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A Saffron Media Publication
Vol. 15, Issue 13, Pages-44

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Specialty chemicals have a wide range of effects

DR SANJAY AGARWAL

THE chemical sector is critical to a country's industrial and agricultural development. It produces raw materials for various downstream industries, including papers, paints, textiles, soaps, and detergents. This industry serves a wide range of end-use application industries, with approximately 80,000 products. In India, the industry employs more than 2 million people.

Sustainability and green chemistry, such as decreased carbon footprint and improved raw material supply, are priorities for top specialty chemical firms. The market for specialty chemicals has been growing in various applications, which has helped raise the overall market in multiple areas. The main market growth driver is the growing demand from end-user sectors such as food, textiles, and vehicles.

An Overview

Specialty chemicals are chemical products with a wide range of effects and are used in various industries. Automotive, aerospace, food, cosmetics, agriculture, manufacturing, and textiles are among the industries that rely extensively on it. There could be a formulation or a single chemical entity whose chemical composition impacts the final product. The major distinction between specialty chemicals and commodity chemicals is that specialty chemicals are manufactured with substantial research and development. Unlike commodity chemicals, which have dozens of applications, they have only one or two core applications.

Personal care ingredients, dyes and pigments, agrochemicals, polymer additives, water chemicals, textile chemicals, and application-driven segments are some of the subcategories of specialty chemicals, depending on their usage in the end-user industry. These are the most important components of the specialty chemical industry, accounting for more than 80% of the total market. The worldwide chemicals market was predicted to be over US\$4.0 trillion, indicating a rising industry. Commodity chemicals account for 80% of the worldwide chemical industry, with specialty chemicals accounting for 20%. Specialty chemicals differ from commodity chemicals in that they require more comprehensive product R&D and innovation, which often translates to higher margins, profitability, and lower Capex.

From 2014, the Indian specialty chemicals sector grew at a CAGR of roughly 11% and is predicted to increase at a CAGR of 12% in the next five years. It is too fragmented, with only a few competitors in the sub-segment, such as UPL, the sole domestic specialty chemical firm with net sales of over \$1 billion and a global manufacturing network.

Specialty chemicals importance all across the nation

The size of a company's operation is also a key differentiator across sub-segments because it allows them to take a larger piece of the customer's cash. Customers worldwide require their suppliers to follow global compliance standards, which creates a considerable entry barrier for scaled-up businesses in the industry.

Chemicals are essential to life. In truth, the relationship between the genesis of life and chemicals is a long-standing one. Organic, inorganic, and physical chemistry are all branches of classical chemistry, but organic is the most influential to our way of life.

Organic compounds have a wide range of applications in human ecology. Whether derived from plants or synthesised, the majority of organic chemicals are sold in their natural chemical makeup and are referred to as commodity chemicals. Apart from such common occurrences, situations arise that necessitate more affirmative chemical requirements to address existing functional shortcomings. Hence performance must take precedence over basic chemical character stickiness or, in plain terms, composition. The revised composition favours the improved utility.

Specialty chemicals have been designed and given a new name to such generated substances.

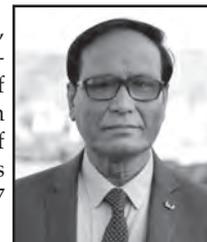
As a result, specialty chemicals can be defined as a chemical generated under strict control circumstances with a specific formulation for improved function or performance.

Specialty chemicals are used in various applications, from agrochemicals to cosmetics, construction chemicals to surfactants. The production of specialty chemicals is a little more complicated. The majority of the producers are based in Europe or the United States, and Asian nations such as China, Japan, and India are now on the rise. The specialty chemicals market is booming, with a 2.7 per cent increase from 2007 to 2011, totaling \$576.55 billion in 2011. Polymer, building chemi-

cals, electronic chemicals, and flavours, which account for around 36% of the market, have seen even faster growth. Growth of 3-3.5 per cent each year is predicted between 2017 and 2021.

In the contemporary environment, chemicals are a major indicator of a country's economic development. As a result, a country will fall behind if it cannot meet chemical demand, development, and consumption. The brighter side of this industry's growth also faces several severe and legitimate challenges that must be addressed and handled. One of the primary concerns is environmental protection, carbon reduction, and raw material supply chain.

Despite all of this, there is a true potential for growth and opportunities in the specialty chemicals market, currently valued at \$700 billion. There are signs of China overtaking this market and increased production in India, Japan, and emerging producers in the Middle East, Africa, South and Central America, and Eastern Europe, and the future is undoubtedly bright. However, a balance between industrial



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Rising growth rate portends a bright future

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and environmentally friendly formulations is still required.

Specialty chemical manufacturers

With a variety of specialised chemical formulations, this business requires additional features such as batch processing processes, which are composite and include various components such as mixing, controlling chemical reactions, crystallisation, drying, and packing.

BASF, Akzo Nobel, Lubrizol, Ablemaine, and Ferno Corporation are just a few well-known companies. Several Indian companies are now publicly traded, and organisations such as the IS-CMA (Indian Specialty Chemical Manufacturers' Association) exist. PI Industries (agrochemicals), Sharda Cropchem, Pidilite, and Aarti Industries are the leading Indian firms (dyes and pigment). All of them have seen a 20% increase in sales.

There are around 1,300 specialty chemicals firms in the United Kingdom, with combined revenue of more than US\$15 billion. Specialty chemicals are still in transition, and their per-kg costs are greater than commodity chemicals. It is defined by a high level of product technology and low capital intensity.

Sustainability: Green character dependence

Ecology is now at the forefront as a parallel cofactor for industry's growth and long-term survival; a balance is required, and environmental rules must be upheld. A Green Zone must be observed for environmentally friendly processing and products that emit no pollutants into the

air or water. Specialty chemicals must consider renewable sources, fermentation, and the usage of a specific bacterium capable of converting co-containing gases to chemicals through metabolic processes.

Problems and solutions

It's important to remember that specialty chemicals are low-volume goods that rely on a robust basic chemicals sector to stay afloat. Focussing solely on specialty chemicals will not be enough to keep the business afloat, as it requires considerable spending on raw material imports. The goal of the specialty chemicals sector is to add value to end-products, which comes at a high expense in terms of hiring bright workers and a strong R&D driver.

Without a clear ruling on commodification regulations and an effective sales and marketing plan, the industry will be handicapped. A specialty chemical requires a reliable IT system that allows quick laboratory computations to discover the optimal formulations. To avoid such occurrences, more emphasis must be placed on quality, safety, environmental health, cost considerations, and cost-effectiveness.

Future of the Specialty Chemicals

This industry's rising growth rate portends a bright future. The addition of new participants from Asia, Africa, South America, and the Middle East increases the competition's difficulty, especially when compared to introducing new technologies and significant improvements in performance. With the whole market reaching \$900, the

growth rate, which was well below 3.1 per cent a decade ago, is rising above it. Electronic chemicals, polymers, and food additives are all growing in popularity. While North America, Western Europe, and Japan still account for more than a third of the market, China, India, and a few other countries are vying for a better position.

Conclusion

Specialty chemicals require the same level of attention as neonates, who require unique formulation for optimal health and growth. Even though the sector is 150 years old, it has progressed faster in the previous 50 years. Many countries' economies have improved because of the added benefits of like and utility associated with this industry. As a result, more attention should be placed on feedback mechanisms and the ability to adapt to changing lifestyles.

There are various obstacles, but the industry can overcome them with certain corrective strategies, such as maintaining a green perspective and an effective raw material supply chain and keeping a close eye on the market. A balancing link exists between the involvement of numerous countries in manufacturing and expanding consumption, which is beneficial to future sustainability. Stock punchers are leaving pharma in droves to pursue specialty chemicals, creating a new mega-bagger breed. In a nutshell, this industry receives high marks in coming days as well with scopes of growth. ○

(The author is leading pharmaceutical consultant)

Optimise relatively complex supply chains

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lier than in the past, even for new molecular entities and patent-protected medications.

Because of the essential procurement and operations to satisfy cost of goods targets, as well as marketing and sales needs to successfully launch novel chemical entities, pharmaceutical companies are under increasing pressure. As a result, they must collaborate more closely with their suppliers to develop creative solutions much earlier in the drug life cycle in order to reach the difficult pricing points and optimise the relatively complex supply chains.

How do you envision the contract pharmaceutical development and manufacturing market changing in the next five years?

To stay competitive, optimise and balance their portfolio, and benefit from additional synergies, a critical scale may be required. It will be necessary to have a greater worldwide presence (i.e., marketing and production assets in different parts of the world to balance currency risks

whilst also having more flexibility to stay close to local developing markets). Diversification may also be reconsidered; pharmaceutical fine chemical firms, for example, might grow into agro fine chemicals or other industry categories. These pharmaceutical fine chemicals companies may be acquired by a larger corporation, or they may add a second or third market offering to their portfolio, each with its own business cycle.

The general idea for the future development of the fine chemical industry:

Fine chemicals are currently being subdivided at an increasing rate, with production capacity, output, varieties, and manufacturers all increasing. Despite this, China's fine chemical products have a low overall technical level when compared to developed countries with a longer history of the chemical industry. There is still a gap between the fine chemical industry's core technology and the international advanced level. Heavy performance, functionalisation, and a high reliance on value-added fine chemical im-

ports are still prevalent.

Taking on the industry's major issues in terms of safety, environmental protection, high efficiency, and high-end development, starting with the creation of a new and efficient technology system and achieving source innovation, integrating industrial technology innovation resources, and leading the gathering of scientific and technological resources to beneficial enterprises;

Improve the development and invention of typical chemical goods, as well as the clean manufacture of whole sets of processes; To thoroughly improve technological innovation capabilities, create an innovation system that is enterprise-centered, market-oriented, and strongly connected with production, education, and research. Promote industrial restructuring and product upgrading, as well as the growth of my country's fine chemical industry from a small to a large one. ○

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