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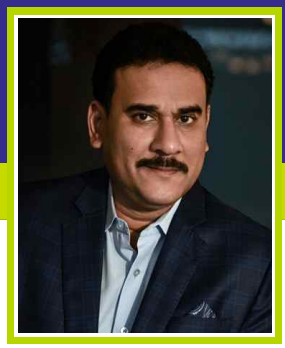
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FROM THE PRESIDENT's DESK

Mr. Pradeep Rathod



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Dear Members,

Greetings!

As I write this message, USA-Iran Ceasefire agreement has come in force.

The immediate impact is positive for Indian Plastic Processors because the ceasefire has sharply reduced fears of a prolonged Strait of Hormuz disruption, causing **crude oil and petrochemical feedstock prices to fall back toward pre-war levels.** The biggest near-term benefit is **lower raw-material cost pressure and better availability** of PE, PP, PVC, PET and other polymers.

Brent crude has fallen from the conflict spike back toward roughly **$70-75/bbl,** tanker traffic through Hormuz has resumed, and polymer import offers are expected to soften within days.

We expect **cheaper polymers, better Gulf supply availability, and improved export quoting conditions** over the next few weeks. The main caution is inventory devaluation for processors who stocked resin at wartime prices. If the ceasefire holds through July- August, PET sheet margins in India should improve meaningfully as PTA/PET feedstocks reset lower.

India is experiencing a weak/ deficient monsoon. It can have a significant impact on the Indian Plastics Processing Industry. The effects are **transmitted through agriculture, water availability, electricity generation, consumer demand, and overall economic growth.**

A weak monsoon is likely to **moderately affect the Indian plastics processing industry, with the greatest impact on agricultural plastics, irrigation pipes, rural consumer products, and water- intensive manufacturing operations. Companies that improve water efficiency, reduce energy consumption, diversify into essential products, expand exports, and invest in recycling and renewable energy** will be better positioned to withstand the effects of deficient rainfall.

For the industry as a whole, water management, energy efficiency, and a strategic shift toward products linked **to water conservation and essential infrastructure** will be the most effective response.

With Best Wishes,

Pradeep Rathod
President, OPPI

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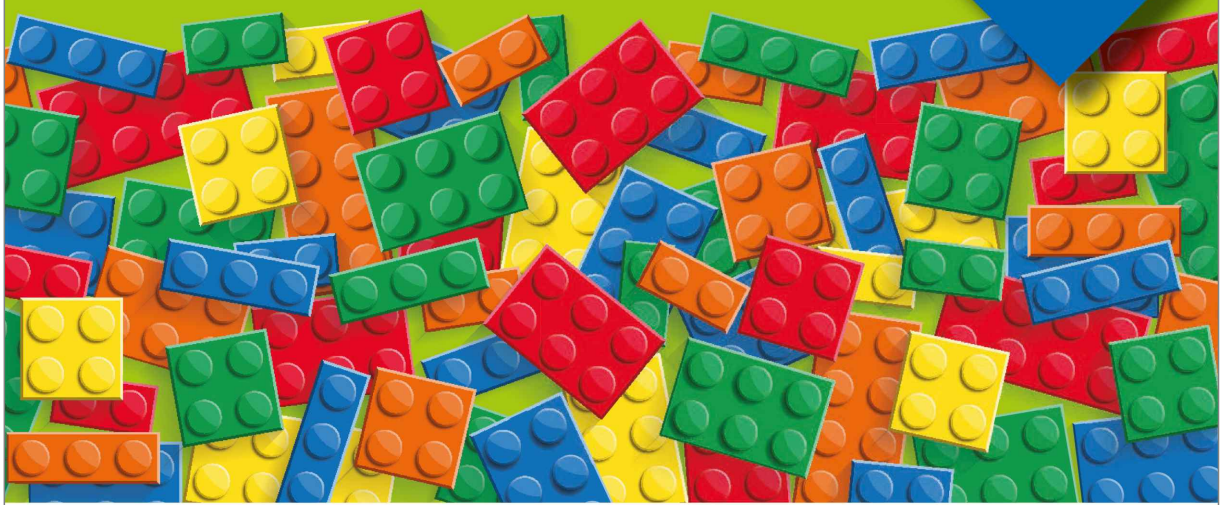
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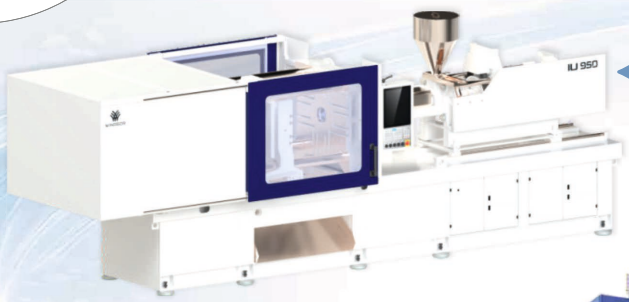
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Cambodia's Economic Outlook For 2025 Reflects A Positive Trajectory, With Various Institutions Providing Growth Projections:

Gross Domestic Product (GDP) Growth

The Cambodian government anticipates a growth rate of 6.3% for 2025, driven by expansions in key sectors:

- Industrial Sector: Projected to grow by 8.6%.
- Service Sector: Expected to increase by 5.6%.
- Agricultural Sector: Forecasted to rise by 1.1%.

Manufacturing Sector Expansion

In 2024, the number of manufacturing enterprises in Cambodia reached 2,316 as of November, marking a 10% increase from the previous year. This expansion reflects the sector's robust development and the establishment of new manufacturing facilities.

Rising Machinery Imports

Government Initiatives and Economic OutlookThe Cambodian government has implemented policies aimed at diversifying the industrial sector and promoting investment in manufacturing. These efforts are expected to further boost the demand for machinery and equipment. The Asian Development Bank projects Cambodia's economic growth at 5.8% for 2024 and 6.0% for 2025, indicating a favorable environment for continued industrial expansion.

Event Information

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Corner fee: 10% surcharge
Total amount should be added 5% VAT.



Form is attached. Kindly email the scanned copy of duly filled Space Application Form to secretarygeneral@oppindia.org

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WHY VIETNAM?

Vietnam's gross domestic product (GDP) will rise to 5.1 per cent in the third quarter (Q3) of 2023, a substantial increase from the 4.1 per cent recorded in the preceding quarter. Retail sales growth for September is expected to reach 8.2 per cent, and industrial production is slated to increase by 3.2 per cent.

★ **Printing Industry**

The growth of the Vietnam printing market is influenced by several key drivers. Firstly, the rapid growth of the advertising and media industry in Vietnam has led to increased demand for printed materials, such as brochures, banners, and posters, for marketing and promotional activities. Secondly, the packaging industry's expansion, driven by the growth of e-commerce and consumer goods sectors, has further fueled the demand for printing services for product packaging. Additionally, technological advancements in the printing sector, such as digital printing and automation, have enhanced the efficiency and capabilities of printing companies.The Vietnam printing market has experienced substantial growth in recent years, driven by the country's expanding advertising and packaging industries, increasing demand for printed materials, and technological advancements in the printing

★ **Packaging Industry**

The packaging sector is expected to increase by more than 13% each year, with packaging for the food industry growing on average by 15-20%; plastic packaging alone has seen growth rates of up to 25%. Vietnam's paper packaging market is anticipated to reach around $3.1 billion by 2027 at a CAGR of 7.5% during 2021-2027, including Internet packaging, biodegradable packaging, digital printing packaging, and nanotechnology packaging.Due to the relatively high degree of economic openness in the Vietnamese economy, the packaging sector has to import 80-90% of input materials.

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Corner fee: 10% surcharge

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Dr. G. Venkatesh Takes Over As Joint Secretary (Petrochemicals)



Dr. G. Venkatesh has taken over as the Joint Secretary (Petrochemicals) in the Department of Chemicals and Petrochemicals, operating under the Ministry of Chemicals and Fertilizers. He is a 1997 - batch officer of the Indian Cost Accounts Service (ICoAS).

Dr. G. Venkatesh succeeds Mr. Deepak Mishra.

India Must Expand International Trade Ties to Reach USD 30 Trillion Economy Vision by 2047: Union Minister Piyush Goyal



Shri Piyush Goyal Minister of Commerce & Industry

India must expand its international engagement to realise its vision of becoming a $30 trillion economy by 2047, according to Union Minister of Commerce and Industry Piyush Goyal.

Speaking at the closing session of the 5th Annual Meeting of the India Global Innovation Connect, the Minister emphasised that India's economic growth is not a zero - sum game.

Instead, he argued that the country's trajectory is deeply linked to fostering strategic partnerships with developed nations, which stand to complement rather than compete with Indian industry. "We have a very clear roadmap and a stated goal to make India a developed country by 2047... At that point in time, I would think the Indian economy should be anywhere in the ballpark of about $30 trillion... This will not be possible unless we expand our international engagement," the Minister said.

He further noted that these developed economies face demographic challenges that provide a unique opening for India's growth strategy. "They have ageing populations and therefore need young talent and skill, which India has in abundance," Goyal highlighted.

The Minister explained that the high costs of research, development, and production in these advanced nations make a collaborative model essential. "Considering all of this, we recognise that large parts of the world, Europe, the US, Canada, Israel, Gulf countries, Australia and New Zealand are no threat to India and its businesses," the Minister added.

"Cost of production and cost of research and development in these developed economies are becoming prohibitively high... therefore, a partnership between India and such developed countries complements each other rather than competes with them," he stated.

According to Goyal, these international alliances are a calculated component of India's long - term economic roadmap. He highlighted that India has "entered into 9 free trade agreements in the last 3-3.5 years. These cover 38 countries, significantly richer and more prosperous than India... offering to them a large Indian market."

These pacts are intended to provide these nations access to India's growing market of 1.4 billion aspirational consumers while channelling much-needed capital into the Indian ecosystem. "They also have significant capital, pools of capital, which they want to deploy. And India is a perfect opportunity," he said.

Beyond these broad economic goals, the Minister stressed the importance of building a high-level ecosystem to promote new technologies and adhere to global quality standards.

During his visit, Goyal also held an interaction with Claude Smadja, Chairman of Smadja & Smadja, to discuss the government's efforts to bolster infrastructure and simplify the business environment.

In a post on X, Goyal said, "Had an engaging interaction with Mr. Claude Smadja, Chairman of Smadja & Smadja, at the India Global Innovation Connect 2026. Highlighted the Modi Government's dedicated efforts to boost infrastructure development, strengthen India's position in global supply chains & enhance ease of doing business while fostering innovation - led growth."

He underscored that initiatives such as "Make in India" and various business-friendly reforms are positioning the nation as an increasingly attractive destination for global investment.

"Emphasised the scale of opportunities India presents today, powered by initiatives like Make in India, a thriving manufacturing ecosystem & business-friendly reforms, positioning the nation as an attractive destination for global investment," the Minister stated.

Piyush Goyal Launches Bhavya Portal As Centre Targets 100 Industrial Parks



Union Minister of Commerce and Industry Shri Piyush Goyal launched the BHAVYA Portal in New Delhi, marking a significant step towards the operationalisation of the Bharat Audyogik Vikas Yojana (BHAVYA).

Addressing the gathering, Shri Goyal said the BHAVYA Scheme would adopt a competitive model under which states would be encouraged to

submit detailed project proposals highlighting their industrial strengths, availability of land, investor interest and sectoral potential. He said the government would work closely with industry to identify suitable sectors and infrastructure requirements for each location, whether for chemicals, manufacturing, data centres or other industries.

The minister said investors would be able to access detailed information on industrial parks through digital platforms, including land availability, connectivity and surrounding infrastructure, enabling them to make informed investment decisions. He said the scheme seeks to ensure that industrial parks are designed according to the specific needs of different sectors and investors.

Highlighting the government's efforts over the past decade, Goyal said investments in roads, highways, railways, metros, airports, ports, power infrastructure, water availability and digital connectivity had helped create an enabling environment for economic development and social welfare. He also referred to reforms such as GST, the Insolvency and Bankruptcy Code, labour reforms, expansion of 5G connectivity, promotion of startups, support for investments and free trade agreements.

Shri Goyal said India is increasingly being viewed as a trusted partner and an attractive investment destination because of its scale, growing demand, young talent and youthful energy. He added that the government remains committed to creating opportunities for businesses, industry, farmers, fishermen, startups and women entrepreneurs.

Announcing details of the scheme, the minister said BHAVYA aims to develop 100 industrial parks across the country to promote large-scale job creation through greater investments. He said the parks would be developed in different sizes, ranging from 25 acres in hilly regions, smaller Union Territories and Northeastern states to between 100 and 500 acres in mid-sized states and regions, and up to 1,000 acres in locations closer to cities and towns.

He said land for the parks would be provided by state governments, while the Government of India would support infrastructure creation through the National Industrial Corridor Development Corporation (NICDC), which would partner with states under a 51:49 model. He added that the objective is to create plug - and - play industrial parks focused on industries best suited to specific locations.

According to Shri Goyal, the parks will provide infrastructure including assured water and power supply, road and rail connectivity, land titles, digital single-window clearances and, where feasible, air connectivity. He said the government would also explore earmarking areas for startups, deep-tech enterprises, technology-oriented businesses, research and development activities and innovation - led enterprises.

The minister said efforts would be made to establish modern testing facilities in partnership with institutions such as the Bureau of Indian Standards (BIS), Export Inspection Agency (EIA) and the Food Safety and Standards Authority of India (FSSAI).

He added that the government is also open to developing dedicated areas for Global Capability Centres (GCCs), worker housing and social infrastructure within the parks. Goyal said the possibility of creating dedicated international enclaves in partnership with countries such as Japan, Singapore, the Republic of Korea and Switzerland could also be explored.

Expressing confidence in the initiative, Goyal said the ₹34,000 crore earmarked by the Central Government for the development of 100 industrial parks would catalyse substantial investments, generate direct and indirect employment, strengthen Centre - State partnership and support industrial growth across the country.

The minister informed that applications received between June 1 and July 31 would be considered for the first phase of 20 parks, while a further 30 parks would be taken up based on applications received up to September 30. Subsequent phases would be implemented based on the experience and learnings from the initial rounds.

Goyal said the BHAVYA Scheme is intended to promote investments across India and support the vision of Viksit Bharat 2047. He expressed confidence that the initiative would contribute to a new phase of industrial development and business growth in the country.

Approved by the Union Cabinet with an outlay of ₹33,660 crore, BHAVYA is the government's flagship programme for developing 100 investment - ready, world - class industrial parks over a period of six years. The scheme aims to create integrated industrial ecosystems featuring multimodal connectivity, reliable utility infrastructure, digital governance systems, worker - support facilities and sustainable development features.

NICDC, designated as the Project Management Agency for the scheme, is responsible for its implementation and monitoring. According to the release, NICDC has developed the BHAVYA Portal as a comprehensive digital platform to support the entire project lifecycle under the scheme.

The Department for Promotion of Industry and Internal Trade (DPIIT) released the operational guidelines for BHAVYA in May 2026. According to the release, the portal will serve as a single digital interface for end-to-end implementation of the scheme, facilitating submission of Detailed Project Reports, project appraisal and evaluation, and real - time monitoring of implementation progress.

Secretary, DPIIT, Amardeep Singh Bhatia, said robust digital systems are essential for effective programme management and informed decision-making at scale. He said the portal would strengthen implementation of the scheme and enable faster operationalisation of industrial parks across the country.

CEO and Managing Director, NICDC, Rajat Kumar Saini, said the platform had been designed to support the complete lifecycle of projects under BHAVYA and would facilitate efficient coordination among stakeholders while strengthening transparency and accountability in implementation.

The launch event was attended by representatives of state and Union Territory governments, industry associations, Export Promotion Councils, banks and financial institutions, master developers and MSMEs. It was followed by an interaction between Goyal and industry stakeholders on industrial infrastructure development, investment facilitation, ease of doing business, logistics efficiency and the role of integrated industrial parks in strengthening domestic manufacturing capabilities and global value chain integration.

According to the ministry of commerce and industry, the launch of the BHAVYA Portal follows the Cabinet approval of the scheme, the release of its operational guidelines and consultations with states and Union Territories. The release said the scheme is expected to attract substantial domestic and foreign investment, generate large - scale industrial employment and contribute significantly to India's emergence as a globally competitive manufacturing destination.

Shri Piyush Goyal invites French partners to 'invest, design, and innovate' in India at Bharat Innovates 2026

In a significant push to elevate the Indo - French strategic alliance, Union Minister of Commerce and Industry Shri Piyush Goyal inaugurated Bharat Innovates 2026 in Nice, France.

Shri Goyal made a direct pitch for deeper collaboration between France and India and said, "To our French partners, I urge you to use this opportunity to build meaningful partnerships. And I would invite our French friends to visit India, invest in India, design in India, innovate in India, and manufacture in India, both for the large domestic market and export from India to the rest of the world."

Against a backdrop of global geopolitical volatility and rapid technological advancement, the event serves as a platform to showcase India's thriving startup ecosystem, now boasting over 230,000 startups, as a reliable partner for global growth.

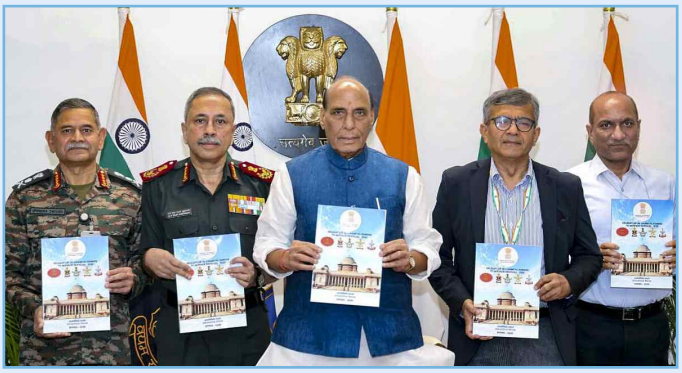
Speaking at the inaugural event of Bharat Innovates, the minister set the context amid global volatility. "Friends, we are meeting at a moment of uncertainty, when the churn in the world of geopolitics is meeting the churn of frontier technology. At such moments, the world seeks trusted and reliable partners, and that is what India brings to the table," he said. "We bring the energy of the world's youngest large nation, the finest talent pool available, and a scale that few can match."

He highlighted the "New India," adding that innovation is now a culture powered by over 230,000 startups. The gathering, which featured 120 startup champions, underscored the theme of "Global Accelerator."

Minister Goyal highlighted that the current moment requires "trusted and reliable partners," positioning India as a stable anchor powered by its immense talent pool and youthful energy.

He noted the relationship was elevated to a "special global strategic partnership" this year, recalling that in February 2025 Prime Minister Narendra Modi co-chaired the AI Action Summit in Paris, and in February 2026 President Emmanuel Macron stood "beside us as India hosted the AI Impact Summit." Their meeting in Nice, he said, "reaffirming their shared vision for a more inclusive and innovative world."

Defence Services Get Wider Financial Powers to Fast-track Procurement



Defence Minister Rajnath Singh during a meeting on the approval of enhanced Financial Powers for Revenue-related Procurement having an annual value of more than ₹1.25 Lakh crore under the new delegation of financial powers | Photo Credit: PTI

In a major move to reduce bureaucratic delays and boost military readiness, commanders across the Army, Navy and Air Force have been given increased financial autonomy to fast-track annually more than ₹1.25 lakh crore worth central defence revenue procurement.

The Ministry of Defence (MoD) has radically streamlined its procurement architecture. Under the revised Delegation of Financial Powers for the Defence Services (DFPDS) rules unveiled by Defence Minister Rajnath Singh on Thursday, financial limits for the armed forces have been raised by up to 100 per cent, and more than doubled in select cases.

The reform ensures that a striking 80 to 90 per cent of contracts can now be cleared directly by the services, bypassing the Ministry entirely. This is the first update to the delegation framework since 2021.

Mr. Anant Swarup joins FICCI as Secretary General



The Federation of Indian Chambers of Commerce and Industry has appointed Mr. Anant Swarup as Secretary General.

Mr. Swarup is not a man short of credentials. Over three decades in public service, he has served as additional secretary in the Department of Commerce, Director General of Trade Remedies, Executive Director to the Union Minister of Railways, and first secretary representing India at the World Trade Organization in Geneva. A 1992 - batch Indian Railway Personnel Service officer, he has since moved through the private sector before landing at FICCI.

Surya Global Flexifilms Invests in Fourth BOBST Metallizer to Accelerate Production of Sustainable BOPP Film



Surya Global Flexifilms (SGF) based in India has invested in an EXPERT K5 3650mm with AlOx capability. The new machine will be installed in their factory at the end of 2026 and will sit alongside their three other BOBST metallizers further cementing the relationship between the two companies. The existing machines are running

well and Mr Dharmendra Senger (Vice President Project & Operations), Mr. Siddhant Singh (General Manager Mech & Utilities), and Mr. Vinay Arora (Sr. General Manager E&I) from SGF are satisfied with BOBST's state-of-the-art technology and the performance of the existing vacuum metallizers.

SGF is one of India's largest BOPP producers and the addition of the new EXPERT with AlOx will allow them to produce sustainable clear coated high barrier BOPP with the unique BOBST AlOx GEN II technology. The wider width of 3650mm complements their three existing machines at 2900mm, one of which incorporates the BOBST AluBond® process which enhances oxygen and water barrier levels on BOPP film.

BOBST are experts in the wide web market and the EXPERT K5 3650mm is designed to run large diameters at high speeds. The BOBST renowned winding mechanism produces virtually wrinkle-free film and the EXPERT is the highest productivity metallizer in the world for the packaging industry with the lowest production costs available in the market.

BOBST AlOx GEN II builds on the original BOBST AlOx process which has been established in the market for many years for the production of high barrier, transparent PET films. In response to the sustainability trend in the flexible packaging industry, AlOx GEN II was developed for the production of high barrier, transparent BOPP films. In addition to the high levels of oxygen and water barrier at a low optical density that the solution provides, film produced using the process is transparent straight off the machine.

Surya Global Flexifilms is the flexible packaging arm of the Priyagold Group, one of India's most trusted FMCG names. Established in 2020, SGF marks the family's bold diversification from food into industrial manufacturing - scaling at a speed and scale rarely seen in Indian business. With a state-of-the-art 40-acre site, SGF is building world-class capabilities in BOPP, BOPET, and BOPE films. In August 2025, it became the first company in India to launch a BOPE line, placing it at the forefront of sustainable, recyclable packaging solutions. By 2028, SGFPL will have six high-capacity lines and a total production of ~ 22,000 tonnes per month, making it one of the biggest BOPP producers in India.

Mother Dairy Launches New Naturally Degradable Milk Pouches. Took 4 Yrs to Make

Mother Dairy, one of India's largest dairy brands, on 2 June unveiled what they claim to be the country's first naturally degradable milk pouches for its cow milk variant. The degradable pouches, which decompose naturally in soil without leaving behind microplastics, were rolled out across Delhi - NCR on 5 June.

During a press conference held at the Taj Mahal Hotel in Delhi, Meenesh Shah, chairman of Mother Dairy and National Dairy Development Board (NDDB), described the launch as a step towards reducing plastic waste and promoting environmental responsibility.

Mother Dairy's latest initiative coincides with World Environment Day 2026, whose theme, “Inspired by Nature” focuses on climate action and working for a sustainable future. Ironically, though, this step toward sustainability is complete with AI - generated ads, a known contributor to environmental degradation.

Govt. Sets up Six Sector Groups to Fast-track 'Make In India 2.0' Push

The government has constituted six sector-specific working groups to identify up to 100 products for promoting domestic manufacturing and reducing import dependence.

The panels will submit their finalised product lists to the Cabinet Secretariat within three weeks as part of efforts to strengthen India's industrial capacity. The six working groups cover pharmaceuticals, biotechnology and medical devices; chemicals and petrochemicals; textiles and footwear; capital goods, automotive and electric vehicles, and advanced capital goods; energy; construction equipment and infrastructure; and defence and aerospace (limited to items with civilian applications) and electronics.

The groups comprise representatives from various ministries including Commerce, DPIIT, NITI Aayog, and sector - specific departments.

The panels have been tasked with identifying products that are either not manufactured in India or are produced in insufficient quantities to meet domestic demand.

The objective is to expand manufacturing capacity for both domestic consumption and exports whilst reducing foreign exchange outflows that put pressure on the Indian rupee.

RBI Launches twin USD-INR Forex Swap Facilities to Attract Foreign Currency Inflows and Support External Financing

The Reserve Bank of India (RBI) has introduced two special US Dollar-Rupee forex swap facilities aimed at attracting foreign currency inflows and supporting external financing. The measures follow RBI Governor Sanjay Malhotra's announcement in the monetary policy statement on 5 June.

Under the first facility, the central bank has launched a US Dollar - Rupee forex swap window for fresh Foreign Currency Non-Resident (Bank) [FCNR(B)] deposits mobilised for a minimum tenor of three years and a maximum tenor of five years.

According to the RBI, Authorised Dealer (AD) Category - I banks will be eligible to access the facility for fresh FCNR(B) deposits raised in any freely convertible currency. However, the swap transaction with the RBI will be conducted only in US dollars. The tenor of the swap will correspond to the tenor of the underlying deposit and will range between three and five years.

The RBI stated that the swap will be undertaken at par, allowing banks to sell US dollars to the central bank and simultaneously agree to repurchase the same amount at the end of the swap period. The FCNR(B) swap facility has come into effect immediately and will remain available until 16 October 2026 for deposits mobilised up to 30 September 2026.

In a separate circular, the RBI introduced a US Dollar - Rupee forex swap facility for eligible External Commercial Borrowings (ECBs) raised by public sector undertakings (PSUs) and Overseas Foreign Currency Borrowings (OFCBs) raised by banks.

The facility will be available for ECBs with an average maturity of three years and above, as well as OFCBs raised by AD Category-I banks with a minimum maturity of three years. While eligible borrowings may be raised in any currency, swap transactions with the RBI will be undertaken only in US dollars.

The maximum tenor of the swap will be aligned with the repayment schedule or maturity of the borrowing, subject to a cap of five years. The RBI said the facility will operate daily on working days, enabling banks to swap amounts equivalent to eligible ECB or OFCB inflows received during the preceding week. The swaps will be conducted at a fixed rate of 1.5 per cent per annum, compounded semi - annually.

The ECB/OFCB swap facility will remain open until 15 January 2027 for eligible ECB drawdowns and OFCB inflows received up to 31 December 2026.

The RBI's twin swap facilities are intended to encourage foreign currency inflows, improve hedging options for banks and borrowers and strengthen India's external sector buffers amid evolving global financial conditions.

Vishakha Polyfab Showcases High-barrier Films at Interpack

The Ahmedabad - based high - barrier film manufacturer brings its full portfolio to Dusseldorf as it accelerates its push into European and international markets



Vishakha Polyfab, one of India's largest manufacturers of high - barrier multilayer flexible packaging films, exhibited at Interpack 2026 in Dusseldorf, Germany, from 7 to 13 May.

The appearance at Interpack marks a significant moment for the Ahmedabad - based manufacturer, which has been building its international presence for over two decades. Vishakha Polyfab holds the distinction of being the first company in India to manufacture seven - layer and nine - layer co-extruded packaging films, a technical milestone that has underpinned its reputation across both domestic and global markets.

A broader portfolio, a wider reach

Visitors to Stand J27 can explore the company's full product range, which spans several distinct film platforms designed for food, non - food and industrial applications. VishBarr is the company's high - barrier film range using PA and EVOH constructions, developed to preserve the taste, aroma, colour and texture of liquid, dry, frozen and refrigerated products. VishForm covers thermoforming films engineered for deep-draw applications, while VishLami addresses extended shelf-life requirements across retail and industrial pack formats.

Regain, the company's recyclable packaging range, has drawn considerable attention in sustainability-conscious markets. Built on a nylon and EVOH co-extruded and laminated barrier film structure, it is designed to be fully recyclable while retaining the barrier performance that food and non-food brands require. VishVacu addresses vacuum and modified atmosphere packaging needs, and VishTop provides high - performance lamination and up to nine - layer co - extruded barrier films compatible with a broad range of substrates including PE, PP, PS, PET, PVC and aluminium.

Expansion into Europe accelerating

Vishakha Polyfab's participation at Interpack comes .as the company actively expands its footprint in the European Union, the United Kingdom and the Middle East. The EU-India Free Trade Agreement, signed in January 2026, has materially improved the commercial terms under which Indian flexible packaging exporters can access European buyers, and Vishakha Polyfab is positioned to benefit directly from those developments.

The company's next - generation nine - layer Vishbarr NG films, engineered to replace conventional non-recyclable laminate structures, align closely with the sustainability requirements driven by European regulatory frameworks and major retail groups seeking to meet circular economy targets.

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20 Micron Presents Lithomer TOX - Smart Opacifier for Cost-effective White Masterbatches



In today's competitive polymer industry, optimising cost without compromising performance is crucial. 20 Micron Ltd.'s Lithomer TOX emerges as an innovative white pigment opacifier designed for partial replacement of titanium dioxide (TiO_2). Engineered through advanced co - precipitation technology, it offers excellent optical properties, high whiteness and superior dispersion. Manufacturers can replace up to 15% of TiO_2 while maintaining opacity and brightness, leading to significant cost savings.

Lithomer TOX also improves mechanical properties and resists yellowing during high - temperature processing. Ideal for masterbatches, films, and PVC applications, it delivers both economic and performance advantages.

HPCL-Mittal Energy Ltd. (HMEL) Brings Polymer Solutions for Diverse Industry Needs

HMEL®

HPCL - Mittal Energy Ltd. (HMEL) is a joint venture between Hindustan Petroleum Corporation Ltd. (HPCL) and Mittal Energy Investments Pte. Ltd.

HMEL is dedicated to energising a brighter tomorrow for millions of Indians with superior petroleum and petrochemical products.

The company operates an integrated, state - of - the - art complex comprising an 11.3 MMTPA crude oil refinery, a 1.2 MMTPA dual - feed cracker, 1.2 MMTPA polyethylene (PE) and 1.0 MMTPA polypropylene (PP) plants.

HMEL produces PP impact copolymer, random copolymer and speciality terpolymer along with homopolymer variants in the PP unit. The swing plants produce a wide range of HDPE and LLDPE grades for various applications including metallocene LLDPE for flexible packaging. The dedicated HDPE unit offers a wide range of HDPE grades, with very special attribute of large blow moulding grades.

HMEL's Customer Services & Development Centre (CSDC), Noida, is positioned as an advanced polymer research and product development facility. With NABL accreditation, BIS recognition, and DSIR approval, CSDC promotes sustainable innovation and industry – academia collaboration in the plastics sector.

Chiripal Poly Films Provides Integrated Flexible Packaging Solutions

Chiripal Poly Films Ltd. (CPFL) is a leading player in India's flexible packaging sector, specialising in BOPP, BOPET, CPP, coated and metallised films, PET resin, ALU foil and rPET. Its products support key applications such as printing, laminating, labelling and PET bottle and container production.

Over the past decade, CPFL has built a strong reputation for its diverse product portfolio and responsive aftersales service. The company operates state-of-the-art manufacturing facilities in Ahmedabad, Hyderabad and Jammu, with a global presence across 70+ countries.

CPFL has a total production capacity of 5,75,000 metric tonnes per annum, comprising 2,94,000 metric tonnes of films and 2,20,000 metric tonnes of PET resin, supported by value-added capabilities in metallisation, coating, aluminium foil and rPET. With a strong focus on quality, scale and sustainability, CPFL continues to expand its capabilities while strengthening its position as a reliable global packaging solutions provider.

Cosmo First Limited Declared Its Financial Results for the Quarter and Year Ended March 2026.

Cosmo First Limited recently declared its financial results for the quarter and year ended March 2026.

Commenting on Company's performance **Mr. Pankaj Poddar, Group CEO, Cosmo First Ltd** said "We are happy with the progress made in all our businesses, including the new ones. The FY27focus will be on achieving full capacity utilization in Films & Chemicals, higher growth in speciality sales; scaling-up and being profitable in Plastech; and substantially growing the B2C businesses. The Company has done well to manage the uncertainty percolating from US duty issue as well as West Asia war. Managing volatility & uncertainty will remain one of the critical tasks ahead."

Key developments during the quarter

1. Films Business (Cosmo Films):
   Launched anti-fog transparent BOPET lidding films for advanced food packaging applications

2. Cosmo Consumer Business (Cosmo Sunshield & Paint Protection Films): Expanded product offering by entering the ceramic coating industry with launch of Cosmo Guard

3. Petcare Business (Zigly Petcare): Expanded retail footprint with new centres in Kothrud, Pune and Banjara Hills, Hyderabad

4. Cosmo Speciality Chemicals: Launched advanced masterbatches portfolio – CosmoWhite and CosmoAdd

5. CSR & Foundations: Hosted the third edition of Sitaram Jaipuria Foundation Scientific Symposium and Awards, Successfully completed the anti vaccination and micro - chipping drive at Shalimar Bagh for 3000+ community dogs

6. Corporate / Group - Level Communication Participated in PlastIndia 2026 as a sponsor while showcasing new launches and product innovations to both domestic and international customers and attendees.

RBI Plans Simpler Cross-border Payment Approvals to Boost MSMEs, Exporters: EY Report.

The Reserve Bank of India (RBI) is looking to simplify cross - border payment approvals and reduce regulatory friction for businesses and exporters as part of its Payments Vision 2028, according to an EY report, which identified cross - border payments as a key strategic priority for the next phase of India's digital payments growth.

In its report, Payments Vision 2028: Preparing to Shape India's Payment Frontier, EY said the RBI is moving beyond the earlier focus on expanding digital payment adoption and is now seeking to improve the efficiency of cross-border transactions and strengthen India's position in global payments.

"Cross - border payments appear as a strategic priority, with proposed simplification of authorizations – potentially through a single-window approach -- along with a comprehensive ecosystem review," the report said.

According to the report, the RBI plans a detailed review of the cross-border payments ecosystem to remove regulatory and operational bottlenecks, particularly for businesses engaged in international trade. "The approach for 2028 is highly structured and efficiency - driven. The RBI plans a comprehensive review of the cross-border ecosystem to remove regulatory and operational frictions, specifically to aid MSME exporters," EY said.

Srichakra to Invest INR 425-crore to Expand Food - grade rPET Capacity



Hyderabad - based Srichakra Polyplast has announced plans to invest INR 425-crore to expand its food-grade recycled PET (rPET) capacity, positioning itself to capitalise on tightening regulatory mandates and rising demand for certified recycled content in packaging.

The company will increase its processing capacity from around 90,000-tonnes to more than 1,13,000-tonnes by 2026. Backed by this investment, Srichakra is targeting revenues of INR 1,000-crore in FY27, according to senior company officials. Revenue is expected to reach INR 450–500-crore in FY26 as the new capacity comes on stream.

Amcor Expands Production Capability in India to Meet Growing Healthcare Packaging Demand



Amcor, a global leader in developing and producing responsible packaging solutions, has underlined its commitment to the healthcare market with a further multi - million - dollar investment in its state - of - the - art manufacturing facility in Sira, Karnataka, India.

With this investment, the company has strengthened its capabilities in the design and development of high-performance healthcare packaging and patient-centric drug - delivery solutions, supporting rapidly growing demand across India and South Asia.

The new production line will significantly increase production capacity and shorten lead times, enhancing production flexibility and supply reliability for a broad customer base ranging from global pharmaceutical to emerging local companies. The expansion will also create over thirty new jobs.

The investment introduces advanced manufacturing technologies equipped with fully automated online vision systems to enhance quality and consistency for ophthalmic containers, injectable vials and other high-performance healthcare packaging solutions.

The facility's sustainability performance is also improved through the introduction of more energy-efficient systems. The Sira facility operates on 100% renewable energy and is certified with the International Sustainability and Carbon Certification (ISCC) PLUS standard.

"This addition to our Sira plant reflects our strong progress in building world - class healthcare capabilities in India," said Jean - Marc Galvez, chief operating officer of Amcor's Global Rigids Packaging Solutions division. "The investment strengthens our strategically located manufacturing network, combining global expertise with local production capabilities to deliver faster response times, reliable supply and consistently high-quality pharmaceutical packaging for customers across the region."

Amcor operates three other dedicated healthcare packaging plants in India. This includes one in Bangalore which offers a range of next-generation equipment and precision manufacturing technologies to support a broad range of healthcare sector needs, including ophthalmic and nasal delivery systems, inhalation devices and components used to deliver injectable medicines.

This upgrade is the latest in a series of healthcare packaging capability investments in Asia Pacific following the recent opening of a new advanced coating facility in Malaysia.

Reserve Bank of India Set to Unveil Polymer ₹ Notes

The Reserve Bank of India (RBI) has revived the idea of printing polymer banknotes for circulation to meet the surge in demand for currency notes in the last few years.

According to multiple sources aware of the development, the issue of introducing polymer or plastic notes was discussed in the last two board meetings of the central bank, held in Patna and Mumbai.

The decision has been taken in view of perceived advantages in the cost of production and the higher shelf life of such currency notes. A pilot project involving plastic banknotes for public use is expected to be announced soon.

"There are clear advantages in the cost of production of such notes compared to the paper notes currently being used. Moreover, automated teller machines (ATMs) would be enabled to dispense polymer-based notes. We have the wherewithal to do this now," said one of the sources familiar with the board's deliberations.

The expenditure incurred on securely printing paper currency notes during 2024 - 25 (Fy25) was ₹6,372.8 crore as against ₹5,101.4 crore during the previous year, mainly due to increase in indent for printing of banknotes, the RBI had said in its annual report for FY25.

Increasing the shelf life of bank notes was an equally important consideration for the decision to go polymer, as the disposal of soiled bank notes has remained high. Data shows 23.8 billion pieces of soiled banknotes were disposed in FY25, rising 12.3 per cent from 21.24 billion pieces in the previous year. Most soiled notes were of the ₹500 denomination, followed by ₹100 banknotes.

Currency in circulation (CiC) continued to rise at a sharp pace, increasing 11.5 per cent year-on-year to touch ₹42.86 trillion - a record high - as on May 15. In absolute terms, CiC expanded by ₹1.15 trillion during the first one and a half months of FY27, indicating sustained demand for cash despite continued growth in digital payments.

The sources said the high demand for lower denomination bank notes like ₹10, ₹20 was evident in the last few years. However, the share of such notes remained low in the overall bank notes in circulation. For example, in value terms, the ₹10 denomination remained at 0.7 per cent in the last two years while the ₹20 banknote was just 0.8 per cent.

While the Indian central bank made a conscious effort to popularise the use of coins, that effort has not yielded the desired results. The supply of total number of coins increased from about 1.2 billion in FY24 to 1.5 billion in FY25, of which the ₹5 denomination coin constituted 800 million, followed by 400 million ₹20 coins.

In 2012, the then government had decided to introduce one billion pieces of Rs. 10 banknotes on polymer substrate on a field trial basis in five cities. The primary objective of the introduction of plastic notes was to increase their shelf life, and not to combat counterfeiting, the United Progressive Alliance (UPA) government had noted. The project was, however shelved due to technological challenges.

Things have changed over the past decade or so, with sources emphasising that the said technology is no longer a challenge, and solutions have been arrived at in order to ensure that ATMs can identify such notes.

There are about 60 countries in the world which have introduced polymer banknotes in circulation so far. Australia was the first one to introduce polymer banknotes, starting with a ten dollar note in 1988, followed by Singapore, Indonesia, Thailand, Malaysia. Romania was the first European country to use a plastic note back in 1998, while Canada introduced similar notes in 2011. US dollar notes are made of a specialised cotton - linen blend material.



BASF Introduces Oppanol® N PLUS for Next - Generation Batteries – 95 Years of Innovation with Polyisobutene



BASF introduces Oppanol® N PLUS, a new high - performance binder fo r the next generation of electric vehicle (EV) batteries.

With the transition to new battery technologies, particularly solid - state batteries (SSB), material requirements are increasing significantly. This next generation of batteries enables longer driving ranges, faster charging times, and enhanced safety – while placing the highest demands on the performance and reliability of all components used.

Setting new standards for battery performance and process reliability

Oppanol® N PLUS is based on BASF's proven polyisobutene (PIB) technology and has been specifically engineered for modern battery concepts. As a binder, it plays a central role in the cathode, anode, or electrolyte by reliably holding the individual components together while keeping them effectively separated.

Thanks to its high elasticity and extensibility, the material compensates for mechanical stress during charging and discharging, thus significantly contributing to battery lifetime and stability. At the same time, Oppanol® is chemically inert, preventing unwanted side reactions.

A key feature of Oppanol® N PLUS is its exceptionally high and consistent product quality with very narrow specifications. This enables:

- Reduced variability in production processes
- Less need for reformulation at the customer
- Lower quality control efforts
- Faster and more stable process adjustments.

In addition, BASF offers enhanced services: customers benefit from particularly fresh material supplied directly from stock, as well as more flexible delivery options with smaller packaging sizes starting at 20 kilograms. This supports battery manufacturers and OEMs in efficiently implementing the next generation of high - performance and reliable batteries for e - mobility.

“With Oppanol® N PLUS, BASF combines decades of expertise with the requirements of tomorrow's e - mobility. The new product exemplifies the company's commitment to continuously advancing proven materials and actively shaping the transition to sustainable technologies,” said Madeleine Jordan, Global Business Management, Oppanol® at BASF.

95 years of Oppanol® – proven performance meets future technology

The launch of Oppanol® N PLUS coincides with a milestone year: 95 years ago, BASF laid the foundation for polyisobutene technology.

In 1931, Michael Otto first demonstrated that isobutene can be polymerized under suitable conditions – a breakthrough that led to the development of the Oppanol product family. In the same year, BASF filed a patent for a process to manufacture PIB. The product was later named "Oppanol" after the Ludwigshafen district of Oppau, where it was first developed. It took another seven years of research and development before Oppanol could be produced on an industrial scale. In 1938, production began at the newly built Oppanol plant – marking the start of the polymer's global success.

From the outset, Oppanol fascinated researchers and users alike with its unique property profile: it is transparent, impermeable to water and a wide range of gases, resistant to chemicals, physiologically harmless, and adhesive. Today, Oppanol is used worldwide in a broad range of applications, including chewing gum, adhesive bandages, insulating glass windows cable insulation, roofing membranes, pipeline coatings and modern battery technologies. It also stands for exceptional durability, chemical stability, and reliable performance.

Trinseo's PC UD Tape to Replace Metal EV Battery Covers



Reducing casing weight, meeting fire - resistance requirements, and building end - of - life recyclability into battery enclosures represent three design constraints that EV battery engineers are managing simultaneously – often with material systems that address only one or two of those parameters at a time. A thermoplastic composite solution designed to respond to all three is now available from Trinseo, developed at the company's Global Innovation Center in Europe.

The solution is built on Trinseo's flame - retardant polycarbonate unidirectional (PC UD) tape technology and takes the form of a recyclable battery top cover. Available in thin - wall configurations of 1.0 mm and 1.5 mm, it is presented as an alternative to traditional metal - and thermoset - based casing designs. According to Trinseo, the architecture is designed to support lightweight construction, fire - resistant performance, recyclability, and cost efficiency within EV battery systems.

"This technology reflects Trinseo's capability to address key requirements identified by OEMs and Tier - 1 suppliers, and when used in these applications, Trinseo's solutions can contribute to lightweight design, fire - resistant performance, recyclability and cost efficiency," said Oliver Becker, vice president, Technology & Innovation, Plastics Solutions. *"It illustrates how thermoplastic composites can support evolving EV battery casing architectures while addressing sustainability considerations and scalable manufacturing requirements.*

Support applications in drones, robotics, urban air mobility, and rail transportation.

Beyond battery enclosures, Trinseo indicates that its thermoplastic composite portfolio – encompassing UD tapes and organosheets – has the potential to support applications in drones, robotics, urban air mobility, and rail transportation. The relevant performance parameters across these sectors include lightweight structures, high stiffness and strength, thin - wall design, fire resistance, corrosion resistance, and high - rate production capability.

The battery top cover demonstrator made its global debut at CIBF 2026 (Shenzhen, May 13-15) and will be on display at The Battery Show Europe 2026 (Stuttgart, June 9 - 11), where Trinseo has indicated it welcomes discussions with OEMs, Tier - 1 suppliers, and industry partners on thermoplastic composite applications for battery casing and broader mobility systems.

Amcor Launches 38 mm Carry Handle to Improve Convenience for Consumers



Amcor (NYSE: AMCR, ASX: AMC), a global leader in developing and producing responsible packaging solutions, has unveiled a new 38 mm handle for PET containers, expanding its offer in the beverage market. The new development is user - friendly, with a strong grip for easy carrying, and targets water and other non - carbonated beverages.

The handle fits bottles with a 38 mm neck and is compatible with the Proxima Tethered Closure and other beverage closures from Amcor. It is suitable for large PET containers of up to 10 liters, a format that's seeing an increase in market demand from consumers. The 38 mm handle, when combined with the closure, saves 34.5% in weight compared to the 48 mm version. It also incorporates retention tabs to hold it to the neck securely and tightly.

“This new 38mm handle comes at the right time, with more consumers demanding water or non - carbonated beverages in container sizes of between 5 to 10 liters,” said Uli Kobert, product line manager – Beverage Closures & Home Care Triggers at Amcor. “It's a solution that is convenient for the consumer and makes it easier to carry.”

Bulk purchasing for the home, office or camping is among the drivers for the 5 - 10 liter market. The durable bottles are convenient to use, and Amcor's new handle underlines the company's ability to innovate in a growing market.

“Our technical expertise means that we are able to launch this addition to our line - up of handles, serving a sector that demands an easy to use and robust innovation,” added Amcor's Uli Kobert. “We are delighted to launch the 38 mm handle onto the market, demonstrating Amcor's ability to react to changing consumer habits.”

Huhtamaki Collaborating with Hesburger on New Fiber Lids

Huhtamaki and Hesburger are strengthening their long - standing partnership through the development of new fiber lids, designed in close collaboration to support performance and sustainability in everyday food service applications.

Hesburger has launched their transition to customized Huhtamaki manufactured fiber lids designed for both hot and cold beverages. This milestone reflects a commitment to innovation, functionality and more sustainable packaging solutions.

Made from renewable, plant - based fibers, the lids are manufactured in our Huhtamaki Foodservice site in Alf, Germany. The design has been carefully optimized to provide an excellent user experience across a variety of beverage types. Whether used for hot or cold drinks, the lids ensure a comfortable drinking experience and reliable functionality in everyday use.

“The development work with Hesburger has been both smooth and insightful, supporting the sustainability goals of both organizations. This collaboration is a strong reflection of our valued partnership with Hesburger” says Mira Eklund, Key Account Manager.



Beyond performance, sustainability has been a key driver throughout the development process. The fiber lids are compostable, recywclable and contain no plastic coatings. By this transition from plastic to fiber lids, Hesburger is able to reduce around 41000 kg of plastic every year.

Gentlebrand Launches its SmartWeighting Approach, Introduced Via the MINERA Still Water Bottle



Gentlebrand is introducing its SmartWeighting approach, demonstrated through the MINERA SmartWeighting still water bottle, showing how lightweighting can be achieved without compromising performance, aesthetics or brand positioning in the beverage sector.

SmartWeighting is a design and development approach created by Gentlebrand that focuses on optimising how material is distributed and expressed within a bottle structure, rather than simply reducing material weight. By combining structural engineering with considered design language, the approach enables lighter packaging to maintain both functional reliability and a premium on-shelf presence.

“MINERA SmartWeighting allowed us to demonstrate that reducing weight does not have to mean making compromises,” commented Andrea Rizzardi, Director of Gentlebrand. “SmartWeighting focuses on how material is used, not simply how much, ensuring structural reliability, visual quality and brand positioning are preserved.”

The SmartWeighting approach was developed in response to a common industry challenge. Lightweight bottles are often associated with low cost products, making it difficult for beverage producers to pursue lightweighting without affecting perceived quality. SmartWeighting addresses this by carefully balancing weight optimisation with structure and visual design, allowing lighter bottles to retain a refined look and feel.

The MINERA SmartWeighting water project applies these principles to the design of a still water bottle intended to deliver both functional performance and aesthetic distinction. The objective was to achieve an optimal container weight while guaranteeing strength and stability throughout every stage of production, from blowing and filling through to transport and storage.

The MINERA still water bottle was developed by Gentlebrand in collaboration with Competek, an engineering partner specialising in beverage packaging, who supported the technical and industrial development of the project.

In order to meet performance requirements, the bottle design alternates clean, minimalist areas with technical and functional elements that discreetly reinforce the structure. Further optimisation was applied to the neck finish, reducing excess material while improving handling and user experience. Development was supported through collaboration with international partners across the beverage supply chain to ensure industrial compatibility.

The MINERA bottle also reflects the SmartWeighting approach's material strategy. The packaging is produced using 100% BioPET supplied by UPM Biochemicals, while the label uses UPM Raflatac Vanish™ PCR film. This creates a no label look that enhances visual purity and perceived premium quality, while supporting material reduction and recyclability.

For beverage producers, SmartWeighting delivers benefits across the supply chain, including reduced PET usage and improved logistics efficiency, without compromising bottle performance or perceived quality. By integrating visual aesthetics, engineering and material optimisation, SmartWeighting establishes a balanced relationship between responsible material use and brand expression.

Looking ahead, Gentlebrand views its SmartWeighting approach as representative of the direction beverage packaging continues to take, with smarter, more considered solutions that support environmental and economic objectives while remaining aligned with brand identity. In this context, lightness becomes a deliberate design choice rather than a limitation for packaging producers.

Guala Closures Unveils MAGNEX, the Next - Gen Cap for Maximum Spirits Security



One in four bottles of spirits consumed worldwide may not contain what it claims to. According to latest estimates , counterfeit and illicit products in the global spirits market range from 25% to 40% of total consumption, translating into billions in annual sales and tax revenue losses. Moreover, according to the World Health Organization, 21% of all alcohol consumed globally falls outside any form of government oversight, being illegally imported, counterfeited, or otherwise untraceable.

For this reason, Guala Closures, a global leader in specialty beverage and pharmaceutical closure solutions, has developed MAGNEX: a closure for premium spirits manufactured through EMF (Electromagnetic Forming) technology. The process applies high - velocity magnetic pulses to form aluminium directly around a mould, producing complex geometries, micro - engravings and three - dimensional textures that cannot be reproduced through conventional aluminium forming technologies. Every closure is co - designed with the brand and closely integrates the design with the protection system.

Conventional protection measures — holograms, seals, tamper - evident systems — have proven structurally limited. Counterfeiters access the same technologies available on the open market and replicate them with ever - increasing sophistication. The closure — long considered a functional and aesthetic element of the bottle — is now being called upon to do more.

“Most ant - counterfeiting measures fight on the same technological ground as the counterfeiters. EMF changes that equation. The geometries and textures we achieve with MAGNEX are physically impossible to reproduce through standard embossing or metallisation, which means the design itself becomes part of the protection mechanism" commented Andrea Tassisto, Group Industrial & Technical Directorat Guala Closures.

The closure combines an EMF - formed aluminium outer shell — a highly sustainable and infinitely recyclable material — with an inner component that can also be produced using recycled plastics, reducing the use of virgin resources. Paired with anti - refilling valves and tamper - evident systems, it delivers multi - layered protection in a single unit. Production takes place at Guala Closures' Gartcosh facility in Scotland, currently the only plant in the closures industry equipped with industrial - scale EMF lines.

Benchmark Powerpack: Strengthening the Pillars of PVC & CPVC Piping Solution



Innovation, Quality, and Reliability form the backbone of high performance PVC and CPVC piping, and Benchmark Powerpack is actively reinforcing these pillars within the plastics industry.

Innovation drives the company's work. By leveraging new - age additives and relentless fine - tuning — pursuing trial after trial until a breakthrough emerges — Benchmark Powerpack elevates fusion quality, impact strength, and thermal stability.

Quality remains central to its approach. Rather than reinventing proven formulations, the company raises industry standards by targeting and

eliminating the specific challenges of each application while preserving everything that already works — ensuring dimensional accuracy and consistent performance aligned with BIS and ASTM standards.

Reliability, critical in piping applications, is achieved through stable processing and controlled manufacturing, so pipes perform under pressure, temperature fluctuations, UV exposure, and aggressive environments.

With a focus on innovation and operational excellence, Benchmark Powerpack continues to drive future - ready solutions in the polymer industry.

Next - Gen Oil Film: Downgauged Solution for High - Speed VFFS Up to 60 Packs/min

Challenge

With the emergence of advanced vertical form fill seal (VFFS) technology enabling higher line speeds, the edible oil packaging industry faced a challenge: creating packaging solutions that could maximize this capability by improving productivity, operational efficiency, and reducing material usage.

Traditionally, one - liter edible oil pillow pouches in India use 90 – 95μm films and run at 35 – 40 packs per minute on VFFS machines. While this has been the norm, brand owners and converters sought a breakthrough that could significantly increase line speeds without compromising on film integrity or packaging performance, ensuring readiness for next - generation of high - speed operations.

Solution

Leveraging ExxonMobil Signature Polymers performance polyethylene (PE) technology, four industry leaders collaborated to develop oil film capable of achieving line speeds up to 60 packs per minute on VFFS machines, delivering a stepchange performance. This solution was designed to meet current market needs while ensuring scalability for nextgeneration high - speed flexible packaging.

Key enablers of the breakthrough:

- ExxonMobil Signature Polymers team provided formulation expertise and high - performance pPE grades resins, enabling downgauging without compromising seal integrity or film performance.
- Vishakha Polyfab, a leading barrier film producer / converter, applied advanced film manufacturing technology to produce the optimized film.
- Nichrome India Ltd, an integrated packaging solutions company, enabled high - speed filling performance using the optimized film on their new - generation VFFS machines with Advance Sealing technology.
- Cargill, as the brand owner, conducted full-scale production trials to confirm real - word performance and consumer readiness.

The ExxonMobil Signature Polymers resin grades used include:

- Exxtra™ Seal: Low seal initiation temperature for efficient sealing, improved hot - tack strength, and a broad operating window
- Exxtra™ Stiff+: Enhanced processability with excellent stiffness toughness balance
- Exceed™: Exceptional mechanical performance for downgauged film

Results

The collaboration delivered an innovative, scalable, highspeed packaging solution for edible oil pillow pouches. Mechanical strength and seal integrity were fully retained as compared to the reference film, ensuring reliable performance under real - world conditions. Rigorous testing showed:

- **Zero failures** during manual squeeze tests
- **100% pass rate** in bag drop tests (10 pouches dropped consecutively on 3 sides from 1.5 m height)
- **No leakage** during transportation trials (200 pouches transported ~ 900 km by road) These results confirmed the solution's robustness and reliability for high - speed VFFS operations and demanding supply chain environments. Performance highlights of the optimized film include:

- **50% productivity boost:** Line speed increased from 35 – 40 packs/min to 55 – 60 packs/min.

- **Enhanced seal integrity:** Low rejection rate and strong bag drop performance Through advanced material technology and strong value chain collaboration, we delivered an 85μm oil film that runs at up to 60 packs per minute without compromising performance, setting a new benchmark for speed and reliability in edible oil packaging.

Infinity Bulk Logistics Collaborated with ExxonMobil Signature Polymers to Develop Hot Fill Flexitanks for end - to - end Transportation



Challenge

To develop a high performance hot fill flexitank for specific industries (such as bitumen, oleochemical etc.) at heated stage operation.

Infinity Bulk Logistics is a leader in global bulk liquid transportation, offering a wide extent of flexitank solutions, compatible with a diverse range of liquids from non - hazardous industrial chemicals to consumer food grade liquid.

A flexitank is a large bladder with valves that is designed to fit within a general freight container. It often has a capacity of 24,000 liters (more than 20 metric tons) per unit and is a flexible packaging alternative to rigid packaging, like drums or ISO tanks (a tank container built based on International Organization for Standardization). It is regarded as an attractive transportation mode because of its lower packaging cost and higher operation efficiency versus these alternatives.

Flexitanks can be used in non - hazardous infills with various requirements. Due to rapid growth in demand for construction, edible oil and oleochemical are increasingly popular infill. As high melting point of edible oil and oleochemical can only flow in a heated state, it requires hot filling into flexitanks. Therefore, heat resistance is an important requirement for this type of flexitank film, while mechanical performance and flexibility are also needed.

Flexitanks are currently produced using polyethylene (PE) and/or polypropylene (PP), and both have limitations. To maintain structural integrity at high temperature, PE film must be considerably thick, with some PE films reaching as much as 300 µm. This is significantly greater than the standard 125 µm film currently used in flexitanks, which raises cost considerations. While the higher melting temperature of PP provides significant heat resistance, it requires higher sealing temperature or longer sealing time, thus slowing production speeds. There is a need to simplify welding operation at optimal temperature. Today, flexitanks are often produced with a blend of PE and PP to obtain the desired thickness and heat resistance properties.

To address the challenge, ExxonMobil Signature Polymers collaborated with Infinity Bulk to develop customizable and cost - effective solutions to address the requirements of hot - filling applications. These solutions, using ExceedTM Stiff+ m 0820 and ExceedTM Stiff+ m 0238, can deliver exceptional mechanical performance and remarkable heat resistance. Historically, it has been particularly challenging to maintain bubble stability without LDPE for 8 meter wide film, but with Exceed Stiff+ m 0238, it is possible due to its excellent melt strength. Translating into downstream need, it allowed a flexitank to withstand demanding conditions, ensuring structural integrity during hot - filling, while helping prevent leakage during transportation.

Solution

Enabling heat resistant mono - material PE - based solution using Exceed™ Stiff+ performance polyethylene.

Flexitanks are typically extruded from formulations that contain low - density polyethylene (LDPE) for bubble stability, PP for heat resistance and mLLDPE for toughness. However, when downgauged, this film can lack the heat resistance and toughness coupled with its integrity which are crucial criteria for hot fill flexitank.

To overcome this limitation, Exceed™ Stiff+ m 0820 and Exceed Stiff+ m 0238 performance polyethylene were incorporated into the film formulation. This enabled solutions without LDPE while meeting heat resistance and toughness performance requirements. The resulting film demonstrated:

- Monomaterial PE with heat resistance and optimal sealing performance.
- Similar flex crack to help prevent leakage during long transportation distance.
- High dart impact that provides a liquid shock shield during transportation.
- High melt strength material to address thickness variation induced leakage.
- Avoidance of end product condensation during end - toend transportation. Result A downgauged flexitank with excellent heat resistance to fill product in a heated state up to 120°C*. The hot fill flexitank developed primarily with Exceed Stiff+ m 0238 and Exceed Stiff+ m 0820 met the critical needs of endto - end transportation:
- Heat resistance: Filled products did not melt the film at 120°C.
- Flex crack: Similar pinholes to avoid leakage of filled content through rigorous test of 3000 cycles.
- Downgauging: Reduced film thickness while maintaining film functionality for flexitank with infill at elevated temperature for filling production efficiency.

Flex crack
Heat resistance
Dart impact strength

- 130μm film with ExceedTM Stiff+ solution
- 135μm incumbent film with PE/PP

Additionally, ExxonMobil converted the practices of our customers into a measurable testing methodology, enhancing the test's measurability and repeatability. As a result, specialized hot - oil filling equipment was customdesigned and implemented.

Mr. Teo Guan Kee, Technical Director at Infinity Bulk, shared, “At Infinity Bulk, we strive to be a trusted partner to our customers by offering full polyethylene - based solutions that support their efforts to produce thinner films that maintain functionality. Through our collaboration with the ExxonMobil Signature Polymers team and the use of the latest performance PE, we are proud to help make this vision a reality.”

“With ExxonMobil Signature Polymers performance resins, we were able to deliver a solution that not only met our downgauging targets, but also offer critical functionality with Infinity Bulk, striking the perfect balance between performance and material efficiency,” commented Mr. Yeo Weijian, General Manager - South Asia Pacific Polyethylene Market Developer at ExxonMobil.

Engineering Better Closures: Sustainable Designs in Flexible Packaging

Brands are under mounting pressure to make flexible packaging more sustainable, from films and multi - layer structures to fitments and closures.



Within the flexible **packaging** space, caps and spouts play a small but critical role in both environmental performance and the overall consumer experience. They must support recyclability and material reduction goals, while sealing reliably, dispensing properly and running efficiently on high - speed filling equipment — all within tight financial, regulatory and environmental constraints.

Meeting these varied goals while improving environmental performance requires more than a cosmetic design tweak or a simple resin substitution.

Real **sustainability** gains in flexible packaging emerge from disciplined engineering decisions that optimize materials, reduce weight, simplify recycling and enhance molding efficiency.

How Caps and Closures Help Drive Sustainability Goals

While focus is often placed on films and packaging design, closures and fitments should be considered as a critical part of the flexible packaging sustainability story, not treated as an afterthought. Caps and spouts can enable lightweighting, improve recyclability and support efficient manufacturing. In practice, closure design can advance sustainability goals in five key ways:

- Reducing overall material consumption across the packaging system through optimized resin use and structural efficiency.
- Improving recyclability by simplifying material choices and supporting fully recyclable packaging systems.
- Enhancing manufacturing and logistics efficiency through faster cycle times, reduced scrap and improved line performance.
- Enabling broader adoption of flexible packaging formats by improving functionality and usability for all users.
- Protecting product integrity to prevent waste through reliable sealing, clear tamper evidence and controlled dispensing.

Together, the following four engineering pathways provide a practical framework for achieving these sustainability outcomes while maintaining the performance that customers demand.

• Material Optimization

Material selection and structural design determine how effectively a closure balances environmental impact with functional requirements. Decisions about resin and geometry influence not only recyclability and material reduction, but also seal integrity, torque retention, molding efficiency and long - term durability. For engineers, this means evaluating alternative materials in conjunction with part geometry and tooling considerations, ensuring performance, manufacturability and end - of - life compatibility are addressed together.

Circularity is ultimately determined not by design intent, but by how closures move through collection, sorting and reprocessing system.

A growing trend in material optimization is the shift toward **mono - material systems** — packaging structures from films to fitments designed around a single resin family, most commonly polypropylene (PP) and polyethylene (PE). Since polymers with different melt characteristics and chemistries do not always reprocess together effectively, aligning materials within the same family simplifies mechanical recycling for the end user and improves overall material yield. As flexible packaging moves in this direction, closure design increasingly needs to align with the film structure, driving collaboration across the value chain between film manufacturers, converters and cap and spout suppliers.



While often overlooked, closures and fitments play a critical role in sustainable flexible packaging. Engineered designs that optimize materials, enable recyclability and maintain reliable sealing can drive measurable environmental gains.

Alignment within a resin family is only part of the material evaluation process. Incorporation of post - consumer recycled (PCR) or bio - based resins requires evaluation beyond environmental claims. Engineers must ensure alternative materials deliver consistent stiffness, impact resistance and process stability at scale. Successful material optimization balances sustainability objectives with molding performance, line efficiency and overall cost viability.

• Lightweighting Considerations

Lightweighting has long been a go - to strategy for reducing plastic usage across applications – including flexible packaging. For caps and spouts, the engineering challenge is optimizing material use while protecting the areas the support sealing, dispensing and durability. That's why lightweighting remains a core sustainability focus for closure design.

Reducing part weight depends on deliberate engineering. Modern closure lightweighting focuses on redistributing material to support sealing surfaces, load - bearing features and dispensing functionality while eliminating excess mass elsewhere. By eliminating redundant features and optimizing geometries, engineers can reduce resin usage while maintaining, and often improving, functional performance and line efficiency. Advances in resin performance, mold design and simulation allow today's closures to do more with less.

While modern materials can more easily drive optimizations, in - house engineering expertise and decades of closure design experience remain critical. Lightweight designs must account for real - world variables such as temperature variation, varied filling processes and consumer handling. Closures that succeed are those that achieve efficiency without compromising durability, usability or manufacturing reliability.

• Design for Recycling Fundamentals

A closure system can use mono - materials and lightweight designs and still fall short of sustainability goals if it can't be recovered at end of life. Circularity is ultimately determined not by design intent, but by how closures move through collection, sorting and reprocessing systems. Design for recycling addresses this reality by treating end - of - life pathways as a core engineering constraint, alongside filling performance and end - use functionality.

In spouted - pouch applications, resin selection can also affect seal initiation temperature at the fitment - to - film interface. Tailored PE and PP - based sealant systems may help reduce seal initiation temperature and widen the sealing window, improving seal strength at lower sealing temperatures without distorting the film structure.

Successful material optimization balances sustainability objectives with molding performance, line efficiency and overall cost viability. However, these benefits depend on more than the spout material alone. They must integrate with the film structure and advanced sealing methods used on the line, including ultrasonic sealing, pre - heating the spout and digital heat - seal technology. Successful sealing depends on the intersection of all these variables. The most robust systems are those in which sealing technology, film design and spout material work together to create greater overlap between the film's and spout's seal windows.

• Injection Molding Process Adjustments

Lightweighting, material optimization and design for recycling all depend on one thing: the ability to manufacture closures consistently at scale. Injection molding adjustments strengthen sustainability by improving repeatability, reducing scrap and supporting stable production.

Sustainable designs must be supported by manufacturing processes that deliver consistent quality at scale. Lightweighted and recyclable closures place greater demands on tooling design, requiring careful attention to gating, cooling and material flow to maintain dimensional stability and part performance. Advanced closure geometries, including optimized threads and tamper - evidence features, can reduce material usage while preserving sealing, dispensing and usability, provided they are supported by robust tooling and manufacturing strategies.



As brands, suppliers and manufacturers work to align with growing consumer expectations and emerging regulations, circularity has become the guiding principle in rethinking flexible packaging. Through material innovation, thoughtful design and deep collaboration across the supply chain, companies like Hoffer Plastics are helping shape a future where packaging performance and environmental responsibility go hand in hand.

Precision injection molding plays a central role in sustainable manufacturing. Cavity pressure monitoring, closed - loop process control and data analytics help maintain repeatability, reduce scrap and minimize start - up waste. Advanced cooling strategies further improve cycle stability, mitigate energy and water consumption and extend tool life. Prioritizing durable, repeatable tooling reduces downtime, maintenance - related scrap and overall lifecycle waste.

Delivering Sustainability Through Engineering Discipline

Achieving sustainability in your product's packaging depends on the integration of all components of the package – including caps and spouts. By taking an engineered approach to closures and fitments, manufacturers can ensure that material selection, recyclability, manufacturability and product integrity are aligned rather than competing priorities. When closures are designed with the full lifecycle in mind, they become not just functional components, but contributors to measurable environmental progress.

ABOUT THE AUTHOR: John Strubulis is a senior product manager at Hoffer Plastics, South Elgin, Illinois. With more than 20 years of experience in flexible packaging, Strubulis brings technical expertise across the food, beverage and confectionery markets. He drives product innovation, market expansion and customer - focused growth through advanced pouch closure design and development. He leads product strategy for Hoffer Plastics' Trust - T - Lok family of closures, shaping solutions that align with evolving consumer needs and industry demands. Through close collaboration with machine manufacturers, material suppliers and brand owners, Strubulis delivers integrated, forward - thinking packaging solutions.

Syensqo Stabilizers Make Translucent PP More Durable

Syensqo has launched Cyasorb Cyxtra V9800 and V9100, part of a new stabilizer series aimed at enabling automotive manufacturers and compounders to expand the use of translucent polypropylene (PP) in both interior and exterior applications, combining modern design aesthetics with long - term durability.



Syensqo's new additives are aimed at increasing the functionality of polypropylene for automotive applications.

As **automotive design** increasingly incorporates light, transparency and refined surface effects, materials such as translucent PP offer new creative possibilities. However, their sensitivity to UV exposure and heat has historically limited their use in demanding environments. Syensqo says its new Cyasorb Cyxtra V9800 and V9100 products address these challenges, helping materials maintain clarity, color and performance over time.

The series provides targeted protection for these specific needs:

- Cyasorb Cyxtra V9800: Optimized for exterior applications, such as bumpers, requiring higher UV stabilization.
- Cyasorb Cyxtra V9100: Engineered for interior applications where higher thermal stabilization is essential.

Key benefits the company cites include:

- **Discoloration and yellowing control:** delivers minimal yellowing under light and heat exposure and provides a minimal contribution to the yellowness index.
- **Light transmittance retention:** ensures long - term retention of light transmittance and low haze throughout the service life.
- **Consistent aesthetics:** provides excellent gloss retention and prevents blooming issues under light and heat exposure.
- **Extended lifespan:** protects mechanical properties and aesthetics, leading to visually appealing products that retain quality throughout their lifecycle.

"As automotive design continues to evolve, material performance must keep pace. With our latest Cyasorb Cyxtra solutions, we are enabling our customers to confidently expand the use of translucent polypropylene in demanding automotive applications," says Chen Ning, VP, polymer additives at Syensqo. "This launch reflects our commitment to delivering high - value innovations that help OEMs achieve both durability and distinctive design."

Lightweight Returnable PET Bottle Optimized for Still Water

One - trip PET bottles for still water are typically lighter in weight than bottles designed to resist the internal pressure of carbonated water. The same can be true for multi - trip **returnable/reusable PET bottles**, according to **Sidel**. The company has launched what it says is an "industry first" — a lightweight returnable PET bottle optimized for still water.

Sidel's new "Returnable PET – Still Water" bottle design, available from 0.5L to 2L capacities and in cylindrical and square shapes, is designed to withstand up to 25 washing cycles. The company says the 1L size is 10% lighter than the lightest 1L returnable carbonated - water bottles currently used for still water. "The ability to create textured surfaces preserves the bottle's premium appearance throughout multiple reuse cycles," Sidel says.

Although returnable/reusable PET bottles are not much of a factor in the North American market, they are popular in Mexico and parts of South America, as well as some European countries — notably Germany.

Bioplastic Secures Berth in Upcoming World Cup

PlantSwitch will bring its compostable serviceware game to SoFi Stadium in Los Angeles.

Forks, spoons, lids, plates and straws will look a little different at FIFA World Cup. That's because SoFi Stadium in Los Angeles will be using food service ware made by **PlantSwitch** using the Miami, Florida company's CompostZero resin.

CompostZero is a formulation of polyhydroxyalkanoate (PHA), a naturally occurring polymer that can be **manufactured using biotechnology**. Many bacteria produce PHA as an energy reservoir, and this process can be engineered to produce commercial quantities from biomass such as rice husks.

CompostZero products are home compostable, meaning that they don't require specific equipment to break down. PHA also can be processed on standard plastics processing equipment. In fact, PlantSwitch is currently acting as both the material supplier and converter, extruding and injection molding products such as utensils, straws, lids and plates. The company has also developed resin for thermoforming and soon expects to launch extrusion coating for paper cups.



Soccer fans will be introduced to PlantSwitch's biodegradable products this summer at the sport's largest event.

PlantSwitch has plans to supply other converters in the future, but according to CEO Dillon Baxter, the company's vertical integration has been an important opportunity for process refinement and cost reduction.

The company's institutional knowledge could also support adoption. PHA processes differently than traditional petrochemical polymers; the window for parameter values that can be used is smaller. "It runs at different temperatures and pressures, there's some technical expertise that goes into learning to do it well," says Baxter. "We're going to provide hands - on support for converters, so they can plug it in and go."

CompostZero material can be colored, but leaving it natural gives a visual cue to its natural origins. Some states also are enacting rules that require materials

labeled compostable to be natural brown or green to facilitate sorting. “We do some custom colors, but most people like the natural look. If they're going to switch to something more sustainable, they like that to be identifiable by their customers,” says Baxter.

UltiMaker Unveils Factor 4 Plus Built for Continuous Industrial and Defense Production

UltiMaker, a global leader in industrial desktop 3D printing, launched the Factor 4 Plus, an industrial - grade platform offering up to twice the speed of the standard Factor 4. It delivers robust, high - performance printing – typically associated with more expensive industrial systems – for continuous factory production in the manufacturing and defense sectors.

Industrial - ready platform built for continuous production

Built to support a wide range of production grade applications, the Factor 4 Plus delivers manufacturing aids including custom jigs and fixtures, and durable spare parts using high - performance materials, such as PPS - CF high - heat and chemical - resistant composites. Meanwhile, UltiMaker TRACE (Technical Reporting And Certification Engine) automatically validates every print, ensuring the quality - assurance standards of end - use production are consistently met. Collectively, these capabilities give manufacturers a flexible, dependable way to produce the tools, components, and replacements they need to keep operations running smoothly. "When I talk directly with our customers, one message comes through consistently: speed is great, but proving the quality of the part is the real challenge," says Arjen Dirks, UltiMaker CTO. "TRACE was built directly in response to that feedback and I've seen firsthand what an incredible improvement it makes. Pulling validation data straight from the hardware gives customers the confidence and traceability they need to scale additive manufacturing into true production environments.”

“The Factor 4 Plus reflects UltiMaker's focus on solving the real production challenges facing manufacturers and defense teams today,” says Andy Middleton, SVP EMEA and Global Marketing at UltiMaker. “This is not about adding another machine to the portfolio. It is about listening closely to the market and delivering the speed, traceability, resilience, and affordability customers need to scale additive manufacturing in demanding, real - world environments.”

Adapted for field and defense requirements

Strengthened for the practical demands of defense use, the Factor 4 Plus operates reliably in harsh or remote environments, thanks to the improved ruggedized architecture of the new gantry system, which absorbs vibration at high print speeds. This redesign maintains precision even when throughput is pushed to its limits, ensuring consistent quality during round - the - clock operation. Where TRACE supports quality assurance in manufacturing, in defense it provides the operational confidence needed to deploy parts quickly in the field. By continuously recording key print parameters, including extrusion behavior and chamber temperatures, TRACE creates a CAD - validation report that can be reviewed immediately to support fast deployment and ensure components meet mission ready standards. The system also offers a self - contained, easy setup that requires minimal training, making it suitable for rapid use in forward operations or temporary field sites.

High - speed performance for modern production

The Factor 4 Plus achieves a substantial speed boost over the standard Factor 4 through its advanced Cheetah motion planner, which, unlike conventional motion planners, removes abrupt changes that cause vibrations, enabling faster production with superior dimensional accuracy. It is also fully compatible with new AA+ and CC+ high - flow print cores. This combination enables significant performance improvements across a range of materials, including PLA, ABS, and high - performance PPS-CF. With these combined advancements, the Factor 4 Plus extends UltiMaker's commitment to delivering practical, scalable additive manufacturing solutions for both industry and defense while remaining significantly more cost - efficient than other industrial 3D printing platforms. By uniting high - speed performance, field - ready durability, and traceable, production - grade output, it offers manufacturers and defense operators a reliable platform capable of keeping pace with modern production demands.

With Wide, High Performance Acoustic Underlays, Sekisui Alveo Lays the Foundation for Modern, Efficient, and Sustainable Flooring Solutions



In the laminate and design flooring market, a clear trend toward flooring elements with pre - attached acoustic underlay has been evident for years. This development is driven by increasing requirements for acoustic comfort, installation efficiency, and sustainability. At the same time, modern production lines enable large - area lamination directly within the manufacturing process.

As a result, demand is growing for high quality foams in formats optimally suited to modern production equipment, requiring widths of more than 2 meters. Acoustic underlays with high processing stability, excellent cutting and milling properties, and minimal tolerance deviations are in particularly high demand — requirements that polyolefin foams from Sekisui Alveo meet exceptionally well.

The direct integration of the underlay offers numerous advantages for both manufacturers and end users: fewer process steps, more efficient logistics, reduced installation times, and optimized acoustic performance. Sekisui Alveo foams meet these market requirements while simultaneously setting new standards in quality, sustainability, and service. With the new availability of widths up to 2.20 meters, additional benefits are unlocked, offering flooring manufacturers greater flexibility in production. The portfolio expansion includes both crosslinked and non crosslinked PE foams in the desired thicknesses, optionally with individual embossing, printing, or functional coatings.

Integrated acoustic underlay as a beneficial solution

Rising performance expectations for floorings are driving manufacturers to increasingly rely on pre-attached underlays. These provide technical advantages such as improved acoustics and dimensional stability, logistical benefits through reduced handling, and commercial advantages. At the same time, they support sustainability goals, for example by reducing transportation and packaging requirements.

The PE foams used are characterized by robustness, low weight, and high dimensional precision. Especially in demanding milling and cutting processes, polyolefin foams are the preferred solution among leading manufacturers.

'Depending on the manufacturing process, widths of up to 2.20 meters can be a decisive lever for a more efficient and cost effective production,' says Christoph Vogel, Application Development Manager at Sekisui Alveo. 'This allows complexity to be reduced and process reliability to be significantly increased.'

Production widths over 2 meters increase efficiency

Many modern production lines increasingly require large format roll goods. Widths exceeding 2 meters enable significant simplification of processes: instead of several parallel lanes, a continuous underlay can be applied.

This reduces joints, increases process reliability, and offers greater flexibility in panel design. Sekisui Alveo's new foam widths of up to 2.20 meters enable more efficient production with simultaneously reduced complexity.

A holistic approach makes the difference

Strength lies not only in the product itself but also in the comprehensive service package Sekisui Alveo provides to its customers. This includes:

- Support in product development
- Advice on optimal material design
- Sample production and testing
- Process support directly on the production line
- Scale up support
- Sustainability optimization (ISCC PLUS, LCA, EPD)

This combination of high quality materials, technical expertise, innovation, and a unique service offering creates real added value for customers. Sekisui Alveo not only helps manufacture first class products, but also actively supports making production processes more stable, efficient, and sustainable.

Through the ISCC PLUS mass balance approach, Sekisui Alveo enables the use of sustainable raw materials and provides LCA and EPD data upon request.

Technically and economically convincing

With wide, high performance acoustic underlays, Sekisui Alveo lays the foundation for modern, efficient, and sustainable flooring solutions. The interplay of high quality foam materials, technical expertise, and service enables manufacturers to optimize their production while simultaneously improving product quality.

Toray Performance Materials Corporation Introduces Stratex™ 2300r, A Patent Pending rPET Composite with 1:1 Performance Parity

Toray Performance Materials Corporation (PMC) announced the introduction of Stratex™ 2300r, a patent pending unidirectional carbon fiber composite comprised of post consumer recycled content. This material is engineered to maintain 1:1 performance parity with Toray PMC's legacy virgin PET unidirectional (UD) composites.



Stratex™ 2300r expands Toray PMC's Stratex™ series — formerly known as the Uni Directional (UD) Series — by introducing a sustainability focused material option. Designed for customers who prioritize sustainability without sacrificing performance, Stratex™ 2300r enables manufacturers to integrate recycled content into composite structures while maintaining established mechanical, processing, and manufacturing expectations.

Through the introduction of Stratex™ 2300r, Toray PMC continues to support customers seeking practical, high performance materials that align with evolving sustainability objectives.

Application Focus

Stratex™ 2300r offers a balanced combination of durability and stiffness for high performance applications, making it suitable for a wide range of markets. Applications include athletic footwear, sports and recreation, medical devices, automotive interior components, industrial parts, and other advanced use cases where reliable performance and material resilience are critical.

Securikett Introduces Recycled Security Tapes Advancing Sustainable Packaging Solutions



At this year's interpack, Securikett unveiled a new range of Security Tapes manufactured from recycled raw materials, marking a further step toward more sustainable packaging solutions. The new tapes are a further development and extension of Securikett's recycled - material label portfolio, which was first introduced in spring 2025.

The newly developed tapes are available in various widths and feature a highly visible tamper - evident opening effect when removed. They are engineered

to reliably trigger the VOID effect even when multiple layers of security tape are applied on top of each other, ensuring consistent protection across different packaging scenarios.

A key design element is the adhesive - free zone located in the center of the tape. This feature prevents premature activation of the VOID effect caused by vibration during transport or impacts sucas parcel drops, thereby maintaining functionality until intentional opening. Another feature is that the VOID effect is activated even when multiple layers of tape are applied on top of each other, ensuring that any tampering attempt remains clearly visible.

By using recycled materials, these tapes contribute to a more sustainable circular economy while maintaining the high security standards required for product and shipment protection.

Werner Horn, CEO of Securikett, commented: "Our new security tapes made from recycled materials represent another important step toward sustainable packaging solutions, complementing our proven paper - based tapes. For customers who cannot or prefer not to switch to paper, they provide an ecological alternative that enables both secure and more sustainable packaging."

Emerson Launches World's First PEX Liners for Magnetic Flow Meters

Emerson announced the release of PEX liners for its Rosemount™ 8750W Magnetic Flow Meter, Rosemount 8705 Flanged Magnetic Flow Meter, and Rosemount MS Magnetic Flow Meter sensors designed for water/wastewater and other slurry or abrasive applications. The new PEX liner gives users a longer lasting, PFAS free, and more cost effective flow meter solution that simplifies stocking and compliance while improving reliability in chemically aggressive conditions.

Existing liner solutions have relatively poor wear resistance to both chemical attack and abrasive slurries, emitting harmful chemicals as they wear. These solutions are also expensive to purchase

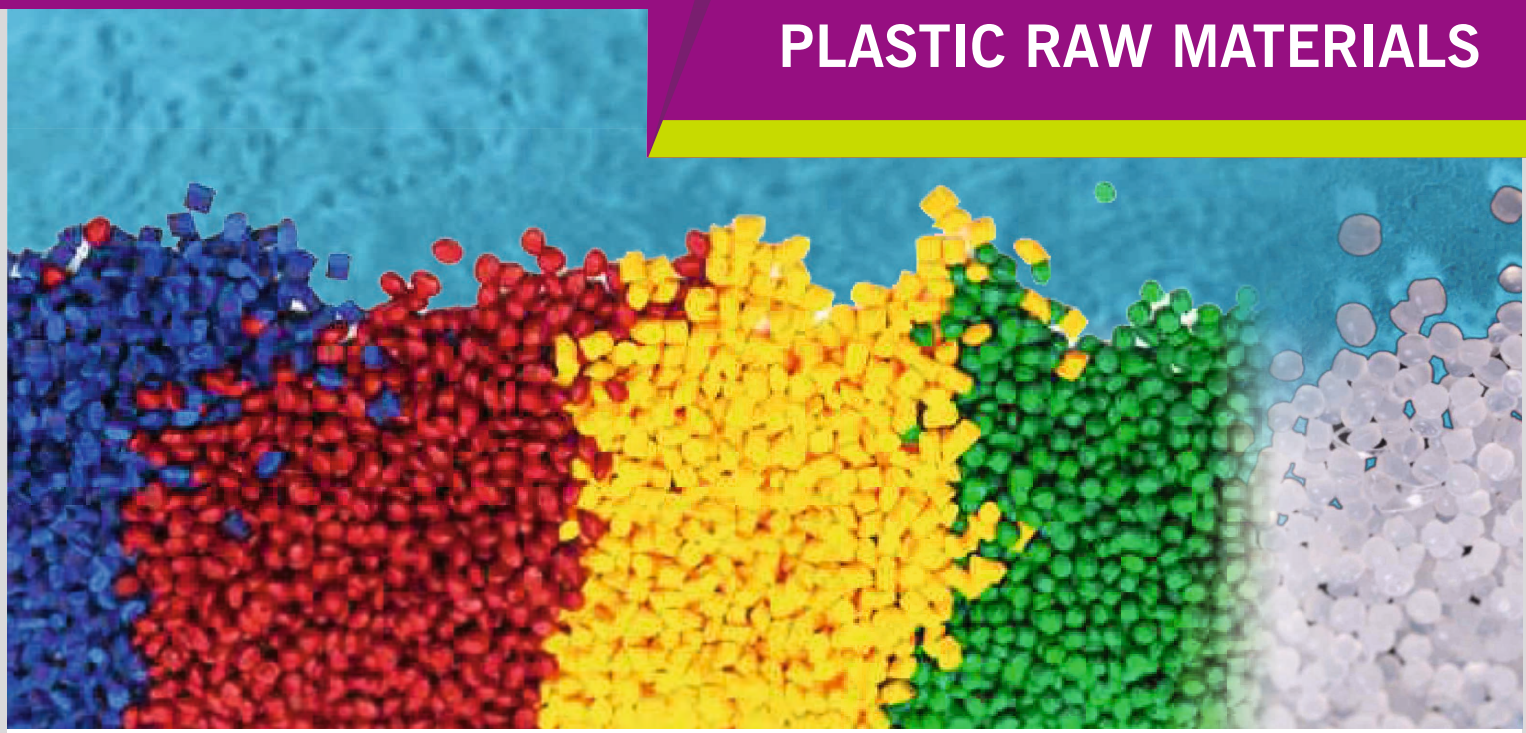


and maintain, with liner flaring often occurring if meters are not installed promptly or removed temporarily and then reinstalled. Existing solutions also present stocking and inventory challenges, because different applications require different liner types, an issue compounded by their relatively high cost.

To address these issues, Rosemount magnetic flow meters now provide a PEX liner option that is not available from other suppliers. This exclusivity enables end users to address per - and polyfluoroalkyl substances (PFAS) concerns and durability challenges, without changing measurement technology or suppliers.

PEX liners formulated without PFAS help end users respond to increasing regulatory, environmental and public scrutiny, while maintaining liner performance. This simplifies material selection and stocking compared to fluoropolymer - based liners, as the latter can differ in materials of construction, depending on the application.

The PEX liners' crosslinked molecular structure delivers high abrasion resistance, making it suitable for wastewater, slurries, and other applications with entrained solids where liner wear can reduce product life. Even with all these advantages, PEX liners are typically less expensive than alternative solutions. PEX liners are available now for line sizes up to 8 inches, with liners for larger line sizes under development.



Lubrizol is Betting Big on India CPVC Resin Venture

Warren Buffett-backed company has invested $150 million in Gujarat facility along with Grasim Industries.

Warren Buffett-backed Lubrizol Corporation's largest investment in India in six decades, $150 million, along with Aditya Birla Group's Grasim Industries, is aimed at building a sizeable presence in India's nearly ₹6,000-crore chlorinated polyvinyl chloride (CPVC) resin market. The investment is for an integrated **100,000 - tonne CPVC resin facility at Vilayat, Gujarat.**

"India is one of the largest growth regions in the world, and in five years we should double our revenues here," said **Rebecca Liebert**, CEO of Lubrizol Corporation, estimating growth in the region in high single digits, compared to low single digits in other regions.

Demand for CPVC, which is gaining traction for plumbing pipes and fittings, is projected to grow at **10 – 12% annually** over the next few years, doubling the market in five to six years. India consumes around **250,000 tonnes of CPVC** each year. This growth is expected to be driven by rapid urbanisation, government infrastructure initiatives, and the replacement of galvanised iron pipes with CPVC in plumbing and fire sprinkler applications.

"Most of the output is aimed for the local market. We could export a little, but it is going to be very small," Liebert told ET in an exclusive interaction. "Our strategy has been to be local for local for the region we are operating in. And being in India is the best way to be competitive in India."

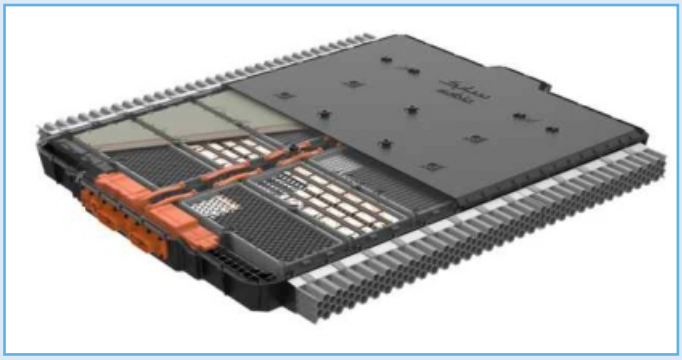
In its first phase, the CPVC plant at Vilayat will have an output of **50,000 tonnes.** Demand for CPVC is expected to grow alongside the plumbing market in India, which is estimated to grow at **10% annually.**

"If the plumbing market continues to grow at that rate, there is a need for more capacity to come online," Liebert said.

Apart from setting up this plant, Lubrizol has also doubled capacity at its CPVC compound manufacturing plant at **Dahej, Gujarat.** The company has expanded its specialty chemical additives facility at **Turbhe, Navi Mumbai,** and inaugurated a medical tubing facility in **Chennai** in collaboration with **Polyhose.**

The US - based specialty chemicals major has invested around **$350 million in India** in recent years. "The Indian economy, people and growth are driving this optimism," Liebert said. "We have been servicing this market from the US for several years. But it is difficult to understand what is needed on the ground in India by a team in the US, and that is why we have also invested in R&D here."

SABIC Showcases at the Battery Show Europe its Full EV Battery Material Ecosystem for Higher Performance from Pack to Power Components



SABIC, a global leader in the chemical industry, participated in the Battery Show Europe at Stuttgart, Germany, featuring its growing portfolio of specialty thermoplastics that add value to energy storage and power electronics systems.

The company is highlighting newly launched LNP™ THERMOCOMP™ OFM compounds, which are well suited for high-power, high-voltage electric drive and power module applications. These compounds, based on polyphenylene sulfide (PPS) resin, broaden the scope of SABIC's offering for the industry and address increasingly rigorous voltage and power demands.

“Our customers are under pressure to deliver EV systems that handle more power, run cooler and operate more reliably,” said Sergi Monros, vice president, SABIC's Specialties BU.

“We continue to expand our specialty materials portfolio with solutions like our new high-voltage LNP THERMOCOMP OFM compounds and the broad range of material solutions we're showcasing here. From charge to discharge, we aim to help engineers improve performance, safety and manufacturability across the entire energy - storage and power - electronics systems”, he said.

Illustrating its extensive product scope, SABIC is displaying a full-size replica of an electric vehicle (EV) battery pack, as well as individual battery components. These include a lightweight honeycomb energy absorber using NORYL GTX™ resin, a cell retainer and module frame made with LNP KONDUIT™ compound, and electrical insulation film extruded from NORYL™ NHP resin.

Beyond EV battery components, SABIC materials on display encompass high-voltage capacitors made with ELCRES™ HTV150A film, an EV inverter housing molded from ULTEM™ resin and a high-voltage header featuring LNP KONDUIT compound.

At SABIC's booth, attendees could explore how these and other specialty materials enhance the performance, reliability, usability and safety of systems that generate power, convert high voltage current and store energy.

LG Chem Downgauging Monomaterial Film

Customized polyethylene resin for thin, recyclable film is built on machine direction oriented polyethylene and biaxially oriented polyethylene.



Uniqable film made with machine direction orientation (MDO) processing is designed to achieve minimum thickness while maintaining packaging performance.

LG Chem says it introduced a monomaterial packaging innovation called Uniqable, an ultra-thin packaging film that achieves a thickness of 12 micrometers for a monomaterial structure while maintaining performance characteristics such as strength, sealability and moisture-barrier protection.

Uniqable is built on two oriented polyethylene technologies: machine direction oriented polyethylene, or MDOPE, and biaxially oriented polyethylene, or BOPE. MDOPE is produced by stretching polyethylene in the machine direction at a ratio of five to seven times following a blown or cast process, improving stiffness, thermal stability and printability. It is primarily used for small pouches that require premium print quality across food, pet food, and home and personal care applications.

BOPE is produced by stretching cast polyethylene in both the machine direction at a ratio of four to six times and the transverse direction at a ratio of eight to 10 times, enhancing tear resistance, puncture resistance and toughness while maintaining sealability and low shrinkage. It is designed for liquid pouches, frozen food packaging and bulk packs.

According to LG, the design process is tailored to each customer's specific application and processing environment. Barrier performance is achieved by integrating the material with established packaging architectures, such as the incorporation of ethylene vinyl alcohol or a customer's proprietary coating technologies. Within these structures, LG Chem says it provides material solutions that optimize processing efficiency, mechanical properties and structural integrity.

Commercialized applications of Uniqable include a kitchen detergent pouch used by LG Household & Health Care, as well as packaging materials for food products from other companies. LG Chem plans to expand collaboration with global customers across a wider range of packaging applications, including packaging films.

"Packaging innovation that begins with material technology is expanding into a wider range of industries through proven commercial applications," says Lee Choong-hoon, VP and head of LG Chem's naphtha cracking center and polyolefin business unit. LG Chem presented the technology at interpack, held in May at Messe Düsseldorf in Germany.

From Plastic Waste to Chemical Building Blocks: A Sustainable Path for Polyethylene Upcycling

As the global plastic pollution crisis intensifies, converting mountains of waste into valuable industrial raw materials has become a major priority for scientists and industry. Recently, a research team from the Institute of Chemistry, Chinese Academy of Sciences (ICCAS) achieved a breakthrough in chemical plastic recycling. They developed a tandem catalytic strategy that efficiently converts waste polyethylene (PE) into high-value aromatic chemicals without relying on precious metals or external hydrogen acceptors. The findings are published in the journal Science Bulletin.

Overcoming the "Low Yield, High Cost" Bottleneck

PE is one of the world's most widely produced plastics, ubiquitous in bags, bottles, and packaging. However, its highly stable chemical structure makes traditional recycling difficult. Conventional methods often result in low conversion, complex product mixtures, and a heavy reliance on expensive catalysts.

To overcome these limitations, the ICCAS team designed a sophisticated two - stage fixed - bed reaction system. (1) Stage One: Waste plastics are initially "disassembled" into smaller carbon chain fragments using LSP-Z100 zeolites. (2) Stage Two: Through the synergistic catalysis of gallium (Ga) and cobalt (Co) sites on the zeolite, these fragments are immediately "reassembled" into valuable benzene, toluene, and xylene (collectively known as BTX).

Turning Waste into Treasure

The experimental results are promising. The process achieved a total aromatics yield of 59.9%, with the target BTX compounds accounting for 86.0% of that total. This demonstrates that waste plastics can be efficiently refined into essential, high-demand raw materials for the chemical industry, rather than merely being downcycled. Crucially, the team also tested everyday waste, such as straws and plastic bottles. Even with complex, real-world plastic waste, the system maintained an

impressive aromatics yield of approximately 55%. Furthermore, the catalyst demonstrated excellent stability, maintaining strong performance across five consecutive reaction cycles.

Advancing a Green Circular Economy

This technology represents a critical step forward in the targeted upcycling of plastic waste. Unlike traditional methods, it eliminates the need for expensive precious metals requires no external hydrogen acceptors. This significantly reduces both production costs and energy consumption.

The researchers emphasize that this "targeted disassembly and precise reassembly" approach offers a novel pathway for managing plastic pollution while reducing the chemical industry's reliance on fossil resources. Ultimately, innovative catalytic technologies like this could transform troublesome white pollution from a landfill burden into industrial raw materials.

About the Institutions

Institute of Chemistry, Chinese Academy of Sciences (ICCAS): Established in 1956, ICCAS is a multi-disciplinary, comprehensive research institute. It focuses on fundamental research while strategically developing high-tech innovations. It maintains a strong international reputation in catalytic chemistry, polymer science, and sustainable chemistry.

Avient Expands Therma-Tech™ Portfolio with Natural Graphite Based Thermally Conductive Formulations, Supporting Lightweighting and Electrification Goals

Avient Corporation, an innovator of materials solutions, announced the expansion of its Therma Tech™ product portfolio with eight new thermally conductive grades that leverage natural graphite to deliver high thermal conductivity and cost efficiency for applications such as LED lighting, automotive heat sinks, and heat exchange systems. Natural graphite offers a lower product carbon footprint and typically requires less energy to produce than synthetic graphite, while still maintaining thermal conductivity performance. This expansion addresses the growing demand for efficient heat management across multiple end markets while including select grades with post-industrial recycled (PIR) content options to support sustainability goals.

What the Expanded Therma-Tech™ Portfolio Offers

As electrification accelerates across transportation, industrial equipment, appliance, and electronics sectors, engineers face mounting pressure to manage heat more efficiently, more cost-effectively, and with less weight. Metal components such as aluminum heat sinks and die-cast enclosures remain a standard approach — but they carry inherent limitations: added mass, susceptibility to corrosion, complex manufacturing processes, and constrained design freedom. For original equipment manufacturers (OEMs) and product designers pursuing light weighting strategies, metal-to-plastic conversion in thermal management applications is no longer a future possibility; it is an active engineering priority.

Eight New Natural Graphite-Based Grades Expand Practical Access to Thermally Conductive Polymers

The expanded Therma-Tech™ portfolio can address the thermal management challenges facing engineers across transportation, appliance, electronics, and healthcare end markets. Key attributes include:

- High thermal conductivity enabled by natural graphite-based technology, delivering performance competitive with more costly specialty filler systems
- Improved cost efficiency compared to existing high - performance thermally conductive technologies - making polymer - based thermal management viable for mid - tier production volumes and cost - sensitive applications
- Thermal performance and design flexibility maintained from existing Therma - Tech™ grades, enabling drop - in evaluation against current metal or thermally conductive polymer specifications

- Compatibility with standard injection molding processes, limiting the need for specialized manufacturing equipment

Applications Driving Demand for Thermally Conductive Polymer Technologies

The new natural graphite - based Therma - Tech™ grades can be used for end-use applications where thermal management, weight, and design flexibility are primary engineering requirements:

- LED lighting assemblies - heat sinks and thermal interface components requiring thermal management at reduced mass and component cost
- Automotive heat sinks - thermal management components for electrified powertrains, battery thermal management systems, and onboard electronics
- Heat exchange systems - components in HVAC, industrial, and appliance heat exchangers
- Electronics and appliance housings - thermally active housings where integrated thermal management reduces system complexity
- Healthcare devices - thermally managed device housings and components requiring biocompatibility and processing reliability.

LiMA Technology at Full Scale Operation: Official Opening of Röhm's Bay City MMA Plant

Röhm is marking a major milestone at its Bay City, Texas methyl methacrylate (MMA) plant, where the company's proprietary LiMA technology has been operating at full industrial scale for the first time worldwide. Following start-up, the plant underwent a structured ramp-up phase, successfully reaching and sustaining full - scale operation in recent months. To recognize this achievement, Röhm hosted customers, partners and elected officials at the Bay City site, offering a behind-the-scenes look at the plant's operations and the LiMA technology.



LiMA stands for Leading in 'Leading in MethAcrylates.' MMA is a critical building block for products used in automotive, manufacturing, construction, electronics, and medical applications. The facility is also the first C2-based MMA production plant in North America, strengthening regional supply chains and domestic manufacturing capacity.

At the event, Röhm CEO Hans Bohnen noted the Bay City plant underscores the company's broader strategy to lead through technology and long-term investment. “As the only global producer of both methyl methacrylate and polymethyl methacrylate with production sites in the major regions of Europe, Asia, and North America, we are uniquely positioned to serve our customers worldwide - reliably, locally, and with leading technology,” said Bohnen.

The Bay City plant strengthens supply security for North American customers by relying on readily available raw materials, including ethylene and natural gas, and by anchoring production closer to end markets.

“This reflects our long - term commitment to customers across the region, and Bay City's strategic location allows us to efficiently serve both North American and global markets,” said Jack Chenault, President of Röhm Americas. The facility employs around 90 people and operates with a strong focus on safety. “Safety is our top priority,” emphasized Chenault.

Inside the Bay City Facility that is “Redefining Chemistry”

At the event, visitors toured key production areas, including the core reactor systems (the “heart of the technology”) and the MMA distillation unit, and learned how LiMA technology is being applied at scale.

The technology was developed by Röhm in Germany over several years and successfully transferred to industrial scale in the United States with the support of investor Advent International. Through its partnership with Röhm, Advent has invested approximately USD 1.6 billion (around EUR 1.5 billion) to support innovation and long - term growth at the company.

“LiMA technology does not only mark a technological quantum leap – it is a true game changer for the methacrylate industry,” said Ronald Ayles of Advent International. “Bay City shows that this process can perform at industrial scale while delivering efficiency and environmentally friendly benefits.”

Efficiency, Sustainability and Digital Operations

The Bay City facility has an annual production capacity of 250,000 tons of MMA and is designed to maximize yield while minimizing the use of raw materials. Compared with conventional MMA production processes, LiMA technology reduces energy and water consumption and lowers carbon dioxide emissions by up to 42 percent.

Sustainability measures extend beyond the production process. Constructed wetlands surrounding the site support a near - closed water cycle and provide environmentally responsible treatment of process and cooling water.

The plant also incorporates advanced digital technology, including a digital twin that mirrors the facility's physical layout, production processes, and control system. The system, which is updated daily, supports operational planning, equipment and predictive maintenance, and dynamic simulations to improve long - term performance.

Virgin-quality Raw Material From Hard-to-recycle Polyester: Eastman Kingsport Earns ISO 59014

Eastman's Kingsport, Tennessee facility, has received ISO 59014 certification through SCS G lobal Services, covering its methanolysis recycling operation. The certification is valid through March 1, 2029, with annual surveillance audits.

ISO 59014 : 2024 is the international standard governing the responsible recovery and traceability of secondary materials. It covers collection, sorting, classification, and non - destructive recycling and recovery activities, and requires transparent traceability, responsible resource management, and documented safe working conditions throughout the recycling process. Energy recovery and disposal are excluded from its scope. The standard applies to organizations of any size operating within circular-economy frameworks.

At Kingsport, the certified scope covers Eastman's material-to-material methanolysis process, which converts polyester waste, including hard-to-recycle curbside collected plastic packaging into monomers that can be used to produce new materials. According to Eastman, output performance is equivalent to virgin - grade material.

Sandeep Bangaru, vice president and general manager of Eastman's packaging and circular platform, stated "*Achieving ISO 59014 certification is an important milestone for Eastman because it reinforces what our customers, communities and stakeholders expect when it comes to transparency, traceability and responsible practices across the recovery of secondary materials.”*

The certification was conducted by SCS Global Services. Veronica Vazquez, program director for ISO Integrated Management Systems at SCS Global Services, stated, "Eastman's achievement reflects a serious, sustained commitment to circularity and responsible material recovery. We are proud to support their leadership in building recovery systems that are transparent, accountable, and grounded in lifecycle science."

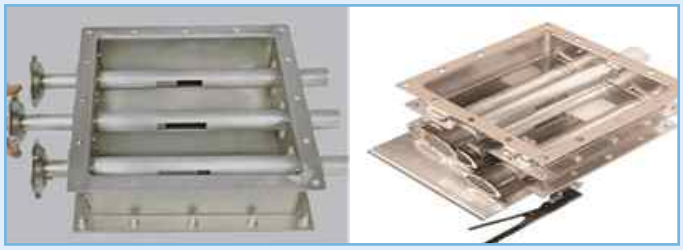
Eastman states that its methanolysis operation complements mechanical recycling by processing polyester streams that are not suitable for mechanical recycling routes. The company also notes that the Kingsport facility conducts a lifecycle - based analysis as part of its approach to secondary material recovery.



Reduce Operator Intervention in Resin Conveying

Eliminate Conveying Mistakes: How Adaptive AI - Driven Technology Boosts Productivity

Transform your existing vacuum system with AI that replaces guesswork with data - driven performance. Operators are freed from daily adjustments while achieving higher throughput, better energy efficiency and more stable receiver fills.



Vacuum conveying systems use a moving stream of air to pick up plastic material at a source and move it through a system of tubes to a selected destination. The speed and density at which the material moves depends not only on pump power, which creates vacuum suction in the line, but also on the volume and velocity of the air that rushes in through the feed tube and over the plastic material at the pickup point.

Creating and maintaining the right line pressure and air - to - material ratio from source to destination are the keys to successful conveying.

In typical conveying systems, the only way to regulate pressure and air - to - material ratios are movable feed tubes in the resin distribution box (see photo). But manually setting and maintaining the right conditions for multiple source - destination combinations throughout the system can be tricky.

People are used to making these manual adjustments but there's a lot of trial and error involved. If you allow too much air, you're blowing material through the system fast enough to cause damage to the material — angel hair or shattering and dust — or to blow holes in the conveying lines. But if you allow too little air, you're carrying too much material, the lines are shaking, and those big slugs of material that are coming through can slow down or clog the line. In a lot of cases, people find a setting that works pretty well and leave it alone until they have an issue.

But beyond feed - tube adjustments, there are other factors that cause constant variations in conveying system performance, including:

Small vacuum leaks, which are often subtle and difficult to locate.

Air filter condition, where accumulating dirt and dust can affect vacuum levels on a day - to - day basis.

Changes in material bulk density, consistency, or shape, for example, pellets, variations in regrind quality, or dust content.

Weather and relative humidity, which can affect material weight due to changes in moisture content.

Plant floor or production modifications that change conveying line configuration or source - to - destination distances.

AI Technology Opens Door for New Approach

In 2023, a Conair team was conducting tests to develop "ideal" conveying conditions for a variety of materials to help processors set up and calibrate conveying controls. And, like operators everywhere, the team encountered problems with adjusting feed tubes in distribution boxes. As feed - tube adjustments were made, the team needed to use marker lines or pieces of tape to track the correct setups. Then, further adjustments were often needed because sometimes the feed tube settings would shift and the resin would start to bind or jam up in the middle of a test.

Soon, the team recognized that in order to really control conveying conditions, it would be necessary to eliminate the variability of the feed tube in favor of a new approach — something that could be monitored and controlled electronically. Further, the team reasoned that if the new approach could employ artificial intelligence, they could develop a conveying process that could recognize and adapt to typical changes.



The result is a new and patented conveying option called Conveying with Optimizer™. The system relies on just three components — a SmartFLX conveying control, the Optimizer valve, and a pump - mounted pressure transducer — and can be installed or retrofitted into most conveying systems and vacuum pumps.

The Conveying with Optimizer valve eliminates the need for feed - tube adjustments. Placed upstream of the resin source, this valve responds to commands from the SmartFLX conveying control, continuously adjusting incoming airflow to manage line pressure and air - to - material ratio in the conveying line.

Installation and Operation

Installation in Three Steps

Replace traditional feed tubes with fixed connections. Install the Optimizer valve upstream on the source line. Connect to the SmartFLX control and pressure transducer.

During installation, the traditional feed tubes are replaced with a fixed, non - adjustable connection, and an Optimizer valve is placed just upstream on the source line. From that position, the Optimizer valve takes over control of the pressure and the air - to - material ratio in the conveying line. Closing the valve pulls less ambient air and more material from the source, and opening pulls more ambient air and less airflow at the pickup point.

In operation, the valve receives instructions from an AI-driven algorithm in the SmartFLX control. At the start of a cycle, the control recalls the target setpoint stored in memory for that source - to - destination transfer. Then, the control looks at the pump - mounted pressure transducer to determine whether conditions on that line have changed since the last conveying cycle. If conditions are unchanged, the conveying cycle begins: the control regulates the position of the Optimizer valve to achieve the target pressure and complete the cycle.

However, if line conditions have changed, perhaps due to a filter clog, leak, or material density or moisture changes, the control regulates the Optimizer valve to adjust the air intake until it reaches the pressure setpoint. The modified valve position is stored for use in the next cycle. Thus, this AI - driven system begins with a data - based algorithm and stored settings, but continuously queries to "learn" what is going on and adjust for optimized performance. By constantly adjusting to hold an ideal system pressure, the system maintains a constant, stable flow to the receiver. And with flow optimized, the system maximizes pump runtime, pump efficiency, and energy utilization.

Some would describe this technology as a form of "cruise control" for the conveying system, and it is an apt comparison.

The technology eliminates the most labor - intensive and error-prone part of conveying operation – the manual guesswork and adjustment of feed tubes – so that system operators and maintenance personnel can focus on other tasks.It should be noted that although the system has the adaptability to deal with many day - to - day performance variations and situations, it cannot adapt to every situation. Therefore, the system also provides an alarm if it is unable to adjust enough to reach and hold the desired setpoint.

Engel Delivers 'World's Largest' Injection Molding Machine

Commissioned for parts with a projected area of 27 sq.ft. providing 12,365 tons of clamp force and featuring a nearly 140-lb shot size, the Engel duo 12000 US is positioned by the Austrian machinery and automation manufacturer as the world's largest injection molding machine. It's hard to argue with that declaration when you read the specs.

Measuring just under a free-throw shy of a full basketball court, the two - platen press is 80 ft. in length and approximately 28 ft. in height. The press tips the scales at 607 U.S. tons, with the ability to accommodate a maximum mold weight of 187 tons and maximum mold dimensions of 12 × 10 ft. That 140-lb shot size is generated by dual injection units running in parallel with screw diameters up to 210 mm or 8¼ in. Its installation requires roughly 19 miles worth of cables, part of which provide the total installed power of approximately 2.4 MW, with a total current of 2,900 amps. Noting that the machine's design could have been possible with four tiebars, Engel and its customer chose eight tie bars for this press as the most suitable solution for its speci - c requirements.

Engel says the mammoth machine enables manufacturers to produce large - format structures in a single production step, adding that in relative terms, the machine is actually fairly compact due to the duo's modular design principle. (To that point, at the company's technical center in St. Valentin, Austria, Engel has a 6,200 - ton duo that measures 105-ft. long). “New products require new production concepts,” Engel said in a release. “With injection molding solutions of this scale, manufacturers can produce large - format structures in a single production step. This reduces material usage, simpli - es production logistics and thereby saves time and costs.” Engel noted that it has decades of experience in the design and manufacture of large machines, having already installed several 8,400 - ton systems successfully.

Gigamolding for New Vehicle Architectures

In the automotive sector, automotive OEMs like Tesla applied so-called gigacasting with massive die - casting machines to create large structural components from aluminum in one shot vs. an assembly. Engel says demand for “gigamolding” machines capable of molding large structural components is increasing, driven by broader trends, including electromobility, autonomous driving, platform consolidation and CO_2 - reduction targets. These mammoth machines are used for applications like battery housings, underbody panels or hybrid inner door structures. With the goal of reducing component costs, these large machines enable functional integration, weight reduction and reduced assembly complexity for various structures required by autonomous mobility concepts, for instance.

Engel says these large machines also open up new technical molding applications, with the machine maker already delivering presses with clamping forces of around 11,000 tonnes for logistics and infrastructure products. In this space, transport containers for e - mobility battery disposal, large - volume in ltration boxes for rainwater management and water tanks with surface areas of nearly 65 ft.2 and 240 - lb shot weights are being molded.

In the case of large water tanks, Engel notes that plastics offer clear advantages over the incumbent material: concrete. In addition to being easier to transport and install, plastic structures require less infrastructure and respond more exibly to ground movements.

All - Electric Injection Molding Machines Launch, Two - Platen Line Updates

Injection molding machine and automation supplier Engel Group initiated the worldwide rollout of the all-electric Wintec e - win injection molding machines outside Asia. Simultaneously, the company also introduced a streamlined portfolio of its two-platen injection molding machines — the Engel duo and the Wintec t - win.



Wintec's e - win all - electric injection molding machines are now available outside Asia

Engel said in a release that the portfolio revisions are in response to changing market requirements, giving molders "cost - efficient and technologically suitable production solutions."

The Wintec brand, which features standardized machines that highlight cost efficiency and availability, will extend its all - electric options outside Asia, with clamping forces from 112 to 562 tons. The all - electric drive technology enables precise control of all main movements, and energy is only consumed during the actual movements, while hydraulic oil is eliminated.



Engel has revised its portfolio of large - tonnage duo two - platen injection molding machines.

Process control is supported by the digital assistance systems iQ clamp control, iQ hold control and iQ weight control, automatically adjusting clamping force, holding pressure time and injection parameters based on material viscosity fluctuations, respectively.

Engel also restructured its duo two - platen portfolio, for which clamping forces range from 505 to 6,200 tons, with machines larger than 12,000 tons also possible. With the new updates, Engel has increased available clamping forces by up to 28% with the same platen sizes, enabling applications with higher performance requirements on the same machine platform. In addition, wide - platen versions for the duo 1000 and duo 2100 have been newly added, expanding usable mold space to run bigger tools on the same machine class. Engel notes that since its market launch in 1994, more than 15,000 duos have been installed worldwide.

The Wintec t - win two - platen machines are now globally available with clamping forces from 505 to 4,500 tons. Engel says updated injection units have up to 38% higher injection performance for faster filling and an expanded application range. In addition, iQ weight control is also available.

Sustainability Challenges in PVC Processing: How Screws and Barrels Can Help

Learn how rethinking screws and barrels in PVC extrusion boosts sustainability, cuts energy use, and promotes circularity through advanced materials and refurbishment.

Few materials are as foundational to modern manufacturing as polyvinyl chloride (PVC). From window and door profiles to pipes, fittings and conduits, PVC supports global construction and infrastructure.

Beyond the construction environment, it plays a critical role in medical and healthcare applications, where durability, hygiene and consistency are non - negotiable. Because PVC is used widely, the industry now faces heightened scrutiny under today's sustainability spotlight.

As sustainability pressures intensify, equipment design is no longer just about throughput and quality. Energy reduction mandates, carbon reporting requirements, and broader regional environmental and sustainability expectations are reshaping how processors evaluate their operations. Extrusion lines, particularly twin - screw systems used for PVC compounding and profile extrusion, are closely examined not only for what they produce but for how efficiently, reliably and responsibly they operate over their full lifecycle.

This is where the conversation must shift. In PVC processing, screws and barrels are not merely consumable components, they are powerful assets for improving sustainability performance.

If the PVC industry is serious about reducing energy consumption, extending equipment life and embracing circularity, it must accelerate the transition toward durable screws and barrels that can be recycled and rebuilt.

Wear: The Hidden Sustainability Challenge in PVC Processing

PVC is a notoriously demanding material from a wear perspective. Its formulations often contain fillers, stabilizers and additives that make processing both corrosive and abrasive. Over time, this combination takes a heavy toll on screws and barrels. Wear manifests not only as dimensional loss and reduced output, but also as higher energy consumption as machines work harder to maintain performance.

Historically, the industry has addressed this challenge reactively, replacing worn components and moving on. But replacement - heavy strategies are increasingly incompatible with sustainability and budgetary goals. Every discarded screw or barrel represents wasted material, embodied energy and unnecessary carbon emissions.



Photographs of wear observed during inspection. Left: barrel inlay wear. Right: screw outside diameter (OD) wear.

Rethinking Screw and Barrel Design for Sustainability

To meet modern sustainability expectations, polymer processing components — screws, barrels, check valves, nozzles and endcaps — must be redesigned with wear mitigation, service life extension and end - of - life recovery in mind.

Specialty coatings and advanced materials play a critical role in minimizing wear. Optimized surface treatments can significantly slow corrosion and abrasion, preserving clearances and reducing friction. At the same time, new screw and barrel designs, such as improved screw flight geometries and barrels that can be refurbished and relined, can limit localized stress and extend operational life.

However, not all components are equally easy to make sustainable. Screws, by their nature, are particularly vulnerable. Rebuilding screws is difficult because even a small crack can propagate into a catastrophic failure. A cracked screw can break, damage the barrel and, if left undetected, cascade into costly gearbox failure. From both a safety and sustainability standpoint, this risk makes "run - to - failure" strategies untenable.

For twin screws, gaps between the flights often increase during screw rebuilds. Larger gaps allow more material slip, which generates excess heat, increases energy consumption, and accelerates wear on both the extruder and downstream components undermining sustainability gains across the entire process.

Material selection then becomes critical. Traditional parallel twin screws manufactured from 4140 steel with nitriding and chrome plating at the discharge end are increasingly hard to justify. Chrome plating introduces environmental and regulatory challenges, and the overall wear life remains limited. Transitioning to advanced materials such as Nitralloy offers a more sustainable alternative. Nitralloy provides a harder surface finish, superior polish and improved wear resistance, eliminating the need for chrome plating altogether while extending service life and reducing environmental impact.

Circularity Through Refurbishment, Not Disposal

While screws present rebuilding challenges, barrels offer one of the clearest and most impactful paths to circularity in PVC processing. Unlike screws, barrels can often be restored multiple times without compromising performance, provided they are designed with refurbishment in mind.

For conical twin barrels refurbishment is now a sustainable solution. Worn barrels can be precisely machined and restored to original specifications using bimetallic treatments. This approach preserves the existing barrel housing, minimizes raw material consumption, and significantly reduces the energy and emissions associated with manufacturing a new barrel.

CIRCULAR ECONOMY/ BIO-PLASTICS/ RECYCLING



Dutch Plant To Produce Aromatics From Plastic Waste



BlueAlp will be the technology partner for the BioBTX plant in Delfzijl, Netherlands, licensing its patented pyrolysis technology to convert postconsumer mixed plastic waste into gas-phase vapors. BioBTX will then convert the vapors via its proprietary catalytic process into circular aromatics - key chemical building blocks for a variety of materials.

BlueAlp will be responsible for the detailed engineering, design and fabrication of the pyrolysis unit, which will be integrated into the BioBTX facility.

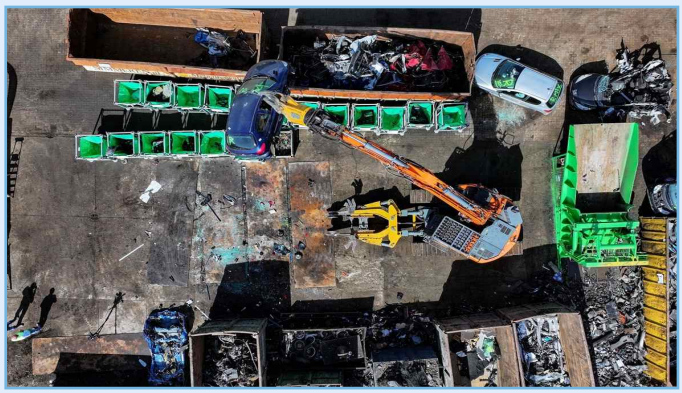
The BioBTX plant will have an intake capacity of approximately 20,000 metric tons per year (kta) of mixed plastic waste. The pyrolysis unit is currently being fabricated at BlueAlp's headquarters in Eindhoven, and the modules will be transported and integrated at the Delfzijl site from December 2026 onwards.

"After an extensive evaluation process, we selected BlueAlp because of their continuous process, proven technology and TRL 9 (technical readiness level 9) maturity," says Ton Vries, CEO at BioBTX. “By incorporating BlueAlp's technology with BioBTX's ICCP (integrated cascading catalytic pyrolysis) technology, we are creating a true best-of-both-worlds solution, one with the potential to fundamentally reshape the future of the circular chemical industry.”

Recycling Pilot Study Recovers Plastics From End-of-Life Vehicles

The Global Impact Coalition (GIC), a group led by CEOs of chemical companies, reported the results of its study: Automotive Plastics Circularity.

Eight companies - BASF, Covestro, LG Chem, LyondellBasell, Mitsubishi Chemical Group, Sabic, Suez and Syensqo – collaborated to process 100 end - of - life vehicles (ELVs) through a full dismantling, shredding and sorting chain, recovering approximately 8 metric tons of plastic from vehicles of different ages, makes and conditions.



The recovered 8 tons of plastic material represents over 50% of the available plastic in the vehicles, according to the report. Multi-material parts, paint residues, and other contaminants negatively impacted the yield of usable polymers. The process targeted 15 polymers, and recovered fractions were transferred to partner companies for mechanical and chemical recycling evaluation.

According to the GIC, commercial viability remains to be established. Remaining barriers include coordination, economics, and the absence of a value chain framework that aligns incentives across all actors: OEMs, dismantlers, waste management companies, and chemical producers.

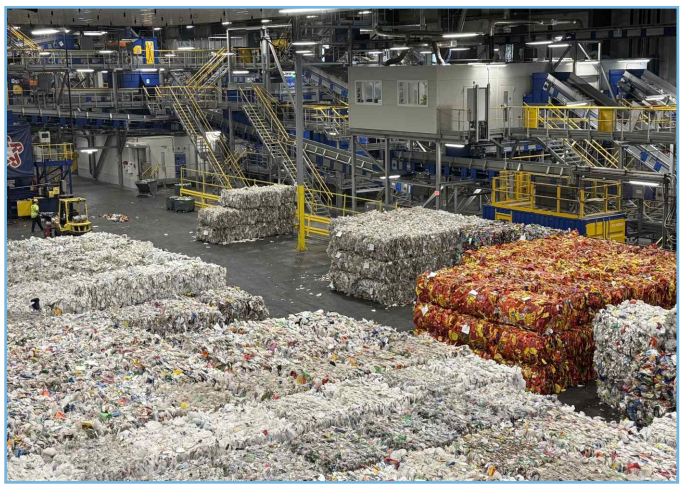
Under a new EU regulation, new cars must contain 25% recycled plastic by 2036, with at least 20% sourced from closed-loop vehicle recycling. The current closed-loop share stands at approximately 2.5%. Each year, 800,000 metric tons of plastic from vehicles is incinerated or land-filled across Europe.

The GIC plans to evaluate economic viability in the next phase of its work, by developing scenario modeling and experimentation in automation, chemical recycling, and design for recycling.

Intermediate Processing Opens New Paths to Circularity

Republic's Polymer Centers get more out of postconsumer plastic by taking sorting further.

Material recovery facilities (MRFs) connect disposal to remanufacture, collecting materials from homes and businesses on the municipal level, sorting it and marketing to recyclers. The waste disposal company thereby reduces the volume going into the local landfill, and the recycler gets the supply it uses to manufacture new materials. But this system comes up short of recapturing the embedded value in a variety of plastic materials. Republic Services, an environmental services company operating 79 MRFs in the U.S., investigated customers' pain points to understand the gap between their needs and the product coming out of the MRFs. Results pointed toward creating something new: a secondary sorting facility to bridge that gap. In the polymer center, Republic believes it has built that bridge.



Incoming and outgoing plastic at the Indianapolis Polymer Center, where red/orange/yellow bales of HDPE have been sorted and stacked at right.

THE MRF CHALLENGE: THIN SLICES FROM A BIG PIE Rigid plastics are around 7% of the material recovered and collected at MRFs. To be usable, the materials need to be sorted. When recovered plastics are sliced up by resin type, by format, by natural vs. color, you end up with an increasingly tiny slice, and correspondingly diminishing returns on process improvements. Time, energy and money placed into purifying less than 1% of the waste stream to make it into a higher quality product is rarely feasible.

There's also the challenge of dealing with a continuous stream that is constantly changing. After the holidays, an MRF can be swamped with paper and boxes. It has to scramble to keep up, and side products like plastic can suffer in quality.

These challenges have kept successes in postconsumer recycling limited to four MRF outputs: clear PET, HDPE natural, HDPE mixed color and mixed polypropylene.



Greyparrot Analyzers capture information from the waste stream.

ENTER THE POLYMER CENTER Under the polymer center paradigm, multiple municipal - level MRFs feed into a regional facility that consolidates and upgrades plastic material. Sorting only plastic, it becomes practical to sort further and divide streams into new products. Republic opened the first polymer center in Las Vegas, Nevada, in 2023. The center processes PET bales into a clear, washed PET flake and sorts polyolefins into PP and HDPE bales of natural, white and colored. The polyolefin products travel next door to Blue Polymers, a joint venture with Ravago, where they are recycled, pelletized and compounded. For Republic Services, it's a big change. "In the recycling value chain, we have always been at the intersection of products and services. We pick up at people's homes and get it into a rough-draft, usable form and the way we're compensated is a hybrid of the two: We're charging for the work and for the finished product," says Joe Riconosciuto, director of circular solutions. "This is a full - on products business, a 24/7 manufacturing operation." With the Las Vegas facility, Republic explored the concept. It didn't stay in Vegas. Before the facility was finished commissioning, Republic started planning polymer center # 2, in Indianapolis, Indiana. Riconosciuto and Pete Keller, VP of recycling and sustainability, were charged with finding the second site.

On the selection of Indianapolis for the Midwest, Riconosciuto cites Republic's preexisting footprint there, a business - friendly environment, well-maintained highways, a good labor pool and access to power, particularly important amid the increasing demands of data centers.

The material at the recycling center is at its most contaminated and the finished product is very pure, so the further along the materials are when shipped, the better. “You want to be close to your suppliers; it doesn't matter how close you are to your customers. If some of the material is non-recoverable, you don't want to be loading it up with a thousand miles of diesel fuel,” says Riconosciuto.

The Indianapolis Polymer Center started up in 2025, and Republic's third polymer center is now under construction in Allentown, Pennsylvania



Tomra Autosort systems classify or reject plastics based on color and resin.

AN AUTOMATED, ITERATIVE PROCESS OF SORTATION In Indianapolis, Republic was able to start with a blank sheet and used that freedom to build the facility to suit the operation. So not only is the equipment slightly newer, and the space larger, the arrangement is more conducive to continuous operation.

“From the time we purchase a bale to the time will fill a supersack with finished product, there are a number of discrete steps that have to happen in sequence,” says Riconosciuto. “The biggest difference here versus Las Vegas is the ability to take a phase of production offline without affecting the entire process - you have a slug of material in the system that can keep flowing. This plant has more of those buffers.”



Recycled products from the polymer center include foodgrade PET akes and orange HDPE pellets suitable for branded consumer packaged goods.

Incoming plastic bales are loaded onto one of two lines dedicated to PET and polyolefins. Upstream from a polymer center, MRF operations can be simplified to two streams: a PET bottle bale and a mixed polyolefin bale. “Their job becomes: no plastic in your garbage and no garbage in your plastic,” explains Riconosciuto. MRFs can sort further, but the sorting capabilities at the polymer center make those steps unnecessary.

The optical sorting systems each make a yes/no decision on items that pass under it. They oversort labeled or tinted items, especially early in the process. After incoming bales are opened, several steps are designed to ensure the sorting systems have a clean line of sight to the plastic. Two-dimenisional material (film) is separated from 3D, and the material passes over a screened conveyor that lets small items drop out. The small blades of the delabeler cut into labels, and agitation and friction expose enough of the bare plastic beneath to prevent misidentification.

The operation is highly automated, and status of all components can be monitored and stopped remotely if necessary. The one manual operation is more of a failsafe than a sort: Workers watch the debaled stream closely and pull off any bulky items that could damage downstream equipment.

As materials travel along a network of conveyors, they are scanned at multiple points by recently installed Greyparrot systems. These are AI-enabled optical analyzers that identify waste items down to the specific product, building a database of packaging processed and of sorting performance.

Recovered plastic then passes under the "eyes" of Tomra Autosort systems, where NIR (near-infrared) spectroscopy and RGB cameras distinguish types and colors of plastic. A fraction of a second later, bursts of compressed air send selected materials up and over onto the next conveyor, while others fall below. In all, the facility has 21 of these systems. Sorted HDPE and PP, separated by color, are baled and handed off to Blue Polymers to be processed into pellets.

Throughout the various sorting steps, the negative fraction (sorted - out material) is captured and redirected. This can be PET in the polyolefin stream or HDPE on the PET side. "It's like we're sorting Skittles and M&Ms: we want both; we just don't want them together," says Riconosciuto.

On the PET side, the journey goes on. One of three Herbold grinders reduce the PET to flakes. They are then dried and moved to a storage silo. A magnet system extracts any metal, and the flakes are metered into the first stage of the washing system, which rinses labels and sticky residue from the flakes. The second stage is a hot wash with caustic soda and other chemicals to remove any remaining glue or other residue.

A float sink operation captures pieces of caps and rings, which are recycled by Blue Polymers. All the while, process water travels in the opposite direction, such that fresh water is used in the final cleaning stage, then earlier stages, and finally is pumped over to the wet grinding operation. After being dried and classified to separate fines, the flakes are sorted by two Buhler sorters, once to remove color material and once to remove non-PET material. Finally the rejected fraction goes through an offline sorting system (separate from the automated stream so that it can be run slowly) that recovers additional oversort.

Adjacent to the final sorting operation is the laboratory. Small batches are fed through an Eagle Vizion optical sorter, which produces a detailed list of components - trace amounts of non-target plastic resins and any other contamination - and their concentration down to parts per million. Smaller samples are painstakingly tested manually for an even closer look. Sifting screens are used to precisely determine particle size distribution. Records are maintained, along with physical samples, for future reference.

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