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THE ECONOMIC TIMES

# POLYMERS

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**Sustainable Packaging**

A cleaner planet will be achieved through scaling regenerative packaging solutions

**Energy Transition**

Navigating Energy Transition, Renewables, and Sustainability

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MITSUBISHI CHEMICAL INDIA PVT. LTD.

**Mr. Pankaj Kumar Jha** - Mobile 9717744260 Email: jha.pankaj@ma.mc-india.co.in
**Mr. Basheer Ahmed** - Mobile 8291 854027 Email: ahmed.basheer@ma.mc-india.co.in
**Mr. Sachin Phadke** - Mobile 8291 854026 Email: phadke.sachin@ma.mc-india.co.in
**Ms. Winita Dsouza** - Mobile 8291 854028 Email: dsouza.winita@ma.mc-india.co.in

2M Business Solutions
**Consultant - YUPO Business**
**Mr. Prashant Mandewal**
Mobile: 9987183330
Email: mm.y@2m2.net.in
prashant_mandewal@yahoo.com

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# Navigating the Seas of Change

The global plastics and polymers industry, often regarded as the backbone of modern manufacturing, is undergoing a transformative phase that demands innovative solutions and a commitment to sustainability. As economies around the world seek to address environmental concerns and reduce their carbon footprint, the industry is responding with groundbreaking developments that are reshaping its trajectory.

Amid growing environmental awareness and the urgent need to reduce plastic waste, the industry is making a resounding commitment to sustainability. From biodegradable polymers to eco-friendly packaging solutions, manufacturers are venturing into uncharted territories, determined to minimise their impact on the planet. This paradigm shift is not merely an option but a necessity, and the ongoing research and development efforts signify a collective commitment towards a greener future.

Innovation is the cornerstone of progress, and the plastics and polymers industry is no exception. Advanced technologies are fueling the development of materials with enhanced durability, flexibility, and reduced carbon footprint. The use of recycled plastics is becoming more prevalent, backed by advancements in recycling processes that promise to minimise waste and optimise resource utilisation. These innovations are a testament to the industry's adaptability and determination to create solutions for the challenges ahead.

Packaging, a major contributor to plastic waste, is witnessing a revolution of its own. From edible packaging that reduces waste to smarter designs that promote reusability, manufacturers are reimagining the very concept of packaging. As consumers demand more sustainable choices, businesses are aligning their strategies to cater to this burgeoning market segment.

The journey towards a sustainable plastics and polymers industry is a global endeavour that requires collaboration across borders and industries. Governments, corporations, researchers, and consumers all have a role to play in this transformation. The sharing of knowledge, expertise, and resources is essential to drive collective progress and create a blueprint for future sustainability.

The latest developments in the global plastics and polymers industry are a testament to its resilience and its capacity to evolve with the times. As it navigates the challenges posed by environmental concerns and shifts in consumer behaviour, the industry is reaffirming its commitment to innovation, sustainability, and responsible growth.

In this edition, we have an exclusive interaction with the founding president of Polymatech Electronics which is planning to manufacture 2 billion chips in 2023. The company is India's first semiconductor chip

fabrication company. What's more, the current edition has also covered the currents shaping the global plastics and polymers industry, delving into the latest developments and their implications for businesses, consumers, and the environment. The industry's response to the changing landscape serves as an inspiration, reminding us that with determination, collaboration, and ingenuity, we can forge a more sustainable and prosperous future.

Happy Reading

Editor

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## Coca-Cola uses new 100 per cent rPET bottle for water

Coca-Cola India has recently launched its new 100 per cent rPET bottle for water. This is the first time that a packaging made of 100 per cent recycled plastic has been used for food or beverages in India.

The food-grade rPET for the new bottles is produced by Srichakra Polyplast (India) Pvt. Ltd. on a Starlinger PET bottle-to-bottle recycling line at Srichakra's facility in Hyderabad, Telangana state. It features technology for processing post-consumer PET bottles. The produced rPET pellets are suitable for food-contact and can be used for food and beverage.

Coca-Cola India uses the new rPET bottle for its packaged drinking water brand Kinley, which is currently sold in one-litre bottles. The launch of the rPET bottle became possible after the Food Safety Standards Authority of India (FSSAI) approved the use of recycled PET in food packaging. Ravindra

PV, Managing Director, Srichakra Polyplast, commented, "With Starlinger's PET recycling process, which has received positive opinions from EFSA and approvals from FSSAI, we ensure thorough decontamination of the PET in the recycling process and produce food-safe rPET pellets for PET bottle preform production and other types of food packaging."

Enrique Ackermann, Vice President Technical and Innovation Coca-Cola India and Southwest Asia, said, "Aligned with our vision of creating a World Without Waste, we are constantly looking for ways to reduce our environmental footprint and contribute towards creating a circular economy. Our new bottles made with food-grade rPET have value beyond their initial use, as they are fully recyclable and can be repurposed into new bottles."

Srichakra has already ordered another two Starlinger PET bottle-to-bottle recycling lines which will be delivered beginning of 2024.

## DP World aims to nurture 15,000 Ocean Protection Ambassadors

Taking ahead its vision of conserving nature, promoting biodiversity, and protecting oceans, DP World, a leading provider of worldwide smart end-to-end supply chain solutions, will nurture 15,000 school students and youth to become Ocean Protection Ambassadors. This initiative celebrates the spirit of World Nature Conservation Day by addressing the rising issue of plastic waste ending up in the oceans by driving behavioural change at the community level.

Plastic waste makes up 80 per cent of all marine pollution and around 8 to 10 million metric tons of plastic end up in the ocean each year. DP World's beach cleanup drives across Mundra, Cochin and Nhava Sheva witnessed over 200 employees partnering with local communities to clear over 300 kilograms of land-to-ocean plastic waste.

Kevin D'Souza, Vice President, Business Development, DP World, said, "Our employees in India and around the world strongly believe in our sustainability commitment towards 'Our World, Our Future,' and recognise the importance of adopting sustainable practices."

Additionally, in line with the theme of World Nature Conservation Day 2023, 'Forests and Livelihoods: Sustaining People and Planet', DP World provided thermal drones and two patrolling vehicles to the Tadoba-Andhari Tiger Reserve in Maharashtra, India. These interventions are improving patrolling capabilities at the tiger reserve and playing a significant role in the prevention and early detection of forest fires and helping reduce human-wildlife conflict.

## AGI Greenpac Q1FY24 results: PBT of Rs 85 crore up by 55 per cent

AGI Greenpac Limited, a focused Packaging Products company, has announced its financial results for the quarter ending June 30th, 2023.

The Company's Revenue from Operations increased by 7 per cent on a Y-o-Y basis, increasing from Rs 522 crore in Q1FY23 to Rs 558 crore in Q1FY24, despite a scheduled furnace shutdown for relining. The Company delivered EBITDA of Rs 140 crore, registering a significant growth of 52 per cent on a Y-o-Y basis with a margin of 25 per cent. Profit before Tax stood at Rs 85 crore, registering a remarkable growth of 55 per cent on a Y-o-Y basis with margins of 15 per cent.

On a year-over-year basis, the company's sales and profitability improved owing to increased market demand, a more favorable product mix, and our focus on high value-added products. Additionally, substantial investments in digitalisation and automation have further optimised the operations, significantly improving efficiency.

# Government to consider PLI scheme for Indian Chemicals and Petrochemicals sector: Nirmala Sitharaman

Nirmala Sitharaman, Minister of Finance and Corporate Affairs, Govt of India has said that the Indian chemical and petrochemicals sector has huge potential, and she realises its impacts other sectors of the economy. The Finance Minister said that the importance of the sector can be gauged from the fact that it manufactures 80,000 products which includes sectors like agriculture, infrastructure, textiles and packaging. "We are in favor of India becoming a manufacturing hub and we will consider the PLI scheme also for the chemicals and petrochemicals sector," she added.


Addressing FICCI's '3rd Global Chemicals and Petrochemicals Manufacturing Hubs in India Summit', Sitharaman stated that India has set its sight on becoming energy independent by 2047 and achieving net zero by 2070. She further urged the industry to play a key role in this mission. "Net zero cannot be achieved unless each one of the industry and sector contributes to it. We are very focused on Green growth, carbon intensity has to be reduced and therefore, each one of the sectors has to contribute towards this," she emphasised.

Highlighting the challenges in the sector, Sitharaman urged the industry to focus on issues related to sustainability of the products and processes, immense need for skilling, need to adopting Industry 4.0 in a very big way, skilling of people and pollution control regulations. "India has made an impact in the sector globally. The combined exports of major chemicals and petrochemicals in 2022-23 was $ 9 billion but also an increase in imports to $ 13.33 billion. I am quite comfortable with this but many of these imports are items which can be produced in India itself and there are some efforts in that direction as well," she stated.

She also urged the industry including FICCI to look at the ways to become a circular economy and the government will work to consider on the recommendations submitted by the industry to make the sector sustainable.

She further shared that the market of Specialty Chemicals is growing exponentially and industry in India is expected to grow at 12 per cent CAGR. "I, therefore, understand the need for more robust support for specialised chemicals. The emergence of this market is driven by country's strong process engineering capabilities, low-cost manufacturing capabilities and abundant manpower," noted the Finance Minister.

Bhagwanth Khuba, Minister of State for Chemicals and Petrochemicals and New and Renewable Energy, Govt of India said that the government is working towards creating an eco-system for the sector. "The government is working with state governments to set-up chemical parks in the country and the process of setting up plastic parks is already in place. We are also creating Centre of Excellence to bring industry and academia together along with promoting skill development. "Today the market size of the sector is around $ 190 billion and is likely to reach $ 300 billion by 2025 and $ 1 trillion by 2040 with huge opportunities," he stated.

Pratap Keshari Deb, Minister of Industries, MSME and Energy, Govt of Odisha said, "We are growing domestically at 8 per cent in the chemicals sector and to sustain this growth over the next 10 years we would need 40 per cent growth in the capacity. The government of Odisha will handhold the industry who wants to set up industry in the state."

Arun Baroka, Secretary (Chemicals and Petrochemicals), Department of Chemicals and Petrochemicals, Govt of India said that supported by the policy reforms along with increasing demand and innovation, India's outlook remains strong to be a global manufacturing hub. "Changing industry landscape is driving the Indian chemical and Petrochemicals industry towards the next wave of growth with newer opportunities," he added.

Subhrakant Panda, President, FICCI said, "Indian chemicals sector is highly diversified with 80,000 products which have an interplay with multiple sectors being key building blocks and raw materials. It has grown at more than 1.2x of GDP, and holds immense potential for employment as well as exports, driven by domestic consumption and enabling policies of government. India is an attractive destination for the chemicals sector and is expected to be a $1 trillion business by 2040 having a key impact on the economy overall."

Deepak Mehta, Chairman, FICCI National Chemical Committee and CMD, Deepak Nitrite Ltd and Prabh Das, Chairman, FICCI Petrochemicals Committee and MD and CEO, HPCL- Mittal Energy Ltd. also shared their perspective on the Indian chemicals and petrochemicals sector.

# Navigating Energy Transition, Renewables, and Sustainability

**In an interaction Jitendra Mohananey, former Chief Financial Officer, Inox Wind Ltd and Finance and Renewable Energy Sector Expert, talks about new learning, diversification, and change.**

Jitendra Mohananey, former Chief Financial Officer, Inox Wind Ltd and Finance and Renewable Energy Sector

**How would you characterise the ongoing energy transition within the power sector?**

Let us first understand what energy transition is. It is a process of moving away or shifting from fossil (primarily coal and petroleum) based systems of energy generation to renewable energy (solar, wind etc.).

There is a major thrust on renewables across the globe. A key takeaway from the Russia-Ukraine war is that countries across the globe are working on energy security (uninterrupted availability of energy sources at an affordable price) and see renewable energy as only the solution. This global energy crisis has triggered unprecedented momentum behind renewables, with the world set to add as much renewable power in the next 5 years as it did in the past 20 years.

The current energy transition in the power sector can be characterised as a profound and multifaceted shift towards cleaner, more sustainable sources of energy. This transition is driven by a combination of factors, including growing concerns about climate change, technological advancements, evolving consumer preferences, and policy initiatives aimed at reducing greenhouse gas emissions.

Renewable energy sources, such as solar, wind, hydro, and geothermal power, are playing an increasingly pivotal role in reshaping the power sector landscape. These sources offer the advantage of being abundant, environmentally friendly, cheaper than thermal, lower risk, better IRR to the investors and capable of decentralising power generation. As

a result, they are gradually displacing traditional fossil fuels like coal, oil, and natural gas, which have long been associated with pollution and carbon emissions.

This transition is not just about the sources of energy but also encompasses changes in energy infrastructure, grid management, and energy storage solutions. Smart grids, energy storage technologies, and advanced monitoring systems are being integrated to efficiently manage the intermittency of renewable sources and ensure a reliable power supply.

The energy transition is also influencing the way consumers interact with energy. Decentralised energy generation is empowering households and businesses to become energy producers through technologies like rooftop solar panels. Moreover, digitalisation and data-driven insights are enabling more efficient energy consumption patterns and demand-response strategies.

However, it's important to acknowledge that the energy transition comes with its own set of challenges. The intermittent nature of renewable energy sources necessitates robust energy storage solutions to ensure continuous power supply. Additionally, the transition may have economic implications for regions that heavily rely on fossil fuels for their economies.

**What is your take on the PM's vision of a zero carbon country? How US-India ties could benefit India's renewable sector?**

Globally various countries have set the target for themselves to become net zero. The USA has set the target for 2050, China for 2060 and India for 2070. I believe India can achieve well before 2050 as the sources of renewable energy by and large have remained untapped. Look at the totally unexplored coastal length of India -7,600 kms, already waiting for offshore wind power generation.

The Prime Minister's vision to achieve a zero-carbon country is a strategic move that aligns with India's commitment to addressing climate change and transitioning towards sustainable energy sources. This vision, outlined in initiatives like the International Solar Alliance and the commitment to renewable energy targets, demonstrates India's dedication to reduce carbon emissions and promote a greener future.

The ties between the United States and India could indeed greatly benefit India's renewable sector. According to the United Nations Framework Convention on Climate Change (UNFCCC), India's renewable energy capacity has already expanded significantly, with a fivefold increase in solar installations. The U.S.-India partnership could leverage the USA's technological advancements and expertise to enhance India's renewable energy infrastructure further.

The U.S-India Strategic Energy Partnership, launched in 2018, has already yielded positive outcomes. This partnership focuses on enhancing energy security, promoting clean energy, and fostering economic growth. Collaborations under this initiative include the U.S. Department of Energy's participation in India's Green Energy Corridors and Smart Cities programs, which facilitate technology transfer and expertise sharing.

Moreover, World Bank reports that, the United States has been a significant contributor in financing India's renewable energy projects, supporting initiatives such as the development of solar parks and grid integration. The U.S. Overseas Private Investment Corporation (OPIC), now the U.S. International Development Finance Corporation (DFC), has also invested in renewable energy projects in India, contributing to the growth of the sector.

**Elaborate on India's renewable sector growth over the past 10 years. What are the major challenges and how do you foresee the policy changes will bring cheers to companies invested in renewables?**

Needless to mention, in the last decade the Government of India has done a commendable job in promoting renewable energy and precisely because of that India is very well placed on the world map of renewable power by occupying 4th position (163 GW) after China (1161 GW), US (352 GW) and Brazil (175 GW). The Government of India (GOI) has in my view already put all the requisite policies in place to promote renewable energy in India.

The major challenge that I see in future, is to bring to India the rapidly changing technology though this may come at a cost which might in turn result in a slightly higher cost of generation. As I have said in my previous publications if GOI must make offshore wind energy a success, it shall think out of the box and provide several incentives including but not limited to PLI, exemptions in duties and taxes, GBI, tax deductions etc.

**Being an industry veteran how will you translate demand for the thermal power sector compared to renewable?**

As an industry veteran, I understand that the dynamics between the demand for the thermal power sector and renewable energy are undergoing a significant shift. Over the years, the energy landscape has been evolving due to various factors, including environmental concerns, technological advancements, policy shifts, and changing consumer preferences.

Traditionally, the thermal power sector, which primarily relies on fossil fuels such as coal, oil, and natural gas, has been a dominant source of energy generation due to its established infrastructure and reliability. However, the growing emphasis on sustainability and the urgency to address climate change

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have prompted a transition towards renewable energy sources like solar, wind, hydro, and geothermal power.

In terms of demand, there has been a noticeable surge in interest and investments in the renewable energy sector. This is driven by factors like environmental awareness, policy support, technology advancement, public demand, and energy security.

While the demand for renewable energy is on the rise, it is important to note that the transition from thermal power to renewables is a complex process. Existing thermal power infrastructure and workforce skills need to be transitioned gradually. Additionally, ensuring a stable and reliable energy supply as renewable sources can be intermittent, requires robust grid management and energy storage solutions.

It is also worth mentioning that the energy transition is not uniform across all regions and countries. Factors such as geographical location, resource availability, policy frameworks, and economic considerations play a significant role in shaping the energy mix.

It is well understood that renewable energy cannot replace thermal power by a 100 per cent due to the inherent nature of its dependency on Nature. Though going forward the demand for thermal power is expected to reduce by at least 50 per cent, given the availability of the storage technology of renewable power. Today solar and wind power are far cheaper than thermal power.

**Sustainability is becoming increasingly important in the business world. How do you integrate sustainable practices into operations?**

What is sustainability? It is the ability to maintain or support a process continuously over some time. In business practices, sustainability seeks to prevent the depletion of natural or physical resources, so that they will remain available for the long term. We firmly believe in using recycled material and minimising carbon footprint.

Integrating sustainable practices into operations is not only a responsible approach but also a strategic one that aligns with the evolving expectations of customers, investors, regulators, and the broader community. As someone who values the long-term viability of the business, here's how I approach the integration of sustainable practices into operations:

***Leadership Commitment:*** The first step is ensuring that sustainability is a core value embraced by the leadership. This commitment should be visible in the organisation's mission, values, and strategic goals. When leadership champions sustainability, it sets the tone for the entire workforce.

***Assessment and Goal Setting:*** Conduct a thorough assessment of the company's current practices, resource consumption, and environmental impact. Based on this assessment, set clear and measurable sustainability goals. These goals can encompass areas like energy efficiency, waste reduction, carbon emissions, and resource optimisation.

***Incorporate Sustainability in Strategy:*** Embed sustainability into the overall business strategy. Ensure that every strategic decision considers its environmental, social, and economic implications. This might involve evaluating the environmental impact of supply chain choices, product design, and distribution methods.

***Employee Engagement:*** Educate and engage employees on sustainability initiatives. Employees can play a crucial role in identifying opportunities for improvement and driving behavioural change. Foster a culture of sustainability through training, workshops, and open communication.

***Efficient Resource Management:*** Implement practices that minimise resource consumption. This might include energy-efficient technologies, water conservation measures, and waste reduction strategies. Consider adopting circular economy principles that promote reusing and recycling materials.

***Supply Chain Sustainability:*** Collaborate with suppliers to ensure they adhere to sustainable practices. This could involve selecting suppliers with strong environmental and social records, encouraging sustainable sourcing of raw materials, and promoting fair labour practices.

***Innovation and Research:*** Encourage innovation that aligns with sustainability goals. Invest in research and development to find innovative solutions that can minimise environmental impact while improving operational efficiency.

***Transparent Reporting:*** Establish transparent reporting mechanisms to track progress toward sustainability goals. Regularly communicate the company's achievements, challenges, and plans for improvement to stakeholders, demonstrating the commitment to sustainable practices.

***Investment in Technology:*** Embrace technologies that can facilitate sustainability. This might include adopting renewable energy sources, implementing energy management systems, or utilising digital tools to optimise resource allocation.

***Continuous Improvement:*** Sustainability is an ongoing journey. Regularly review and assess the effectiveness of sustainable practices and goals. Identify areas where improvements can be made and adapt strategies accordingly.

By integrating these practices, a business can not only reduce its environmental impact but also improve operational efficiency, enhance brand reputation, attract responsible investors, and contribute positively to the communities it operates in. Ultimately, the integration of sustainable practices becomes a source of competitive advantage and a testament of a business's commitment to a better future.

# "A cleaner planet will be achieved through scaling regenerative packaging solutions"

**"By working together, we can transform our collective vision of a cleaner planet into a reality through accessible compostable alternatives to single-use plastic," claimed Jagdeep Hira, Business Head, Yash Pakka Ltd. In this interview with Dipika Lalwani, he sheds light on the company's commitment to responsible manufacturing practices in crafting compostable base materials for packaging and tableware.**

Jagdeep Hira, Business Head, Yash Pakka Ltd.

**WE ARE ALSO EXPANDING OUR EXISTING FACILITY IN AYODHYA. THIS EXPANSION INVOLVES THE ADDITION OF A FOURTH PAPER MACHINE AND AN INCREASE IN PRODUCTION CAPACITY. CONSEQUENTLY, WE WILL BE ABLE TO OFFER NICHE SPECIALTY PAPER GRADES, A FIRST-OF-ITS-KIND IN INDIA.**

**Can you provide an overview of Yash Pakka Limited's manufacturing unit and its operations?**

Currently, through our key product offerings, we provide compostable base material for packaging and compostable tableware designed for dine-in and delivery purposes.

As Yash Pakka, we specialise in compostable solutions for the food industry including food packaging, food carry and food service. Our manufacturing process relies on bagasse, an agricultural residue derived from sugarcane, as the primary raw material. This raw material is procured from sugar companies within a radius of 200-250 km.

Currently, through our key product offerings, we provide compostable base material for packaging and compostable tableware designed for dine-in and delivery purposes.

Some of our eco-friendly practices in the manufacturing process include 100 per cent self-generated biomass energy, recovery of 95 per cent cooking chemicals and being off grid as we are completely self-sustained for electricity.

To further demonstrate our dedication to eco-friendly practices, we employ several measures during the manufacturing process.

Firstly, we generate 100 per cent of the required biomass energy internally, minimising our reliance on external energy sources. Additionally, we ensure the recovery of 95 per cent of the cooking chemicals used in our operations. Finally, our self-sustaining electricity infrastructure allows us to function independently from the grid, contributing to our overall off-grid status.

By implementing these initiatives, we strive to maintain a responsible and environmentally conscious approach to manufacturing compostable solutions for the food industry.

**Since your manufacturing unit is fueled by rice husk, could you elaborate on the benefits and challenges associated with it? Also, how do you ensure a steady supply of this husk?**

The calorific value of rice husk is high, and so it is the first preference for biofuel that we use in the plant. We ensure that all necessary tests are done before procurement of the material, and the most important test is moisture test. There are no inherent challenges with the material; however, there has been a supply crunch in the last year or so due to the changing global political landscape. Alternatively, we also use pith, although it has low calorific value and it also impacts the health of some types of boilers.

In general, there is no scarcity of rice husk in the region in which Yash Pakka is located due to the favorable conditions for the plantation of rice grain.

**What kind of products will be manufactured at the new manufacturing unit in Guatemala, which you recently signed an MoU for? How does this expansion align with Pakka Limited's long-term goals?**

The Guatemala plant of Yash Pakka will primarily focus on flexible packaging and moulded tableware. The expected capacity of the new plant is approximately 400 TPD.

**THE GUATEMALA PLANT OF YASH PAKKA WILL PRIMARILY FOCUS ON FLEXIBLE PACKAGING AND MOULDED TABLEWARE. THE EXPECTED CAPACITY OF THE NEW PLANT IS APPROXIMATELY 400 TPD. OUR PRIMARY VISION REVOLVES AROUND A CLEANER PLANET WHICH WILL BE ACHIEVED THROUGH SCALING REGENERATIVE PACKAGING SOLUTIONS.**

Our primary vision revolves around a cleaner planet which will be achieved through scaling regenerative packaging solutions. This is a step in that direction. So far, we have been able to service primarily India, Middle-East and Far East through our manufacturing facility in Ayodhya. Further, there are some customers in Europe as well. Through the facility in Guatemala, we aim to cater to the compostable packaging demands of North America.

**What are the main products offered by Yash Pakka Limited in international markets? How do you adapt to meet the specific needs of customers in different countries?**

We are one of the leading exporters of compostable bleached and unbleached kraft paper to the overseas market, making it our primary product line. Given our diverse customer base across different countries, we understand that their requirements can vary, particularly in terms of paper shade and properties. For instance, in Saudi Arabia, we provide a darker brown kraft paper specifically for bakery applications, whereas in Bahrain, we offer the same grade of paper with identical properties but in a golden shade, also for bakery purposes. This flexibility to cater to individual customer needs has positioned us as the preferred choice for foreign customers seeking compostable food packaging solutions. Additionally, we are committed to customising the paper properties to the extent possible without compromising its strength, ensuring we meet our customers' specific requirements.

**What are the key target markets and industries that Pakka Limited serves with its compostable tableware? Are there any specific sectors where the demand is particularly high?**

Yash Pakka's compostable tableware brand, Chuk, targets a wide range of clients, including prominent organisations such as PVR, Shri Mata Vaishno Devi Shrine Board, Haldiram's, and Tapri Jaipur. Our objective is to bring about a transformative change by offering an alternative to single-use plastic to any organisation that currently uses it. We firmly believe that true and impactful change can only be achieved by ensuring that no segment is left untouched, which is why we strive to make a significant impact on a large scale.

Thus far, we have observed a significant demand for Chuk tableware from Quick Service Restaurants (QSRs). The fast-paced nature of these establishments, coupled with high customer turnover, makes Chuk an ideal choice as it facilitates seamless operations. In terms of geographical acceptance, we have experienced a positive response, particularly in metropolitan areas, especially in Delhi-NCR. This can be attributed to the growing awareness among brands and end consumers regarding compostability and sustainability.

**THE LAST 2 FINANCIAL YEARS HAVE SEEN SIGNIFICANT GROWTH IN TOP LINE FOR THE COMPANY AND A BIG REASON FOR THIS IS THE PARADIGM SHIFT OF BRANDS AND CUSTOMERS TO SUSTAINABILITY. A YOY REVENUE GROWTH OF MORE THAN 50 PER CENT IN THE LAST FINANCIAL YEAR AND 40 PER CENT IN THIS FINANCIAL YEAR SHOWS THAT THE EFFORTS ARE BEING PUT IN THE RIGHT DIRECTION, AND THERE IS HUGE ACCEPTANCE OF COMPOSTABLE PACKAGING IN THE MARKET.**

**Can you elaborate on any certifications or recognitions that Pakka Limited has received for its environmentally friendly manufacturing process?**

Yash Pakka has been consistently acknowledged and commended for its commitment to sustainable practices, receiving numerous awards, accolades, and certifications over the years.

In 2023, the company achieved the distinction of being listed among the Top 50 Workplaces in Manufacturing by Great Place to Work, which is a testament to Yash Pakka's unwavering work ethic and continuous efforts to enhance its manufacturing processes.

Additionally, Yash Pakka's dedication to water conservation was acknowledged through its recognition as a water-efficient unit at the CII National Awards for Excellence in Water Management 2022. The company's proactive approach towards energy conservation was also acknowledged by UPNEDA, as Yash Pakka was honored with the Uttar Pradesh State Energy Conservation Award in December 2022.

Furthermore, our commitment to innovation and industry expertise was acknowledged by the United Nations Industrial Development Organization (UNIDO). The manufacturing facility located in Ayodhya was selected by UNIDO to conduct a workshop focused on reducing black liquor viscosity.

**The company achieved a 40 per cent growth in Total Revenue, which rose from Rs 299.22 crore in FY 21-22 to Rs 419.89 crore in FY 22-23. Were there any specific strategies or market conditions that favored this growth?**

The last 2 financial years have seen significant growth in top line for the company and a big reason for this is the paradigm shift of brands and customers to sustainability. A YoY revenue growth of more than 50 per cent in the last financial year and 40 per cent in this financial year shows that the efforts are being put in the right direction, and there is huge acceptance of compostable packaging in the market.

The last two years have seen our constant efforts to increase production while maintaining quality. The trust that has been built over decades, came to fruition as customers were drawn back immediately after the COVID-19 slowdown, which helped boost sales over the last year and the year prior.

**WE ARE ESTABLISHING A NEW LABORATORY IN BENGALURU FOR OUR INNOVATION TEAM. THIS FACILITY WILL FACILITATE SIGNIFICANT ADVANCEMENTS IN THE DEVELOPMENT OF COMPOSTABLE PACKAGING SOLUTIONS FOR THE FOOD INDUSTRY.**

**How does Pakka Limited plan to sustain and further improve its financial performance in the future? Are there any specific areas or markets the company intends to focus on?**

Pakka's expansion plans, which we have been emphasising on recently, are aligned with our goal of enhancing performance in the near future. By working together, we can transform our collective vision of a cleaner planet into a reality through accessible compostable alternatives to single-use plastic.

With this objective in mind, we have entered into a Memorandum of Understanding (MoU) with sugar companies in Guatemala to secure raw materials. The development of a new plant will commence shortly, focusing primarily on the production of compostable flexible packaging and moulded tableware.

Simultaneously, we are also expanding our existing facility in Ayodhya. This expansion involves the addition of a fourth paper machine and an increase in production capacity. Consequently, we will be able to offer niche specialty paper grades, a first-of-its-kind in India, empowering our customers to meet their requirements domestically. Moreover, our power requirements are self-sustained, and we are in the process of installing a third power plant at our factory.

Furthermore, we are establishing a new laboratory in Bengaluru for our innovation team. This facility will facilitate significant advancements in the development of compostable packaging solutions for the food industry. Our commitment to progress spans various aspects, and we are determined to amplify the impact we can make over the next 2-3 years.

# "With Source.One app, even a small MSME plastic manufacturer, can avail raw materials at competitive prices"

**Source.One, a new-age online trading platform, is revolutionising the conventional polymer distribution business by placing technology at the core of its operations. In an interview, CEO Arun Singhal sheds light on their proprietary app and how this technology has enabled them to buy, transport and deliver raw materials seamlessly. He also shared insights about how their online distribution platform is granting them unparalleled authority over the entire distribution supply chain in an interview with Nisha Shukla.**

**As one of the emerging online players in polymers distribution, explain in detail about your one-of-its kind business model. Also elaborate how Source.One is bridging the gap between buyers and suppliers?**

Source.One is a tech-driven commodity distribution company that simplifies polymer distribution for SMEs in India. Founded in 2018, our trading platform connects buyers and suppliers, offers consistent products/prices, and provides end-to-end solutions. Our proprietary solutions include a pricing engine, inventory management system, credit scoring model, and traceability system.

Through its unique business model, Source.One has been able to democratise the industry. No longer does a small MSME plastic manufacturer need to buy raw materials at a higher price because of their size of operations. Neither do they have to succumb to discriminatory credit terms. We are making the widest range of polymers available at the best price to all parties, irrespective of the size of their business. This helps the MSME players to play on an even playing field.

**Our company has grown to become India's largest Polymer Distribution Companies, with two key pillars:**

***Match demand to supply on merit:***


Arun Singhal, CEO, Source. One

Not just polymers, we also match logistics needs through a 2,000+ network of transporters, and money through a network of banks and NBFCs, to the right processors. Internally too, we have matched 150+ employees with whatever they do best.

***Owning the supply chain of distribution:*** We don't operate like a marketplace. We own the whole supply chain of distribution, right from sale, buy, logistics, finance, data, etc. thereby making it super easy for partners (Processors, Stockists, Importers, Transporters or Financial Institutions) to play to their strengths.

**We heard that your business crossed Rs 2,000 crore mark in annual turnover, and you serviced more than 6,000 buyers across more than 200 districts of India. How did you achieve this milestone and what are the factors that contributed to this growth?**

Our network of Processors-Transporters-Financial Institutions (FIs) helps us scale and reach the most difficult corners of the country with ease. With GST, fast-improving road network, and increased digitisation of MSMEs, we could connect most of the dots in the industry. Today we can buy-transport-deliver in most parts of the country within 24-48 hours. And this is across 100s of SKUs.

Using data intelligence, we have identified 10,000+ plastics processors and with the help of simple technology such as WhatsApp, we have been sending price updates to these processors daily. Our team of account managers connect with these potential buyers to bring more intelligence on the specific grades of polymers they need for their production. This helps us to further customise our services for each of these buyers.

We also use data intelligence to map transporters across different locations to optimise our freight between any two locations. The back-end algorithm helps to identify the most optimal dispatch location for

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any buyer, thus minimising transportation time and cost.

**Given your online trading platform directly connects polymer buyers and sellers, tell us in detail about how technology is revolutionising your business and helping in expanding your outreach?**

More than trading, we have evolved as a whole ecosystem of trade, news, and intelligence. Today we help the industry with newsletters, market intelligence from experts, data analytics, etc. Technology has been a massive scaling tool for us. With the right technology, we have mapped most of the industry at a GPS Coordinates Level. This helps us to deliver value at scale. For example, if there is a shortage of a product in a certain part of India, we will be there before anyone with the help of our data intelligence.

**Given the polymer business follows a very traditional approach when it comes to buying and selling. Are you providing any training or technical assistance for these individuals?**

Polymer Businesses used to operate traditionally. But with post GST implementation and digital initiatives by the government, the industry is fast moving to adopt modern ways of digitisation. For example, today 40 per cent of our business comes through our mobile apps. Overall, the industry has embraced technology much better than most commodity industries.

We understand that adoption of any new technology takes time. Hence, despite having our own buyer app, we never insisted buyers on using it exclusively for placing orders. Given most of us are very WhatsApp savvy, we decided to go ahead with this platform and drive technology adoption in this industry. With time, we have been able to fetch 40 per cent of our buyers from WhatsApp to our mobile app with the help of on-call and video-based training.

**How has your online platform benefited both large and small enterprises in the ecosystem.**

Be it large or small, most processors participate in the market at different times of the year. The market, as they say, is a great equaliser. We serve the smallest to the largest of processors and stockists, both on the demand and supply side at different times. For example: during Covid times, when everything stood standstill, we worked with large enterprises to liquidate their inventories and helped them move towards essential categories. For us, it's the horses-for-courses policy that works. We also do offer price customisations in the form of volume discounts.

**Tell us in detail about your credit services?**

We have tied up with a network of banks and FIs to serve credit to processors. Overall, with access to credit at a competitive cost, our processors can compete with the best in the world. We have always kept credit as an enabler for the right processors, who have shown growth and hygiene in their financials.

**Additionally, how do you address emergencies or shortfalls in the materials to meet your customers' demands?**

With the right network of stockists across 28 states, we can service ~ 97 per cent of all just-in-demand requirements. We work very hard to increase supply network throughout the year.

**How do you ensure a customised solution for every customer?**

The simple answer is Data. At various points of a processor's journey, we have collected different data points and used them to provide a better experience next time. For instance: we map the application against each processor to provide the most relevant information. We have even mapped the Price-vs-Brand preference of each processor based on the past transaction history.

**How do you ensure a sense of transparency, consistency, and quality in every transaction you undertake?**

We keep it simple: work on merit. We have created close to 32+ buyer profiles to be able to operate both fairly and profitably. Normally, fairness and profits do not go along together. But if you dig deeper into profiling your market, this is possible to achieve.

**How does Source.One incorporate sustainability practices into its operations and products?**

Being into distribution, we see some sections very closely and contribute very effectively. For instance, we work with importers to deliver a Port-to-Factory experience to 1,000s of Processors. This saves massive amounts of fuel and costs in the whole supply chain. We also work with a few NGOs in recycle-to-reuse of plastics and are closely working to integrate their operations with ours.

**You have doubled your workforce in the past few years, how do ensure hiring the right talent for your business?**

Product industries have overall lost in the talent war to services. And within products, commodities are one of the worst-performing. For us, two things stand out when attracting talent:

a) the experience of watching disruption from close quarters, and
b) witnessing technology work at scale. We hope to grow further from here.

**Tell us about the future/expansion plans for Source.One in India? Also, any plans to diversify into other segments?**

Yes. We will further expand to major commodities in India, both chemicals and non-chemicals. We will stick to distribution and help the ecosystem to grow. We have created teams and are hopeful to see traction soon.

# PLEXCONCIL set to achieve USD 25 Billion in Plastics Exports by 2027

**While recessionary conditions prevailing across the world as well as lower polymer prices have impacted plastics exports in the past year, Indian plastics processors and manufacturers continue to elicit much interest from the global buyers' community. Here's an insight on how PLEXCONCIL is leveraging this burgeoning demand to attain exports worth USD 25 billion by 2027.**

**By Sribash Dasmohapatra, Executive Director, PLEXCONCIL**

Is there any aspect of one's life that remains untouched by plastics? If you are wondering, the answer is actually no. There is little doubt that this human invention has changed the way we live in more ways than we can imagine and even though the mismanagement and handling of plastic waste has become a grave concern for environmentalists and societies at large, it's benefits cannot be denied. From lower carbon footprint and energy savings in manufacturing and across its applications to improved overall efficiencies, plastics have greater potential than other materials when it comes to manufacturing and performance.

The global plastics trade is a USD 1.1 Trillion market and global plastic production has been growing at a rate of 8.2 per cent pa since 1950. This includes all types of plastics ranging from packaging to aerospace and everything in between. And while India's plastics exports have been growing at a steady pace of 5.7 per cent in the last decade, our global market share is just about 1.1 per cent which demonstrates the immense potential for the growth of the industry. In the year 2022-23, plastic exports stood at USD 12 Billion.

As the apex body that represents the plastics export industry, PLEXCONCIL has been at the forefront of promotion and growth of the industry segment. "Plastics exports have come a long way since PLEXCONCIL was established in 1955 when exports stood at USD 16 Million. Today, Indian plastics exports stand tall among leading global economies in numerous segments including FIBC, Films & Sheets, Packaging, Engineering plastics, to name a few. The industry in the post pandemic era has come into the spotlight driven by the remarkable achievements of especially the medical plastics segment and the trend continues as importers have been engaging with our exporters to meet their sourcing requirements. Indeed, India is becoming the global sourcing hub for plastics". The Council has set a target to achieve USD 25 billion in exports by 2027. While recessionary conditions prevailing across the world as well as lower polymer prices have impacted plastics exports in the past year, Indian plastics processors and manufacturers continue to elicit much interest from the global buyers' community. The Council has established the export target based on data analysis and examining of the export potential for Indian plastics products across the world. A multipronged approach has been adopted and plans have been put into place to achieve the figures by the target year.


As part of its export promotion plan, PLEXCONCIL will lead Indian exporters to strategically identify renowned plastic trade fairs in the coming months. The Council has also been working closely with Indian embassies and High Commissions; as well as international trade bodies and Chambers of Commerce to identify product demand and trends in their respective markets as well as organise dedicated meets with

potential buyers. The Council also recently held its first export focused exhibition, PLEXCONNECT 2023, as a dedicated platform for Indian plastics exporters and international buyers. The exhibition was hugely successful and attracted business worth USD 16.5 million with USD 5.3 million worth of spot deals during the 3 days.

India exports plastics to over 200 countries and the top destination for exports are USA, UAE, UK, Germany, Italy, Bangladesh, Nepal, China, Saudi Arabia, Netherlands, and others. Data analysis indicate not only greater opportunities within existing markets for deeper penetration and a wider export basket, but also emerging and new opportunities in Western & Northern Africa, Latin America and more.

In the recent past, the Govt of India has signed three new trade agreements and is negotiating several others particularly with the EU, UK, and Canada. Renegotiating and forging new FTAs are critical to opening viable opportunities for plastics exports as well and the industry is hopeful of greater benefits from the same. The Council has been in constant dialogue with the concerned Govt authorities and has been actively pursuing policy and trade advocacy on behalf of the plastics industry.

Furthermore, there are several schemes designed by the Govt of India to support export growth. In addition to the new Foreign Trade Policy that is forward thinking and dynamic, the GOI also supports the Plastic industry through MAI Scheme, MSME – IC Scheme & PMS Scheme, Interest Equalisation Scheme on Pre, and Post Shipment Rupee Export Credit, among others. The Ministry of MSME also launched the ZED (Zero Defect) Certification which aims to uplift the quality standards of domestically produced goods, and boost industry growth both in India and in exports.

To boost polymer production in India, the Govt has also approved establishment of PCPIR and Plastic Parks. While reduction of import duties on key polymers will aid processors in the short run, boosting polymer production will serve as a game changer for the industry in the long run.

And lastly, growing investments in innovation, technologies, machinery, skills, etc, have also played a catalytic role in the fast paced growth of the industry, and these factors will continue to support export growth as our industry aligns with the diverse demands of the global marketplace.

Backed by the Govt's support to promote export growth and a carefully designed strategy, at PLEXCONCIL, we believe that our industry is well positioned to achieve its export target by 2027. And that we believe is only the beginning of a long and successful road ahead.

## UPDATE

# NCLAT dismisses INSCO and other's contentions against the CCI's approval of AGI Greenpac's takeover of HNG

The National Company Law Appellate Tribunal (NCLAT) has dismissed the challenge brought forth by Independent Sugar Corporation Limited (INSCO) and other companies against the Competition Commission of India's (CCI) approval of AGI Greenpac's takeover of HNG under Corporate Insolvency Resolution process. The landmark judgment made by NCLAT clears the path for faster resolution of HNG under IBC.

In March 2023, CCI granted approval to AGI Greenpac's takeover of HNG subsequent to an extensive assessment. Despite attempts to disrupt the resolution process, the NCLAT has resolutely dismissed INSCO and others' contentions, affirming the process followed by CCI.

AGI emerged as the highest bidder in September 2022 for the acquisition of HNG under a bidding process run by Resolution Professional and Committee of Creditors led by the State Bank of India. INSCO lost the bidding process to AGI Greenpac and AGI Greenpac's resolution plan was approved by 98 per cent of the Committee of Creditors in October 2022.

The proposed acquisition of HNG by AGI Greenpac is expected to maintain the supply chain of liquor, beer, food, and pharmaceutical sectors which require regular supplies of container glass bottles. The glass manufacturing furnaces of HNG have not been maintained for a long time and a few of the furnaces have leaked leading to uncertainties of supplies to major liquor, food, and pharma sector. AGI plans to make substantial investments post-acquisition of HNG towards the refurbishing of furnaces and is expected to maintain the livelihood of all direct and indirect labour involved with its business.

AGI Greenpac expects that with the NCLAT order, the approval of its resolution plan at NCLT Kolkata should now accelerate.

This landmark ruling represents the NCLAT's commitment to the fair and faster disposition of cases especially linked to the resolution process under IBC.

# "Compatibility with different manufacturing processes and software platforms is paramount"

**Mahesh Waghle, Director, and Co-Founder, Cybernetik shares insights on how their new-age technology seamlessly integrates with existing manufacturing systems and processes without disruption, thereby enabling manufacturers to revolutionise their operations and output quality.**

**What are the new digital (automation and robotic) technology solutions you offer to your clientele? How is it helping them to revolutionise their manufacturing process and output quality?**

We employ digital twin technology, which offers our clientele a revolutionary solution for streamlining their manufacturing processes. By creating a virtual replica of their physical manufacturing systems, including machinery and processes, we enable them to simulate and test changes without any operational downtime. This virtual simulation capability empowers manufacturers to make informed decisions, optimise their processes, and implement improvements rapidly. Traditionally, making changes to manufacturing operations could result in extensive downtime, lasting several months. However, with the adoption of digital twins, this downtime is significantly reduced to a mere 2-3 weeks. By leveraging virtual simulations and implementing virtual changes, our clients can fine-tune their processes, identify bottlenecks, and enhance overall efficiency.

The implementation of digital twins also allows for real-time monitoring and data analysis, providing actionable insights into process performance. This comprehensive understanding enables manufacturers to proactively address potential issues and make data-driven decisions for continuous improvement.

Mahesh Waghle, Director and Co-Founder, Cybernetik

**Do you think manufacturers are still hesitant in integrating new age technologies to their facilities? How do you assure them about its benefits and safety?**

Manufacturers' hesitation in adopting new-age technologies, like automation, stems from factors such as limited awareness of ROI, uncertainty about benefits, and budget constraints. To address these concerns, we offer comprehensive support by calculating and demonstrating ROI specific to their operations. Our team conducts thorough analysis, emphasising potential gains and cost savings. For those seeking a safer work environment, we emphasise enhanced safety measures rather than ROI. We assure manufacturers of our technologies' adherence to safety standards, providing documentation, certifications, and client testimonials. Our tailored approach aims to alleviate hesitations and empower manufacturers to embrace new technologies for improved facility operations.

**How do you ensure compatibility with different manufacturing processes or software platforms?**

As system integrators, our solutions are highly customisable to meet specific client requirements. We ensure seamless integration with existing systems and processes without disruption. Considering limitations such as space, footprint, and available resources, we design tailored solutions that address client needs while working within constraints. Compatibility with different manufacturing processes and software platforms is paramount. Through thorough assessments and robust communication, we seamlessly integrate our solutions, optimising efficiency. Our focus is on delivering customised solutions that drive operational success while considering client limitations and objectives.

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# "We are well-positioned to grow in the Indian semiconductor market"

**Polymatech Electronics, the pioneer semiconductor chip fabrication firm in India, is currently witnessing substantial demand for opto-semiconductors. Eswara Rao Nandam, the Founding President of Polymatech Electronics, openly discusses the key strategies his company is adopting to effectively address the surging need for semiconductor chips. He also provides insights into their exclusive crystal growth technology, expansion endeavours, and the much-awaited mass production of advanced semiconductor components in India for 5G and 6G applications in an interview with Nisha Shukla.**

**As a first home grown semiconductor chip manufacturer, how is the market and business shaping for Polymatech Electronics in India?**

Polymatech Electronics is India's first semiconductor chip fabrication company. The company is currently focusing on Opto-Semiconductors also known as Photonics. These semiconductor devices interact with light and offer unparalleled capabilities in sensing, communicating, illumination, data transmission and energy conservations. As the world continues to digitise and there is technological advancement, the market for opto-semiconductors has witnessed exponential growth in the recent years. These opto-semiconductors are integrated into numerous end industries and applications such as:

- LEDs for large space, automotive, and consumer electronics applications
- Optoelectronics for sensors, lasers, and displays
- Wireless communications chips for 5G, Wi-Fi, and Bluetooth applications
- Medical devices chips for pacemakers, insulin pumps, and other medical devices
- Industrial automation tools such as high-speed machine vision systems and measuring parameters such as pressure, temperature etc.
- Applications including defence, aviation, and space crafts.

Polymatech is committed to providing high quality semiconductor chips to its customers. The company is also investing in research and development to develop new and innovative chip technologies. Polymatech is well-positioned to grow in the Indian semiconductor market, which is expected to grow rapidly in the coming years.

Leveraging our expertise in Sapphire-based GaN Semicon chips, Polymatech opto-semiconductors are designed for reliability. It helps Indian buyers to cater to the increasing demand. Businesses can now position themselves favourably in this burgeoning market.

**Given the market for opto-semiconductors is massive, as it is driven by multiple end industries and applications, how are you gearing up to meet this huge demand?**

Polymatech Electronics is gearing up to meet the huge demand for opto-semiconductors by investing in new manufacturing capacity. We are currently operating from our Oragadam, Kancheepuram facility – which we also refer to as Plant 1. Besides, we are adding two more manufacturing facilities to our portfolio. Out of the two, Plant 2 is coming up at Krishnagiri, Tamil Nadu which is located 250 km from Chennai, and 90 km from Bengaluru, whereas for Plant 3: we are still in the process of scouting land for it.

While Plant 2 and 3 will be assembly units, Plant 1 will operate as a chip manufacturing facility. The company is also doing in-house research and development to cater to new industries such as defence, 5G components and more. Currently, we produce 300 chips per year and aim to fabricate 2 billion chips by the end of 2023. Besides, we intend to fabricate 10 billion chips by the end of the year 2024.

**What are the key trends that are dominating the Indian semiconductor market?**

**Following are the key trends:**

***The rise of 5G and 6G:*** The rollout of 5G networks is driving demand for semiconductor chips in India. 5G networks require more powerful and energy-efficient chips, than 4G networks, which is creating new opportunities for companies who manufacture 5G semiconductor components. Currently, India is depending on other countries and Polymatech' s foray into 5G / 6G components will ease the Indian telecom sector.

***Increasing demand for automotive semiconductor chips:*** The automotive industry is a major consumer of semiconductor chips.

LED lighting has revolutionised vehicle lighting systems, providing improved safety, energy efficiency, and design flexibility. LiDAR (Light Detection and Ranging) systems, based on opto-semiconductors, enable advanced driver-assistance systems (ADAS) and form the foundation of autonomous vehicles.

***The growth of the electronics manufacturing sector:*** India is a major electronics manufacturing hub. The growth of the electronics manufacturing sector is creating new opportunities for semiconductor demands in India.

***The rise of the Internet of Things (IoT):*** The IoT is another major trend driving demand for semiconductor chips in India. IoT devices, such as smart sensors and wearables, require semiconductor chips to function. Polymatech will be pioneering this application in India.

***The adoption of artificial intelligence (AI):*** AI is also a major trend driving demand for semiconductor chips in India. AI applications, such as facial recognition and natural language processing, require powerful semiconductor chips to run.

These are just a few of the key trends that are dominating the global semiconductor market. The Indian semiconductor market is expected to grow rapidly in the coming years. Besides, India has started positioning itself as a global hub for semiconductors. Polymatech will grab all early bird opportunities as the first company in India to fabricate semiconductors.

**What sets your company apart from other semiconductor manufacturers in India, and what competitive advantages do you offer to potential customers?**

Polymatech Electronics is the first semiconductor chip manufacturer in India. We don't have exact peers in India, and the company is in a good position to expand in the ever-burgeoning Indian semiconductor sector. By the time others start their operations in India, Polymatech will be far superior to them.

**What technologies and processes do you employ for semiconductor chip fabrication?**

We build our semiconductors on Sapphire with the latest GaN technology. The company applies its proprietary crystal growth technology to produce very high-quality sapphire in a form that allows for volume production of various sizes and orientations of substrates.

We are actively developing larger diameter products to support next-generation LED, micro-LED, and Nano LEDs for display technology for 8k and superior resolutions, RFIC and data storage and transmission applications.

Besides, our operations are largely based on automated machines, which are closely monitored by qualified young engineers.

**We have heard that Polymatech will be investing $1 billion by 2025 in setting up new units and expanding semiconductor manufacturing capacity in India. Kindly shed some light on these new developments.**

Yes, Polymatech Electronics plans to invest $1 billion by 2025 in setting up new units and expanding

semiconductor manufacturing capacities in India. The company has already signed a memorandum of understanding (MoU) with the Government of Tamil Nadu for the first phase of investment of $130 million (Rs 1,065 cr) for understanding the semicon environment. Balance ~ US$ 900 Mn (Rs 7,135 cr) will be invested in various plants at multiple locations.

**Besides, we are planning phase-wise expansion of our manufacturing capacities in India:**
***Phase I:*** In 2023, our aim is to produce 2 billion chips from the facility, and this is when the backward integration will start.
***Phase II:*** In 2024, the production will be increased to 10 billion chips and forward integration will start.
***Phase III:*** By 2025, the capacity will be further expanded to 20 billion chips. This is when the facility will be fully integrated (Fab to Floor Semicon Company). This will make us the first company in the world having such an integration facility.

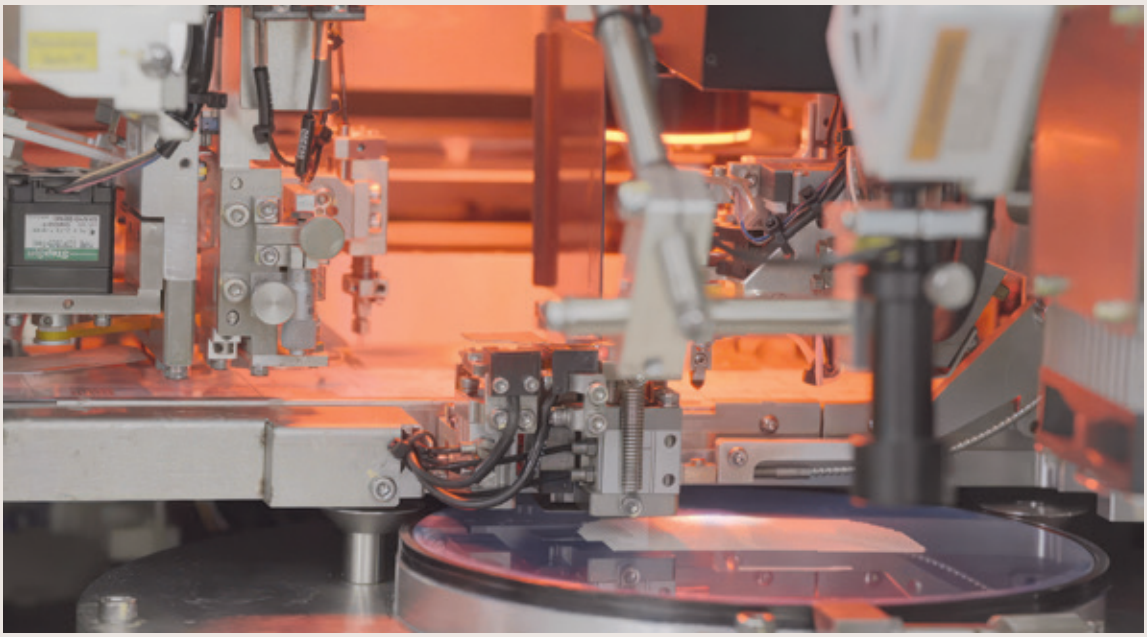
**Polymatech Electronics recently commenced mass production of advanced semiconductor components in India for 5G and 6G applications. How will this new development impact the world of telecommunications and electronics?**
Polymatech Electronics, India's sole semiconductor chip manufacturer, is set to start the mass production of advanced semiconductor components in India for 5G and 6G applications. Currently, in the testing phase, Polymatech will start to manufacture the chips at the company's main manufacturing plant in Kancheepuram, Tamil Nadu.

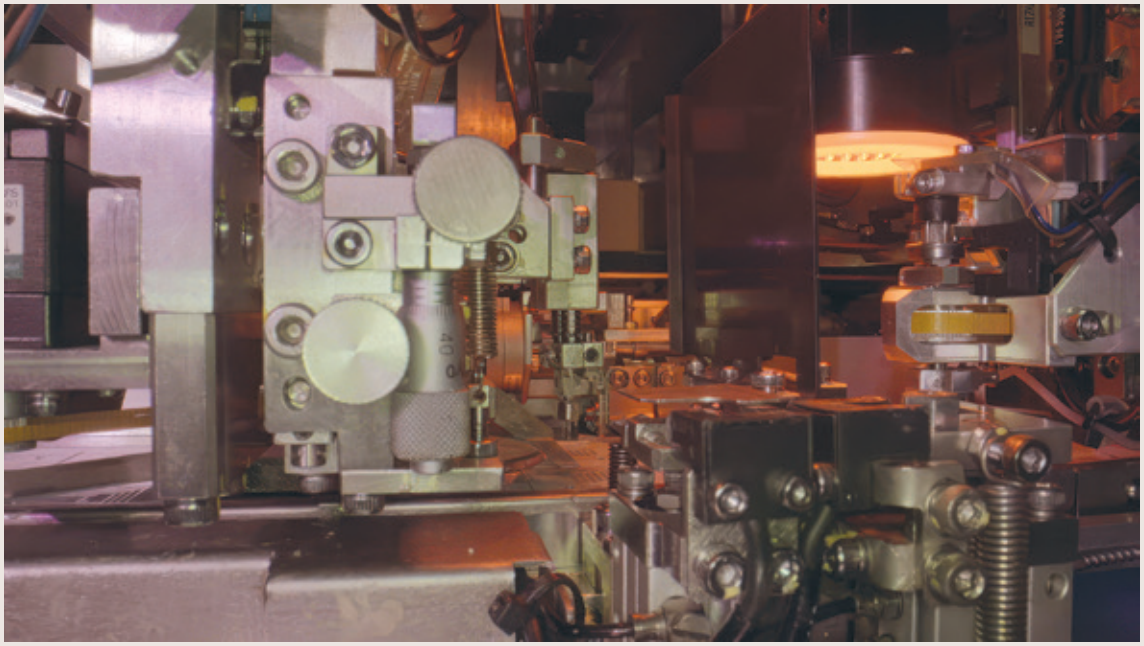
Ahead of the widespread 5G rollout in India, there is a need for the industry to combat the friction points in 5G infrastructure. It will also open new possibilities for innovation in areas such as artificial intelligence, machine learning, and the Internet of Things.

Semiconductors from Polymatech will not only be a cost-effective solution for telecom companies but will also help them achieve faster data transmission with the latest technology chips and with enhanced efficiency. With this, India will become the third country in Asia after South Korea and Taiwan to manufacture 5G and 6G components.

**Polymatech Electronics has a core focus into horticulture LED products. How are these products revolutionising the segment?**
Polymatech has developed a horticulture LED called RavayeTM. This spectrum helps plant photosynthesis without the sun. It is aimed at providing enhanced greenhouse and vertical farming lighting for professional horticulture applications. These products set a new standard with their broader spectrum of light for faster and healthier plant growth, improved farming environments, and reduced lighting system costs. It also promotes healthier plant growth by accelerating photosynthesis, strengthening plant immunity, and increasing their nutritional value.

**Are you involved in any research and development efforts to**





**enhance semiconductor chip technology?**

Yes, Polymatech Electronics is involved in several research and development efforts to enhance semiconductor technology. All our developments are done inhouse and we don't source or partner outside organisations for research and developments.

**Polymatech Electronics recently launched 2, 3, and 4-inch diameter sapphire wafers in India. Also, your company produced India's first 4-inch diameter sapphire wafer. How did you achieve this.**

Sapphire possesses exceptional physical and chemical characteristics that allow it to withstand high temperatures, erosion, and thermal shock. Because of these properties, Sapphire wafers are widely used to produce high-power LED applications, high-brightness LEDs (HB-LEDs) and are also being increasingly integrated into the production of smartphones, among other sectors.

We have developed sapphire wafers as part of our forward integration. These wafers will be for capital consumption as well as for others who come into the market later. With the ability to affordably produce larger wafers, Polymatech is uniquely positioned to deliver the sapphire capacity necessary to support the growing demand for LEDs in the Indian consumer electronics and general lighting industries.

**What certifications or quality standards does your company adhere to in?**

We comply with all quality standards those are required to export our products to the Americas and EU apart from Asia's requirements.

**Are you currently exporting your semiconductor chips, and if so, which regions or countries are your primary markets?**

The Americas and EU.

**As the first indigenous semiconductor chip manufacturer, what kind of support is the government extending to the chip manufacturers in terms of key policies and subsidies? How is it benefiting the industry in its growth?**

Our business plans so far, have been chalked out without any subsidy. We have been receiving full cooperation from the Tamil Nadu government and GoI for implementing our projects. A major support that we have received from them is uninterrupted power supply.

**Can you discuss any collaborations or partnerships you have with other companies in the semiconductor ecosystem?**

We don't have collaborations or partnerships as of now. However, leading semicon manufacturers have approached Polymatech for a possible Joint Venture or SPV model.

**Tell in detail about your company's long-term vision and goals in the semiconductor industry?**

Polymatech Electronics plans to invest $1 billion by 2025 in setting up new units and expanding semiconductor manufacturing capacities in India and global locations. By investing 8,000 crores, the company aims to reach Rs 80,000 crores top line by 2030.

# Biomaterials for a Sustainable World

**The article delves into how biomaterials can be an effective alternative to non-degradable plastics. It also deep dives into the consistent efforts that STEER Engineering is making towards evolving starch-based biomaterials.**

**By Dr. Prakash Hadimani, Application Development Centre, STEER Engineering Private Limited, Bangalore, India**

***Local Innovation for Global Sustainability***

In today's world, sustainability is the buzzword in every industry, especially those directly utilising natural resources to serve the growing population's needs. While developing nations are still facing technology-related challenges to ensure that long-term initiatives relating to sustainability are successfully implemented, local innovation is emerging as a key solution.

In the world of polymers, leading R&D companies are extensively exploring natural alternatives to plastics and have made significant progress. These alternatives have the potential to reduce our reliance on natural resources.

## Biomaterials, a viable solution

Biomaterials can help meet the rising expectations of the consumer markets, especially in populous countries along with mature markets, and can be an effective alternative to non-degradable plastics. Bioplastics can be derived from multiple biomass sources.

The primary source for biopolymers is starch, a natural polymer, which can be assimilated into various petroleum-based polymers or biopolymers. These starch-based biopolymers can, in turn, be used in various materials and applications.

## Positive Impact

Starch-based biopolymers exhibit various physical and mechanical properties that are not found in other biopolymers. Further, impact strength and elongation at break are better in starch-based biopolymers.

The positive impact of using starch-based biomaterials is multi-fold; specifically, it could replace petroleum-based polymers with naturally occurring ones. Starch-based biopolymers are highly degradable, which means they can be used alongside a compostable polymer without interfering with the degradation process.


At STEER, we are constantly gearing up efforts towards evolving starch-based biomaterials through innovative compounding methods using STEER Omega Twin Screw Extruders.

**AT STEER, WE ARE CONSTANTLY GEARING UP EFFORTS TOWARDS EVOLVING STARCH BASED BIOMATERIALS THROUGH INNOVATIVE COMPOUNDING METHODS USING STEER OMEGA TWIN SCREW EXTRUDERS**

## Fractional Geometry Technology

At STEER, we successfully overcame critical process challenges owing to shear sensitivity of biomaterials. With FGT (Fractional Geometry Technology), STEER achieved outstanding results through effective peak shear control that contributed to higher output, a lower melt temperature and high-speed operation.

STEER has expertise in working with a wide set of materials, such as, carbohydrates (sugar, starch, cellulose), lignin, proteins, and fats, to develop biopolymers, such as, PBAT, PLA and biopolymers that are environment-friendly in nature.

We have overcome challenges relating to feeding (no choking of the hopper), degradation (sensitive to temperature), and foaming (sheer sensitive) by effectively balancing the starch component in PBAT (50 per cent- 80 per cent) and PLA (20 per cent-50 per cent).

Consistent tests with fractional geometry technology showed a higher concentration of starch with PBAT, leading to higher mechanical properness and better miscibility in PBAT/Starch composite. The addition of wood powder to PBAT increases tensile strength and flexural modules. The addition of lignin powder to PBAT increases the impact strength and flexural modules.

## Applications and Market

There are multiple bio-degradable starch-based applications in use today, such as containers, food packaging, compostable bags, starch foam, and colourant masterbatch. The opportunity for starch-based composting is immense, considering that plastic consumption stands at 500 billion single-use plastic bags annually. The global thermoplastic starch market is expected to reach a value of 255.82 kilometric tonnes by 2025, at an estimated annual growth of 7 per cent over 2020-2025.

The film segment is the major consumer of the thermoplastic starch market, with a share of more than 48 per cent. The starch blended with the PLA segment holds more than 50 per cent in the global starch-based bioplastics films market. The Asia Pacific region is likely to dominate the thermoplastic starch market during the forecast period and witness the fastest growth.

The potential for use of biopolymers in South Korea is immense, considering the amount of waste being generated. According to a report published by Korea Maritime Institute, every year, 2,00,000 tonnes of plastics are discharged into the ocean.

The need of the hour is permanent fixes to end the use of harmful plastics by replacing them with bioplastics. Many countries across the world have banned the use of lightweight, single-use plastic bags or have begun imposing taxes on them. Under the prevailing circumstances, it is imperative for the industry to move towards sustainable alternatives, such as bioplastics and STEER can help provide the technology support and intervention.

# How premium lubrication by Mobil is helping the plastics industry to achieve its productivity and energy-efficiency goals?

**Mobil is forming rich partnerships with businesses in the sector to provide lubrication solutions and help them increase performance, productivity, and profitability.**

As a fast-developing economy, India is witnessing an escalating demand for plastics in its many forms and across diverse industries. The country's plastics industry is a multimillion-dollar business, with projected growth at a CAGR of 6.6 per cent from 2022 to 2027. Now, to meet this swiftly rising demand while ensuring sustained growth, businesses are focusing on achieving profitability along with productivity, performance, and efficiency.

A key determinant in assuring business efficiency is the performance of critical equipment. To ensure equipment health, businesses make informed decisions while choosing lubricants to opt for those solutions that can guarantee longer oil drain intervals. Here, premium lubrication solutions and services can play a driving role in reducing cost of running business and increasing long-term profitability. As a leading lubrication provider, Mobil™ is collaborating closely with businesses in the sector to help them mitigate operational challenges and achieve greater efficiency with the adoption of best-in-class lubrication solutions.

## Solutions for advancing productivity

Subhalaxmi Pet, located in Jagatpur Industrial Estate of Cuttack, Odisha, is a manufacturer, exporter, and retailer of pet cans, pet bottles, pet jars, pet preforms, and pet rolls. With a diverse portfolio, the company manufactures all kinds of PET preform in various types of neck sizes. For its everyday operations, the company utilises several advanced precision equipment including an injection molding machine. For this machine, Subhalaxmi Pet has been using a market competitive ISO VG-68 grade hydraulic oil. While initially bringing positive results, over time, the use of this hydraulic oil resulted in frequent oil drain requirements, filter replacements, and faults in the hydraulic pump. Subsequently, it led to increased machine downtime, productivity loss, and higher maintenance man-hours.

Seeking expert opinion to overcome the challenge, Subhalaxmi Pet approached Mobil's Field Engineering Services (FES) team. Following a thorough study of

the application and maintenance practices, Mobil's FES team recommended a switch to Mobil DTE™ 26 Ultra hydraulic oil for the injection molding machine. With this transition, over the time, Subhalaxmi Pet was able to observe benefits in extended oil drain interval by three times which further reduced the frequency of oil changes and associated maintenance activities. The use of Mobil DTE 26 Ultra also resulted in extended lifespan for oil filters that minimised the need for frequent replacements. With enhanced equipment reliability and reduced downtime, Subhalaxmi Pet experienced increased productivity that optimised their manufacturing output. This also resulted in reduction in machine downtime by six hours, allowing for more efficient operations.

By reducing the oil drain frequency, Subhalaxmi Pet also contained negative environmental fallouts by registering a decrease in oil usage by 804 litres. The enhanced equipment reliability and reduced maintenance needs led to a revenue improvement of Rs 1,20,832 that optimised the overall operational costs. The successful implementation of Mobil DTE 26 Ultra hydraulic oil at Subhalaxmi Pet demonstrates the positive impact of utilising advanced lubrication solutions as developed by Mobil.

## Leading lubrication innovation

Mobil DTE 26 Ultra hydraulic oil is part of the acclaimed Mobil DTE™ 20 Ultra Series oils that are high performance anti-wear hydraulic oils with extended oil life capabilities and have demonstrated up to 3 times longer oil drain intervals versus similar competitive oils (*).

They meet the stringent requirements of hydraulic systems using high pressure, high output pumps as well as other hydraulic system components such as close clearance servo-valves and numerically controlled (NC) machine tools. The products exhibit outstanding oxidation and thermal stability allowing long oil life and minimised deposit formation in harsh conditions and with severe hydraulic systems using high pressure, high output pumps. The keep clean performance protects critical hydraulic system components from malfunction, such as tight tolerance servo and proportional valves found in many modern hydraulic systems.

With customer experience at the centre of its brand ambition, Mobil is collaborating closely with industry leaders like Subhalaxmi Pet to help them achieve their productivity and energy-efficiency goals. This, in turn, is positively influencing the plastics industry to move towards more efficiency and sustainability in their operations. Bringing a legacy of over 150 years complemented by continuous R&D, Mobil remains committed to innovating lubrication services and supporting the sustainable growth of the plastics industry in India.

UPDATE

# Vipul Organics ventures into paper segment

Vipul Organics has announced its entry into the paper segment in the domestic market with products like colorants, dispersions, and dyes. The company has worked closely on its product innovation for over 12-18 months and created product lines focused on the segment.

The innovation with paper-focused dispersions and dyes has won initial clientele including leading players such as Tamil Nadu Paper, and Andhra Paper, among others. "With so much excitement in the category, it was obvious that we had to seriously look at the paper business. We were gratified by client response and are already working with the leading players in the segment," Chairman and Managing Director Vipul P Shah noted.

Currently, the company is in the process of setting up a a research and development (R&D) lab for the paper category at its Ambernath plant in Maharashtra and is likely to be fully functional shortly.

This year, Vipul Organics expects paper dispersions and dyes to contribute around Rs 50 crore to its topline in the next three to four years.

Here it has already launched its complete range of products under two categories, one range of pigment dispersions is developed exclusively for the paper application, the other one is of 'direct dyes' for paper coating application. (i.e., SunPulp dispersions and SunDirect dyes). At present, the company has three manufacturing units across Maharasthra.

# "Supply chain visibility and real time collaboration continues to drive business value for value chain players"

**In an interview, Rajesh Parameswaran, the Executive Director & Industrial Sector Leader for India/South Asia at IBM Consulting, discusses the advantages of a digital supply chain in fostering transparency, facilitating advanced planning, and anticipating demand patterns.**

**What are the opportunities associated with digital transformation in manufacturing? How can manufacturers make the most of it?**

Digital transformation trickles down data led tactical decision making down the hierarchy giving more time to supervisors and plant heads to drive strategic change. Also, workforce shortage on shopfloor during pandemic and ageing manufacturing employee base has re-emphasised the need for human agnostic and autonomous processes.

Digital transformation offers benefits that align on two different fronts: On one hand, manufacturers can drive ongoing operational improvements, including increasing production throughput, improving asset utilisation, and enhancing product quality. On the other hand, they also have an opportunity to create greater customer value by revolutionising manufacturing capabilities, delivering design improvements, and optimising service.

Having said that, there's no one size fit all. Manufacturers need to take an extremely objective view of the business value they want to drive with digital transformation in an age of rapid disruptive technology changes.

**How digital manufacturing technologies are enhancing supply chain management for your customers?**

The pandemic caused a major supply chain disruption primarily for manufacturers dependent on partners across countries and continents. Supply chain visibility and real time collaboration continues to drive significant business value for value chain players. A digital supply chain is data driven and digitally executed to create transparency, support advanced planning, predict demand patterns, and leverage asset availability. It's predicated on real-time access to data across an enterprise and its collaboration partners, and on the use of advanced technologies. It integrates suppliers, manufacturers, and customers to help create an end-to-end view.

Rajesh Parameswaran, Executive Director & Industrial Sector Leader - India/South Asia, IBM Consulting

For instance, automotive OEMs are getting to use traceability across the supplier network to help ease recall and warranty processes. Food chains were early adopters of provenance use cases to ascertain food quality and assuage ethical sourcing concerns. Further, data driven insights and advanced analytics are enabling scenario planning and forecasting use cases to absorb market uncertainty to some extent.

**How do you ensure your technology remains in-sync with the latest industry trends and scalable to accommodate future growth or changes in production requirements?**

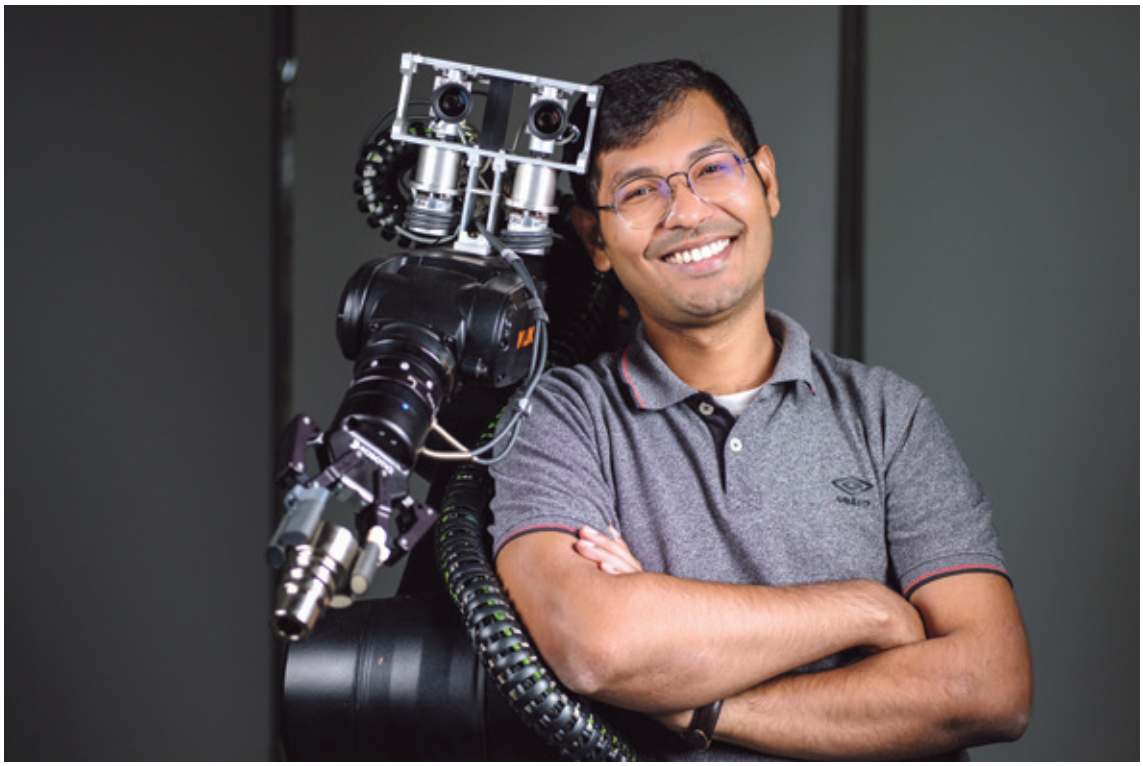
IBM Consulting has IBM Institute for Business Value (IBV) which collaborates with industry professionals, leading-edge clients, academics, and a wide range of IBM consultants and subject matter experts around the world. IBV uses data-driven research and expert analysis to deliver thought-provoking insights to business leaders about emerging trends, opportunities, and challenges. IBV's thought leadership reports offer prescriptive recommendations to address the most pressing industry and marketplace challenges and opportunities that will determine future organisational success. This insight feeds into IBM portfolio for us to stay responsive to market trends.

**How do you determine the cost of your automation solutions?**

Cost of our solutions is driven by value we create for our clients. While the business model may vary on case-by-case basis, our fundamentals are strongly rooted in enabling clients achieve their desired outcomes. ROI variates between 1.5 to 3 years depending on organisation's digital maturity and problem at hand.

# "We aim to simplify the manufacturing infrastructure with 'Universal Factories' concept"

**Gokul NA, Founder, CynLr sheds light on their visual object technology and how it will bring about transformative changes in the functioning of universal factories, whilst revolutionising traditional processes and enhancing overall efficiency of the businesses.**



Gokul NA, Founder, CynLr

**What are the new digital (automation and robotic) technology solutions you offer to your clientele?**

Currently, CynLr is actively engaged in reference design collaborations with prominent manufacturing industries and giants within the automotive and machine tool industries. Together, we are focused on solving the hardest automation problem that demands very high dynamism and adaptability – part-mating and assembly. With our proprietary vision and grasp technology, our objective is to empower robots to be as dynamic and versatile as humans, when it comes to performing tasks involving object manipulation.

We firmly believe that achieving this goal will act as a catalyst for disrupting the manufacturing, and warehousing industries. By replacing the complex variety of machinery for every task to a uniform "standardised" visual robot across all tasks in a line, we aim to simplify the manufacturing infrastructure. This concept is known as 'Universal Factories'. The factories of the future will be characterised by their adaptability, streamlined operations, and cost-effectiveness. We envision that our visual object technology will bring about transformative changes in the functioning of universal factories while

revolutionising traditional processes and enhancing overall efficiency and productivity of the businesses.

**Do you think manufacturers are still hesitant in integrating new age technologies to their facilities?**

Surprisingly manufacturers are investing heavily on automation and more importantly on advanced manufacturing motivated by onshoring. The perspective on manufacturing changed after Covid, especially. When supply chains were disrupted, people realised that manufacturing is the ultimate backbone of any economy and building capacity is extremely important. Recognising this potential, conglomerates worldwide have already embraced new-age technologies and embarked on the path of smart manufacturing - integrating automation, robotics, artificial intelligence (AI), and the Internet of Things (IoT). However, in India, a significant number of manufacturers still face challenges in incorporating automation into their business models and struggle to transition into the new industrial revolution driven by automation.

We think that it is a perception problem, that keeps manufacturers from automating their operations. Robots are universally considered to be a tool to cut/reduce costs. Instead, it should be viewed as tools for value creation. It's perceived otherwise, because value is associated with the produce and the scale of produce, while manufacturing is seen as the cost for the produce. That's because the whole manufacturing infrastructure is often and always rigidly built to produce a specific product. Instead, if the factory could produce even a new design of product out of the same machinery, the capital expense on the machinery would suddenly be treated as investment, instead of cost and manufacturing will become the centre of value creation.

Our customer base mostly includes specific sectors in manufacturing such as automotive, electronics, white goods, aerospace, jewellery, some use cases of e-commerce warehousing and logistics. Customers who are looking to automate previously non-automatable tasks can do so using CynLr's visual intelligence. Our platform enables simplified deployment with no need for hardware customisations from task to task or object to object. CynLr's robots can be deployed 70 per cent faster with 30 per cent lower costs. The biggest benefit is that they are adaptable and not tied to a specific product.

**How do you ensure compatibility with different manufacturing processes or software platforms?**

Our groundbreaking visual object intelligence platform empowers industrial robotic arms to see, comprehend, and manipulate objects in random and unstructured environments, offering a comprehensive solution for automation and object handling.

So, our product is highly dynamic and adaptive. It obsoletes the need for customised solutions. Customers don't have to deal with learning 30+ technologies, designing complex custom design engineering and a long strenuous cycle of research and validation for even simple tasks. We ensure this by using cutting-edge techniques such as Auto-Focus Liquid Lens Optics, Optical Convergence, Temporal Imaging, Hierarchical Depth Mapping, and Force-Correlated Visual Mapping in our hardware and algorithms. These AI and machine learning algorithms enable robotic arms to perceive and generate rich visual representations, allowing them to manipulate and handle objects based in any environment.

**Kindly provide an estimated return on investment (ROI) that clients can expect from your products and services.**

There are well established benchmarks to determine the cost of automation, especially when they are seen as the direct cost replacement for labour wages. But that's hardly ever the reason for industries to automate. The cost of non-synchronous production that leads to unpredictable output, demanding heavier stocking, complex inspection process and the cost of recall in the automotive industry are the major drivers of automation.

So, the premium of the solution typically varies, based on the criticality and impact of that task to be automated. The cost dynamics change entirely when we automate an entire line. The repercussions of automating a whole line are hierarchical and the cost impact is deeper. That said, globally a typical industrial robot today costs between $100K to $150K. Since we were productising, we worked backwards from this number to build the product, so that it becomes a no-brainer for the customer especially when we simplify the hardships of customisation.

Most of the conventional robots involve 70-80 per cent upfront costs for customised end-of-arm-tooling, part-specific structuring mechanisms, tedious calibration, custom software development, and systems integration. The reusable component, i.e., the robot itself, comprises only 20-30 per cent of the cost. To get a realistic ROI, the manufacturers should expect at least 2-3 years ROI and when we include the time taken for designing and building the custom solution, the ROI period increases. Also, with today's shrinking product life cycles, even a 2–3-year ROI has become harder to achieve except in specific run-of-the-mill automation.

CynLr's robotic arms are adaptable and versatile, so the robot itself can be considered as an essential asset which ensures a 1–2-year ROI, irrespective of product type, design, or customer.

# igus 3D printing service now comes with service life prediction

igus introduces a new addition to its 3D printing services, now offering the ability to predict the service life of custom-made special parts within seconds. Customers can simply upload their STEP or STL files, calculate the service life, choose the appropriate material, and place the order. The parts will be shipped within three days.

With 30 years of experience in plain bearings, igus uses high-performance plastics developed through injection moulding. When specific wear-resistant parts are needed beyond the standard range, 3D printing comes into play. Whether it is individual parts or small quantities, igus can quickly print and deliver the right special parts within three days. Various processes and materials, such as rapid tooling, filament, laser sintering powder, and liquid resin, are used for this purpose.

The online 3D printing service is user-friendly. Customers can upload their product file and explore production options, materials, and finishes. The tool also provides cost, feasibility, and delivery time information. By integrating service life calculations into the 3D printing service, users can now make more informed decisions about material selection, as stated by Tom Krause, Head of Business Unit Additive Manufacturing.


The reliability of igus's service life calculations is backed by extensive testing in their 3,800-square-metre laboratory in Cologne. With 11,000 abrasion tests performed on 450 test rigs annually, the results show that 3D-printed parts made from iglidur plain bearing plastics outperform conventional plastics in both turned and injection-molded parts. The service life can be up to ten times longer and even up to 50 times longer than other 3D printing materials. With over 50 iglidur materials for injection moulding, four laser sintering materials, ten tribofilaments, and the new iglidur i3000 3D printing resin, igus offers suitable solutions for users across various industries.

# ZAVERI ENGINEERS redefines plastic production with its technology

ZAVERI ENGINEERS has come up with a new technology in plastic process titled Grain orientation of polymer.

It is a new concept through which one can transform a polymer preform by Grain Orientation Method, from which various products of superior quality finish are achieved at a cost which is 75-80 per cent less than other plastic conventional processes.

Invented and patented by Shailesh Jethalal Zaveri, Business Owner of Zaveri Engineers, the grain orientation of polymer is a very cost-effective process and requires less area for machinery set-up. This new technology in plastic process brings down the machinery and tool cost by almost 75 – 80 per cent.

It is also energy efficient and reduces electrical consumption by 65-75 per cent. Moreover, solar method can also be used for thermal chamber.

Besides, all types of hollow products can be processed and manufactured in different sizes and shapes. The outer surface finish of the products can be hydro dipped or painted.

The products processed from this technology include exclusive plant holders, planters, designer chair, centre table base, pouffes, indoor and outdoor fountain, unique photo frames, wall hangings, tall tower clock stand, transparent and translucent floor lamp, lamp shades, ceiling lamps, decorative pillars, industrial application: ducts, and many other products used in household, consumer, and industrial areas.

Shailesh Jethalal Zaveri, Business Owner of Zaveri Engineers, said, "We have travelled a long journey in

R&D for this technology and finally after 37 years it has been achieved, established, and patented. We believe that engineering is not just an applied science. It is a fusion of art, science, and varied perceptions. Grain orientation of polymer preforms by hydraulic or mechanical force along with thermal media (liquid) to manufacture different plastic products. By our process, we can make hollow products in different types of shapes and sizes. No parting lines are visible, surface finish is very good, even single piece can be made."


# Windsor rolls out industry's highest tonnage patented two platen injection moulding machines

Windsor launched the highest tonnage patented two platen Injection Moulding Machines in India. With the expanding horizons of thermoplastic industry and demand for a bigger shot size plastic component in a limited space, there has been a rising demand to make higher tonnage machine and offer the customers more benefits and ease of operation.

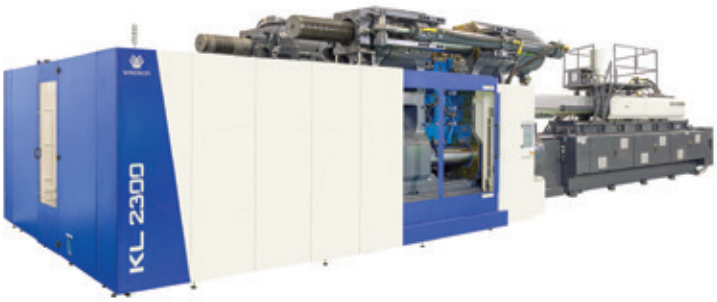
The introduction of KL2000 and KL2300 tonne machines is expected to up new vistas in manufacturing thermoplastic products. This will specially cater to bigger plastic components requirements in automotive, white goods, construction, logistics and dust bins industry with a generous specification and a footprint akin to that of a clamp unit.

The company has seen a demand from customers for two platen technology in 1,500 tonnage and above sizes of machines. With feature-rich and future-ready technology, and by introducing KL-2000 and KL-2300, Windsor has initiated plugging the gap from 1600 to 3200 tonne machines. KL-2000 and KL-2300 can deliver more without occupying extra space, and it is easy to manufacture at competitive pricing standards eventually benefiting customers.

Key highlights:

- Higher reliability
- Patented jaw clamping system
- Generous specification with multiple benefits
- Lubrication free short tie bars

KL-2000 and KL-2300 ensure higher productivity wherein the machine footprint is reduced by 15-20 per cent hence saving on the floor space and making room for installing more machines on the shop floor.




The large distance between tie-bar and platen dimension of KL-2000 and 2300 enables universal utilities of different moulds and more versatility and high degree of flexibility. The optimised parts with documented element analysis help our customers achieve high strength to weight ratio, apart from ensuring lesser downtime in day-to-day operation. Currently, the designing of KL-2800 and KL-3200 machine is underway, which will further enhance the range for the two platen machines from 350 to 3200 tonne.

Before the launch of KL1600, the industry was mainly reliant on China for the heavy and big parts like clamp and injection castings, tie bars, cylinders, etc. In the making of KL 1600, KL 2000 and KL 2300, Windsor has set new standards of nurturing and developing the Indian MSME ecosystem to make all the parts in India. The biggest and the highest parts were manufactured by their business partners and thus paved way for others to follow and benefit the industry towards making 'India Atmnirbhar.'

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+918826990350
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www.bryair.com

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