</td>
<td>65%</td>
<td>34</td>
<td>Establish a manufacturing / marketing hub in India to service Indian and other export markets</td>
</tr>
<tr>
<td>2011</td>
<td>Coromandel International, India</td>
<td>Sabero Organics</td>
<td>Mostly formulation</td>
<td>73%</td>
<td>87</td>
<td>Product portfolio expansion &amp; diversification, reduction of dependence on subsidy-based business</td>
</tr>
<tr>
<td>2011</td>
<td>Arysta Lifesciences, Japan</td>
<td>Devidayal Sales</td>
<td>Formulation</td>
<td>100%</td>
<td>NA</td>
<td>Access to distribution network in a high-growth market</td>
</tr>
<tr>
<td>2010</td>
<td>Sumitomo Corp, Japan</td>
<td>New Chemie Industries</td>
<td>Mostly formulation</td>
<td>100%</td>
<td>NA</td>
<td>Strengthen operations &amp; expand presence in the Indian market</td>
</tr>
</tbody>
</table>
Strong export outlook driven by a robust policy reforms to accelerate the growth in

India has emerged as a strong exporter of generics for agrochemicals, with exports constituting 45% of the total production. Ability of Indian manufacturers to offer low-cost products while having a large proportion of formulation in the revenue. There are a few players who are more focused on technical products and largely cater to exports market. Global giants such as Bayer, Syngenta, BASF, Dow DuPont, FMC also have a good presence in the domestic market.

Key Players in the Agrochemical Industry:

Agrochemical industry in India has large number of scaled up domestic players. Most of the players tend to play across the value chain and

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>PE Fund</th>
<th>Target’s Segment</th>
<th>Stake</th>
<th>Deal Value (USD mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Parijat Industries</td>
<td>Rabo Equity Advisors</td>
<td>Mostly formulation</td>
<td>N.A</td>
<td>15</td>
</tr>
<tr>
<td>2016</td>
<td>Safex Chemicals</td>
<td>Banyan Tree</td>
<td>Mostly formulation</td>
<td>23%</td>
<td>10</td>
</tr>
<tr>
<td>2015</td>
<td>PI Industries</td>
<td>Cartica Capital</td>
<td>Formulation + CRAMS</td>
<td>4%</td>
<td>50</td>
</tr>
<tr>
<td>2014</td>
<td>GSP Crop Science</td>
<td>Oman India Joint</td>
<td>Mostly formulation</td>
<td>12%</td>
<td>15</td>
</tr>
<tr>
<td>2013</td>
<td>Camson Bio</td>
<td>CLSA Capital</td>
<td>Mostly formulation</td>
<td>20%</td>
<td>10</td>
</tr>
<tr>
<td>2011</td>
<td>Crystal Crop Protection</td>
<td>Everstone</td>
<td>Mostly formulation</td>
<td>9%</td>
<td>30</td>
</tr>
<tr>
<td>2011</td>
<td>PI Industries</td>
<td>Sequoia Capital</td>
<td>Formulation + CRAMS</td>
<td>4%</td>
<td>12</td>
</tr>
</tbody>
</table>

Exhibit 23: List of key private equity transactions in the Indian agrochemicals industry

Exhibit 24: List of key players in Indian agrochemicals industry
Ingredients

Brief Overview of the Market

Ingredients are typically chemicals that lend functional properties such as flavours, fragrance or nutritional benefits to food, beverages, personal care products and pharmaceuticals. Conception of flavours typically happens through a combination of five basic flavours i.e. sweet, sour, salty, butter and savory with simultaneous odor sensations. Fragrances, on the other hand, are typically used for masking, neutralization and alteration of odor for various products, or even creation of odor for otherwise odorless products.

While flavours & fragrances (F&F) and nutraceutical ingredients have different customer mixes and product bases, there is a significant overlap in the R&D, the molecules and some stages of production, and hence, these three segments are better understood in unison.

F&F and nutraceutical ingredients are often manufactured from the same starting blocks which are referred to as base ingredients. A natural extracts player could be supplying extracts and essential oils into the F&F industry as well as extracts and oleoresins to nutraceutical ingredients companies. Similarly, a synthetic ingredient manufacturer could be supplying aroma chemicals to F&F blenders as well as synthetic vitamins/synthetically derived compounds to the nutraceutical value chain.

Broadly, the F&F and nutraceutical value chain has four key stakeholders - (a) raw material suppliers (b) base ingredient manufacturers (c) functional ingredient manufacturers and (d) end-consumer industries. Base ingredients are chemicals used in the F&F or nutraceutical value chain, obtained either from a feedstock using a synthetic process or from naturally occurring spices, herbs, fruits and flowers using an extraction process. These ingredients are then further processed by F&F blenders or nutraceutical ingredient manufacturers to be supplied to FMCG, F&B, and nutraceutical sectors respectively.
A. Base Ingredients:

Base ingredients are further divided into (a) Natural base ingredients, which are derived from spices, herbs or other naturally available crops through a process of extraction, either solvent-based or supercritical, and (b) Synthetic base ingredients which typically start from a petrochemical derivative or derivatives of other raw materials like pine oil, and the final ingredient is arrived at through a series of chemical reactions (as opposed to extraction in the case of natural base ingredients).

In India, natural base ingredients form about 70% of the total market, on account of abundant availability of the requisite raw materials, and synthetic ingredients (aroma chemicals, oleoresins etc.) form a relatively smaller part. India is a market leader in natural ingredients such as spice oleoresins and mint extracts, and is among the top three global suppliers for a number of ingredients. Synthetic ingredient manufacturing has rapidly evolved in India and is largely focused on aroma chemicals. Overall, 60% of total production of base ingredients in India is exported.

Base ingredient market in India was estimated to be USD 3.5 billion as of 2019. Mint extracts, which accounted for ~40% of the market witnessed a challenging environment driven largely by softening of prices, resulting in a degrowth reported by the industry leaders. Adjusting for the degrowth in the mint extract segment, the base ingredient market in India between 2014 and 2019 has grown at a CAGR of 11.3%. The segment is expected to grow at a CAGR of 12.0%, to USD 6.9 billion by 2025.

Competitive Landscape

Base ingredient market largely consists of natural ingredient players. Few scaled up companies have established strong operations in synthetic ingredients, especially focused on fragrance applications.

Exhibit 26: List of key players in Indian base ingredients segment

<table>
<thead>
<tr>
<th>Segment</th>
<th>Domestic Players</th>
<th>Synthetic</th>
<th>Natural</th>
<th>Natural + Synthetic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Synthite</td>
<td>eternis</td>
<td>plant lipids</td>
<td>Oriental Aromatics</td>
</tr>
</tbody>
</table>

B. Flavours & Fragrance blends:

Flavours and fragrances are very critical components of food & beverages, home and personal care products as they create a strong sensorial impact on the customer, contributing to a positive or negative brand recall. F&F blends use a large number of ingredients which can either be natural or synthetic, or a combination of the two.

F&F ingredients typically represent a very small portion of end-products cost, less than 2% in case of flavours and 4-6% in case of fine fragrances. However, these ingredients have a significant influence on the purchase decision and customer satisfaction.

Flavours & fragrances blending is characterized by a wide range of entry barriers, as such high rate of innovation, need for significant R&D investments and an ability to get on the rosters of large customers. This has resulted in Top 4 global players enjoying a market share of more than 70%. Similarly, in India, the F&F market is dominated by the MNCs, with the top 4 global players (Givaudan, IFF, Firmenich and Symrise) constituting over 50% of the market.
Indian F&F market was estimated to be USD 1.4 billion as of 2019, with exports forming almost 12% of the total production. The ratio of flavours and fragrances in the context of Indian market is roughly 50:50. Between 2014 and 2019 the F&F market registered an annualized growth of 14.2%, and it is estimated to grow at a CAGR of 15.0% to reach USD 3.3 billion by 2025.

**Competitive Landscape**

Indian F&F market is fairly consolidated. Top 5 players account for 65% of the F&F market. The F&F market in India is dominated by MNC players, with 4 global majors featuring in the Top 5.

**Key Market Trends**

1. **Natural flavours & fragrances trending in global markets:** Natural-like products that are manufactured employing green processes and using a combination of natural & synthetic feedstock are gaining preference globally. This represents a strong growth opportunity for Indian ingredient manufacturers as India has abundant natural feedstock supply and is the leading manufacturer of many floral and spice extracts.

2. **Strong India focus by MNCs:** India is a key destination for global players. India’s cost competitiveness, strong supply base for natural ingredients, and an access to a large consumption market has attracted strong focus from MNCs.

**Growth Drivers**

1. **Rural penetration of FMCG products:** Rural India is still a largely underpenetrated market for FMCG products. While the overall FMCG market in India has been growing at about 13-14%, rural markets have registered 3-5% higher growth as compared to the urban centers. Both SMEs and large FMCG companies are leveraging this growth opportunity. This will create an increased demand for ingredients market.

2. **Premiumization of personal care products:** With rising income levels consumer appetite for premium experience in rapidly increasing. Segments such as fine fragrances are benefitting from this premiumization trend.

3. **Growing demand for processed food:** Changing lifestyle is resulting in an increased demand for processed food. There is a growing consumer willingness to experiment with new unconventional flavours.

**II C. Nutraceutical Ingredients:**

Nutraceutical ingredients are the active components that impart functional benefits to the nutraceutical formulation. Nutraceutical
Ingredients can be extracted from natural bases (herbs, spices, fruits and flowers) or can be derived synthetically (synthetic vitamins, glucosamine, etc.).

India, by virtue of having an abundance of useful herbs and spices, as well as owning a rich history in Ayurveda and related sciences, has gradually become a meaningful player in the natural nutraceutical ingredients segment.

The Indian nutraceutical ingredients market is in relatively early stages of evolution, with most large companies having emerged over the last two decades. Multiple companies have been able to leverage their strengths around raw material sourcing, process knowledge and R&D to create globally acceptable products and scale up rapidly. However, the domestic market for nutraceutical ingredients continues to be very small.

Indian nutraceutical ingredients market stood at USD 1.0 billion in 2019, with majority of the production being exported to markets in US and Europe. The market has grown at an impressive CAGR of 19.0% from 2014-19 and is estimated to grow at 20.0% CAGR over the next 5 years to reach USD 3.0 billion by 2025.

**Competitive Landscape:**

Nutraceutical industry in India has a few scaled up players and a large number of small players.

### Key Market Trends

1. **Regulatory framework:** Regulatory guidelines for nutraceuticals vary widely throughout the world. FSSAI has taken initiatives to reinforce domestic regulatory framework to comply with international standards. Another important issue is counterfeit nutraceutical products in the domestic market, which needs to be addressed by both companies and regulatory bodies.

2. **Increased requirements for clinical trials and validations:** There is a major push by the Indian Government for clinical validation of ingredients and formulations. The Government, for instance, has recently rolled out a large-scale study on 80,000 subjects to study the efficacy of Giloy based extract in boosting immunity.

### Growth Drivers

1. **Lifestyle changes:** Increasingly busy lifestyles are making it difficult for people to adhere to a balanced meal plan. Nutraceuticals which are easy to carry and consume provide an effective solution for such consumers to address their nutritional needs.

2. **Consumer awareness and aspirations:** Consumers are becoming more and more concerned about chemicals present in medications and their side effects. Nutraceuticals as an enabler of balanced nutrition, eliminating potential need for medication, is gaining consumer attention. People’s aspiration for fitness and appearance is driving demand for products catering to categories, such as bone health and hair loss control.
Dyes and Pigments form the two key segments of the colorants industry. Dyes are soluble in nature and are used to pass color to the substrate. They are commonly used in textiles and leather industry. Pigments are insoluble in nature and form suspension. They are commonly used in paints and coating, plastics and inks. In India, about 70% of the dyes are consumed by the textile industry, and paints and printing ink account for almost 50% of the pigment consumption followed by plastic and textile industry.

Indian Dyes and Pigments market stood at USD 7.0 billion as of 2019. It grew at 7.3% CAGR between 2014 to 2019 period, and is estimated to grow at 10% CAGR to reach USD 12.5 billion by 2025. 35% of Indian production from organized market is exported. Dyes and Dyestuff Intermediates account for about 70% of the market, and pigments constitute the balance.

Dyes are organic i.e. they are derived from hydrocarbons. Dyes are typically classified based on the way they are applied or held in material. Pigments can be organic as well as Inorganic. Exhibit 31 below demonstrates the different types of Dyes and Pigments that are common in industry.

Exhibit 31: Types of Dyes and Pigments

<table>
<thead>
<tr>
<th>Types of Dyes</th>
<th>Types of Pigments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azo Dyes</td>
<td>Inorganic Pigments</td>
</tr>
<tr>
<td>Acid Direct Dyes</td>
<td>Titanium Oxide</td>
</tr>
<tr>
<td>Disperse Dyes</td>
<td>Carbon Black</td>
</tr>
<tr>
<td>Ingrain Dyes</td>
<td>Iron Oxide</td>
</tr>
<tr>
<td>Solvent Dyes</td>
<td>Cadmium Pigments</td>
</tr>
<tr>
<td>Reactive Dyes</td>
<td>Chromium Oxide</td>
</tr>
<tr>
<td>Sulphur Dyes</td>
<td>Other high-performance pigments</td>
</tr>
<tr>
<td>Vat Dyes</td>
<td></td>
</tr>
</tbody>
</table>

Reactive dyes form majority of the market in India. Global pigment industry is dominated by inorganics, whereas, in India organic pigments form majority of the market. The reason being India's import dependency for Titanium Oxide (white) (an inorganic pigment) - which is the largest pigment category. Carbon Black, Iron Oxide, Cadmium Pigments, Chromium Oxide are other key inorganic pigments. Organic pigments can be classified into Azo pigments, Phthalocyanine pigments and other high-performance pigments.

Key Transactions in Ingredients industry

M&A activity in the ingredients space has largely been driven by players trying to increase their presence in value chain and secure raw material supply by backward integrating into base ingredients. Global companies have demonstrated high interest in Indian market to capitalize on cost efficient manufacturing and abundant raw material supply. However, lack of large number of scaled up assets is acting as limiting factor for deal making in this space in the India. Private equity funds have also been attracted to this segment driven by high growth and margin profiles.

Exhibit 29: List of marquee transactions in the Indian F&F and nutraceuticals market

<table>
<thead>
<tr>
<th>Year</th>
<th>Acquirer, Country</th>
<th>Target</th>
<th>Target’s Segment</th>
<th>Stake</th>
<th>Deal Value (USD mn)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Frutarome Israel</td>
<td>Sonarome Flavours</td>
<td>60%</td>
<td>17</td>
<td>Part of growth by acquisition strategy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Entering India and strengthening presence in flavours</td>
</tr>
<tr>
<td>2014</td>
<td>V. Mane Fils France</td>
<td>Kancor Ingredients Base Ingredients</td>
<td>100%</td>
<td>21</td>
<td>Control natural ingredients supply chain, backward integration</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>Firmenich Switzerland</td>
<td>Jasmine Concrete Exports Base Ingredients</td>
<td>40%</td>
<td>5</td>
<td>Acquired 40% stake for securing raw material supply and strengthening naturals supply chain</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Oriental Aromatics India</td>
<td>Camphor &amp; Allied Products Base Ingredients</td>
<td>53%</td>
<td>11</td>
<td>Backward integration into terpene based ingredients</td>
<td></td>
</tr>
</tbody>
</table>

Exhibit 30: List of key private equity transactions in the Indian F&F and nutraceuticals industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Fund</th>
<th>Target’s Segment</th>
<th>Stake</th>
<th>Deal Value (USD mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Privi Organics</td>
<td>Fairfax India</td>
<td>Base Ingredients</td>
<td>51%</td>
<td>75</td>
</tr>
<tr>
<td>2016</td>
<td>Anthea Aromatics</td>
<td>ICICI Venture</td>
<td>Base Ingredients</td>
<td>23%</td>
<td>16</td>
</tr>
<tr>
<td>2014</td>
<td>Akay Flavours &amp; Aromatics</td>
<td>Asian Development Bank</td>
<td>Flavours</td>
<td>17%</td>
<td>6</td>
</tr>
<tr>
<td>2012</td>
<td>S H Kelkar</td>
<td>Blackstone</td>
<td>Flavours and Fragrances</td>
<td>33%</td>
<td>44</td>
</tr>
<tr>
<td>2011</td>
<td>Privi Organics</td>
<td>Standard Chartered PE</td>
<td>Base Ingredients</td>
<td>24%</td>
<td>19</td>
</tr>
<tr>
<td>2010</td>
<td>S H Kelkar</td>
<td>Wayzata Investment Partners</td>
<td>Flavours and Fragrances</td>
<td>33%</td>
<td>21</td>
</tr>
</tbody>
</table>
Dyes and Pigments

Brief Overview of the Market

Dyes and Pigments form the two key segments of the colorants industry. Dyes are soluble in nature and are used to pass color to the substrate. They are commonly used in textiles and leather industry. Pigments are insoluble in nature and form suspension. They are commonly used in paints and coating, plastics and inks. In India, about 70% of the dyes are consumed by the textile industry, and paints and printing ink account for almost 50% of the pigment consumption followed by plastic and textile industry.

Indian Dyes and Pigments market stood at USD 7.0 billion as of 2019. It grew at 7.3% CAGR between 2014 to 2019 period, and is estimated to grow at 10% CAGR to reach USD 12.5 billion by 2025. 35% of Indian production from organized market is exported. Dyes and Dyestuff Intermediates account for about 70% of the market, and pigments constitute the balance.

Classification of Dyes and Pigments

Dyes are organic i.e. they are derived from hydrocarbons. Dyes are typically classified based on the way they are applied or held in material. Pigments can be organic as well as Inorganic. Exhibit 31 below demonstrates the different types of Dyes and Pigments that are common in industry.

Exhibit 31: Types of Dyes and Pigments

Exhibit 31 shows the different types of Dyes and Pigments that are common in industry.

Reactive dyes form majority of the market in India. Global pigment industry is dominated by inorganics, whereas, in India organic pigments form majority of the market. The reason being India’s import dependency for Titanium Oxide (white) (an inorganic pigment) - which is the largest pigment category. Carbon Black, Iron Oxide, Cadmium Pigments, Chromium Oxide are other key inorganic pigments. Organic pigments can be classified into Azo pigments, Phthalocyanine pigments and other high-performance pigments.

Value Chain

The manufacturing process for dyes and pigments is significantly different, and hence the
segment is usually characterized by pure-play dye manufacturers or pure-play pigment manufacturers. Depending upon the type of dye or pigment being manufactured, the feedstock for the same can range from petrochemicals or other bulk chemicals to even minerals in some cases. There are only a few players who operate as standalone intermediate manufactures, and they usually export their produce to meet the intermediate requirements of global players.

Most of the scaled-up players in the industry usually have a fully integrated setup i.e. they have an in-house manufacturing of intermediates, which are then converted into colorants and subsequently sold for final end-use, wherein these colors are imparted on to a substrate. Quite often, paints and coatings are also considered as a part of the dyes and pigments industry; however, given the nature of the end-product which is directly used by end-consumer, the same has not been considered in this report.

**Key Market Trends**

1. **Global majors reducing their focus on this segment:** Global majors, such as BASF and Clariant especially outside Asia, have strategically been de-focusing away from the dyes and pigment segment. This is mainly on account of:
   a. **Lack of technology barrier** - There is very limited room for technology-led differentiation in dyes and pigments segment, which makes it very difficult for global MNCs to compete with low cost manufacturing destinations
   b. **Adverse environmental impact** - Dyes and Pigments manufacturing is a relatively polluting process, which makes it very difficult for these players to comply with the local environmental regulations and policies.

2. **Increased demand for high performance pigments:** End users are increasingly exploring high performance pigments that offer higher durability, increased weather resistance and better effects (e.g. pearlescent).

**Growth Drivers**

1. **Growth of Textile, Paint and Plastic industries:** Textiles, Paint and Plastics account for majority of dyes & pigments demand in the country. While textile is the largest consumer for dyes &...
pigmants in India, the near-term growth for this segment is likely to be driven by the growth in paints (12% CAGR) and plastics (8-10% CAGR) industries. With growing consumerism, and increased demand for sophisticated products in India, these sectors are likely to register strong growth; there by the driving demand for high performance and innovative variants of dyes and pigments.

2. **Realignment of global supply chain following shutdowns in China**: Dyes & Pigments was the hardest hit segment in the environmental crackdown initiated by the Chinese Government a couple of years ago. This led to shutting down of a large number of dyestuffs and intermediates manufacturers in China. This not only resulted in an increase in prices for these products in the global markets, but also resulted in end-users to reevaluate their dependence on China. This has translated into significant gains for the Indian players, a part of which is likely to sustain even after the dust settles down on the impact of the environmental crackdowns.

### Key Players

**Exhibit 33: List of key players in Indian dyes and pigments segment**

<table>
<thead>
<tr>
<th>Segment</th>
<th>MNC Players</th>
<th>Domestic Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyes and Pigments</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Key Transactions

The transaction interest in the Indian dyes & pigments industry has largely been muted Historically, strategic interest in this segment was largely driven by the need for access to low cost manufacturing facilities. The interest from financial sponsors, however, has been low because of the lack of transactable assets in the space and the inability of the players to differentiate themselves based on technology and innovation.

**Exhibit 34: List of key M&A transactions in the dyes & pigments industry**

<table>
<thead>
<tr>
<th>Year</th>
<th>Acquirer (Country)</th>
<th>Target</th>
<th>Target’s Segment</th>
<th>Stake</th>
<th>Deal Value (USD mn)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Americhem</td>
<td>Prescient Color</td>
<td>Masterbatches</td>
<td>100.0%</td>
<td>17.3</td>
<td>▲ Expansion into a high-growth market</td>
</tr>
<tr>
<td>2013</td>
<td>Clariant Switzerland</td>
<td>Plastichemix</td>
<td>Masterbatches</td>
<td>100.0%</td>
<td>21.7</td>
<td>▲ Product portfolio expansion</td>
</tr>
<tr>
<td>2011</td>
<td>V.V. Group India</td>
<td>Kilburn Chemicals</td>
<td>Pigments</td>
<td>100.0%</td>
<td>20.0</td>
<td>▲ Scale and market consolidation</td>
</tr>
<tr>
<td>2009</td>
<td>Huntsman US</td>
<td>Metrochem Industries</td>
<td>Intermediates</td>
<td>100.0%</td>
<td>50.0</td>
<td>▲ Market presence, strengthen intermediates supply</td>
</tr>
<tr>
<td>2007</td>
<td>Rubamin India</td>
<td>J&amp;K Pigments</td>
<td>Pigments</td>
<td>N.A</td>
<td>N.A</td>
<td>▲ To consolidate the acquirer’s position as the leader in Zinc Oxide space</td>
</tr>
<tr>
<td>2006</td>
<td>Huntsman US</td>
<td>Diamond Dye-chem</td>
<td>Dyes</td>
<td>N.A</td>
<td>N.A</td>
<td>▲ Part of acquisition of Ciba’s textile effects and dyes business</td>
</tr>
</tbody>
</table>
Overview of the Market

Personal care products used in daily life such as skin care, hair care, cosmetics, oral care contain a wide of chemical ingredients. Roughly 70% of these chemicals are undifferentiated bulk chemicals such as waxes, solvents etc. but the rest 30% consist of specialty chemicals. These personal care specialty chemicals can be further divided into active and inactive ingredients. Inactive ingredients include polymer additives, surfactants, preservatives and colorants. Active ingredients are responsible for the core functioning of the underlying product and thus, are more critical to the performance of the end product. This section focuses only on the active ingredients, and inactive ingredients have been considered as part of other segments such as surfactants, polymer additives etc.

Personal care chemicals market in India stood at USD 1.0 billion as of 2019. It grew at 15.5% CAGR between 2014 to 2019 period, and is estimated to grow at 15.0% CAGR to reach USD 2.4 billion by 2025. Active ingredients form approximately 40% of the personal care specialty ingredients market, rest 60% is Inactive ingredients.

Key active ingredients include - conditioning agents, UV ingredients, anti-ageing ingredients and exfoliants. Conditioning agents constitute the largest part of active ingredients at 21%, followed by UV ingredients at 16%. Anti-ageing ingredients and exfoliants each account for around 8% of the market, followed by other chemicals. Anti-ageing ingredients and exfoliants are estimated to be the fastest growing chemicals in the personal care chemicals industry.

Value Chain

The personal care chemicals value chain starts with the basic feedstock producer and moves to the ingredients manufacturer, FMCG manufacturer, retailer and finally the consumer. The basic feedstock can be petrochemical derivatives or natural products such as palm oil, palm kernel oil, coconut oil, soy bean oil, rapeseed oil, etc. Personal care chemicals manufacturers have to deal with large base chemical companies as suppliers and FMCG giants as customers. As a result, innovation and differentiation are critical factors for ingredient manufacturers to maintain their market position and financial performance.
Competitive Landscape

Personal care active ingredient market in India is characterized by dominant presence of global companies such as Croda, Clariant and BASF. Leading Indian companies in this space include Atul, Kumar Organics and Rossari Biotech. Large number of Indian companies deal with Inactive ingredients. Active ingredients demand significant investment into R&D and that is the primary reason why the active ingredient space is dominated by MNCs which benefit from their global R&D program. The table below summarizes key players in Indian market

<table>
<thead>
<tr>
<th>MNC Players</th>
<th>Domestic Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLARIANT</td>
<td>Kumar Organic Products Limited</td>
</tr>
<tr>
<td>BASF</td>
<td>Galaxy</td>
</tr>
<tr>
<td>CRODA</td>
<td>Rossari Biotech</td>
</tr>
</tbody>
</table>

Key Market Trends

1. Focus on natural active ingredients: The manufacturers are increasingly focused on establishing strong presence in naturally derived active ingredients in order to reduce the potential side-effects and enhance the acceptability. However, high pricing differential between natural and synthetic products has resulted in popularity of "natural-like" products that use a combination of natural and synthetic ingredients, employing green processes / solvents.

2. Increased personalization of products: Given the heightened sense of individualism amongst consumers, beauty brands across the world are trying to minimize the gap between generic beauty needs and the specific needs of an individual. This has given rise to brands, such as Vichy and Kiehl's adopting a customized approach, wherein they provide online consultations before suggesting a suitable product to the customer. This is translating into an expansion of the number of SKUs created for every product.

Growth Drivers

1. Improved access to drive higher penetration in rural markets: The advent of newer sales avenues for personal care products, through general e-commerce websites (Amazon, Flipkart) and dedicated personal care e-tail platforms (Nykaa, Purplle) have significantly increased consumer awareness and improved access amongst the erstwhile untapped population. This is likely to significantly improve the penetration of personal care products in the high potential rural pockets of the country.

2. Increased consumption and premiumization: Increasing consumption of discretionary and prestige products, driven by increasing proportion of young population with higher spending potential, coupled with growth in organized retail is driving consumption of high-end discretionary products, which in turn is driving demand for highly valued added specialized active ingredients.
Key Transactions

Transaction activity in India in this space has been limited given the lack of scaled up domestic companies.

Exhibit 37: M&A transactions in the personal care chemicals industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Acquirer (Country)</th>
<th>Target</th>
<th>Target’s Segment</th>
<th>Stake</th>
<th>Deal Value (USD mn)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Clariant Switzerland</td>
<td>Vivimed (PCI Division)</td>
<td>Active Ingredients</td>
<td>100.0%</td>
<td>57</td>
<td>Geographical expansion</td>
</tr>
</tbody>
</table>

Exhibit 38: Private Equity transactions in the personal care chemicals industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Fund</th>
<th>Target’s Segment</th>
<th>Stake</th>
<th>Deal Value (USD mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Vivimed Labs</td>
<td>Jacob Ballas, Kitara Capital</td>
<td>PCI, API</td>
<td>25.0%</td>
<td>26</td>
</tr>
</tbody>
</table>
### Emerging themes in the Indian Specialty Chemicals Industry

Transaction activity in India in this space has been limited given the lack of scaled up domestic companies.

#### Key Transactions

<table>
<thead>
<tr>
<th>Year</th>
<th>Acquirer (Country)</th>
<th>Target</th>
<th>Target's Segment</th>
<th>Stake</th>
<th>Deal Value (USD mn)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Switzerland</td>
<td>Clariant</td>
<td>Vivimed (PCI Division)</td>
<td>Active Ingredients</td>
<td>100.0%</td>
<td>57</td>
</tr>
<tr>
<td>2011</td>
<td>Vivimed Labs</td>
<td>Jacob Ballas, Kitara Capital</td>
<td>PCI, API</td>
<td>25.0%</td>
<td>26</td>
<td></td>
</tr>
</tbody>
</table>

Exhibit 37: M&A transactions in the personal care chemicals industry

Exhibit 38: Private Equity transactions in the personal care chemicals industry
The most common method for categorizing the players in Indian specialty chemicals industry has been on the basis of the end-user industries they serve. However, the Indian specialty chemicals industry, over the last few years, has witnessed emergence of business models which cannot be mapped to a single end-user industry.

These players focused on developing a deep expertise in a particular chemistry and developed products that derive applications across a wide spectrum of industries. This was then followed by a conscious drive to identify newer means of monetizing the co-products and by-products in the same value chain, which has helped them create a strong business moat backed by superior manufacturing capabilities and a diversified basket of product offerings.

A. Establishing leadership position in select molecules and chemistries:

Certain players in the Indian specialty chemicals space have focused on expanding into niche molecules/segments, which form a relatively smart part of the business for multi-billion-dollar players and, thus, attract limited competition from them. While these segments offer significant headroom for growth in the Indian context, the market size for these segments is not as attractive for these larger global players to operate in, thereby insulating the domestic incumbents from the threat of new entrants.

A common thread that can be witnessed in the approach adopted by these players includes:

- Focus on 2-3 niche molecules and their derivatives
- Continuous effort on distinguishing through expertise in process chemistry
- Building significant capacities in their target segments
- Investments in complementary legs of the value chain to establish a fully integrated business model

The underlying idea is to establish a diverse customer base spanning across end-user industries, which lends itself to a steady and predictable revenue stream and which is resilient to cyclical downturns in any specific end-user market.

<table>
<thead>
<tr>
<th>Company</th>
<th>Key Molecule of Focus</th>
<th>Global Position</th>
<th>Agro Chem</th>
<th>F&amp;F</th>
<th>Pharma</th>
<th>Polymer Additives</th>
<th>Dyes and Pigments</th>
<th>Personal Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aarti Industries</td>
<td>Benzene chemistry</td>
<td>Among the largest global producers, with 25-40% market share across various products</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Atul Limited</td>
<td>Aromatics</td>
<td>World’s largest manufacturer in its target products</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Vinati Organics</td>
<td>ATBS</td>
<td>Largest global manufacturer with 65% global market share</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Deepak Nitrite</td>
<td>Industrial intermediates</td>
<td>Amongst the top 3 global producers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Laxmi Organic</td>
<td>Diketene derivatives</td>
<td>Amongst the top 5 global producers, and the only producer of Diketene in India</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Clean Science &amp; Technology</td>
<td>Hydroxylation, acylation and alkylation chemistries</td>
<td>Strong focus on green chemistry; leading global players in most of its products</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
B. Contract Research and Manufacturing Services (CRAMS)

The time and cost involved in development of new molecules has been increasing consistently over the past few decades. Launch of new molecules not only requires extensive investment in R&D activities, but also warrants a considerable amount of engineering resources to be able to commercialize and bring new products to the market.

This has necessitated leading global players to outsource parts of their manufacturing activity to strategic partners who can offer stable supplies over a long-term period at competitive prices, while protecting innovator's control over intellectual property rights (IPR).

**Strong record of Indian pharmaceutical players has cemented India's position as a strong player in the global CRAMS industry. Established track record coupled proven process chemistry skills, low cost manufacturing capabilities and a large base of highly qualified and skilled manpower, make India a preferred destination for CRAMS. Also, India's IPR protection policies provide a significant competitive edge over China as strong control over IPR is a critical factor for global innovators.**

Based on growing consolidation in the specialty chemicals industry, CRAMS is likely to emerge as a cost-effective and capital efficient preference for development of new products.

**Exhibit 40: Indicative list of players who have successfully adopted this model**

<table>
<thead>
<tr>
<th>Company</th>
<th>Indicative Customers</th>
<th>Agrochemicals</th>
<th>Pharma</th>
<th>Other specialty chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI Industries</td>
<td>BASF, Bayer, Syngenta, Kumiai Chemical</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Deccan Fine Chemicals</td>
<td>BASF, Syngenta</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Anupam Rasayan</td>
<td>BASF, Bayer, Syngenta</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>OC Specialities</td>
<td>Bayer, Syngenta, DuPont</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Metropolitan Eximchem</td>
<td>Huntsman, Clariant, OG Corporation (Japan)</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
China's strong focus on petrochemicals self-sufficiency has translated into substantial investments in petrochemicals to improve self-sufficiency in feedstock. For example, foreign companies in China paid a corporate tax of 15% and were granted tax breaks that lasted for years, whereas Chinese companies paid a tax of 30% and enjoyed no tax breaks.

Government initiatives to attract foreign investments into the manufacturing sector: While these differential tax incentives for foreign investors were subsequently abolished to create a level playing field between foreign companies and Chinese companies, easy availability of credit and lax environmental norms allowed the industry to flourish, and transformed China into the world's largest manufacturer for a number of industries, including chemicals.

China's emergence as a powerhouse in the global chemical industry:

During the last three decades, China's manufacturing capabilities underwent bigger changes than any other economy in the history, and its chemical industry was one of the primary beneficiaries of these changes. China currently constitutes nearly 36% of the global chemical industry revenue, underlining its influence on chemicals businesses across the globe, and the resulting impact on end-user markets. There are three key enabling factors that contributed to the massive growth in China's chemical industry:

a) Prior to 2008, Chinese government policies had focused on attracting foreign investment through a series of favourable tax and business incentives that enabled low-cost production for exports, leading to an influx of foreign investments into China.

b) While historically, China was predominantly known for its basic chemical products and for its ability to successfully absorb technologies developed by companies in EU & USA, Chinese companies have now gained parity with their western counterparts in many parts of specialty chemicals.

c) China's share in global chemical R&D spending has increased from 9.5% in 2008 to 27.5% in 2018, with China's R&D investment growing at 16.6% CAGR during the period vis-à-vis global R&D Investment CAGR of 5.1%. With an R&D investment of ~USD 14 billion, China was the largest investor in the R&D for the chemical industry in 2018, followed by the European Union.

Furthermore, Chinese Government's decision to open up the petrochemicals sector to private investments is spurring investments by the MNCs and private sector in integrated mega-refining and petrochemical complexes. The share of public sector enterprises in China's ethylene capacity is estimated to decline from 80% in 2018 to 62% in 2025, and that in paraxylene in estimated to decline from 67% to 43% during the same period.
China's emergence as a powerhouse in the global chemical industry

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China currently constitutes nearly 36% of the global chemical industry revenue, underlining its influence on chemicals businesses across the globe, and the resulting impact on end-user markets. There are three key enabling factors that contributed to the massive growth in China's chemical industry:

1. Government initiatives to attract foreign investments into the manufacturing sector:
   a) Prior to 2008, Chinese government policies had focused on attracting foreign investment through a series of favourable tax and business incentives that enabled low-cost production for exports, leading to an influx of foreign investments into China.
      For example - foreign companies in China paid a corporate tax of 15% and were granted tax breaks that lasted for years, whereas Chinese companies paid a tax of 30% and enjoyed no tax breaks.
   b) While these differential tax incentives for foreign investors were subsequently abolished to create a level playing field between foreign companies and Chinese companies, easy availability of credit and lax environmental norms allowed the industry to flourish, and transformed China into world's largest manufacturer for a number of industries, including chemicals.

2. Significant investments in petrochemicals to improve self-sufficiency in feedstock:
   a) China's strong focus on petrochemicals self-sufficiency has translated into substantial capacity additions over the past few years. During 2018-19, China contributed 55% of the total new capacity addition in petrochemical building blocks globally; and it is likely to contribute ~70% of the global capacity addition over the next 5 years.
   b) Furthermore, Chinese Government's decision to open up the petrochemicals sector to private investments is spurring investments by the MNCs and private sector in integrated mega-refining and petrochemical complexes. The share of public sector enterprises in China's ethylene capacity is estimated to decline from 80% in 2018 to 62% in 2025, and that in paraxylene in estimated to decline from 67% to 43% during the same period.

3. Increased investments towards research and development activities in the chemical industry:
   a) While historically, China was predominantly known for its basic chemical products and for its ability to successfully absorb technologies developed by companies in EU & USA, Chinese companies have now gained parity with their western counterparts in many parts of specialty chemicals.
   b) China's rapid advancement in the R&D for chemical industry has been led by private players, who have augmented their efforts in collaboration with government universities. This also helped China improve its self-sufficiency in meeting the speciality chemical requirements of the domestic market.
   c) China's share in global chemical R&D spending has increased from 9.5% in 2008 to 27.5% in 2018, with China's R&D investment growing at 16.6% CAGR during the period vis-à-vis global R&D Investment CAGR of 5.1%. With an R&D investment of ~USD 14 billion, China was the largest investor in the R&D for the chemical industry in 2018, followed by the European Union.

\(^1\) Source: International Energy Forum
\(^2\) Source: CEFIC
Disruptions in China and geopolitical events leading to re-evaluation of the supply chain

China was the fastest growing major chemicals market in the world from 2005-2015 period, led mainly by significant capacity additions and investments by both domestic entities and MNCs. This, however, took a severe toll on its environment, with China being home to some of the most polluted cities in the world in 2015, thereby prompting the Chinese government to implement wide ranging measures for controlling the environmental impact.

Disruptions in the Chinese chemical industry

1. Tightening of financing availability for oversupplied industries such as chemicals:
   a) Ease in availability of credit at affordable costs aided the manufacturers in the capital-intensive chemical industry to undertake huge capital investments for setting up mega-scale plants, which could provide the desired economies of scale.
   b) In 2014, however, China’s main bank supervisor announced that the credit outflow to oversupplied industries would be restricted, and this applied to certain parts of chemical industry as well.
   c) As a result, the eligibility criteria for new credit to industries, such as chemicals became much stricter with higher than average interest rates being charged to chemical manufacturers, hampering their ability to undertake new projects and enhance capacities.

2. Change in stance on environmental protection, leading to shutting down of manufacturing facilities:
   a) Ahead of its 5-yearly Congress Committee meet in October 2017, the Chinese government initiated an unprecedented crackdown on the chemical industry, as a step to battle the rising pollution in Chinese cities.
   b) Following several major chemical incidents across cities, the authorities introduced a host of regulatory changes. These included shifting of chemical production to chemical parks, the tightening of rules for some substances and substance classes, and the introduction of an environmental protection tax.
   c) The government agencies carried out a number of unannounced inspections and shut down manufacturing units which were not in compliance with the stricter environment norms. This impacted 80,000+ factories across the country, with several smaller companies being closed down indefinitely.

Geo-political events impacting China’s position in the global supply chain:

1. Uncertainty created by the US-China trade war:
   a) In June 2018, USA announced that it would impose 25% tariff on USD 50 billion worth of Chinese imports across two phases. Subsequently, China retaliated by announcing a similar levy of tariffs on US imports worth USD 50 billion. Chemicals and plastics comprised almost 40% of the 106 products targeted by China for imposition of tariffs.
   b) Since then, there have been multiple rounds of tariff announcements by both the countries followed by talks of a trade deal in the offing, creating an atmosphere of uncertainty amongst the industry players across the globe.
   c) These events not only impacted the pricing of goods but also affected the capital spending undertaken by chemical majors. Dow, for instance, announced a 9% reduction in its capital expenditure as a step to maintain cost discipline in the light of ongoing trade and geopolitical uncertainties led by events, such as the US-China trade war.
2. COVID outbreak resulting in rethinking of supply chains and a move towards deglobalization:

a) The COVID outbreak in China hit global supply chains hard and spurred sourcing away from the world’s manufacturing hub - a shift that started amid the US-China tariff fight.

b) The shutdowns and supply chain disruptions caused by the coronavirus outbreak globally, drew attention to the ways in which the global specialty chemical/pharmaceutical manufacturers have been dependent upon China (China, for example, constitutes 40% of the global API manufacturing).

These global events have prompted players across the globe to rethink the vulnerability of their supply chains, stemming from very high dependence on any single nation. Increasing number of companies across the globe are actively looking at de-risking their sourcing strategy and adopting a “China, plus one” approach to have a better control over their supply chain, even if that translates into higher sourcing costs.

Unparalleled opportunity for India to seize the whitespace

A combination of favorable events, over the past couple of years, has created a huge whitespace for manufacturers in low-cost manufacturing destinations, such as India, who stand to enjoy substantial gains if they are able to chip off even a fraction of the orders that were previously being sourced from China.

Proven track record of leveraging disruptions in Pharma and IT sector value chains:

India has a demonstrated track record of becoming a strong exporter in various sectors post major events/disruptions.

Pharmaceuticals: When the enactment of the Hatch-Waxman Act (1984) paved the way for a separate FDA approval process for manufacturing of generic drugs, India was able to successfully establish itself as the leading manufacturer of generics, establishing strong capabilities in generic drugs, and eventually contributing nearly 40% of generic drug requirement of USA by 2019. It has also established itself as one of the top 3 manufacturers of APIs, taking away significant market share from China.

IT Services: The Indian IT industry was a major beneficiary of the global Y2K crisis in early 2000s, as the IT industry in India was able to successfully leverage the whitespace created by this crisis. Availability of a highly skilled English-speaking work force, lower service delivery costs and strong process engineering capabilities cemented India's position in the global IT services industry. Over the years, India has become the most favored destination for IT services outsourcing, enjoying close to 55% market share in the global IT services outsourcing industry as of 2019.
Impact of COVID-19 on the Indian Specialty Chemicals Industry

In addition to being a credible sourcing alternate to China, India represents an extremely attractive opportunity for MNCs to strengthen their presence in a high growth market. It represents one of the fastest growing consumption markets in the world, wherein the per capita specialty chemical consumption continues to be significantly low, representing a huge headroom for growth. Growing disposable incomes, rapid urbanization, strong growth in demand for sophisticated products are some of the factors that are likely to drive strong growth in the Indian specialty chemicals industry.

### Exhibit 41: Key Factors that will determine India’s ability to emerge as a critical player in the Global Specialty Chemical industry

<table>
<thead>
<tr>
<th>Factors</th>
<th>India’s capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabling Factors</td>
<td></td>
</tr>
<tr>
<td>✓ Low costs of manufacturing and availability of skilled labour</td>
<td>India continues to be a preferred manufacturing destination for players across the globe given its low cost of manufacturing, cheap labor wage rates and abundant availability of skilled manpower</td>
</tr>
<tr>
<td>✓ Strong Intellectual Property Rights (IPR) protection policy</td>
<td>Strong IPR protection is a vital criteria for global innovators looking to source materials, and India has established itself as a strong proponent of IPR protection</td>
</tr>
<tr>
<td>✓ Track record of producing world-quality output</td>
<td>India’s specialty chemical industry enjoys strong global acceptance, with exports constituting more than 50% of the production in sub-segments, such as flavours, fragrances and nutraceuticals</td>
</tr>
<tr>
<td>Limiting Factors</td>
<td></td>
</tr>
<tr>
<td>☐ Shortage of feedstock supply</td>
<td>Since majority of India’s petrochemical building blocks are channelized towards bulk polymers; the other end-user segments have to predominantly rely upon imports for their feedstock requirements</td>
</tr>
<tr>
<td>☐ Majority of the players across segments are sub-scale</td>
<td>Majority of the specialty chemical manufacturers in India operate at a significantly lower scale, severely impacting their ability to pose a credible threat to their Chinese counterparts</td>
</tr>
<tr>
<td>☐ Gap in enforcement of environmental regulations</td>
<td>While environmental regulations (and enforcement) in India have always been stricter than China, the level of enforcement varies depending upon the location and the size of the enterprise</td>
</tr>
</tbody>
</table>
Section 7

Impact of COVID-19 on the Indian Specialty Chemicals Industry

In addition to being a credible sourcing alternate to China, India represents an extremely attractive opportunity for MNCs to strengthen their presence in a high growth market. It represents one of the fastest growing consumption markets in the world, wherein the per capita specialty chemical consumption continues to be significantly low, representing a huge headroom for growth. Growing disposable incomes, rapid urbanization, strong growth in demand for sophisticated products are some of the factors that are likely to drive strong growth in the Indian specialty chemicals industry.

Factors

India’s capabilities

- Low costs of manufacturing and availability of skilled labour
- Strong Intellectual Property Rights (IPR) protection policy
- Track record of producing world-quality output

Limiting Factors

- Shortage of feedstock supply
- Majority of the players across segments are sub-scale
- Gap in enforcement of environmental regulations

Enabling Factors

- India continues to be a preferred manufacturing destination for players across the globe given its low cost of manufacturing, cheap labor wage rates and abundant availability of skilled manpower
- Strong IPR protection is a vital criteria for global innovators looking to source materials, and India has established itself as a strong proponent of IPR protection
- India’s specialty chemical industry enjoys strong global acceptance, with exports constituting more than 50% of the production in sub-segments, such as flavours, fragrances and nutraceuticals
Indian Specialty Chemicals industry has been on a solid growth trajectory over the past few years, consistently being one of the most resilient segments within the Indian manufacturing sector. The global outbreak of the novel coronavirus (COVID-19), however, led to unprecedented disruptions in the manufacturing activity on account of lockdowns imposed across the country.

While the initial few weeks of lockdown were characterized by supply chain disruptions, the specialty chemicals industry was amongst the first few sectors that returned to normalcy. Several players, who had linkages to essential products were able to resume operations, albeit partially, within the first few weeks of lockdown.

However, the industry continued to face challenges such as non-availability of labour at plant sites, non-availability of manpower for handling/loading of products, non-availability of transport and stock pile-ups at the ports.

On the demand side, some sectors linked to end-use markets such as pharmaceuticals, hygiene and personal care products were largely insulated; whereas other sectors linked to end-use markets such as automotive, construction and textiles experienced a fall in end-user demand on account of global slowdown and lower economic activity. In this section, we have tried to outline the near-term and long-term demand impact across various segments of the specialty chemicals industry.

### Exhibit 42: Supply Side Impact Initial disruptions followed by a quick return to normalcy

<table>
<thead>
<tr>
<th>Factors</th>
<th>March - April</th>
<th>May onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing activity</td>
<td>Players with linkages to essential products continued to operate partially, whereas others mostly resumed operations by mid-April</td>
<td>Almost all the manufacturers resumed operations; however, there have been intermittent disruptions on account of local/regional lockdowns</td>
</tr>
<tr>
<td>Capacity utilisation</td>
<td>While most players were operational, they continued to operate at less than 50% capacity utilisation up to April</td>
<td>Players with linkages to essential products reached pre-COVID levels; whereas others reached capacity utilisation levels of more than 80% by May</td>
</tr>
<tr>
<td>Labour</td>
<td>Players with high dependence on contract labour impacted significantly, especially in Maharashtra &amp; Gujarat belt</td>
<td>Certain challenges due to spread of virus in rural areas; but overall labour related challenges were largely under control by May</td>
</tr>
<tr>
<td>Raw materials</td>
<td>Restricted trade flows and lower production in China led to supply shortages for some players; sharp appreciation of dollar led to higher costs</td>
<td>Restoration of normalcy in China coupled with opening up of trade flows eased out the raw material supplies</td>
</tr>
</tbody>
</table>

While the supply chain disruptions normalized in a couple of months, there were a couple of factors which are likely to affect India’s competitiveness over the near term:

- **Inability to leverage declining crude prices:** A country-wide shutdown led to a complete halt to the international trade activity. So while the global crude oil prices declined in April, the manufacturers in India couldn’t buy at cheaper prices, while their global counterparts stocked up on raw material at competitive prices.

- **Export Disruptions:** India was the only country to have imposed a complete lockdown on manufacturing services, especially for chemicals sector, which impacted the shipments from India for a few weeks; thereby impacting India’s perception as an all-weather sourcing destination.

### Demand Side Impact: Varying levels of impact for different segments

Given the diverse end-use applications for specialty chemicals, the demand side impact of COVID will not be same for all the players. From a short-term perspective, while a few segments got impacted negatively, there have also been a couple of outperformers over the past few months. So, while the revenue and profitability declined in Q4FY20 and Q1FY21, we believe that the trend will start reversing from Q2FY21 onwards. As the global supply chains realign and customers increasingly look to develop a ‘China, plus one’ strategy; we believe that most of the segments in the specialty chemicals industry are likely to emerge as stronger than before from a long-term perspective.
disruptions in the manufacturing activity on (COVID-19), however, led to unprecedented. The global outbreak of the novel coronavirus products were able to resume operations, albeit. Several players, who had linkages to essential. competitiveness over the near term: first few sectors that returned to normalcy. characterized by supply chain disruptions, the manufacturing services, especially for. to have imposed a complete lockdown on. sourcing destination. impacting India's perception as an all-weather. chemicals sector, which impacted the. to the international trade activity. So while the. country-wide shutdown led to a complete halt. local/regional lockdowns. levels; whereas others reached capacity utilisation levels of. there have been intermittent disruptions on account of. non-availability of labour at. challenges such as non-availability of labour at. plant sites, non-availability of manpower for. handling/loading of products, non-availability of. use markets such as automotive, construction. insulated; whereas other sectors linked to end- use markets such as pharmaceuticals, hygiene. transport and stock pile-ups at the ports. Restoration of normalcy in China coupled with opening up of. Certain challenges due to spread of virus in rural areas; but. levels; whereas others reached capacity utilisation levels of. more than 80% by May. Financial Performance and Share Price Performance
As highlighted below, the specialty chemicals in industry has performed much better during the COVID period as compared to the other parts of the manufacturing sector. We believe that this disparity in financial performance is likely to continue over the near term, as the specialty chemicals industry continues to outperform other sectors backed by strong tailwinds in domestic as well as global markets.

Exhibit 43: Overall Impact on Indian Specialty Chemical Sub-Segments

<table>
<thead>
<tr>
<th>Segment</th>
<th>COVID Impact</th>
<th>Benefit from supply chain realignment</th>
<th>Key Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flavours &amp; Fragrance</td>
<td>Positive</td>
<td></td>
<td>Surge in demand for flavors (packaged foods) as well as fragrances (sanitizers and soaps) has benefitted the segment.</td>
</tr>
<tr>
<td>Personal Care Chemicals</td>
<td>Positive</td>
<td></td>
<td>Change in behavioral patterns resulting in an increased demand for hygiene products, such as sanitizers and soaps.</td>
</tr>
<tr>
<td>Nutraceutical Ingredients</td>
<td>Positive</td>
<td></td>
<td>Increased health awareness and strong preference for preventive care likely to drive demand for nutraceuticals.</td>
</tr>
<tr>
<td>Surfactants</td>
<td>Positive</td>
<td></td>
<td>Increased demand for disinfectants, cleaning agents and detergents to support demand growth over near term.</td>
</tr>
<tr>
<td>Agrochemicals</td>
<td>Neutral</td>
<td></td>
<td>Largely insulated from COVID impact given limited disruption in agricultural activity, and good monsoon outlook for the year.</td>
</tr>
<tr>
<td>Polymer Additives</td>
<td>Neutral</td>
<td></td>
<td>High demand from packaging segment, which is partially offset by lower demand from automotive and industrial applications.</td>
</tr>
<tr>
<td>Dyes and Pigments</td>
<td>Neutral</td>
<td></td>
<td>Likely to benefit over the short-term from shutdown of dye intermediate facilities in China.</td>
</tr>
<tr>
<td>Water Chemicals</td>
<td>Neutral</td>
<td></td>
<td>Adverse impact of decline in industrial activity to be partly offset by increased demand for water disinfectants.</td>
</tr>
<tr>
<td>Textile Chemicals</td>
<td>Negative</td>
<td></td>
<td>Demand is likely to be muted over the near term given the headwinds in end-use market.</td>
</tr>
<tr>
<td>Construction Chemicals</td>
<td>Negative</td>
<td></td>
<td>Decline in construction activity negatively impacted the demand over the near term.</td>
</tr>
</tbody>
</table>

Financial Performance and Share Price Performance

As highlighted below, the specialty chemicals in industry has performed much better during the COVID period as compared to the other parts of

Exhibit 44: Impact on Revenue & Profitability in Q4FY20 and Q1FY21 financial performance

<table>
<thead>
<tr>
<th></th>
<th>Q4 FY20</th>
<th>Q1 FY21</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top 20 Specialty Chemical Players</td>
<td>3.2%</td>
<td>-8.3%</td>
</tr>
<tr>
<td>Manufacturing Companies in NIFTY50</td>
<td>-5.4%</td>
<td>-33.3%</td>
</tr>
<tr>
<td><strong>EBITDA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top 20 Specialty Chemical Players</td>
<td>2.9%</td>
<td>-6.4%</td>
</tr>
<tr>
<td>Manufacturing Companies in NIFTY50</td>
<td>-15.3%</td>
<td>-42.4%</td>
</tr>
</tbody>
</table>
Investors continue to remain buoyant about the strong growth outlook for the specialty chemicals industry in India. Rossari Biotech, the first IPO to hit the market post the COVID outbreak received a stellar response, with a listing premium of ~58% to its issue price. The stock continued to trade at 1.8x the issue price 2 months post-listing, underlining the continued confidence of investors on the long-term growth story of the Indian market.

As highlighted above, the specialty chemicals industry has demonstrated its resilience over the past few months. However, for India to retain its advantage and strengthen its position in the global supply chain; it is imperative that:

a. Government continues to focus on improving the ease of doing business in India and provides the adequate policy support by way of necessary incentives for the sector

b. Private players step up the investments towards R&D activities and towards development of local manufacturing capabilities in order to reduce their dependence on overseas markets, such as China

c. All stakeholders join hands to act responsibly and ensure that the industry continues to be cognizant of its impact on the environment be it in terms of reduction of carbon footprint, reduction of energy consumption, conservation of natural resources like water or minimisation of effluents and wastes that are discharged

<table>
<thead>
<tr>
<th>Shareholder Returns</th>
<th>Peak Impact (01 Jan to 31 Mar)</th>
<th>Recovery (01 Apr to 31 Aug)</th>
<th>Overall (01 Jan to 31 Aug)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 20 Specialty Chemical Players</td>
<td>-19.8%</td>
<td>59.2%</td>
<td>27.6%</td>
</tr>
<tr>
<td>NIFTY50</td>
<td>-32.2%</td>
<td>39.0%</td>
<td>-5.8%</td>
</tr>
</tbody>
</table>

This superior performance of the specialty chemicals industry is India has also been reflected in the shareholder value creation by the leading players in the industry vis-à-vis the overall performance of the index.

Exhibit 45: Shareholder returns in specialty chemicals vs. NIFTY
Investors continue to remain buoyant about the strong growth outlook for the specialty chemicals industry in India. Rossari Biotech, the first IPO to hit the market post the COVID outbreak received a stellar response, with a listing premium of ~58% to its issue price. The stock continued to trade at 1.8x the issue price 2 months post-listing, underlining the continued confidence of investors on the long-term growth story of the Indian market.

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- Private players step up the investments towards R&D activities and towards development of local manufacturing capabilities in order to reduce their dependence on overseas markets, such as China.
- All stakeholders join hands to act responsibly and ensure that the industry continues to be cognizant of its impact of the environment be it in terms of reduction of carbon footprint, reduction of energy consumption, conservation of natural resources like water or minimisation of effluents and wastes that are discharged.
I. Improving the 'Ease of Doing Business (EODB)' in India for Chemical Companies

While India's EODB ranking has improved over the years, with a global logistics performance index (LPI) rank of 42\(^2\), India's trade and transport infrastructure continues to rank behind smaller Asian counterparts, such as Malaysia and Thailand. This not only impacts the operational costs for companies but also impacts India's desirability as an investment destination and an export hub.

a. Infrastructure Development:

- One of the most critical elements for ensuring growth of the chemicals industry is the provision of adequate power, water and energy, which can enable uninterrupted production, safe transportation, proper storage of goods and their exports
- This needs to be further supported through development and maintenance of waste-water treatment and solid waste disposal facilities adjacent to key chemical manufacturing clusters, in order to ensure that environmental impact is not compromised at the cost of growth

b. Reducing the time required for setting up new facilities:

- The Government should consider adoption of faster registration and clearance processes for companies that meet globally accepted impact assessment initiatives as Global Reporting Initiative (GRI), Together for Sustainability (TfS), Carbon Disclosure Project (CDP), Responsible Care, ISO 14001, and ISO 45001 among others
- The Government, in partnership with the private sector, should work upon creation of an all-India mapping of various linkages impacting the chemical sector. This could include mapping of ports and refineries to pipelines, linkages of factories to the common effluent treatment plants, power, utilities etc., which can serve as a ready reckoner for any domestic or foreign entity looking to set up a greenfield project

II. Stronger Focus on Research & Development to Improve India’s Competitiveness

As per Economic Advisory Council's survey in 2019, India's Gross Expenditure on Research & Development (GERD) is 0.7% of GDP vis-à-vis that of USA at 2.8% of GDP and China at 2.1% of GDP.

One of the key factors for India being a laggard in R&D expenditure is the secondary role played by the private sector in the Indian R&D Ecosystem. Provision of incentives to the private sector can be one of the ways for boosting R&D investments, and following are a couple of ways in which the same could be addressed.

a. Tax Incentives for Private Sector Entities

- In order to keep the private sector enthused about investments in R&D, the Government should consider reinstatement of the weighted tax deduction under section 35 (I) (ii), section 35 (2AA) and section 35 (2AB) of the Income tax Act at the previous levels
- At the same time, the sunset clause for these deductions should be removed at least for a period of 5 years, as this would encourage investments into the R&D activities, which is imperative for India's ability to become self-reliant in the chemicals sector

b. Technology Upgradation Fund (TUF)

- Creation of a TUF for the Specialty Chemicals sector through which tax
deductions, investment allowances, subsidies, accelerated depreciation etc. can provided on acquisition of plant and machinery.

ii. Additional incentives can be offered depending on the scale of investment for the industry sponsored R&D initiatives and the set-up of dedicated in-house R&D facility. This would encourage both - new entrants as well as incumbents to undertake the necessary capital expenditure needed for augmenting India's capacity especially in sectors, which are heavily reliant on imports.

c. Dedicated Skill Development Program:
   - The specialty chemical industry in India struggles with limited local capability to develop new products and technologies. It could be helpful to introduce sector-specific skill-development programs (for example, training in process engineering) in partnership with institutes, such as IITs and ICT, Mumbai.

III. Improving India's Feedstock Supply and Ensuring Self-sufficiency in Petrochemical Intermediates:

a. Expediting the implementation of PCPIR:
   - India's Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIR) policy has not taken off as expected. Of the four PCPIRs announced in Gujarat, Andhra Pradesh, Odisha, Tamil Nadu, only the PCPIR in Dahej, Gujarat has received meaningful investment from industry players.
   - The Government will need to adopt a more pro-active role in implementation of the remaining PCPIRs. This may also entail provision of a single window clearance for all investments in PCPIRs and announcement of favorable taxes and incentives (for a timebound period) in order to attract FDI investments, which could help expedite the development of these regions.

b. Setting up Dedicated Chemical Parks for Downstream Users:
   - India should consider development of integrated chemicals parks, on the lines of the ones developed in Belgium, Frankfurt, Singapore and China.
     - A lot of the usual challenges and costs associated with the transportation and disposal of chemicals in the Indian context could be addressed through these integrated parks, which entail development of a common petrochemical infrastructure of high-pressure pipelines, water treatment facilities and effluent treatment plants.
     - At the same time, this would help match feedstock availability with downstream users, who have to currently rely upon imports for meeting their intermediates requirements.

c. Encouraging Private Sector Investments in Petrochemical Intermediates:
   - India is heavily dependent on imports for petrochemical intermediates, and production of these intermediates entails significant capital expenditure.
   - The Government should set up a dedicated technology upgradation fund, to incentivize private sector entities for making capital investments in setting up of large-scale plants for manufacturing of critical petrochemical intermediates, which are currently being imported.

d. Production linked Incentive for Critical Intermediates:
   - Indian Government should consider introduction of a production linked...
Incentive (PLI) scheme specifically targeted towards manufacturing of chemical intermediates, which are currently being imported in large quantities from countries such as China.

- This scheme can provide a significant boost for private sector entities to create the required infrastructure in India, thereby reducing their manufacturing costs as well as their dependency on other countries for critical intermediates.

IV. Adopting a 'Growth with Care' approach

a. Health and Safety Related Guidelines & Regulations:

- Expediting the formulation and implementation of Chemical (Management & Safety) Rules with the objective to ensure a high level of protection of human health and the environment impacted by the use of chemicals.

- The aim of these rules should not only be to ensure protection of human health and environment from chemicals, but also to promote innovations in sustainable and safer ways of manufacturing, transporting, usage and disposal of chemicals. This will also enhance the credibility of the Indian specialty chemicals sector in the global market landscape.

b. Incentives to Promote Environmental protection:

- The Government should create the right incentives for promoting adoption of environment-friendly manufacturing practices. One of the incentives that could be effective is fast-track environmental clearance for brownfield expansion projects undertaken by approved manufacturing units.
Abbreviations | Description
--- | ---
API | Active Pharmaceutical Ingredients
B2B | Business-to-Business
B2C | Business-to-Consumer
BPCL | Bharat Petroleum Corporation Limited
CAGR | Compounded Annual Growth Rate
CRAMS | Contract Research and Manufacturing Services
EU | European Union
F&F | Flavours & Fragrances
FMCG | Fast Moving Consumer Goods
GAIL | Gas Authority of India Limited
GDP | Gross Domestic Product
HPCL | Hindustan Petroleum Corporation Limited
ICT | Institute of Chemical Technology, Mumbai
IFF | International Flavours & Fragrances
IIT | Indian Institute of Technology
IOCL | Indian Oil Corporation Limited
M&A | Mergers & Acquisitions
MNC | Multinational Corporation
ONGC | Oil and Natural Gas Corporation
R&D | Research & Development
REACH | Registration, Evaluation, Authorization and Restriction of Chemicals
RIL | Reliance Industries Limited
UV | Ultraviolet
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Avendus Capital’s investment banking arm has a prolific track record in the specialty chemicals industry, having closed 5 M&A and PE transactions in this space in the last 5 years, and authored multiple reports on this sector in the recent past.

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### Authors of the report

**Koushik Bhattacharyya**  
Director & Head - Industrials  
Investment Banking  
Avendus Capital  
koushik.bd@avendus.com

**Saumak Mitra**  
Assistant Director -  
Chemicals & Petrochemicals  
FICCI  
saumak.mitra@ficci.com

**Punit Sanganeria**  
Vice President  
Investment Banking  
Avendus Capital  
punit.sanganeria@avendus.com

**Samidha Hasija**  
Research Associate  
Chemicals & Petrochemicals  
FICCI  
samidha.hasija@ficci.com

**Amol Deorukhakar**  
Associate  
Investment Banking  
Avendus Capital  
amol.deorukhakar@avendus.com
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