

ADSORBENTS & DESICCANT MANUFACTURERS

Industry Outlook

THEINDUSTRYOUTLOOK.COM

AUGUST, 2023

JIGNESH PATEL
CO-FOUNDER & CEO

SAHAJANAND INDUSTRIES LIMITED

THE MARKET LEADER HAVING LEGACY OF
MORE THAN 40 YEARS IN MANUFACTURING
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EDITOR'S NOTE

Ensuring Moisture Control, Gas Purification, & Quality Maintenance

The desiccant and adsorbent market in India is experiencing steady growth driven by a range of industries that rely on these materials for moisture and humidity control, as well as other applications such as gas purification and chemical processing. The pharmaceutical sector, in particular, requires stringent moisture control to maintain the quality and shelf life of drugs and medical products. The electronics industry also heavily relies on desiccants to prevent moisture-related damage to sensitive components. The food and beverage industry is another significant consumer of desiccants and adsorbents. These materials help extend the shelf life of food products by reducing moisture content, thus preventing spoilage and maintaining product quality. This is especially important in a country like India with a diverse range of climatic conditions. In addition to moisture control, desiccants and adsorbents are used for gas separation and purification in various industrial processes. They are employed to remove impurities, contaminants, and moisture from gases, making them crucial in industries like petrochemicals, oil refining, and natural gas processing.

The push for environmentally friendly solutions has also led to the development of bio-based and reusable desiccants, catering to the increasing sustainability concerns of industries. However, challenges remain, including the need for education and awareness about the benefits of using desiccants and adsorbents, especially among small and medium-sized enterprises. Going forward, the desiccant and adsorbent market in India is poised for growth as industries increasingly recognize the importance of moisture control, gas purification, and quality maintenance in their processes and products.

In this issue, we acquaint you with the top companies in this domain. After studying the industry landscapes in-depth, Industry Outlook has zeroed in on the top companies that have excelled in the field with their meticulous approach. Having proven their dedication in order to meet the customer expectations in an end-to-end manner, these companies have stood out from the crowd.

We look forward to receiving your feedback and suggestions.

Sudhakar Singh
Managing Editor
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IndustryOutlook TOP 10 ADSORBENTS & DESICCANT MANUFACTURERS - 2023

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NATURAL GAS TRADING VOLUMES AT IGX JUMPED 20 PER CENT IN JULY 2023



An associate company of the Indian Energy Exchange (IEX), Indian Gas Exchange (IGX) said today that it exchanged 2,723,350 MMBtu of gas in July 2023, a 20 Percentage year-over-year (YoY) increase. The volumes surged as a result of purchasers' heightened interest in spot purchases during a global reduction in petrol prices.

The month saw 65 trades completed in total. The Daily and Weekly contracts saw the most trades executed 20 each followed by the Monthly and Fortnightly contracts, which saw 18 and 5 trades, respectively.

Suvali was the busiest delivery location for free market petrol, and Gadimoga was the trading hub for domestic petrol with a ceiling price. Dahej, Mhaskal, KG Basin, Bhadbhut, and Ankot were additional trading delivery sites.

The exchange traded gas flows for the month totaled 1,795,100 MMBtu. For July 2023, the Gas Index of India (GIXI) was Rs 866/\$10.6 per MMBtu, down 2 Percentage from the previous month. During the month, IGX exchanged 2,288,450 MMBtu of domestic gas at a below-ceiling price of Rs 844 (volume weighted average price). [ln](#)

APRAAVA ENERGY SECURES 9,120 CR FUNDING FOR RENEWABLE ENERGY PROJECTS FROM REC & PFC



A Memorandum of Understanding (MoU) was recently signed between Apraava Energy, an integrated energy solutions provider, and the Rural Electrification Corporation (REC) and the Power Finance Corporation (PFC). The MoUs are expected to give Apraava financial support in the amount of Rs 9,120 crore (\$ 1.1 billion) for their forthcoming transmission, advanced metering infrastructure (AMI), and wind projects in India.

The MoUs were signed at the Green Finance Summit, which coincided with the Clean Energy Ministerial (CEM) and the Ministerial of the Energy Transition Working Group (ETWG). On July 21, 2023, the Summit was held in Goa and coincided with India's G20 Presidency.

Rajiv Ranjan Mishra, the managing director of Apraava Energy, responded to the recently created agreements by saying that the alliance with REC and PFC would support the business's continuous expansion and enable them to achieve upcoming sustainability targets. Apraava has increased the scope of its operations in recent years to incorporate enhanced metering and transmission. In the near future, the company intends to further develop its low-carbon portfolio and investigate fresh market opportunities like non-generation and customer-focused energy businesses. [ln](#)

WAAREE ENERGIES RAISES 1,000 CRORE IN EQUITY FUNDING



Manufacturer of solar panels Waaree Energies reported raising nearly Rs 1,000 crore in a second round of equity finance sponsored by investment firm ValueQuest. The cash will be used to add another 6 GW of capacity expansion to the existing 12 GW, according to the official press release.

"The extra 6 GW capacity will be used to produce solar ingots, wafers, cells, and modules. In addition to the PLI Tranche II award of Rs 1,923 crore from the Central government, this equity investment was made, it was said.

The company also intends to implement backward integration in the production of solar cells with a 5.4 GW capacity. It will be able to produce 20 GW of modules, 11.4 GW of cells, and 6 GW of wafers during the next two years.

"We believe that this money will help us grow, increase our market share, and promote positive change in the shift to renewable energy. Hitesh Doshi, Chairman & Managing Director at Waaree Energies, stated, "We appreciate the continuous support from ValueQuest. Waaree Energies had previously raised an initial round of funding for around Rs 1,040 crore from a variety of investors, including as family offices. ||

ONGC PLANS OIL- TO-CHEMICAL PLANTS IN PIVOT TOWARDS ENERGY TRANSITION



ONGC, plans to build two oil-to-chemical plants in India to transform crude oil directly into high-value chemical products as it gets ready for the global energy shift, according to chairman Arun Kumar Singh. One of the main sources of energy is crude oil, which businesses like ONGC extract from underground reservoirs and the seabed. In oil refineries, it is processed to create jet fuel, diesel, and petrol. Companies all around the world are exploring for innovative ways to use crude oil as the world looks to move away from fossil fuels.

Detergents, fibres, polythene, and other man-made plastics are all produced using petrochemicals, which are chemical compounds obtained from crude oil. "The demand for petrochemicals is expected to remain strong and will continue to be a key driver of oil and gas demand in the future," Singh stated in the company's most recent annual report. "ONGC is working with other organisations to investigate potential in the oil to chemical (O2C), refining, and petrochemicals sectors with this goal in mind. Additionally, we want to build two new O2C facilities in India.

The company already operates petrochemical facilities at Mangalore in Karnataka and Dahej in Gujarat through its two subsidiaries, Mangalore Refinery and Petrochemicals and ONGC Petro-Additions Oil and Natural Gas Corporation (ONGC) stated in the 2022-23 annual report that "MRPL and OPaL are strongly engaged in the diversification plan from oil to the petro-chemical sector." In order to investigate potential in the oil to chemical and oil to petrochemical industries, ONGC is also collaborating with other parties. ||

INCREASING SIGNIFICANCE OF SUSTAINABLE SOURCING & RESPONSIBLE MINING

In addition to being crucial for the development of clean energy transitions, the expansion of the mineral supply also holds enormous promise for helping some of the world's poorest people escape poverty. Mineral wealth has the potential to generate public money and support the livelihoods of millions if it is used appropriately. However, improper management of mineral development can have a wide range of detrimental effects, such as significant energy-intensive mining and processing activities that produce greenhouse gas emissions (GHG), impacts on the environment, such as biodiversity loss and societal unrest brought on by changes in land use, water pollution and depletion, waste-related contamination, and air pollution, corruption, the waste of public funds, worker and public fatalities and injuries, violations of human rights, such as child labour, and disparate effects on women and girls are all social effects.

Additionally, these concerns could result in a disruption of the supply, which would hinder the shift to renewable energy. Therefore, it is crucial that both businesses and governments manage the negative effects that mining has on the environment and society.

Failure to manage environmental impacts will slow clean energy transitions

To decrease risk and keep their social licence to operate, businesses have a strong commercial justification for addressing these damages. Customers and investors are pressing businesses to address these concerns seriously. Failure to meet these social obligations could damage reputation as well as make it more difficult to raise money or even put you in legal issues.

Over time, businesses have increased their use of ethical procedures. Improvements have been made throughout the mineral supply chains as a result of corporate responsibility policies and procedures being adopted at the corporate level and through industry-wide initiatives. Stakeholders in the profession, however, exhibit a wide range of performances; certain parts display less effort, and more development is required overall. Where legal safeguards are insufficient and structural problems like informal labour, poor fiscal capacity,

and large inequities are ongoing, as in artisanal and small-scale mining (ASM), challenges are more significant.

Governments are crucial in encouraging advancements in social and environmental performance. International cooperation to implement appropriate standards will be essential to ensuring that mineral extraction and trade are carried out sustainably and responsibly and that the supply of energy transition minerals is unbroken as supply chains become more global.

Emissions do not negate the climate advantages of clean energy technologies

The development of energy transition minerals could result in a large increase in greenhouse gas emissions. These minerals frequently require a lot more energy to produce each unit of product than other commodities, which raises the intensity of emissions. However, this contribution to emissions does not negate the climatic advantages of clean energy technology when compared to the total life-cycle emissions of other technologies. EVs typically have total lifecycle greenhouse gas emissions that are half that of cars with internal combustion engines, with the opportunity to reduce greenhouse gas emissions by an additional 25 Percentage with low-carbon electricity.

Due to their low production volumes, emissions from the production of energy transition minerals are now quite low. However, these emissions will increase in tandem with the anticipated rise in demand. Future production is likely to tend towards more energy-intensive methods, pushing emissions upward, which will make the situation worse. For instance, the production of lithium has shifted from brine-based recovery to concentrate production from hardrock, which has a three times greater emissions intensity than brine-based recovery. Since lithium hydroxide with higher emissions profiles is better suited for batteries with higher nickel cathode chemistries, demand is likewise shifting away from lithium carbonate.

Stronger action will be required to counter upward pressure on emissions

Experience has proven that there are ways to reduce emissions since operational procedures, energy sources,

and production pathways can significantly alter the emissions intensity of production among businesses and areas. The emissions footprint may be greatly reduced in the near future by investing in energy efficiency, low-carbon power, and fuel switching. When it comes to decreasing emissions from processes like refining and smelting, which consume a lot of electricity, low-carbon electricity might be especially important. In the medium run, many businesses may find it beneficial to reduce or replace the usage of diesel in trucks. An example copper project was simulated from the mine site to refinement and smelting, and the results show that electrification and renewable electricity have the potential to cut emissions intensity by over 80 Percentage when used together.

Over two-thirds of the top 20 mining businesses have set emissions reduction targets for 2030, and large mining corporations have increasingly announced emission reduction goals in recent years. Furthermore, market-driven initiatives

have forced businesses to provide voluntary environmental impact disclosures, aiding in the convergence of investor and consumer expectations. While these actions are positive, more pressure from the public sector, financial institutions, and end users is required to broaden emissions reduction programmes beyond the small number of businesses who have made voluntary pledges.

Supply chain due diligence is a crucial tool to detect, assess, and manage risks while enhancing traceability and transparency across all environmental and social aspects. Setting authoritative criteria for ethical and sustainable mineral procurement has benefited greatly from the creation of international frameworks for due diligence, assisted by institutions like the Organisation for Economic Co-operation and Development (OECD). Many businesses currently have due diligence procedures in place, but more coordination is required to guarantee uniformity and boost adoption. [ii](#)

TEMPERATURE



BALANCE



CONTROL

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Supply chain due diligence is a crucial tool to detect, assess, and manage risks while enhancing traceability and transparency across all environmental and social aspects

5G IOT: EMPOWERING SMART CITIES IN SAFETY, ENERGY MANAGEMENT, & TRANSPORTATION

Sagar Bijwe, Director - Engineering, Semtech is responsible for handling firmware development for a wide range of IoT modules, encompassing 4G, 5G, and LPWA (low power wide area) technologies. Industry outlook recently got a chance to interact with Sagar, when he shared his insights on the significance of 5G, IoT technologies and the integration of 5G and IoT technologies with the existing systems and infrastructures in the wireless service industry. Following are the excerpts from his insights "

Importance of 5G and IoT in terms of public safety, energy management and transportation

Sagar: By making smart cities safer, greener, and more effective, 5G is revolutionizing them. It promotes collaboration between stakeholders including network operators, managed service providers, and technology suppliers. It facilitates real-time data exchange and speedy decision-making. 5G enhances public safety monitoring by integrating security cameras, intelligent streetlights, and emergency response systems. To support sustainable energy practices, adjusting usage based on demand pattern is important. 5G-enabled smart meters and building automation systems are actively contributing to the objective of optimizing energy distribution. In the field of transportation, 5G links automobiles, infrastructure, and traffic lights; enhancing management of traffic, improving road safety, and easing congestion. Real-time data from 5G IoT devices aids predictive infrastructure maintenance and autonomous car technologies.



5G-enabled smart meters and building automation systems are actively contributing to the objective of optimizing energy distribution

Challenges and opportunities in the wireless service industry

Sagar: With range of options in wireless technologies, for indoor or outdoor deployments, using license or unlicensed spectrums, for IoT or broadband use cases, it is crucial to choose the right wireless technology for any application



Sagar Bijwe
Director - Engineering

scenario. Customers often lack awareness of the pros and cons of underlying technologies, for example, use of cellular compared to unlicensed technologies in case of smart meters. The opportunity is to provide a one-stop solution for different IoT scenarios, eliminating the need for customers to choose.

Connectivity remains a challenge, especially for 5G IoT devices in the field, which must be connected constantly across different geographical areas and environmental conditions. IoT devices may require advanced technologies such as wireless mesh to improve connectivity and coverage. Other challenges include optimized power consumption and data transmission protocols. Open and standard implementations are essential for interoperable deployments.

Data from devices is continuously pushed to the cloud, necessitating data management platforms and analytics. AI advancements are making data usage crucial for end-to-end business decision-making. With

increased significance of data, ensuring security is vital to prevent breaches and unauthorized access.

Leveraging engineering expertise to drive enhancement in the wireless domain.

Sagar: IoT technologies like Wi-Fi, Bluetooth, and ZigBee are being integrated to enhance the smart home experience. Likewise, unlicensed technologies in the LPWA space and licensed 5G LPWA technologies are also penetrating in outdoor environments. These technologies currently cater to different application scenarios. They can work together, complementing each other, improving the overall IoT picture. Combining diverse technologies in devices such as smart meters and asset trackers can lower hardware costs, power consumption, and device complexity by utilizing the same RF. These systems ensure reliable and effective operation with the help of different wireless technologies. The program aims to solve system-level communication issues in case of simultaneous operation of multiple wireless technologies as per end-user requirements.

Addressing the evolving demands of wireless service industry with the implementation of new technologies like 5G IoT

Sagar: It is critical to address the challenge of providing continuous support to customers with dynamic nature of wireless technologies and continuous environmental changes. New technologies are typically introduced incrementally, so it is essential to have frameworks that cater to different application segments, such as low power cost-effective solutions and high throughput broadband categories. These frameworks can be reused across product lines, meeting the varying needs of applications. Human resources must also cultivate fundamental understanding of different wireless technologies and systems to effectively manage the intricacies.

Integration and Interactivity of 5G IoT Technologies with the Existing Systems and Infrastructures in Smart City Projects

Sagar: There are several approaches to consider for cellular connectivity in IoT devices. One option is to use 5G cellular gateways to provide cellular connectivity to existing deployments. Other approach is to equip IoT devices with multiple radio technologies, allowing them to choose the correct interface based on their role in the network (gateway versus end-node). Yet another approach in low power wide area network is to have devices capable of supporting both NB-IoT and LTE-M. For deployment in North America, LTE-M is better, while NB IoT works well in Asia.

In the absence of 5G coverage, 4G still remains a viable option. Interoperability is crucial, with open and standard implementations ensuring communication and compatibility

between devices and platforms. Regular software updates are essential to keep devices updated with new features and improvements in the evolving IoT landscape.

Mitigating potential risks and ensure the security and privacy of data transmitted through 5G IoT networks

Sagar: Implementing robust encryption mechanisms is crucial for secure data transmission over 5G networks, protecting sensitive data from unauthorized access and interception. Essential security components include access control, secure storage of credentials, digital certificates, and device authentication employing secure boot. Additionally, maintaining data integrity throughout the transmission process is vital. Data integrity is ensured through checksum, digital signatures.

Regular audits and security assessments to identify vulnerabilities, risks, and infrastructure gaps, ensures data security by proactively addressing them. Online repositories and databases of vulnerabilities are maintained, and devices updated with security patches. Employees and stakeholders involved in network management are encouraged to foster a security-conscious mindset thereby avoiding social engineering attacks.

Pros and cons of wireless technologies compared to non-wireless technologies

Sagar: Wireless technologies, unlike fiber-based broadband, offer benefits such as avoiding the need for infrastructure deployment and easy portability. In developed countries, network providers face challenges such as increased cost and infeasibility due to regulation while deploying fiber. Wireless technologies offer a more feasible approach with no requirements for digging. Additionally, wireless technologies allow mobility for the users. Wireless devices are also becoming smarter enabling them to cater more effectively to different end user needs. Overall, wireless technologies offer a more efficient and cost-effective solution for internet access in urban areas.

On the downside, wireless technologies frequently face challenges like interoperability, interference, and limited coverage. By using multiple wireless technologies, however, we are now able to overcome some of these limitations.

In summary, the digital evolution in communication has led to increased data-related demands. 5G is taking this evolution further, transforming human-to-human interaction into machine-to-machine interaction. This requires open and standard communication mechanisms between devices, which can be leveraged for development of Smart Cities. 5G IoT technologies are satisfying those requirements in various aspects, such as safety, energy consumption, waste management, metering, and street lighting. These technologies are becoming part of a homogeneous network, providing a comprehensive picture of the Smart City, ensuring its survival. [In](#)



JIGNESH PATEL
CO-FOUNDER & CEO

COVER STORY

Industry Outlook TOP 10
**ADSORBENTS & DESICCANT
MANUFACTURERS - 2023**

SAHAJANAND INDUSTRIES LIMITED

**THE MARKET LEADER HAVING LEGACY OF
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& SUPPLYING WORLD CLASS QUALITY OF
SODIUM SILICATE & ITS VARIANTS**

The market for desiccant and adsorbent is anticipated to grow multiple folds by 2026. Additionally, throughout the projection period, the industry's momentum for expansion will pick up speed at a CAGR of 10.41 percent. Desiccants are increasingly in demand in the packaging industry, particularly for use in food and pharmaceutical packaging. With a market stake of more than 46 percent in terms of revenue in 2022, Asia Pacific is set to dominate the sodium silicate industry. A variety of end-use sectors, including Soap & Detergents, construction, paints, cardboard, consumer goods, paper & pulp, rubber, textiles and many more, have a strong need for sodium silicate and its derivatives, which is the cause of this rise. The application of sodium silicate and its derivatives in everyday products, as well as the tendency of the product to be a one-time-use product further propel the growth of the industry. Within India, with the growth of population, there is a higher demand for consumer goods, leading to the growth of the adsorbents and desiccants industry.

Having Legacy of more than 40 years in this domain, Sahajanand Industries Limited, is an esteemed manufacturer of adsorbents and desiccants having Head office in Ahmedabad, Gujarat, has been providing superior-quality sodium silicate and its derivatives to numerous industries across Pan India and international markets. What started out from a small room and big aspirations, has now culminated into a multinational business, leading the Indian adsorbents and desiccants market, marked by innovation and a relentless pursuit of excellence.



SODIUM SILICATE

Driving Forces

The growth and success of Sahajanand Industries Limited over the past four decades is the outcome of the passion of fulfilling the vision of always achieving the maximum, emphasizing the vitality of maintaining high quality and consistency of products, and adding value to all industries impacted by products which the company manufactures. The company is on the mission to set the new standard in the industry by delivering high-quality products which are manufactured using natural gas, prioritizing the use of natural resources as well as energy conservation throughout the manufacturing process, implementing value-addition techniques at the operational and manufacturing stages, and most importantly, winning customer satisfaction.

“We are driven to offer the best quality of products to clients consistently. In this market, consumers can very easily get swayed by low prices and choose suppliers who offer products with a low price tag forgetting about the quality of the product. However, instead of getting into the rat race, we educate clients about the cause of the low rates being low quality, and the impact it can have on their business. With our expertise, we are able to give them first-hand insights into the harmful impact of low quality products on various goods, and why their focus should primarily be on quality thereby ensuring that their business thrives”, shares Jignesh Patel.

To help fulfill this commitment of providing a constant supply of high-grade sodium silicate and derivatives to the clients as per their needs, the company has over the decades

established five manufacturing facilities across Gujarat. These facilities are strategically placed and offer enhanced manufacturing capabilities as well as logistical advantages. As the manufacturing process is running 24x7, which is completely dependent on constant supply of Natural Gas with adequate pressure, all manufacturing plants has been strategically set up in such location to ensure the consistent supply of Natural Gas so that Sahajanand Industries Limited can constantly offer uniform product quality, claiming & maintaining its beneficial position over other manufacturers who are limited to one facility, suffering the repercussions of unpredictable circumstance of Gas Supply & unreliable raw material quality.



SAHAJANAND INDUSTRIES LIMITED HAS ESTABLISHED A STANDARDIZED PROCESS WITH ISO GUIDELINES AND ROBUST QUALITY ASSURANCE SYSTEM RIGHT FROM PROCUREMENT OF RAW MATERIALS TO THE DEVELOPMENT OF THE FINAL PRODUCT

Range of Offerings

With Sodium Silicate as the company’s flagship product, Sahajanand Industries Limited has generated a diverse range of sodium silicate products i.e. Sodium Silicate Glass, Sodium Silicate Liquid, Sodium Silicate Powder, Sodium Metasilicate, Silica Gel, Silica Sand, China Clay, Colloidal Silica, to suit the requirement of clients. Each of the products are useful for a variety of applications. But this is not all. Having established a powerful position as a leader in the industry, Sahajanand Industries Limited also dabbles in trade of various similar products with other manufacturers upon special requests of clients to offer them the best quality and price.

Ensuring consistent quality is a focal point for Sahajanand Industries Limited, for achieving which, the company has



JIGNESH PATEL
CO-FOUNDER & CEO

established a robust quality assurance system right from procurement of raw materials to the development of the final product. The company has established fully automated facilities which eliminate the risk of inconsistency stemming from human error.

“Since quality is of utmost importance to us, we source our raw materials only from the top suppliers in India. After receiving the raw materials, our Research & Development Team further implements pilot projects wherein the team checks the raw materials to ensure that it meets the required standards. Furthermore, we leverage the capabilities of our fully automated facility in ensuring the consistency of the manufacturing process by eliminating human error. Lastly, R&D Team check the products to ensure there are no deviations from the expected product standard in our dedicated state-of-the-art in-house Testing Laboratories”, further states Jignesh Patel.

With the plethora of industries that the company caters to and its diverse clientele, Sahajanand Industries Limited also adopts a thorough client engagement approach. Upon receiving product inquiries, the Sales team sets out to identify the exact Technical requirements of the clients to ensure they get the best product for their needs. Many times if clients are not sure of the technical parameters, the team also helps assess which grade of product will be best suited for their End use/Purpose. They then provide samples of the different product grades, allowing clients to test the sample in batch trial & choose the ideal product. Thereafter, the Tax invoicing

and delivery processes are undertaken. The company provides tracking details as well upon order dispatch, to ensure a seamless supply chain management.

Looking at the Future

Sahajanand Industries Limited, covering a long journey which started in a small village in Mehsana, Gujarat with Chairman - Rambhai Patel’s dream to build something huge, has expanded in terms of team size, revenue, product offerings, clientele, and geographical presence. Starting with one small facility, the company has today spread its manufacturing capacities throughout the state of Gujarat with five state-of-the-art, fully automated facilities. In terms of client acquisition, Sahajanand Industries Limited is having 800+ Clients today, and continues to grow. The company also diversified from being a manufacturer and supplier to also becoming a leading exporter of sodium silicate & its variants. The company exports all over the world including countries like UAE, Europe, America, South Korea, African Region, Malaysia, Singapore, Sri Lanka, Nepal, and more.

With tremendous Achievements accomplished, the company has several plans for the future growth as well including further expanding the product portfolio and geographical footprints, exploring forward integration and reverse integration, as well as focusing on other business verticals. The company also plans, to enhance its infrastructure to fulfill its aspirations to lead the global market. [In](#)

HOW THE INDIAN CHEMICAL INDUSTRY CAN STAY COMPETITIVE

Murthy is one of the key architects in envisioning the growth and expansion of the company since its inception. Over the past three decades, he has been instrumental in transforming the company from a single product becoming one of the leaders in specialty and fine chemicals. His visionary leadership has helped the company to consolidate its position in the global markets and helped it steer towards manufacturing excellence. Murthy holds a postgraduate degree in Management.



How has the recent energy crisis in Europe affected the Indian chemical industry?

Over the last 30 years, the European industry's share of the world chemical market has fallen from 36 percent to 15 percent. This has resulted from the huge increase in production and sales in emerging markets like India and China.

The European chemical industry is still a world leader and a highly innovative sector. With 90 percent of GDP growth taking place outside Europe in the coming decades, the challenge for the Indian chemical industry is to stay competitive and provide sustainable quality globally. The energy prices in Europe have gone back to their old levels.



Chromium chemicals are essential today to producing the super alloys needed for crucial applications in aerospace, defense, and land-based gas turbine industries

What are some recent notable developments or advancements in the field of specialty chemicals, especially pertaining to chromium and barium compounds, that have caught your attention?

The extent to which chromium chemicals and Barium Chemicals are used in the production of everyday

items is astonishing. Our products are supplied to the pharmaceutical, consumer, and industrial industries.



Chromium Chemistry: From acting as a strong oxidant in pharmaceuticals to creating a shining and reflective surface in tiles and ceramics or the silver finish on faucets, towel holders, and hardware – door knobs, or handles, Chromium Chemicals add to the aesthetic appeal of any vehicle that gives a good feel. Be it the shining logo, stylish front grills, premium leather seats, or sturdy engines and pistons. Or be it colours, that don't fade away!

The world's most complex manufacturing powerhouses use chromium chemicals to create super alloys, enabling jet engines to function in high-temperature, high-stress, and chemically oxidizing environments. In addition, it is further used in aircraft to protect seal components against galling, corrosion, and wear, which is catalyzing the growth of the industry.

Since the discovery of chrome ore in 1798, growing industrialization and urbanization have paved the way for new use cases for chromium chemicals. For instance, chromium chemicals are essential today to producing the super alloys needed for crucial applications in aerospace, defense, and land-based gas turbine industries, to name a few.

Barium Chemistry: There is an ongoing expansion plan to introduce 'Precipitated Barium Sulphate' with a capacity of 30,000 TPA which is expected to be commissioned by H1FY24. Globally renowned researchers have created the world's whitest paint using this Barium chemical. This paint has entered the Guinness Book of World Records for its ability to reflect 98.1 percent of sunlight. Hence, it cools outdoor surfaces by more than 4.5°C, thereby conserving energy and electricity. Climate change is a real thing today, and this innovation is path-breaking as it delivers results to your homes and offices in the most effective manner.

We are really excited about this development, as we ourselves are currently expanding to manufacture the best quality Precipitated Barium Sulphate under our Barium Chemicals portfolio. Our product is an inorganic compound and a high-purity, synthetic additive that is produced in a carefully controlled manufacturing process. And, it contains almost no impurities, and the whiteness is higher than that of natural barium sulphate. So it can be used as the filler for pure white powder coating, and the finish glossiness can reach 95 degrees.

What strategies have Indian chemical companies adopted to optimize energy consumption and reduce costs in light of the energy crisis?

By identifying energy-intensive processes and equipment, industries can implement energy optimization strategies, such as equipment upgrades, and process improvements. Not just energy, but Indian chemical companies should focus on research to convert waste into sellable materials. This would be a sustainable change in the true sense.

How does the incorporation of solar capacity projects in specialty chemical manufacturing facilities contribute to sustainability and safety?

The world has seen unprecedented growth in renewable energy in the past decade. Electricity savings: Installing the solar power system at your factory or industrial premises will eliminate or reduce concerns related to electricity bills. How much you will save on the electricity bill will depend on the grid's electricity usage and the size of the solar power system. It also encourages the possibility of receiving payments for the surplus energy that you export back to the grid.

We are continuously adopting new techniques to minimize the environmental impact. Solar initiatives are being undertaken to use greener sources of energy wherever possible.



What are some innovative methods or technologies used in the capture and utilization of carbon dioxide for manufacturing safer and more sustainable chemicals?

Sustainability is at the center of all business processes at our company. The Company takes the required measures to mitigate the impact of various environmental aspects like air quality, water quality, and noise. The Company focuses on the conservation of natural resources: minerals, water, and energy. Our philosophy for sustainability stems from individual action and collective responsibility. The Company's plants are equipped with modern machinery, operated with sustainable practices. Our teams regularly conduct awareness programs and impart training to all employees on sustainability practices.

In 2022, the flagship plant was integrated to capture and recover flu gases and use it as a vital input for its production in a sustainable, eco-friendly manner. We are only one of few companies globally to have this infrastructure.

Are there any quality control or assurance practices in place to ensure that the products meet the highest standards? How does R&D contribute to maintaining and improving these quality standards?

We are an innovation-led company with a track record of succeeding in complex chemical processes. We have in-house quality control units at all our plants.



By identifying energy-intensive processes and equipment, industries can implement energy optimization strategies, such as equipment upgrades, and process improvements

Our quality and research is focused on (i) new product development, (ii) process innovation and to serve the niche requirements of our customers, (iii) improvement of our productivity and yields, and (iv) reduction of our resource consumption.

As a part of process improvement and reverse engineering, we have integrated our Vishakhapatnam, Andhra Pradesh manufacturing facility with a carbon dioxide capture and recovery plant. The capital expenditure entails capturing of flue gases and using it in our manufacturing process. This backward integration of sorts has enabled us to reduce our reliance on imports, third-party supplies, and logistics costs. Through this, we have reduced our carbon footprint, optimized our reliance on external raw material procurement, reduced our need for working capital to hold raw material inventory, and reduced our carbon footprint. Overall, this foray has helped us minimize operating costs and maximize operational efficiencies and profitability. [In](#)



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Industry Outlook TOP 10 ADSORBENTS & DESICCANT MANUFACTURERS - 2023

Adsorbents & Desiccants Manufacturers Enhancing Sustainability In Different Industries

When considering packaging options for your products, you may have come across the terms “moisture control,” “absorbents,” “adsorption,” and “desiccants.” Absorption refers to the process during which a material chemically integrates into a separate substance. Adsorption, however, refers to when a substance is being held inside another material using physical bonds. For example, when you spill water on a cotton t-shirt, the water is adsorbed since the fibers hold the water until heat causes it to dry. Desiccants use the latter method to prevent other materials from being damaged by water. They won’t chemically combine with the moisture they encounter.

About Adsorbents & Desiccants: Adsorbents are highly important in enhancing the removal efficiency of pollutants from wastewater due to their high stability. Adsorption properties result in the manufacturing of high quality and economically feasible products for various applications. Desiccants are commonly used to keep products dry and stable. Dry desiccants can absorb moisture from air either by physical adsorption or by chemical reaction, and thus reduce the humidity in the headspace of sealed containers.

Significance of Adsorbents & Desiccants Manufacturers: Adsorbents and Desiccants manufacturers demonstrate their global reach and expertise in mitigating moisture control and rust prevention challenges across various industries. And they are recognized for their reliability, product performance, excellent customer service, and commitment to sustainability. Adsorbents and Desiccants manufacturers provide clients with targeted solutions and expert advice. Adsorbents and Desiccants manufacturers aim to offer sustainable solutions and reduce the environmental impact of manufacturing processes. By providing rust prevention products that protect valuable assets and promote longer life spans for machinery and equipment, they contribute to increased productivity and cost savings for manufacturers.

Industry Outlook in this issue presents a list of ‘**Top 10 Adsorbents & Desiccants Manufacturers – 2023**’ who have leveraged their extensive industry expertise and experience in offering high quality products in the industry. The following list has been prepared after being closely scrutinized by a distinguished panel of judges including CXOs, analysts, and our editorial board. We recognize their valuable contribution to the ever expanding and competitive market and their ability to sustain themselves and emerge as top contestants through their reliable products.

TOP 10 ADSORBENTS & DESICCANTS MANUFACTURERS - 2023

COMPANY	MANAGEMENT	DESCRIPTION
<p>Ama Speciality India New Delhi amaspecialtyindia.com</p>	<p>Pramod Aggarwal CEO</p>	<p>An organization engaged in manufacturing and supplying an assortment of moisture absorbent offering silica gel, activated carbon and activated alumina balls and others</p>
<p>Benz Packaging Solutions Gurugram benzpackaging.com</p>	<p>Chaitanya Chopra Director</p>	<p>A company with over 40 years of industry experience maintaining product quality, safeguarding against moisture damage, and ensuring peak performance for industries like Pharmaceuticals, electronics, food and beverage, and others</p>
<p>ChemBro Gandhinagar silicagels.in</p>	<p>Dhruv Gajjar Founder</p>	<p>A company producing different types of products including silica gel crystals, silica gel pouches, desiccant pouches, cargo container desiccant, silica gel beads, activated charcoal, clay desiccant and others</p>
<p>Devson Surendra Nagar devsongroup.com</p>	<p>Prahlad D Shiyania Chairman, Savan Patel Director</p>	<p>A manufacturer and supplier of catalysts and adsorbents, including various grades of chloride guard, sulphur guard, and claus catalysts, activated alumina, a range of molecular sieves and bed supports as well as other products</p>
<p>Kajah Activated Carbon Madurai activatedcarbon.in</p>	<p>Abdul Malik Director</p>	<p>The industry with state-of-the-art manufacturing facility with an impressive annual capacity of 4500 MT, producing a diverse range of coconut or wood-based activated carbon grades</p>
<p>Moisture Control Pack New Delhi silicagelmcp.com</p>	<p>Malkeet Singh CEO</p>	<p>A well-known manufacturer of silica gel, clay desiccant, container desiccant, silica gel pouch, container desiccant, silica gel scented pouch, and others</p>
<p>Parnam Ji Creation New Delhi parnamjicreations.com</p>	<p>Sanjay Goel Proprietor</p>	<p>An industry providing innovative and cost-effective product prevention solution, through a wide range of white silica gel, desiccant silica gel, silica gel breather, container desiccant, silica gel crystals & silica gel desiccants</p>
<p>S. S. Distributors Bangalore ssdistributors.co.in</p>	<p>Gururaja Managing Director</p>	<p>Suppliers of a wide range of industrial supplies such as premium industrial solvents, chemicals, different types of adsorbents including white silica gel crystals, white silica gel beads, blue silica gel beads, blue silica gel crystal and others</p>
<p>Sahajanand Industries Limited Ahmedabad sahajanand.ltd</p>	<p>Jignesh Patel Co-Founder & CEO</p>	<p>An industry producing diverse range of sodium silicate products including sodium silicate glass, sodium silicate liquid, sodium silicate powder, sodium metasilicate, silica gel, silica sand, china clay, colloidal silica</p>
<p>Sorbead India Vadodara sorbeadindia.com</p>	<p>Rajesh Galgalikar CEO & Managing Director</p>	<p>A firm with with an aim and dedication to serve the demanding needs of the market, offering one of the broadest and diversified spectrums of desiccants & adsorbents</p>



BENZ PACKAGING SOLUTIONS

DELIVERING SUSTAINABLE MOISTURE CONTROL SOLUTIONS ACROSS INDUSTRIES



Chaitanya Chopra
Director

The demand for adsorbents and desiccants in India is experiencing a significant upswing, mirroring the global market trends. Factors such as rapid industrialization, a thriving manufacturing sector, heightened consumer awareness about product quality and safety, and growing emphasis on sustainable packaging and environmental regulations are driving the need for effective moisture control solutions. Pharmaceuticals, electronics, food and beverage, and automotive sectors heavily depend on these solutions for maintaining product quality, safeguarding against moisture damage, and ensuring peak performance. With over 40 years of industry experience, BENZ PACKAGING SOLUTIONS is at the forefront of addressing the moisture control requirements of all industries through a comprehensive range of rust-prevention products, desiccants, adsorbents and other protective packaging solutions.

The prevalent challenges that customers from various industries face include moisture damage, limited product shelf life, cost optimization, and compatibility issues. BENZ Packaging

takes a customer-centric approach to effectively address these pain points, focusing on engineering products that control moisture, prevent corrosion, and extend the shelf life of various products. By prioritizing quality and cost-effectiveness, the company ensures customers receive the best value for their investment.

With a robust presence in over 80 countries, BENZ Packaging demonstrates its global reach and expertise in mitigating moisture control and rust prevention challenges across various industries. Recognized for its reliability, product performance, excellent customer service, and commitment to sustainability, BENZ Packaging provides clients with targeted solutions and expert advice.

BENZ Packaging aims to offer sustainable solutions and reduce the environmental impact of manufacturing processes. By providing rust prevention products that protect valuable assets and promote longer lifespans for machinery and equipment, BENZ Packaging contributes to increased productivity and cost savings for manufacturers. This approach minimizes corrosion-related downtime and reinforces the company's commitment to sustainability.

"We employ several strategies to tackle rising raw material costs and skilled labor shortage, including efficient supply chain management, exploring alternative raw material options, optimizing manufacturing processes through innovation, and prioritizing employee training and development", explains Chaitanya Chopra, Director at BENZ Packaging. "By investing in our employees, we ensure they possess the essential knowledge to meet increasing demands and deliver exceptional products and services", he adds.

BENZ Packaging follows a comprehensive client engagement

process that begins with understanding clients' unique requirements and challenges. Based on this understanding, the company customizes its offerings and recommends tailored desiccants, adsorbents, moisture control, or rust prevention products. The holistic engagement process also includes product sampling and testing, collaboration and feedback, order fulfillment and delivery, and post-sales support, guaranteeing customer satisfaction and fostering long-term partnerships.

BENZ Packaging's extensive industry experience, global presence, customization capabilities, focus on product quality and performance, and commitment to sustainability set the company apart from its competitors. "We endeavor to create eco-friendly products and consistently refine our procedures to reduce waste and minimize our environmental footprint. We extend our dedication to sustainability to our packaging materials, emphasizing the utilization of recyclable and biodegradable materials", highlights Chaitanya.

By continually innovating and expanding its product portfolio, BENZ Packaging aims to consistently provide advanced moisture control solutions that address evolving customer needs and industry challenges. The company also actively supports local communities, engages in philanthropic activities, and strives to create a positive societal impact through various social responsibility initiatives. "With a global presence and an unwavering commitment to excellence, we are well-positioned to shape the future of moisture control solutions and contribute to the success and growth of our clients' businesses", concludes Chaitanya. ||

AUTOMOTIVE SUPPLY CHAIN MANAGEMENT 4.0 TRENDS

● By *Birender Siwach, Head-Purchasing & Supplier Quality, Continental Automotive India*



Birender Siwach
Head-Purchasing & Supplier Quality

A Senior Purchasing & Supply Chain Professional Birender, holds over 27 years of working experience in Reputed Automotive MNCs with proven records.

The automotive supply chain is different from other sectors owing to a large number of stakeholders involved, new disruptive trends, and the availability of raw materials that necessitate global coordination and strict timelines. The automotive supply chain system is one of the most robust ones due to the industry's rapidly evolving, lean, and efficient model.

The COVID-19 pandemic completely transformed the automotive supply chain. Manufacturers who had implemented Industry 4.0 practices were better positioned to deal with COVID-19 related challenges. According to a McKinsey survey published last year, 56 percent of respondents who had not implemented Industry 4.0 prior to COVID -19 found their ability to respond to the pandemic, limited. According to a Fortune Business Insights report, the global Industry 4.0 market is expected to grow at a CAGR of 16.4 percent from \$116.14 billion in 2021 to \$337.10 billion in 2028. This transition to Industry 4.0 technologies has also provided the necessary agility to continue operations in recent months.

The smart factory is the first step towards transitioning current supply chains to an autonomous supply network. Cyber-physical systems monitor physical processes, create a virtual copy of the physical world, and make decentralized decisions within modular structured smart factories. Cyber-physical systems also communicate and collaborate with humans in a synchronous manner and time, both internally and externally, via the Internet of Things (IoT). Some of the Supply Chain Management 4.0 Trends that will completely transform the present supply chain system.

Artificial Intelligence & Machine Learnin-Automotive-companies have started incorporating AI in supply chains as they have acknowledged the potential of AI to solve the complexities of running a global logistics network. AI also enables businesses to make smarter, more agile decisions and anticipate problems. AI and Machine Learning (ML) can also be used in obsolete inventory management decision-making. MachineLearningisalsoidealforoptimizationasitcandecipher trends and patterns in data from across the supply chain. On the other hand, Predictive forecasting techniques assist supply chains in developing intelligent demands and reducing

inventories. A smart warehouse within a smart factory, combined with AR, VR, and AI techniques, will significantly alter how warehouses have been operating till now.

Automated Guided Vehicles - Automated Guided Vehicles play an important role in the material flow in a digitized factory. They reduce manual activities like driving forklift trucks, accelerate transportation, and help in making processes more predictable. The industry is gradually moving towards AGVs.

Smart Sensors - Smart sensors provide digital insights that help generate new value throughout the supply chain. Managers are updated with real-time information about their inventory, machinery, and purchased materials. Smart sensors also provide visibility throughout the supply chain and fuel analytics. This data helps to better understand and predict demand, optimize sourcing, and make high-value manufacturing decisions. Smart sensors have the potential to improve the supply chain process by increasing operational efficiency, lowering manufacturing costs, and providing critical insights into customer orders. Smart sensors would help simplify predictive maintenance and inventory management. It also aids in increasing labor productivity and accuracy along with updating the management about future product development and after-sales services.

Digital Tools - With the standardization of business processes across the world, at continental we have started integrating different SAP and ERP systems. For instance, 'Spirit'- Strategic Process Integration Rolled out an International Template which integrates all ERP systems and business processes into a single system, allowing for end-to-end supply chain planning, from customers' demand to customers' fulfilment.

SAP - APO can handle all of the organization's processes (Advanced Planning Optimization). Customer Demand Planning, Monthly Volume Review Planning, Suppliers Scheduling, and Production Sequencing and Scheduling (PSS) with Customer Order Fulfillment via SAP SD module comprise the entire planning cycle. These Demand Planning and Supply Management tools, as well as the distribution of weekly MRP schedules to the company's global supplier base, aid in securing global and local supplier capacities and meeting customer demands in a JIT environment.

This ensures that the company has the right products, components, and goods at the right time, in the right quantities, and of the right quality manufactured on the most technologically advanced and automated production lines. Tools such as automatic replenishment, TOMS (Transport Order Management Systems), and GPS-enabled vehicles (outbound logistics) are improving the efficiency of Supply Chain Management (SCM) processes and are used at

Continental. Supply chain technological advancements are expected to enhance the function. However, if they are not implemented correctly, they can cause problems. Changes in SCM technologies, for example, will create new job roles on the shop floor while rendering some roles obsolete. There is a need for companies to implement various reskilling, cross-skilling, and side-skilling programs to address this issue.



AI enables businesses to make smarter, more agile decisions and anticipate problems

Another potential issue is cybersecurity. While connectivity and smart technologies would make SCM processes more insightful and productive, they also have the potential to expose organizations to cyber threats and vulnerabilities. Being a part of a supply chain ecosystem necessitates attention to proper vendor management. Third parties with authorized access to the company's network can become unwitting attack vectors. A corrupt actor who steals a third party's login credentials could potentially gain access to the company's network by posing as an authorized user. Even if some processes are not integrated into the Internet, the manufacturing setting must be considered fully integrated. Although many breaches begin in IT networks, hackers or attackers may move on to other parts of the environment via connected devices. Furthermore, information about the non-connected process may also be included in some connected devices.

Supply Chain processes are becoming more digital, intelligent, and interconnected. AI, smart sensors, AGVs, and digital tools are just a few examples of how the industry is adapting to change. This will aid in cost optimization, increasing productivity, and identifying process improvement opportunities. To summarize, the full potential of SCM 4.0 will be realized in the coming years through maximum digitization and effective implementation is required to reap the benefits. The COVID-19 pandemic has further accelerated this transition on a global scale. [li](#)

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DEVSON CATALYST

OFFERING EXCEPTIONAL PRODUCTS, TECHNICAL EXPERTISE, & OUTSTANDING CUSTOMER SERVICE

The Indian desiccant and catalyst market is poised for significant growth in the coming years; the projected increase of 3971.5 thousand tons from 2021 to 2026 highlights the growing demand for these products. The expansion of key industries such as Oil/gas, petrochemicals, steel, and fertilizers necessitates the use of desiccants and catalysts for various processes. Also, the implementation of stringent environmental regulations and the need for sustainable practices are fueling the demand for catalysts that enable cleaner and more efficient technologies. A leader in the catalyst and refining industry since 1990, Devson Catalyst is successfully meeting this industrial development and contributing majorly to the growth of industrial infrastructure, research & development activities, and also focusing on quality control that contributes to the market's advancement.



Devson's growth has been driven by continuous innovation, investment in R&D, & a customer-centric approach, allowing it to meet the evolving needs of the industry

Devson Catalyst holds a strong position in the chemical industry as a leading manufacturer and supplier of catalysts and adsorbents. It has a range of products including various grades of Chloride Guard, Sulphur guard, and Claus catalysts, Activated Alumina, a range of Molecular Sieves and bed supports as well as other products. The company has built a solid reputation based on its commitment to quality, delivery, innovation, and customer satisfaction. It is currently majorly catering to the Oil and Gas, Petrochemical and Steel sector but is looking to expand its clientele from other sectors in the coming times by leveraging its extensive industry knowledge and expertise



Prahlad D Shiyania
Chairman

Savan Patel
Director

which has always helped the firm to offer customized solutions. With a focus on continuous improvement and implementation of cutting-edge technology, Devson strives to stay ahead of market trends and deliver superior products to its clients.

Mantra to Success

"Devson's mantra for a sharp vision of marketing, a strong network, and a powerful backbone of quality revolves around three key principles - it prioritizes market research and analysis to gain insights into industry trends, customer needs, and emerging opportunities", shares Savan Patel, Director. This enables the firm to develop effective marketing strategies that resonate with its target audience; it has invested in building a robust global network of partners, distributors, and customers which allows it to expand its reach, establish a strong presence in various markets, and provide prompt support and delivery worldwide; since quality is the foundation of its operations, the experts in the company adhere to stringent quality control measures at every stage of manufacturing, ensuring that their products consistently meet international standards and deliver exceptional performance to customers.

Meeting International Standards in Functionality, Durability, & Performance

Devson's product portfolio serves a wide range of functions varying from being high-end technical capabilities to requiring inertness. Each of its products is developed and



designed with the desired capabilities of that product imparting the required specificity and efficiency which helps it to prove itself in today's competitive market. The team at Devson works towards providing excellent adsorption, purification capabilities, and catalyst support, thereby enabling industries to achieve optimal process conditions and quality final product. The key USPs of the products include their enhanced catalytic performance and adsorption capacity, consistent functionality and durability, compliance with international standards, customization options to meet specific requirements, and a commitment to sustainability.

"Devson is the only company in India with 100 percent Indian ownership to indigenously develop and manufacture products from zero to finish. What differentiates Devson is its ability to provide customized solutions, as the team works closely with clients to understand their requirements and develop tailored products accordingly", shares Prahlad D Shiyania, Chairman.

The Growth Journey

Since its inception, Devson Catalyst has experienced a remarkable journey of growth. It has steadily expanded its client base, establishing long-term relationships with renowned companies across various industries. Its dedication to customer satisfaction and the superior quality of products has been instrumental in client acquisition and retention. Geographically, it has expanded its presence beyond the home market and has successfully established a strong international footprint, serving

clients worldwide. Devson's growth has been driven by continuous innovation, investment in R&D, and a customer-centric approach, allowing it to meet the evolving needs of the industry.



Devson is the only company in India with 100 percent Indian ownership to indigenously develop & manufacture products from zero to finish

Future Roadmap

The company aims to strengthen its position as a leading provider of catalysts and adsorbents by expanding its product portfolio and tackling new market requirements. It will continue to invest in research and development, focusing on developing advanced technologies and sustainable solutions. Additionally, Devson plans to enhance its customer engagement and support initiatives to provide an exceptional customer experience throughout the product lifecycle. It is committed to driving innovation, embracing emerging trends, and contributing to the industry's advancement. [In](#)

HOW TO IMPLEMENT LEAN MANUFACTURING PRINCIPLES IN BUSINESS

Excerpts from an interaction with Raghavan, Managing Director, Bharat Fritz Werner. He is an Engineer with a Management degree and has 33 years of Operational and Strategic experience in Engineering and Manufacturing.



Raghavan
Managing Director

What are the major challenges in applying the principles of lean manufacturing to a business environment?

The fundamental steps of lean manufacturing such as identifying the value, mapping the value stream, creating an

uninterrupted flow, establishing pull & seeking perfection through continuous improvement are all very much applicable to business environments. However, I feel the challenge is in its ability to visualize the value in critical business practices & thereby gaps in mapping realistic value streams. The volatility in business scenarios arising out of factors that are not in the circle of control limits the businesses to enable uninterrupted flow.

How can a business identify waste and inefficiency in a manufacturing process, and what steps can be taken to eliminate or reduce it?

There are many ways to address this. One of the effective ways is to first standardize the processes, do a thorough mapping of the value stream, and compare it with best/next practices in the industry (within & outside), which should encapsulate people, processes & technology. While doing this the obvious inefficiencies/ineffectiveness will get exposed which can be identified as 'waste'. It will also provide insights into various options to eliminate/minimize waste.

What role do continuous improvement and standardized work play in implementing lean manufacturing principles?

Continuous improvement creates a great culture in any organization since it creates a paradigm shift in the mindsets of people where growth takes center stage which is so important in this VUCA world. Standardized work is

essential in any manufacturing setup wherever there are repetitive jobs. It brings consistency & transparency to outcomes which are crucial in manufacturing.



How can a business measure the success of its lean manufacturing initiatives and make adjustments as necessary?

Having KPIs aligned to business objectives with a lean framework is the starting point. Then breaking down those into palatable KAI's at each process step of a value chain provides the impetus to align activities with objectives. After that, it is just relentless execution with meticulous reviews. Ways & means to achieve objectives will eventually evolve/get refined as we move along. But this process is the key to success.

How important are employee buy-in and participation in implementing lean manufacturing, and what strategies can be used to encourage engagement at all levels of the organization?

'Total employee engagement' is the basic fabric of any excellence journey. An effective way to promote it is by making everyone in the organization realize the purpose of what we wish to accomplish. Like at BFW, everything we do is to 'Enable Progress'. Progress of all stakeholders. The same is applicable to lean initiatives as well. Promoting innovation in very simple aspects of daily work, appreciating small successes, accommodating failures as a part of the journey & demonstrating role model behavior by business

leaders. All these help to engage people at all levels in an organization.

How can technology and automation be leveraged to support lean manufacturing processes, and what new tools and solutions are emerging to enhance efficiency and reduce waste?

Technology plays the role of an enabler. Lean professionals need real-time triggers to act upon which technology can provide and also very simple & adaptable solutions in manufacturing. Some of the widely used technologies but not limited to are IIOT, AI, VR/AR, automation, digitized shop floors & digitized daily work management. A well-designed digital dashboard helps businesses to take agile business decisions on a real-time basis thus moving from a reactive mode to a proactive mode. Lead & lag indicators act as a lighthouse. This space is rapidly changing/evolving & business leaders should exploit the same.



Lean professionals need real-time triggers to act upon which technology can provide and also very simple & adaptable solutions in manufacturing

What benefits can businesses expect to see as a result of implementing lean manufacturing, and how can they sustain these gains over time?

The obvious result is overall throughput improvement, optimized operational costs & enhanced quality levels which eventually lead to delighted customers. The cycle of implement-sustain-grow should be turned around on a continuous basis through total employee engagement which helps businesses to sustain these gains over a period of time. Excellence is a journey & should be enjoyed. [ln](#)

KAJAH ACTIVATED CARBON

PIONEERING THE PATH TO SUSTAINABLE PURIFICATION SOLUTIONS

As the Global Desiccant and Adsorbent Market continues its upward trajectory, driven by a projected CAGR of 10.41 percent during 2022-2026, the role of activated carbon in water and air purification becomes increasingly paramount. Access to safe drinking water remains a fundamental human need, and activated carbon has emerged as one of the most effective methods of purification. Amidst this landscape, Kajah Activated Carbon has established itself as a trailblazer in the industry, renowned for producing and exporting top-quality coconut shell-based activated carbon for various industrial applications worldwide. With a dedication to deliver excellence, Kajah conducts meticulous testing at each stage of the process, adhering strictly to ASTM standards, to ensure optimum output. This unwavering commitment to quality has solidified Kajah's position as a market leader.



Kajah boasts a state-of-the-art manufacturing facility with an impressive annual capacity of 4500 MT, producing a diverse range of coconut/wood-based activated carbon grades

Precision in Production

Kajah Activated Carbon is an ancillary of the Rajah Group of Companies which brings 80 years of industrial experience and excellence across sectors. Following the same basic core values, Kajah follows a value-based approach to conducting business, always putting quality and client satisfaction first. As a leading firm offering products of a sensitive nature across the globe, Kajah understands the value of maintaining the highest quality standards and consistency of products, pushing forward diverse initiatives and multi-level quality checks to ensure the same.

“We strive to maintain high standards in each and every aspect. Quality control forms the basis of our company as we are focused on providing our customers with consistent and high-quality products. The company is located strategically in the coconut heartland of India – near Madurai, Tamil Nadu, which ensures ready access to good quality raw materials, ensuring that we are able to deliver high performance activated carbon consistently, all-round the year”, shares the Management.

Kajah boasts a state-of-the-art manufacturing facility with an impressive annual capacity of 4500 MT, producing a diverse range of coconut/wood-based activated carbon



grades. To ensure unparalleled product quality, the company employs the steam activation process, utilizing a cutting-edge rotary kiln to transform coconut shells into activated carbon. At every stage of the production process, Kajah's control lab conducts comprehensive tests on the activated carbon, assessing crucial parameters like IV, moisture, and hardness. From meticulously inspecting raw materials for factors such as dirt contamination, moisture, and size, to conducting final product testing for oversize and undersize, moisture, iodine value, density, and other essential criteria, the company adheres to a rigorous and meticulous production and testing procedure.

Distinctive Approach

Kajah has successfully engineered a wide array of specialty products centered around activated carbon, showcasing the team's dedication to innovation and excellence. Among these pioneering offerings are carbon blocks designed specifically for the targeted removal of bacteria and viruses, as well as effective filtration solutions for lead and heavy metal elimination, and the efficient removal of chloramine. Notably, the firm has also developed an advanced acid washing process tailored to applications requiring low pH levels. This commitment to continuous improvement and refinement underscores the unwavering pursuit of producing top-tier products that cater to diverse needs and environmental challenges.

Keeping on this track, the firm's future endeavors are focused on expanding the line-up of filtration products as well as a wider range of product grades and specifications. Furthermore, Kajah aims at promoting sustainability by reducing waste, as well as finding ways to reuse by-products. With an unyielding focus on research and development, the company remains at the forefront of creating cutting-edge solutions and elevating the capabilities of activated carbon in addressing crucial global concerns. [In](#)

PLI IMPACT ON JOB CREATION

By- Sumit Sarabhai - Business Head - TeamLease Services



Sumit Sarabhai
Business Head

Sumit Sarabhai is a management professional specialising in Business Administration. He is also a certified Life Coach and a Certified NLP (Neuro-Linguistic Programming) practitioner. He currently heads the Emerging vertical at Team Lease. He has over 22 years of experience in HR, Business Development, Talent Acquisition, Strategic Account Management & Operations across the Retail, Security and Staffing industries. Sumit has previously worked with Shoppers' Stop, Randstad (formerly known as Ma Foi Management Consultants), Adecco, Quess Corp (formerly known as Ikya) & Terrier Security Services (A Quess Corp Company).

Sumit holds an MSBA from Symbiosis Institute of Business Management - Specialized in Personnel Management & Industrial Relations. He likes to read books, watch cricket, and coach people in his free time. cricket, and coach people in his free time.

How will the PLI scheme drive growth and competitiveness in the manufacturing industry?

The PLI scheme is expected to drive growth and competitiveness in the manufacturing industry in several ways:

- Encouraging Domestic Manufacturing:** The PLI scheme aims to incentivize companies to manufacture their products in India, which will help reduce India's dependence on imports and boost domestic manufacturing. This will create new job opportunities and boost the country's economy.

- Improving Product Quality:** The scheme encourages companies to produce high-quality products by providing incentives based on the quality of products manufactured. This will improve the quality of Indian products and make them more competitive in the global market.

- Increasing Export Competitiveness:** The PLI scheme provides incentives to companies that export their products, which will increase India's export competitiveness. This will help Indian companies compete with foreign companies and increase their share of the global market.

- Boosting Innovation:** The scheme provides incentives for R&D activities, which will encourage companies to invest in research and development. This will lead to the development of new technologies and products, which will enhance India's competitiveness in the global market.

In what ways will the implementation of the PLI scheme lead to increased investments in the manufacturing industry?

- Financial Incentives:** The PLI scheme offers financial incentives to companies that manufacture products in India. This includes incentives based on the incremental sales of products manufactured in India and incentives for the manufacture of products with high domestic value addition. These incentives are expected to encourage companies to invest in manufacturing facilities in India and increase their production capacity.

- Focus on R&D:** The PLI scheme provides incentives for R&D activities, which will encourage companies to invest in research and development. This will lead to the development of new technologies and products, which will enhance India's competitiveness in the global market. Companies that invest in R&D are more likely to attract investments from foreign investors, who are looking to invest in companies that are innovative and have a strong technological base.

How will the PLI scheme encourage innovation and technological advancements in manufacturing?

PLI scheme encourages innovation and technological advancements in manufacturing in the following ways:

•Adoption of advanced manufacturing technologies:

The PLI scheme encourages companies to adopt advanced manufacturing technologies to improve their productivity and quality. These technologies include automation, artificial intelligence, robotics, and the Internet of Things (IoT).

•**Technology Transfer:** The PLI scheme encourages the transfer of technology to India by offering incentives for the production of products that use advanced or emerging technologies. This will lead to the adoption of new technologies by Indian companies and help them become more competitive in the global market.

•**Cluster-Based Approach:** The PLI scheme uses a cluster-based approach to incentivize the manufacturing of specific products in specific regions. This approach brings together companies, academia, and research institutions in a specific geographic location to collaborate on R&D activities and share resources. This collaboration will foster innovation and technological advancements in manufacturing.



The PLI scheme encourages the transfer of technology to India by offering incentives for the production of products that use advanced or emerging technologies

What kind of employment opportunities will the PLI scheme create in the manufacturing sector?

•**Expansion of existing manufacturing facilities:** Companies that receive incentives under the PLI scheme are likely to expand their manufacturing facilities to increase production capacity. This could lead to the creation of new jobs in areas such as production, quality control, and logistics.

•**Increased demand for skilled labor:** With the growth of the manufacturing sector under the PLI scheme, there is likely to be an increased demand for skilled labor, including engineers, technicians, and other manufacturing professionals.

How will the PLI scheme impact the prices of goods produced by the manufacturing industry?

The impact of the PLI scheme on the prices of goods produced by the manufacturing industry would depend on several factors, such as the level of competition in the market, the cost savings achieved by manufacturers through the scheme, and the elasticity of demand for the products.

The PLI scheme is expected to lead to an increase in domestic production of goods, which could lead to greater competition among manufacturers. This increased competition could lead to lower prices for consumers as manufacturers try to gain market share. Moreover, the PLI scheme incentivizes manufacturers to improve efficiency, reduce costs, and increase productivity, which could result in cost savings for the manufacturers. These cost savings could be passed on to consumers in the form of lower prices.



The PLI scheme aims to incentivize companies to manufacture their products in India, which will help reduce India's dependence on imports and boost domestic manufacturing

What will be the impact of PLI scheme on the competitiveness of Indian manufacturers vis-a-vis their global counterparts?

The impact of the PLI scheme on the competitiveness of Indian manufacturers vis-a-vis their global counterparts would depend on several factors, such as the level of competition in the global market, the cost savings achieved by Indian manufacturers through the scheme, and the quality of products produced by Indian manufacturers.

The PLI scheme is expected to enhance the competitiveness of Indian manufacturers by incentivizing them to improve efficiency, reduce costs, and increase productivity. This could lead to lower production costs, which would make Indian manufacturers more competitive in the global market. Additionally, the scheme could help Indian manufacturers enhance their production capabilities and adopt new technologies, which would also enhance their competitiveness.

The global market is highly competitive, and many countries offer similar incentives and support to their manufacturers. Thus, the impact of the PLI scheme on the competitiveness of Indian manufacturers would also depend on how it compares to similar schemes offered by other countries.. [li](#)

MBA IN BUSINESS ANALYTICS



Programme Concept

- This is a 2 year work-study MBA program in Business Analytics.
- In the Beginning of the course, the student is placed with a company in a Domain of his/her choice to enable 70% practical learning and 30% theoretical learning related to the domain.
- Monday to Friday the student works in this company. Saturday and Sunday attends classes in the college.
- At the end of 2 years, the student gets an MBA in Business Analytics with 2 years of relevant Domain experience.
- The student will be paid a salary and will be in a full time job.
- The entire delivery of Business Analytics modules will be done by KPMG in India.
- In Addition to an MBA degree in Business Analytics, the student will also be awarded a Post Graduate Program (PGP) Certificate from KPMG in India.

Learning approach

Business Analytics Training is a technical concept and as such requires lot of interaction between participants and trainers.

Our Learner centric approach follows Scenario Based Integrated Training.

What do you learn?

- Business Statistics
- SQL and MongoDB
- Advanced Excel
- Business Analytics using R and Python
- Visualisation using Tableau
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- Web Scrapping
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Divij Singhal
MD & CEO

VOICE BOTS & CHATBOTS: THE KEY TO BUSINESS COMMUNICATION IN 2023

● By Divij Singhal, MD & CEO, ICCS

As the Managing Director of ICCS, Divij is expertised in Customer Experience Management, Customer Lifecycle Management and Customer Acquisition.

People's preferred communication methods, as well as the channels they use, are constantly evolving in today's digitally evolved world. Organizations have been compelled to rethink how they communicate with customers as a result of the pandemic. Whether it's video consultations for healthcare, chatbots for banking transactions, more user-centred apps for retail customers, or voice search and voice bot gaining popularity, many of these innovations have resulted in more efficient and productive ways of conducting partnerships. Businesses must keep up with the latest business communication trends in order to be competitive. In 2022, the world's seismic shifts will undoubtedly have a profound impact on how businesses manage their relationships with customers and staff.

Voice Technology for Business Communication in 2023

As the digital revolution unfolds, one key and disruptive sector - voice technology - is reaching a sophisticated new application level, one that is boosting daily life while expanding into new areas of business administration and communications. It has the potential to better educate and elevate the current customer experience as a critical component. It allows users to transform spoken language to text by utilizing a vast array of AI metadata in the development of new languages, as well as better utilizing automated assistants, virtual assistants, and chatbots.

Voice bots are gaining mainstream use in every corporate industry and transforming human-machine interaction. AI voice bots have the potential to change the customer service landscape in India. In addition, the new digital assistant will change how individuals interact with mobile

devices in everyday life. As people become more tech-savvy, understanding the depth and breadth of spoken words becomes increasingly important, especially in today's exponentially expanding distant environment. Advanced voice biometrics and speech recognition give the globe modern, ideal commercial toolsets, such as new intent and sentiment analysis, speaker identification, and statistical demographics. Speech is innovating and drastically extending rich relevant metadata for different and growing uses as a result of the increased use of these tools. Businesses are becoming more confident in exploring new ways to leverage speech technology and its data treasure trove as we approach 2023. As voice and speech recognition technology improves, companies are increasingly adopting it. Popular technologies like artificial intelligence (AI) and natural language processing will continue to upgrade speech technology, making it more authentic and approachable to different audiences. Voice biometrics and voice recognition will continue to be embedded in modern digital user experiences in the coming years, with innovative voice technology paving the way for businesses to improve efficiencies, speed up tasks, and increase security while also providing unique and natural personalized user experiences.

Chatbots for Business Communication in 2023

The COVID-19 epidemic has had a significant impact on customer behaviour. Organizations all over the world have quickly implemented chatbots to improve customer self-service, provide information, provide continuous and cost-effective support, and delight customers with personalized experiences in order to adapt to the sudden shift toward interacting with customers on

digital channels. The modern service desk evolved significantly in the 2000s. Chatbots played a significant role in this change, particularly with the promise of versatile new technologies like artificial intelligence (AI) and sentiment analysis. The epidemic of COVID-19 has hastened the digitalization process. It is marked by a significant shift in customer expectations toward more personalized experiences, contextual understanding, and behaviour prediction. With this backdrop, 2023 will provide additional opportunity to implement innovative chatbot technology and improve existing ones, allowing businesses to better communicate with current and potential customers. According to Gartner, AI will become a mainstream customer experience investment in the next couple of years as companies migrate from customer-based interactions to more real-time engagements. In fact, chatbots will be used by 47 percent of businesses for customer service, while virtual assistants will be used by 40 percent.



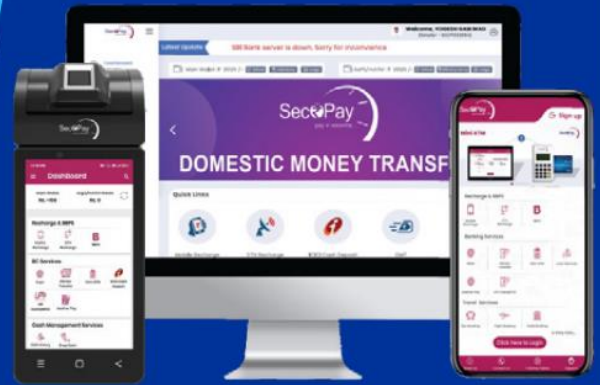
Voice bots are gaining mainstream use in every corporate industry and transforming human-machine interaction

Summing Up

Many firms have adopted the tagline 'reinvent yourself or die'. The epidemic and the integration of new technology into business processes have unmistakably marked the years 2020 and 2021. Business communication has been one of the areas most touched by this trend. Because of the emergence of hybrid working patterns, where we can find both in-office and remote workers, communication has become a critical component of maintaining maximum productivity. Without a doubt, the elements that have produced the difference in recent years will be consolidated in 2023. [ln](#)



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