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• July 2026

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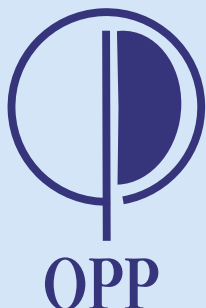
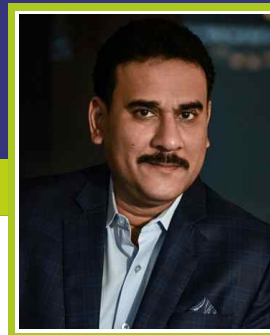
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FROM THE PRESIDENT'S DESK

Mr. Pradeep Rathod



CONTENTS

From the President's Desk	3
News From India.....	21
Plastic Products and New Technologies.....	31
Plastic Raw Materials.....	40
Plastic Machinery.....	45
Circular Economy/ Bio-plastics/ Recycling	51

Dear Members,

Greetings!

The ongoing geopolitical tensions in West Asia (Red Sea disruptions, Israel-Iran conflict, shipping security concerns, and volatility in crude oil prices) have significantly affected the Indian Plastics Industry, as the sector is heavily dependent on imported feed stocks and global shipping routes.

Despite the challenges posed by the West Asia crisis, India's Plastics Industry remains fundamentally resilient due to strong domestic demand, a diversified manufacturing base, and growing export potential. However, prolonged geopolitical instability could continue to affect raw material availability, logistics, and production costs.

A co-ordinated approach involving the Government, industry associations, polymer producers, logistics providers, and exporters is essential. Priority should be given to securing raw material supplies, diversifying sourcing, supporting MSMEs with finance and logistics, enhancing domestic petrochemical capacity, and promoting value-added exports. These measures will help the industry maintain competitiveness, strengthen supply chain resilience, and sustain long-term growth despite global uncertainties.

Now Plastindia Exhibition will be held once in two years instead of once in three years. Thus, the waiting period for the Indian Plastic Industry to showcase their Products, Developments and Innovations will be reduced. Similarly the Indian Plastic Processors will be able to witness the Innovations and Developments made by the foreign suppliers in shorter period.

With Best Wishes,

Pradeep Rathod
President, OPPI

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Editor: **DEEPAK LAWALE**



NPE 2027- 3rd TO 7th May 2027

Organization Of Plastics Processors Of India has tied up for Exclusive Group Packages of Tibro for NPE 2027 scheduled from 3rd to 7th May 2027 at Orange Country Convention Centre (OCCC), Orlando, Florida, USA.

For more than 80 years, NPE (The Plastics Show) has been the leading global platform where the plastics industry comes together to discover innovations, source new technologies, build partnerships, and explore future business opportunities.

Held once every three years in the United States, NPE attracts manufactures, processors, suppliers, brand owners, engineers, designers, and decision- makers from across the globe.

If you are interested in participating in NPE 2027 please mail the following details.

- Number of participants and the company's name.
- Dates of visit.
- "Exhibitors Package"/ Visitors Package: 1"/ "Visitors Package: 2".
- Name and mobile number of the person to be contacted.

Deepak Lawale
Secretary General
ORGANIZATION OF PLASTICS PROCESSORS OF INDIA
404/405, Golden Chambers,
New Link Road, Andheri (West),
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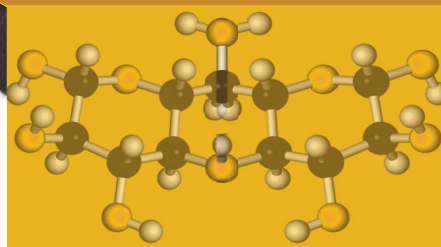
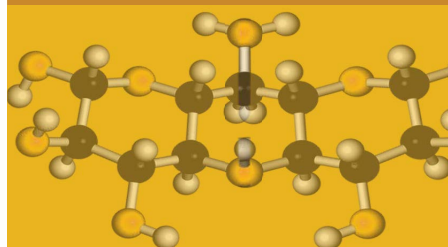
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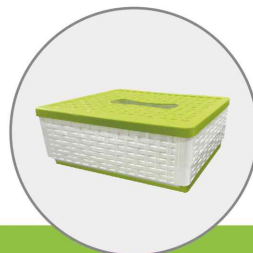
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13-16 AUGUST 2026

Diamond Island Convention and Exhibition Center



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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 Outlook The 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



August 13 (Thu.) - August 16 (Sun.), 2026



09:00 - 17:00
(Last day will close at 15:00)



Diamond Island Convention and
Exhibition Center,
Phnom Penh, Cambodia

Participation Fees

Standard Booth:

- USD 240 / sqm (Min. 9 sqms) = USD 2,160

Standard Equipped with:

- Carpeting, 3 folding chairs, 1 round table, 1 information desk, 1 waste basket, wall partitions, fascia name, 2 spotlight, 1 fluorescent light, one 5-AMP power point

Raw Space:

- USD 210 / sqm (Min. 18 sqms)

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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Vietnam PLAS

09-12/09/2026

Saigon Exhibition and Convention Center
SECC | HCMC

THE 24TH VIETNAM INTERNATIONAL PLASTICS & RUBBER INDUSTRY EXHIBITION

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Ministry of Industry & Trade -
Vinexad National Trade Fair &
Advertising J.S.C (VINEXAD)
Yorkers Trade & Marketing Service Co., Ltd.

CO-ORGANIZER

Vietnam Plastics Association (VPA)

SHOW FACTS FOR 2024

20 countries and regions
700 exhibitors
1,100 booths
23,000 square meters
20,390 visitors

OFFICIAL SUPPORTER

- Ministry of Industry & Trade
- Vietnam Rubber Association (VRA)
- Vietnam Waste Recycling Association (VWRA)
- Taiwan Mold & Die Industry Association (TMDIA)
- Ho Chi Minh Rubber Plastic Manufacturer Association (RUPA)
- Vietnam Association of Mechanical Industry (VAMI)
- Ho Chi Minh City Automation Association (HauA)
- Taiwan Plastic Industry Association (TPIA)
- Taiwan Association of Machinery Industry (TAMI)



9th September 2026
to
12th September 2026



Saigon Exhibition & Convention Center
(SECC), 799 Nguyen Van Linh, Tan My
Ward, Ho Chi Minh City, Vietnam.

EXHIBIT PROFILE

Plastic & Rubber Machinery, Chemical & Raw Materials, Machinery Auxiliary Industry,
Heat & Control Equipment, Mould, Hydraulic & Pneumatic, Recycling and Others.

PARTICIPATION FEE

Standard Booth USD 350 / sqm (Min. 9 sqms) = USD 3150

Standard Equipped with Wall Partitions, Carpet, Company Fascia, 3 Folding Chairs,
3 Spotlights, 1 Reception Table, 1 lockable counter, 1 Dustbin, 1 Single Phase 5 amp/220v Plug.

Raw Space USD 320 / sqm (Min. 18 sqms)

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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16-19/09/2026

Saigon Exhibition and Convention Center
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- Vietnam Waste Recycling Association (YWRA)
- Ho Chi Minh City Automation Association (HouA)
- Taiwan Association of Machinery Industry (TAMI)
- Vietnam Printing Association (VPA)
- Vietnam Association of Mechanical Industry (VAMI)
- Vietnam Paint & Printing Ink Association (VPIA)
- Taiwan Mold & Die Industry Association (TMDIA)
- Printing and Printing Equipment Industries Association of China (PEIAC)



16th September 2026
to
19th September 2026



Ho Chi Minh City Vietnam ,Saigon
Exhibition & Convention Center (SECC)

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 15% 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.

PARTICIPATION FEE

Standard Booth: USD 330 / sqm (Min. 9 sqms) = USD 2970

Standard Equipped with: Wall Partitions, Carpet, Company Fascia, 3 Folding Chairs, 3 Spotlights, 1 lockable counter, 1 Round table 1 Dustbin, 1 Single Phase 5 amp/220v Plug.

Raw Space: USD 300 / sqm (Min. 18 sqms)

Corner fee: 10% surcharge

Total amount should be added 5% VAT.

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 **Venue:** Infi Convention City Bashundhara (ICCB)

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 **Show Management:**
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<https://ipf.chanchao.com.tw/>




18,000
 SQM


800
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29274
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449
 EXHIBITORS


18
 COUNTRIES
 AND REGIONS

Austria, Bangladesh, Belgium, China,
 Germany, India, Italy, Japan, Malaysia,
 Singapore, Sri Lanka, Taiwan, Thailand,
 Turkey, United Arab Emirates, United
 Kingdom, and Vietnam

Exhibit Profiles

- **Plastic:** Plastic Bending Machinery, Blow Molding Machines, Extruding Machines, Plastic Compounding Equipment, Plastic Cutting Machines & Cutters, Die Cutting & Casting Machines, Plastic Dryers & Mold Heaters, Injection Molding Equipment, Mold Cleaning Equipment, Spin Casting Equipment, Thermoforming Machines.
- **Quality Detection Instrument and Equipment:** Measuring & Detection Equipment, Temperature Controller & Components, Electronic Automatic Instrument, Monitoring Device.
- **Machinery Parts and Accessories**
- **Packaging:** Converting Machinery, Packaging Machinery, Packaging Materials, Raw Materials & Auxiliaries, Fiberboard Packages, Paper Bags and Folding Cartons, Rigid Packages, Glass Bottles & Tin Cans, Flexible Packaging, Quality Control Systems, Dosing, Coding & Marking Systems, Physical Distribution Systems, Logistics, Research Centers, packaging Magazines & Associations.
- **Label Printing:** Label Printing Equipment, Materials and Accessories, RFID & Bar Coding Equipment, Pre-press System & Plate Making Equipment, Post-press Equipment, Label Inspection Equipment & Label Printing Services, Anti-counterfeit Technology, Label Security Solutions & Applications

Booth Prices



Shell Scheme

USD\$ 340/sqm

Min. 9sqm=3m x 3m= 9 sqm = USD\$3060 9sqm
 including : carpeting, 3 folding chairs, 1
 reception desk (with lock), 1 round table, 3 spot
 lights, 1 waste basket, wall partitions, fascia
 name, one 5-AMP power point

Bare Space

USD\$ 310/sqm

Min. size 18sqm



The reason you should attend the show:

- Exports of plastic toys and garment accessories are on the rise, reaching 100+ countries, with strong performance in the EU, US, Canada, China, India, and African markets.
Domestic Value: Combined plastic and packaging industries contribute USD 3.4–3.8 billion to the economy.
- Exports: Packaging printers significantly support the USD 200–250 million plastic export total.
- Future Growth: Near-term targets aim for a USD 600–700 million domestic packaging market, with longer-term export goals reaching USD 2–4+ billion by 2030.
- At the current growth rate (~20%), the flexible packaging segment is projected to reach USD 600–700 million (Tk 8,000–9,000 crore) in a few years.
- If Bangladesh captures 1% of the global packaging market (estimated at USD 265–400 billion by 2027), exports could rise to USD 2.5–4 billion.
- The long-term export target for all plastic and packaging products combined is USD 17 billion by 2030.

Plastic Industry in Bangladesh

Bangladesh is home to over 8,000 plastic factories, of which around 80% are small and medium enterprises (SMEs). The industry employs approximately 1.5 million people and fulfills 83% of domestic demand in a market valued at about USD 3 billion (Tk 40,000 crore)

Plastic Industry Development Policy 2023 Targets

Increase market value to USD 10 billion by 2026 and USD 20 billion by 2030.
 Create 500,000 new jobs.
 Raise the industry's GDP contribution to at least 2% by 2028 (currently ~1%).
 Capture 3% of the global plastic market by 2030



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pollution and creating awareness about responsible use of plastics.



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Mr. Dharmendra Gandhi Takes Over as Vice President of Plastindia Foundation.



In the meeting held on 30th July 2026 the new managing committee of Plastindia Foundation was constituted.

The new office bearers of Plastindia Foundation are as given below:

PRESIDENT	DR RAJU DESAI
VICE PRESIDENT	MR DHARMENDRA GANDHI
TRESURER	MR SAMIR JOSHI

PM Modi Inaugurates India's First Integrated Refinery - Cum - Petrochemical Complex



Prime Minister Shri Narendra Modi dedicated India's first integrated refinery - cum - petrochemical complex with a refining capacity of 9 million metric tonnes per annum (MMTPA) to the nation and launched multiple infrastructure projects worth ₹1.06 lakh crore in Rajasthan, reports ET Online.

Union Petroleum and Natural Gas Minister Shri Hardeep Singh Puri and Rajasthan Chief Minister Shri Bhajanlal Sharma were present at the event held in Pachpadra, Balotra.

The integrated refinery-cum-petrochemical complex has been developed as a joint venture between Hindustan Petroleum Corporation (HPCL) and the Rajasthan government at an investment of over ₹79,450 crore.

The project combines refining and petrochemical production, with a petrochemical capacity of 2.4 MMTPA. It features a Nelson Complexity Index of 17.0 and petrochemical yields exceeding 26 per cent, aligning with global standards for efficiency and sustainability.

The complex will strengthen India's energy security, boost petro chemical self - sufficiency and drive industrial development while serving as the anchor industry for a proposed Petrochemical and Plastic Park in the region, added the report.

The Prime Minister further dedicated SJVN Ltd's 1,000 MW Bikaner Solar Energy Project, built with an investment of about ₹5,500 crore, and NHPC's 300 MW Karnisar Bikaner Solar Energy Plant.

The SJVN project uses 24.22 lakh domestically manufactured solar modules, while the NHPC plant has been developed using around 7.75 lakh domestically manufactured solar photovoltaic cells and modules, supporting the government's push for indigenous renewable energy manufacturing.

As part of renewable energy infrastructure, Modi inaugurated a power transmission line built at a cost of over ₹1,900 crore for evacuating electricity from the Rajasthan Renewable Energy Zone (REZ). He also laid the foundation stone for a 530-km power transmission system that will facilitate renewable power evacuation and strengthen electricity supply across the state.

Earlier, Petroleum and Natural Gas Minister Shri Hardeep Singh Puri said the Pachpadra project marks India's first green field refinery in a decade, calling it a major milestone in the country's energy infrastructure development.

RAKEZ Advances India Business Collaboration Through Multi-city Outreach and OPPI MoU



Ras Al Khaimah, 20 July 2026: Ras Al Khaimah Economic Zone (RAKEZ) concluded a series of high-level business engagements in Mumbai, India, led by Group CEO Ramy Jallad. The visit formed part of a broader two-week RAKEZ roadshow across India, also covering Bengaluru, Coimbatore, Hyderabad and Pune, aimed at strengthening UAE-India trade and investment ties and creating new pathways for Indian companies exploring regional and global expansion from the UAE.

In Mumbai, the delegation held a series of B2B meetings with prominent Indian companies across diverse sectors, including automotive manufacturing, banking and financial services, IT and BPO, petrochemical trading, chemical and fertiliser manufacturing, alternative energy solutions, engineering, fabrication, infrastructure development, logistics, and strategic minerals processing.

As part of the visit, RAKEZ also signed a Memorandum of Understanding (MoU) with the Organization of Plastics Processors of India (OPPI), representing India's plastics processing sector. The MoU was signed by RAKEZ Group CEO Ramy Jallad and OPPI Secretary General Deepak Lawale. The partnership aims to stimulate trade and

business opportunities, create synergies for cooperation and development, and support Indian business owners through commercial missions, fairs, exhibitions and other export and investment promotion activities.

Commenting on the visit Jallad said, "India has always been one of RAKEZ's most important investor markets, and our latest visit reflects the depth of this relationship. The discussions we held with business leaders across multiple sectors reaffirm the strong appetite among Indian companies to choose Ras Al Khaimah as a base for regional and global growth. Through focused engagements and strategic partnerships such as our MoU with OPPI, we are creating more opportunities for Indian enterprises to access the UAE's dynamic business environment, benefit from RAKEZ's cost-effective ecosystem, and scale with confidence."

The MoU with OPPI further supports RAKEZ's efforts to engage sector - focused industry bodies in India and promote Ras Al Khaimah as a competitive destination for manufacturers, processors and exporters. OPPI works closely with plastics processors, manufacturers and related industry stakeholders to promote technology adoption, quality enhancement, good manufacturing practices, sustainability, circularity, skill development and policy engagement.

RAKEZ's Indian business community continues to grow in line with the strengthening UAE-India economic relationship under the Comprehensive Economic Partnership Agreement. Today, RAKEZ is home to more than 13,500 Indian companies, ranging from SMEs to multinational brands such as Mahindra, Ashok Leyland, MSSL, JK Cement, Ace Cranes, G.K. Wire Industries, Bosco Aluminium & Glass, Shyam Middle East, Nash Industries, Xpro India (part of Birla conglomerate), and Dabur Naturelle.

Through continued on - ground engagement and sector - focused outreach, RAKEZ continues to position Ras Al Khaimah as a preferred destination for Indian businesses seeking sustainable growth, regional access and long - term expansion from the UAE.

Through its multi-city outreach, RAKEZ is engaging directly with Indian businesses and industry partners, providing practical insights into

establishing and expanding operations in Ras Al Khaimah. The initiative reflects RAKEZ's continued focus on supporting Indian enterprises across key commercial and industrial centres.

For more information, please contact:

Cleo Eleazar, Public Relations & Events Manager, RAKEZ

Phone: +971 7 2077173;

Email: c.eleazar@rakez.com

About Ras Al Khaimah Economic Zone (RAKEZ):

RAKEZ is a powerhouse business and industrial hub established by the Government of Ras Al Khaimah in the United Arab Emirates. It currently hosts over 40,000 companies coming from over 100+ countries and operating in more than 50 industries.

RAKEZ offers entrepreneurs, startups, SMEs and manufacturers a wide-range of solutions, including free zone and non - free zone licences, customisable facilities, and first - class services provided in a one - stop shop. Furthermore, RAKEZ has specialised zones that are tailored to specific needs of investors: Al Nakheel and Al Hamra Business Zones for commercial and service companies; Al Ghail, Al Hamra and Al Hulaila Industrial Zones for manufacturers and industrialists; and an Academic Zone for educational providers.

A leading economic zone, RAKEZ aims to continue attracting diversified investment opportunities that will contribute to the economic growth of Ras Al Khaimah.

For more information, visit www.rakez.com.

Cosmo Plastech Launches Freezer Grade PP Sheets for Advanced Cold Chain and Frozen Food Packaging Solutions

Cosmo Plastech, the rigid packaging business of Cosmo Films, a global leader in speciality films for packaging, laminating, and labelling applications has announced the launch of its Freezer Grade PP Sheets. This has been designed to address the evolving packaging requirements of frozen food, seafood, meat processing, dairy and cold - chain industries.

With rapid demand for frozen and packaged food, India's frozen food packaging market is expected to touch \$78.9 billion by 2031, growing at a CAGR of 6.9%. Developed to withstand low - temperature environments while maintaining structural integrity and durability, the newly launched Freezer Grade PP Sheets by Cosmo Plastech are engineered for thermoforming applications such as trays, tubs and rigid packaging formats used for frozen and chilled products. The solution is aimed at enabling food brands and processors to enhance product protection, improve shelf appeal and provide operational efficiency across storage and transportation.

The sheets offer high impact resistance at sub-zero temperatures, excellent stiffness, moisture and oil resistance and meeting food-grade compliance, making them suitable for packaging applications involving vegetables, fish and seafood, meat, ready - to - cook products and frozen snacks. The material also supports light weighting and recyclability, aligning with the industry's growing focus on sustainable packaging solutions.

With increasing emphasis on reducing food wastage and strengthening temperature - sensitive supply chains, freezer - grade rigid packaging materials are becoming critical for ensuring product freshness, hygiene and transportation reliability. Cosmo Plastech's latest offering is positioned to support these industry requirements with advanced material innovation and scalable manufacturing capabilities.

Cosmo First Wins Three Prestigious FIPSA 2026 Awards for Responsible Packaging Solutions

Cosmo First Limited has been honored with three prestigious awards at the FIPSA 2026 Contest on Responsible Packaging for the company's films business vertical – Cosmo Films. Organized by the Foundation for Innovative Packaging and Sustainability (FIPS), the awards recognized

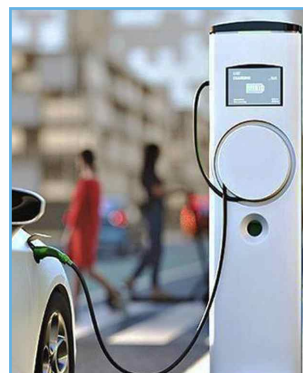
the company's continued commitment towards developing innovative and sustainable packaging solutions that address evolving industry needs while contributing to environmental responsibility.

The three award-winning products include:

- Easy Seal Peel CPP Film (HST-1 (LSR) CPP) – Winner under the Commercial Innovation category
- High Shrink PET Film (SSPF-O) – Winner under the Commercial Innovation category
- High Shrink PETG Film with 30% PCR Content (rHSPF-O) – Winner under the Commercial Sustainability category

₹70,300-Crore Auto-Component Investment Wave Gathers Pace Through FY29 on EV, Localization Push

The scale of the pipeline points to a shift from incremental capacity additions towards technology-led expansion across the component industry



Auto - component manufacturers have lined up ₹70,300 crore of projects for commissioning between FY27 and FY29, within a much larger pipeline of ₹4.76 lakh crore spread across 184 projects, Brickwork Ratings said.

Nearly 70 projects are already under implementation. The ₹70,300-crore figure covers projects scheduled to come on stream over the next three financial years, while ₹4.76 lakh crore represents the wider pipeline. The investment cycle signals a shift from incremental capacity additions towards technology-led expansion in Evs, batteries, localization and powertrain-agnostic components.

“India's auto and auto ancillaries industry is transitioning from a volume-driven market to a technology-led manufacturing ecosystem,” Niraj Rathi, Senior Director–Ratings, Brickwork Ratings, said. “Policy incentives, localization initiatives and

expanding export opportunities are encouraging long-term investments despite elevated capex requirements for electrification,” he added.

Investment moves beyond conventional components

The projects will support manufacturing of EV platforms, batteries and components serving both internal - combustion and electric vehicles. Automakers and Tier-I suppliers are increasing local sourcing to strengthen supply chains and reduce import dependence.

The outlook broadly converges with ICRA's forecast that domestic OEM - linked auto - component revenues will grow 7–9 per cent in FY27. Brickwork expects revenue across the wider auto and auto-ancillaries sector to rise around 8 per cent in FY27, with revenue compounding at about 7.5 per cent.

India recorded estimated domestic vehicle sales of 30.2 million units and exports of 7.1 million units in FY26. EV penetration rose to 8.6 per cent from 0.8 per cent in FY20.

Internal accruals support expansion

Suppliers face higher capital requirements for electrification, batteries and advanced manufacturing. Yet Brickwork and ICRA expect most organized companies to fund expansion substantially through internal accruals.

“Healthy balance sheets and strong internal accruals should enable most organized players to navigate this transition while maintaining stable credit profiles,” Rathi said.

Brickwork expects leverage to improve further, with debt servicing remaining strong despite capacity expansion.

Agencies differ on margins

Brickwork expects EBITDA margins to improve to around 14 per cent in FY27 from 13 per cent in FY26. ICRA is more cautious, projecting operating

margins to contract by 50–100 basis points to 10.5–11.5 per cent because of tariff-related export pressure, raw-material volatility and weaker global demand.

The difference reflects separate company samples and assumptions. Both agencies expect revenue growth and investment to continue.

Global risks shadow capacity build-out

The industry remains exposed to US tariff uncertainty, weaker European demand, semiconductor constraints and volatile raw - material prices. Suppliers investing in batteries, electronics and EV technologies also face execution risks.

The success of the ₹70,300-crore pipeline will depend on efficient execution, productivity and disciplined leverage as the industry shifts towards electrified and software - enabled mobility.

Chemco Receives FSSAI Authorization to Manufacture Food-Grade rPET Resin for Food Contact Applications



Chemco Group, an international manufacturing and plastic packaging group, has received authorization from the Food Safety and Standards Authority of India (FSSAI) to manufacture food-grade recycled PET (rPET) resin for food contact applications under the Food Safety & Standards (Packaging) Regulations, 2018.

The authorization places Chemco among a select group of companies in India approved to manufacture food - grade rPET resin suitable for

direct food-contact packaging applications, marking an important milestone in the country's transition towards a more circular and compliant packaging ecosystem.

The approval follows Chemco's recent commissioning of its large-scale bottle-to-bottle recycling facility in Sanand, Gujarat, representing an investment of approximately Rs. 125 crore. The integrated facility has been developed to recycle more than 1 billion post - consumer PET bottles annually, converting them into high - quality food - grade recycled PET resin suitable for use in food and beverage packaging applications.

Chemco's food - grade rPET facility is supported by a state-of-the-art Starlinger bottle-to-bottle recycling system, incorporating globally recognized recycling technology designed for food - contact applications. The facility has been developed to meet India's food - contact regulatory requirements under the Food Safety & Standards (Packaging) Regulations, 2018, along with applicable Bureau of Indian Standards (BIS) requirements governing recycled PET materials. Its compliance framework is supported by robust quality, traceability, and food safety systems, including FSSC 22000 certification, alongside recycling process frameworks recognized by US FDA and the European Food Safety Authority (EFSA) for food-contact recycled PET applications.

FSSAI authorization for food - contact applications represents a significant regulatory milestone for India's recycled plastics sector, given the stringent standards governing recycled materials intended for direct contact with food and beverages. Under the Food Safety & Standards (Packaging) Regulations, 2018, manufacturers are required to demonstrate robust traceability, process control, testing, and compliance measures to ensure material safety and suitability for food - contact use.

Commenting on the development, Shri Vaibhav Saraogi, Director of Chemco Group, said, "Receiving FSSAI authorization for food - grade rPET is an important milestone not only for Chemco, but also for the broader development of circular packaging

infrastructure in India. As demand for compliant recycled content continues to increase, particularly in food and beverage packaging, it becomes essential to build credible domestic manufacturing capabilities supported by regulatory discipline, traceability, and consistent quality standards. Our investment in bottle-to-bottle recycling was made with a long-term view of supporting both sustainability and supply-chain reliability for brand owners. This approval reinforces our ability to offer food-grade recycled material that meets stringent safety and compliance expectations while supporting India's transition towards circular packaging."

The approval comes at a particularly important time for India's packaging industry as mandatory recycled-content obligations under the Plastic Waste Management (PWM) Rules continue to tighten. For Category I rigid plastic packaging, including PET bottles and containers, minimum recycled - content requirements have been prescribed at 40% for FY 2026 - 27, 50% for FY 2027 - 28, and 60% from FY 2028 - 29 onwards. These obligations are expected to significantly increase demand for domestically available, compliant food - grade recycled materials, particularly for beverage, food, and FMCG packaging applications. Industry participants are increasingly seeking reliable local sources of food - grade rPET capable of supporting both regulatory compliance and long - term sustainability commitments.

The Sanand facility has been developed as a fully integrated bottle-to-bottle platform, strengthening Chemco's ability to support brands with compliant recycled packaging solutions through an end-to-end

manufacturing approach. By combining food-grade rPET resin production with downstream packaging capabilities within the Group, Chemco offers enhanced traceability, supply - chain reliability, and quality consistency. This integrated model positions the Group among very few packaging manufacturers in the world capable of supporting large-scale recycled-content packaging requirements for leading consumer brands.

Beyond environmental impact, the project contributes to skilled employment generation, strengthens Gujarat's position as a manufacturing and sustainability hub, and supports India's broader objectives of resource efficiency, waste reduction, and circular manufacturing. With FSSAI authorization now in place, Chemco further strengthens its position as a long-term partner for companies seeking credible, compliant, and scalable food-grade recycled packaging solutions in India.

About Chemco Group

Chemco is an international manufacturing group with over four decades of operating history across plastics and polymer-based products. The Group operates a diversified network spanning 23+ locations across India, the Middle East, and the United States, serving leading domestic and global brands across multiple industries. Chemco processes over 125,000 tonnes of plastic polymers annually and has established capabilities across rigid and flexible packaging, technical textiles, medical devices, baby care products, and sustainable materials. The Group serves a wide range of sectors through advanced manufacturing capabilities across moulding, extrusion, recycling, and engineered polymer applications. Sustainability and circularity remain central to Chemco's long-term growth strategy, with recent investments focused on food-grade bottle-to-bottle rPET recycling and rPET FIBC and industrial packaging solutions. Chemco remains focused on responsible manufacturing, regulatory compliance, operational scale, and long-term value creation.

Time Technoplast Bags HPCL Order to Supply 1.4 Lakh Composite LPG Cylinders

The order is scheduled for execution within six months.

Time Technoplast Limited has secured a Government e-Marketplace (GeM) contract worth approximately ₹38.14 crore from Hindustan Petroleum Corporation

Limited (HPCL) to supply 1.4 lakh 10-kg Type IV composite LPG cylinders. The order is scheduled for execution within six months.



According to the company, the order reflects the growing adoption of composite LPG cylinders by India's oil marketing companies due to their enhanced safety, lightweight design and improved consumer convenience.

The contract further strengthens Time Technoplast's leadership in the composite cylinder segment and supports the transition towards modern LPG distribution, the company said.

The company said the order assumes added significance as HPCL has recently introduced an innovative distribution model for composite LPG cylinders through leading quick-commerce platforms, enabling on-demand delivery to consumers.

The initiative is expected to improve accessibility and accelerate the adoption of next-generation composite LPG cylinders across the country, it said.

Lubrizol and Polyhose Inaugurate Advanced Medical Tubing Facility in Chennai, Strengthening India's Medtech Ecosystem

Lubrizol, a global specialty chemicals leader, and Polyhose, a leading manufacturer in fluid conveyance systems, inaugurated a new medical manufacturing site in Chennai, Tamil Nadu. The facility will manufacture precision extruded medical tubing for

minimally invasive devices, supporting India's rapidly growing medical technology and healthcare sectors.



Designed as a world-class operation, the ISO13485 facility provides customers with a reliable source of high-quality medical tubing, backed by dedicated quality control and the same rigorous standards applied across Lubrizol's global manufacturing network. This investment strengthens Lubrizol's ability to serve customers in India and across global markets.

Operations focus on delivering precision extruded tubing from a wide range of high-performance materials, including polyamides, nylon, Pebax®, polypropylene, polyethylene, and Lubrizol's medical grade thermoplastic polyurethane (TPU).

The new site is set to expand India's capacity for precision extruded medical tubing, contributing to the country's focus on building domestic medical device manufacturing capabilities, reducing reliance on imports, and enhancing patient access to high-quality.

Zero-BCD Era Ends for 40 Polymers & Chemicals

Effective July 16, 2026, the zero-BCD window for 40 notified petrochemical and polymer products has expired. Notification No. 22/2026-Customs, which

extended the exemption until July 15, 2026 (inclusive), has expired, and no further extension has been notified. Accordingly, the applicable Basic Customs Duty (BCD) rates stand reinstated from July 16, 2026, on imports covered under the original Notification No. 12/2026 - Customs.

Key products affected:

- PP, PE (HDPE/LDPE/LLDPE), PVC, PS, PET
- ABS, PC, Epoxy Resins, Polyurethanes
- MEG, PTA, Styrene, Methanol & more

What does this mean?

- BCD reverts to 7.5% on commodity polymers
- Landed import costs are expected to increase
- Imports from FTA partner countries (Korea, UAE, Thailand) regain a relative cost advantage

Clean Power Capacity all set to Cross 300 GW: Pralhad Joshi



India will soon cross 300 GW of installed non-fo. He said the PM Surya Ghar Muft Bijli Yojana, which aims to promote rooftop solar installations, will cover more than 5 million households in the next few weeks.

India's installed non - fossil fuel power capacity currently stands at 297 GW and accounts for more than half of the country's total installed electricity capacity. The government aims to increase this to 500 GW by 2030.

Joshi was speaking at the curtain - raiser for the Bharat Renewable Energy Summit & Expo 2026, scheduled to be held in November. The annual event, organized by the ministry of new and renewable energy, will bring together representatives from states, policymakers and delegates from 34 countries, among others.

It will also bring together renewable energy developers, technology providers, equipment manufacturers, battery storage companies and

green hydrogen firms. The government has maintained that expanding clean energy capacity remains central to India's long-term energy security and climate goals, including its commitment to achieve net-zero emissions by 2070.

Renewable energy secretary Santosh Kumar Sarangi said the next phase of the energy transition will focus on strengthening the power system through hybrid renewable energy projects, battery energy storage systems, floating solar, agrivoltaics and the National Green Hydrogen Mission. Sarangi said the electricity sector will enter a new phase of growth, driven by data centers, electric vehicles, connected technologies and smart manufacturing.

Jabil Expands its Manufacturing Capacity in India with New Factory

Jabil Inc expands its presence in India with the opening of its new factory in Pune. This marks a significant expansion of the company's India manufacturing capacity. Located in the Maharashtra Industrial Development Corporation (MIDC) industrial zone, the facility expands the company's manufacturing capacity, with its footprint growing from 500,000 square feet to 1.2 million square feet in the past year. Additionally, Jabil has gone from employing 5,000 to almost 11,000 staff members.



Mr. Devendra Fadnavis, Chief Minister of Maharashtra, added, "Maharashtra continues to be a preferred destination for global manufacturers because of our skilled workforce and commitment to enabling investment and growth. Jabil's expansion in Pune is a welcome addition to the state's manufacturing landscape and an encouraging example of how world-class companies are contributing to India's industrial progress, job creation, and long-term economic development."

Global automotive supplier Forvia expects its India revenue to more than double to 1 billion (around ₹10,000 crore) by 2030 and plans to invest a fresh 70 million (around ₹700 crore) to expand operations, driven by rising demand for SUVs, vehicle electronics and premium features.

The French auto components maker sees the country growing significantly faster than its global operations, its global chief executive Martin Fischer told ET. "Our Indian growth is stronger than the global growth. The one billion is nice, but India is then still underrepresented in our portfolio," he said.

Forvia generated 450 million (around ₹4,500 crore) in India revenue in 2025. The additional capital infusion will take Forvia's cumulative investment in India to 270 million (around ₹2,700 crore) by 2031 and create three new plants-a clean mobility facility in western India, a lighting unit and a seating plant-and increase its workforce by 50% to over 9,000 employees by 2030 from about 6,000 currently, Fischer said.

Formed through the merger of Faurecia and Hella, Forvia already operates more than 10 manufacturing plants and R&D centres across India.

Fischer said it's "a good time for us to invest" in India. A shift towards better equipped vehicles would drive growth in electronics, seating and cockpit technologies in the country, he said.

Government Nod for 2 Billion Polymer Banknotes of Rs 10 & Rs 20

NEW DELHI: The Centre has permitted to print 2 billion pieces of polymer notes initially for field trials, govt informed Parliament on Monday.

Minister of state for finance Pankaj Chaudhary told the Lok Sabha that the one billion pieces each of Rs 10 and Rs 20 notes, which are hard to find, will be printed for field trials and for regular issue after the trials are completed. He also ruled any move to replace paper currency with polymer substrate - banknotes and said both will co-exist.

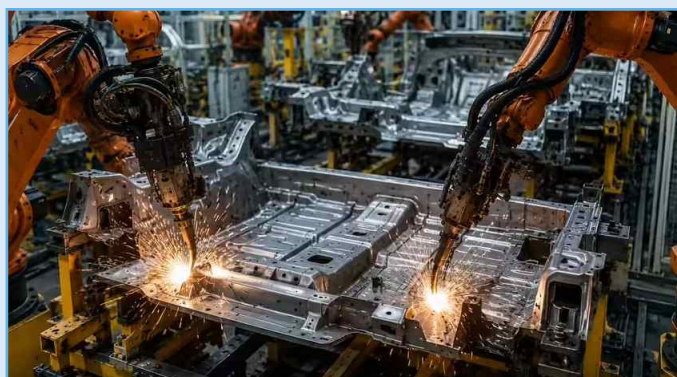
RBI has just floated a tender to source material for the polymer notes, something that has been under discussion for nearly two decades and was cleared along with an expansion of the currency printing infrastructure, which was facing capacity constraints. Officials have indicated that it can take a few

months before the new notes are launched as govt and RBI want to ensure that safety is not compromised and there is no link with the material supplied to countries such as China and Pakistan.

In recent years, RBI has sought to push coins in the Rs 10 and Rs 20 denominations. Together, they accounted for nearly a quarter of banknotes in circulation at the end of the last financial year, while in terms of value the combined share was 1.4%, according to RBI data.

"RBI has informed that as per international studies, the life span of polymer banknotes is significantly higher than that of paper banknotes. The introduction of polymer banknotes is currently in a preliminary phase," Chaudhary told Parliament.

Auto Ancillary Sector Growth Outlook Positive, but Near-Term Margin Pressure Likely: Report



Exports, capacity expansion, diversification, and localization to boost margins and expand markets, with earnings likely to outpace revenue over 2-3 years.

India's auto bearings and ancillary sector is expected to witness strong medium-term growth, driven by robust demand across the automotive

and industrial segments, although short-term profitability may face pressure from input cost volatility and transition-related expenses, according to a report by Centrum.

The report noted that the sector is benefiting from rising bearing content per vehicle, as modern vehicles require a greater number of specialized bearings. It also highlighted robust growth in automobile volumes across the passenger vehicle (PV), commercial vehicle (CV), and two-wheeler (2W) segments.

In addition, demand from the railway sector remains structurally resilient, while end-user industries such as wind energy, cement, steel, and renewables are witnessing a gradual recovery, providing further support to the sector's growth prospects. Together, these factors create positive outlook for the sector.

"The auto bearings and ancillary sector is well-positioned, led by rising bearing content per vehicle, robust auto volume improvement across PV/CV/2W, and structurally resilient Rail demand alongside gradual pickup in Wind, Cement, Steel and Renewables," the report added.

At the same time margins across most OEMs will likely decline due to higher RM costs during the quarter partially offset by higher operating leverage, it said.

Apart from this, Centrum expects the growing share of exports along with the expansion of manufacturing capacity, and greater product diversification will widen the sector's addressable market and support margin expansion over the medium term.

"Deepening export share along with new capacity and product diversification (CRB/SRB ramp-ups, transfer case and component scale-ups, premiumization), should expand addressable markets and drive margin accretion over the medium term, while near-term profitability faces pressure from one-off costs and input cost volatility," it said.

Additionally, the report said ongoing localization of manufacturing and portfolio rationalization are expected to support structural improvement in margins over time, providing further support to the sector's long-term growth prospects.

Centrum expressed optimism that improved operating leverage and a relatively weaker rupee would partially offset margin pressures, even as higher raw material costs driven by elevated commodity prices, rising energy costs, and supply-side headwinds are expected to weigh on profitability across most companies.

Overall, Centrum expects "the sector to deliver healthy double-digit growth over the next 2-3 years, with earnings likely to outpace revenue as margin levers play out, notwithstanding near-term risks from input costs, geopolitical uncertainty, and company-specific transition costs."

PLASTIC PRODUCTS AND NEW TECHNOLOGIES



Stretch - Film Innovator Collaborates on New High - Performance Nanostructure

A cutting - edge processor of stretch films has recently collaborated with ExxonMobil to develop a new type of power pre - stretch (PPS) film it contends outperforms competing offerings.

Last year, Alliance Films (Wrightstown, Wisconsin) wanted to develop a high - performance film that delivers exceptional holding force and extreme stretchability while maintaining puncture resistance and tear propagation. So, it teamed with the ExxonMobil signature polymers team along with die and feed block developer Cloeren Incorporated to engineer a 67-nanolayer film structure to meet these objectives.

"Our commitment to the customer is to offer a line of stretch film unmatched in the marketplace by outperforming in performance, quality and service," notes Troy Wolf, Alliance Films president.

The company is no stranger to producing Nano layer stretch films. Back in December 2024, it installed an SML Smart Cast 120-inch wide system that produces film with an astounding 67 layers - a first for the company and the first such line installed in North America, Alliance Films says.

In September 2025, it added a second such line, this one a Colines Allrollex 3000 system producing 120 - inch wide film in a 59 - layer configuration. Both lines are furnished with Cloeren feed block and die packages. Alliance Films has 68 million lb/yr of stretch film capacity. Of that, 48 million pounds is processed using nano layer technology. Wolf says that at 70%, Alliance Film's percentage of nano layer capacity vs. total capacity is the highest in the industry.



Overhead view of SML 67 - layer cast film line Alliance Films used to produce its newest high-performance power pre-stretch film.

The new stretch film is produced on the SML Smart Cast 67-layer line, combining ExxonMobil's Exceed m 3518 and Exceed Tough m 3812 metallocene polyethylene (PE) grades to deliver what both the

polymer producer and Alliance call a balance of toughness and stretchability. A core layer of Exceed Flow m 1716 metallocene PE is said to enhance holding force, while Vista maxx 6000 performance polymer boosts tear propagation resistance.

Where the skin layers are concerned, a layer of higher density PE, utilizing Exceed Tough m 4536 metallocene, is used on the release side, while the cling layer is made of a blend of Exceed Tough m 3812 and Vista maxx 6102 performance polymers. Rather than relying on blends for the skins, Alliance Films opts to use neat polymers, which Wolf says allow it to more fully benefit from the molecular architecture of the performance PE grades.

What the Tests Showed

In preliminary trials, Alliance produced 12.7-micron PPS film at a line speed of 1,510 feet per minute (460 m/min.). Mechanical properties confirmed by an ESTL stretch film performance tester (FPT-EVO) revealed:

- Ultimate elongation of 490% and force at break of 131 Newton (N).
- Stretch force of 105 N at 250%, indicating great potential for high holding force.
- Natural draw ratio (NDR) occurs at 325% strain, which results in a wide utilization window when wrapping with this film.

As Alliance Films and ExxonMobil point out, the high NDR level also means that it is possible to wrap goods at high pre-stretch level, making it possible to use less film per pallet.

The two companies also report that tear propagation resistance was also strong, showing that the film should have great machinability even at high elongation. Notably:

- >25 seconds at 250% pre-stretch
- >15 seconds at 300% pre-stretch

Furthermore, puncture resistance remained high across 200 – 300% prestretch levels, supporting reliable performance in demanding applications. Wrapping efficiency tested through a Robopac 708 wrapper by Alliance Films revealed:

- Pre-stretch levels tested: 200%, 250% and 300%
- Wrapping setup: Three wraps on top and three wraps on the bottom (roll width: 500 mm) with a turntable speed of 10 rpm
- Containment force was measured at the bottom, middle and top of the pallet with a Highlight ACE 650 containment tool

At the highest pre-stretch level of 300%, the film delivered strong containment force, helping to secure loads more effectively. Additionally, film usage was reduced by approximately 10% compared to the standard 250% pre - stretch level, offering potential material savings without compromising performance.

The film is commercially available as part of Alliance Film's PPS product line.

No Need to Purge out the Purge Compound

Explore Chem-Trend's tailored purge compounds for blown and cast film processing. Reduce downtime by up to 80%, minimize scrap and boost efficiency with products from the Ultra Purge™ line.

Purge compounds have long proven their value in reducing downtime and minimizing scrap across a wide range of plastic processing applications. However, not all processes have the same requirements.

In blown and cast film operations, unique equipment and processing conditions have historically limited the effectiveness of conventional purge solutions.

Today, tailored technologies from Chem - Trend address these challenges with targeted, high-performance solutions.

Blown Film: Maintaining the Bubble and Closed Loop Recycling



Keep the bubble intact while you purge - Ultra Purge™ C1851 cleans effectively without the downtime of a collapse, cutting purge time by up to 75%.

For blown film processors, maintaining bubble stability during purging is often critical. A collapsed bubble may potentially result in significant downtime, labor, and lost productivity due to the need for restringing. Traditionally, most purge compounds require the bubble to collapse, limiting their practicality in these operations.

Lab and field results have shown that C1851 can reduce downtime by an average of 75% compared to purging with production resin.

Ultra Purge™ C1851 was specifically developed to overcome this challenge. Unlike traditional purge compounds, C1851 functions as a purging additive, blended with production resin at a master batch-like ratio. This allows for precise dosing through standard gravimetric / volumetric blending systems, making implementation simple and efficient.

The key advantage of C1851 is its ability to effectively clean the extruder and die while maintaining the bubble, significantly reducing downtime and labor requirements. Both lab and field results have shown that C1851 can reduce downtime by an average of 75% compared to purging with production resin. In addition, C1851 can be recycled in a closed loop process, meaning no waste is generated in the purging process.

High - Power Cleaning: Ultra Purge™ 3615

For processors seeking a more aggressive, ready-to-use purge compound, Ultra Purge™ 3615 provides a powerful alternative. This product is ideal for removing stubborn carbon buildup and heavy color contamination. Companies have achieved reductions of up to 80% in downtime and scrap with Ultra Purge™ 3615.

While 3615 is not suitable for closed-loop recycling, it delivers exceptional cleaning performance, often eliminating the need for manual die disassembly. In many cases, a single purge cycle is sufficient to remove significant color and carbon buildup.

For operations implementing a preventive maintenance program, regular use of 3615 can help prevent carbon accumulation altogether, reducing or even eliminating manual cleaning requirements of the die. In addition, depending on the film and equipment, in many scenarios the bubble can be maintained while purging with Ultra Purge™ 3615.

Cast Film Applications: Ultra Purge™ 3627

Cast film processors have their own unique demands, and Ultra Purge™ 3627 was engineered specifically to meet them. Ultra Purge™ 3627 is ready-to-use purge compound that processes similarly to standard production resins, ensuring ease of use without operational disruption.

Ultra Purge™ is a low-residue formulation, meaning there is no need to "purge out the purge compound." It effectively cleans both the extruder and die while minimizing scrap and downtime during color changes. When used regularly, it also helps prevent carbon buildup, supporting consistent product quality and improved operational efficiency.



Built for cast film, Ultra Purge™ 3627 quickly cleans color and carbon from the extruder and die.

Proven Performance with Full Technical Support

Selecting the right purge solution depends on your specific process and operational goals. Chem-Trend offers complimentary product trials with on-site technical support, allowing processors to evaluate Ultra Purge™ products to find the solution that fits them best.

To ensure success, Chem - Trend also provides complimentary training, helping teams implement best practices and maximize results. From initial trials to long - term optimization, our experts work alongside your team to deliver measurable improvements in efficiency, downtime and scrap reduction, and overall productivity.

Amcor Introduces Recycle-ready Dip Cup Packaging to Help Brands Meet Sustainability Regulations



Amcor, a global leader in developing and producing responsible packaging solutions announced the commercial availability of PP Revolution™, a new portfolio of polypropylene (PP) recycle ready dip cup arrays and lidding solutions for condiments, dressings and sauces for foodservice. Amcor's PP Revolution™ platform is designed to help brands transition from traditional polystyrene while maintaining performance, efficiency and consumer appeal.

"PP Revolution™ is designed to help brands move forward as Extended Producer Responsibility (EPR) requirements evolve," said Sarah Paleg, sustainability director, Amcor Flexibles North America. "Our PP Revolution™ platform is a recycle ready solution that supports improved recyclability claims today and prepares our customers for the regulatory realities of tomorrow."

The more sustainable dip cup array and lidding solution delivers high performance and compatibility with existing filling equipment for a seamless transition. In addition, the dip cups have an improved barrier compared to traditional solutions and are available with Amcor's comprehensive EZ Peel® lidding portfolio, including metallized, foil and Am Prima® recycle ready options. The arrays are available in 10 sizes, from 0.5 Oz to 2.0 Oz in clear, white opaque and custom colors.

PP Revolution™ dip cup solutions are designed for recyclability, with select sizes rated "Preferred" under the APR Design® Guide for Size Sorting Potential. This evaluation can support stronger recyclability claims and potential EPR fee advantages, with How2Recycle® prequalification available for select sizes.

The PP Revolution™ solution expands Amcor's portfolio of more sustainable film technologies, which includes the recycle-ready PET Revolution™ recycle ready barrier cup stock.

Graphene-enhanced Master Batch Helps Down Gauging 20% Film

Formulators working on high - performance plastic film applications can now evaluate a graphene - enhanced master batch that demonstrates more than 70% improvement in mechanical strength, while enabling thickness reduction of up to 20% without compromising tensile, tear, or puncture performance. The product, Graphene Black xGnP™ Master batch, is jointly developed by NanoXplore Inc. and Techmer PM. It is commercially available as of June 2026.

According to the two companies, the master batch has the potential to significantly increase the proportion of recycled content that can be incorporated into film formulations without sacrificing performance. This capability addresses a pressing challenge for formulators navigating tightening sustainability mandates and circular economy targets in packaging applications.

A key enabler of consistent performance across production runs is Techmer PM's Techsperser™ dispersion technology, which ensures optimal graphene distribution. Combined with Techmer PM's manufacturing standards, this approach is reported to deliver lot-to-lot consistency at commercial scale.

The master batch combines NanoXplore's proprietary high-surface-area xGnP™ graphene technology with Techmer PM's films application expertise and compounding capabilities.

Development support and process validation

To support formulation development, Techmer PM provides in-house film production capabilities, including a 5-layer blown film line that supports small-scale sampling and real-world process validation. This infrastructure allows formulators to iterate formulations directly with Techmer PM and NanoXplore, evaluate performance in multilayer structures, and advance the design and commercialization process.

NanoXplore filed a provisional patent in May 2026. Both companies will present the co-developed product line at the AMI Flexible Packaging Innovation and Recycling Conference in Milwaukee, June 24–25, 2026.

Bangladesh---Plastic Sector Growth Rate 5.71% for 2025-2026

A stakeholder consultation meeting was organized in the conference room of the Export Promotion Bureau on 23 June 2026 to review the export earnings

for the financial year 2025 - 2026 and determine the export target for the financial year 2026-2027. The meeting was presided over by Mr. Mohammad Hasan Arif, Vice Chairman and Chief Executive of the Export



Promotion Bureau. Senior officials of the concerned ministries, departments, banks, various chambers and associations participated in the meeting. Mr. Md. Shahidulla, Senior Deputy Secretary (Customs and Bonds) of BPGAEA participated in the meeting. The leaders of the chambers & associations highlighted the export targets and various ways to implement them on behalf of their respective sectors and expected the government's cooperation. According to statistics, plastic products were exported during July-May of the 2025-2026 fiscal year 285.58 million dollars. Export growth was 5.71% compared to the previous year.

Tetra Pak Unveils Industry-First Carton Packaging for Shelf-Stable Tuna



Tetra Pak, in collaboration with the leading Spanish seafood producer Jealsa, has unveiled the industry's first carton packaging for shelf-stable tuna. Packaged in Tetra Recart®, this market-leading innovation launched in Sweden last month with retailer Ax food in 200 ml Mini format and will be available to food producers and brands worldwide.

The solution was brought to market in collaboration with the leading Spanish seafood producer Jealsa, combining expertise in food packaging from Tetra Pak with decades of experience in producing high-quality seafood products at Jealsa.

A unique paper-based alternative to traditional cans, Tetra Recart offers food producers a new way to differentiate in one of the seafood industry's most established categories. The global shelf-stable tuna market is expected to grow an estimated 12% to 12.4 billion units by 2030, reflecting rising demand for affordable, versatile and long - lasting protein options.¹

Tetra Recart offers brands a cost - competitive, scalable paper-based packaging solution and already supports a wide range of shelf - stable products, from spreads and flakes to shredded tuna and chunks, with plans to expand into additional tuna preparations as the category evolves.

Tatiana Liceti, Executive Vice President, Packaging Solutions at Tetra Pak, commented: "This is true packaging innovation in a category that has looked the same for generations. With the industry's first carton for shelf stable tuna in Tetra Recart, we are giving producers and brands a new way to stand out on shelf to protect and grow market share, support cost competitive, scalable production, and modernise with a paper - based alternative to cans, while contributing to more sustainable food systems through smarter production and distribution.

Jesús M. Alonso Escurís, President at Jealsa, said: "In Jealsa's 68-years history in shelf-stable seafood, we have always been committed to innovation. The launch of this market-leading product sets a new benchmark for the industry. Through our collaboration with Tetra Pak, we've brought a game - changing packaging solution to market, combining their expertise in innovative formats with our long-standing heritage in high-quality seafood. Together, we are delivering a solution that responds to evolving consumer expectations. Following a successful launch in Sweden, we are already seeing

strong market momentum and are confident this will continue as demand for more convenient, modern and sustainable products grows."

When it comes to functionality, being easy to handle and having the ability to stack efficiently, make it an appealing choice for consumers. In fact, more than 80% of consumers say they would buy tuna packaged in Tetra Recart®, while 58% say they prefer it to existing tuna packaging alternatives.²

The packaging format also delivers significant environmental benefits. Tetra Recart® has the smallest carbon footprint of any package in its category, 85% lower than steel cans and 83% lower than glass jars.³ at scale, this equates to 21,000 tonnes less CO₂ per 1 million cans⁴. The package also uses up to 71% FSC™ certified paper, sourced from responsibly managed, renewable forests.

A new format for an evolving category

In a category with a history of round cans, the distinctive shape of Tetra Recart® creates immediate shelf impact. Large, flat surfaces enable bolder branding and clearer storytelling, while the compact carton shape allows packages to fit tightly together, improving shelf efficiency and enabling more product per meter. The format's robustness and rectangular shape also support efficient warehousing and is simple to 'pick and pack' for e-retailers, making it well suited to e-commerce, home delivery and meal kits, offering the same impact for customers viewing it on screen as it does on a retail shelf.

Following its successful introduction in Sweden, the collaboration between Tetra Pak and Jealsa demonstrates how packaging innovation can respond to changing consumer expectations while innovating in established categories. Jealsa will bring various Tetra Recart® product categories to market, both under its own brands (Rianxeira, Mare Aperto and Robinson Crusoe) and third - party brands. As demand grows for convenient, protein - focused foods, shelf - stable tuna is evolving. Tetra Pak's

game changing packaging solution in carton responds to this shift, helping food producers move beyond cans to modernize the category, differentiate their brands and support more sustainable food systems.

Innovative Plastic Products

Innovation plastics products feature advanced eco-friendly materials, smart circular designs, and upcycled utility item like Eco - panles made from 100% recycled waste, Angirus lightweight plastics bricks, and BPA - free modular kitchen storage.

Sustainable Materials

- **Eco-Panels:** Surface boards created from 100% recycled single - use plastics for zero - wasted interior design.
- **Recycled Plastic Bricks:** Lightweight, durable construction bricks built from plastic waste with equal strength to clay.
- **Bioplastics & PHA:** Plant - derived polymers replacing conventional petrochemical plastics via renewable feedstocks.

Smart Home & Kitchen

- **Modular Stackable Containers:** Space - saving, airtight BPA - free containers with push or flip - top dispensers.
- **Self-Healing Polymers:** Advanced smart plastics capable of automatically repairing minor surface scratches or micro-cracks.

Redefining Sustainability: 10 Innovative Products Made from Recycled Plastics

In a world grappling with plastic waste, Minus Degre has reimagined how we can transform discarded plastic into products that are functional, beautiful,

and environmentally impactful. At Minus Degre, each piece crafted from recycled plastic tells a story of innovation and sustainability, challenging industries to rethink waste and make better choices for the planet. Here's an inspiring look at ten groundbreaking products by Minus Degre, each one made from 100% recycled plastic and designed to make a statement about sustainability.



1) Eco-Panels: Sustainable, Durable Surfaces for Retail and Interior Design

Eco-panels are more than just surface materials—they are a revolution in sustainable design. Made from 100% **recycled plastic**, these panels are crafted for retail, office, and residential interiors, combining durability with sleek, versatile finishes. Unlike traditional materials that rely on virgin resources, **Eco-panels** empower brands to create beautiful spaces with zero - waste impact, reinforcing their commitment to a greener future.

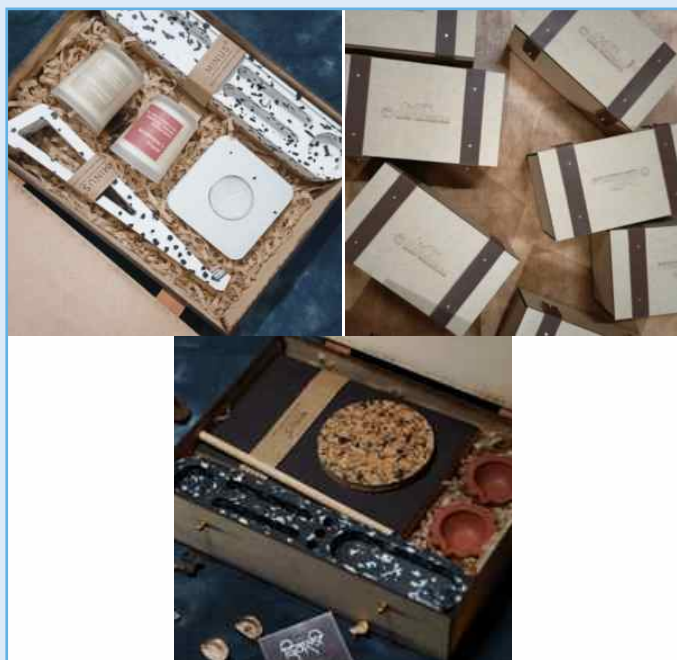


Why It Matters: Every panel installed prevents plastic from entering landfills and oceans, helping combat the global plastic crisis.

2) Eco-Friendly Gift Hampers: A Thoughtful Choice for Sustainable Gifting

Minus Degre's eco-friendly gift hampers are curated to be both stylish and planet - conscious. Each item in the hamper, from reusable coasters to desk organizers, is made from recycled plastic, offering a full set of sustainable essentials. Ideal for corporate gifting, these hampers not only demonstrate a commitment to eco - consciousness but also set a trend for meaningful, waste-free gifting.

Why It Matters: By replacing disposable gifts with sustainable, durable items, Minus Degre is shaping a new culture of conscious consumerism.



3) Recycled Pots: Urban Garden Essentials with a Sustainable Twist

Perfect for indoor and outdoor greenery, these recycled plastic pots breathe new life into the concept of eco - friendly gardening. Sturdy, lightweight, and available in a variety of colors, they add a modern, sustainable touch to any plant arrangement, whether on a balcony, in a living room, or in a retail space.

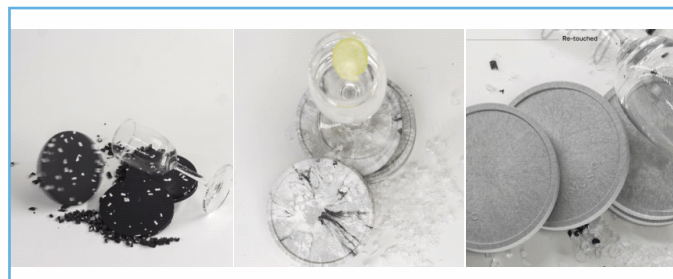
Why It Matters: Each recycled pot diverts plastic waste from landfills, encouraging urban dwellers to go green without contributing to environmental harm.



4) Recycled Coasters: Functional Table Decor with a Purpose

Recycled coasters by Minus Degre are not just practical items - they are symbols of sustainable design. Available in a range of colors and patterns, these coasters protect surfaces and look great while advocating for environmental responsibility. They've become a favorite in eco - conscious homes, cafes, and offices, setting a new standard for everyday products.

Why It Matters: Simple, everyday products like coasters are an easy way to integrate sustainability into daily life, proving that every small choice counts.

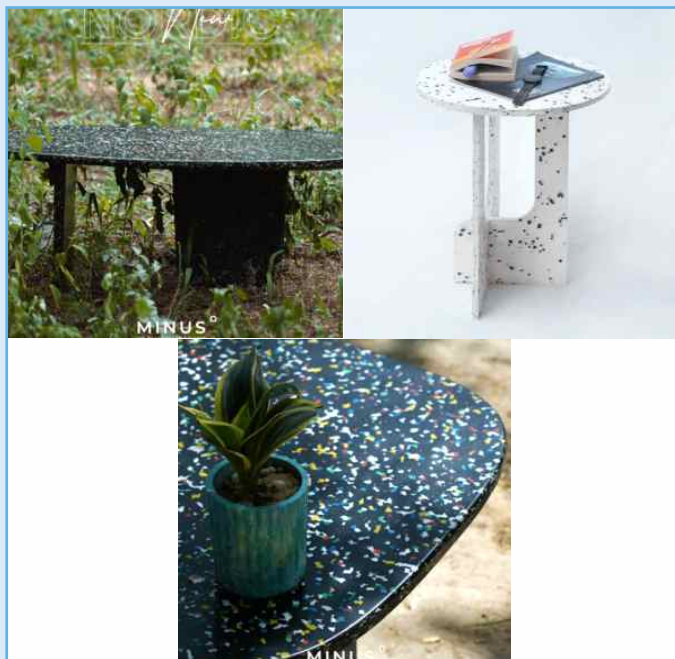


5) Recycled Furniture: Eco-Conscious Design for Stylish Interiors

Minus Degre's recycled furniture includes tables, chairs, and benches, all crafted from reclaimed plastic waste. These pieces are not only stylish and durable but also provide a viable,

sustainable alternative to traditional furniture materials. Used in both commercial and residential spaces, they showcase that beauty and sustainability can go hand in hand.

Why It Matters: By replacing wood and metal with recycled plastic, Minus Degre's furniture helps reduce deforestation and metal waste, offering eco - conscious alternatives for interior design.



6) Desk Organizers: Sustainable Solutions for Workspaces That Inspire

These desk organizers bring functionality and style to the workspace while minimizing environmental impact. Made from recycled plastic, they feature compartments for pens, notes, and accessories, ensuring that every desk item has a sustainable home. Perfect for eco-friendly offices, they make a positive statement in work environments worldwide.



Why It Matters: Sustainable office supplies can drive cultural change in the workplace, encouraging employees and companies to prioritize the planet.

7) Recycled Tiles: Stylish, Sustainable Solutions for Walls and Floors

Recycled tiles from Minus Degre are paving the way for eco-conscious construction and design. Suitable for wall cladding, backsplashes, and flooring, these tiles offer a unique look and feel, perfect for both residential and commercial spaces. They provide a sustainable alternative to conventional tiles, reducing the carbon footprint of any construction project.

Why It Matters: By choosing recycled tiles, builders and architects can actively participate in reducing global plastic waste and reshaping the future of construction.,

8) 100% Recycled Medals: Celebrating Achievement, Honoring the Planet

As India's first manufacturer of 100% recycled plastic medals, Minus Degre is redefining how achievements are celebrated. These medals are crafted from plastic waste, turning landfill-bound material into symbols of excellence and commitment. Perfect for eco-conscious events, these medals help organizations celebrate with purpose.

Why It Matters: These medals are a reminder that even in celebration, we can make sustainable choices that honor both the recipient and the environment.

9) Recycled Trophies: Awards That Stand for Sustainability

Recycled trophies by Minus Degre are designed for those who want their celebrations to reflect a commitment to the environment. With a range of customizable options, these trophies are perfect for sports events, corporate milestones, and academic honors, allowing organizations to present awards that carry a sustainable legacy.

Why It Matters: In choosing trophies made from recycled plastic, event organizers can inspire future generations to value sustainability and make eco-conscious choices.



SABIC Launches Novel PCR - Based LNP™ ELCRIN™ Compound with Enhanced Performance



SABIC, a global leader in the chemical industry launched its new LNP™ ELCRIN™ DC0051RC1 compound, containing 75 percent post-consumer recycled (PCR) content, to enhance product circularity while delivering high performance mechanical properties. This is SABIC's first PCR-based carbon fiber-reinforced compound. Formulated with polycarbonate (PC) resin, this specialty material provides excellent dimensional stability, high modulus and thin-wall UL94 V0 flame retardancy (FR), making it well suited for consumer electronics housings.

“SABIC supports customers by developing new materials that enhance circularity,” said Sergi Monros, vice president, SABIC's Specialties BU. “But we do more than incorporate recycled, upcycled or bio-based content in our specialty thermoplastics. Our formulation experts also achieve high levels of performance, aesthetics and processability. For instance, our new LNP ELCRIN compound combines a high percentage of recycled content with many desirable properties. We're committed to helping customers improve circularity without sacrificing quality.”

For LNP ELCRIN DC0051RC1 compound, SABIC developed a new formulation designed to support circularity goals while maintaining key mechanical and FR properties. Incorporating recycled material while maintaining FR performance can present formulation challenges; however, the SABIC team achieved a UL94 V0 rating at 0.8mm. Besides light weighting through thin-wall geometry, the material provides dimensional stability and low warpage for laptop housings and other large, structural components.

In addition to improving circularity through the incorporation of 75 percent PCR content, the compound features a non-chlorinated / non-brominated FR chemistry to help reduce health risks and negative impacts on the environment.

LNP ELCRIN DC0051RC1 compound is commercially available globally.

EXXONMOBIL Signature Polymers.

Automotive innovation demands materials that do more without adding complexity.

With ExxonMobil Signature Polymers, one can engineer vehicles that are lighter, tougher, and more efficient from the inside out. ExxonMobil portfolio including Exact™ polyolefins and

elastomers (POE), Exxceed™ high - performance PP, ExxonMobil™ PP, and Vistamaxx™ performance polymers — is designed to help the processors :

- Reduce weight without sacrificing strength
- Enhance durability and impact performance for demanding conditions
- Improve processing efficiency across manufacturing lines
- Enable design flexibility for next-generation mobility solutions

From interior components to under - the - hood applications, these materials help the processors stay ahead in a market that never stands still.

Injection Molding Efficiency Gains with Exceed™ Pp8864e1

Challenge TENMA (HCM) VIETNAM CO., LTD., a leading manufacturer of precision plastic components, aimed to enhance production efficiency while adhering to stringent requirements for a critical motorcycle part. In today's manufacturing landscape, the automotive and motorcycle sectors are under pressure to deliver lightweight, durable, and cost - effective components without compromising quality or safety standards.

Light weighting: OEMs are increasingly shifting toward high - performance plastics to help reduce weight and improve fuel efficiency. Lower cycle time for higher productivity: To remain competitive, manufacturers are seeking to reduce injection molding cycle times, which can enable higher output per machine and lower per - part cost.

Solution

The team at ExxonMobil Signature Polymers introduced Exceed™ PP8864E1, a high - performance polypropylene impact copolymer, to TENMA (HCM) VIETNAM CO., LTD. It is a medium flow, nucleated grade with balanced stiffness and toughness that is optimized for injection molding applications requiring excellent toughness and processability.

Results

Exceed™ PP8864E1 demonstrated improved cycle time performance

- Achieved 20% cycle time reduction while meeting all targeted part requirements
- Translated to 25% productivity increase
- Reduced barrel temperature potentially leads to:
- Energy efficiency for molding
- Lower peak injection pressure potentially leads to:
- Longer mold lifetime More numbers of cavities (products) on the mold
- Using lower tonnage (lower machine cost) injection molding machine

INEOS Styrolution and Monguzzi Collaborate on Furniture Edge Band Solutions with Lustran® 532



INEOS Styrolution is supplying Italian edge band manufacturer Monguzzi with Lustran® 532, an mABS grade designed for demanding extrusion processes.

Lustran® 532 combines easy processing, flowability, dimensional stability, and a stable colour base for self - colouring, supporting efficient extrusion performance and consistent visual quality across white, black, and digitally printed edge band designs. The material gives customers greater flexibility across colours, finishes, and textures while maintaining high surface quality.

The long - standing cooperation between INEOS Styrolution and Monguzzi reflects a shared focus on material performance, manufacturing quality, and long - term value creation.

“We are proud to support Monguzzi as the company continues to grow its edge band portfolio and manufacturing capabilities,” said Rob Buntinx, President EMEA, INEOS Styrolution.

“Close customer engagement is an important part of how we develop and deliver materials for demanding applications. Strong customer partnerships, backed by regional production capabilities are key to supporting growth across the European market.”

“We value our partnership with INEOS Styrolution,” said Matteo Mario Monguzzi, CEO of Monguzzi. “With more than 40 years of experience in the edge band industry, we rely on partners who consistently meet our high standards. The technical expertise of INEOS Styrolution and the quality of Lustran® 532 enable us to deliver high - performance, design - driven solutions. This partnership also supports our ability to respond to evolving customer needs and further strengthen our position in Europe.”

Produced at INEOS Styrolution's Wingles site in France, Lustran® 532 is available to edge band manufacturers and other extrusion customers across Europe, the Middle East, and Africa.

Colour Masterbatch Solutions for the PVC Industry



The PVC industry is evolving rapidly. Manufacturers are under increasing pressure to improve sustainability, integrate recycled materials, reduce production costs and maintain consistent product quality across

increasingly demanding markets

At the same time, customer expectations continue to rise. Whether producing pipes, profiles, fittings, cables, flooring or technical components, manufacturers must deliver products with reliable appearance, long - term durability and repeatable performance.

In this environment, colour is no longer simply an aesthetic consideration. It has become an essential part of product quality, brand consistency and manufacturing efficiency.

Choosing the right colour partner can help manufacturers overcome production challenges while improving competitiveness and operational performance.

The New Challenges of PVC Manufacturing

Today's PVC producers operate in a market where flexibility and consistency are equally important.

Raw material variability, increasing use of recycled content and diverse production technologies create new challenges for colour management and process control.

Some of the most common concerns faced by manufacturers include:

- Maintaining colour consistency across different production batches.
- Managing colour performance when using recycled PVC.
- Reducing production waste and cleaning times.
- Ensuring compatibility with different processing technologies.
- Achieving reliable outdoor durability and colour retention.
- Simplifying colour management across multiple product lines. As production requirements become more complex, manufacturers increasingly seek solutions tailored to their specific formulations and operating conditions.

Why Colour Consistency Matters

For many PVC products, colour is one of the first quality attributes customers notice.

Even small variations can affect product perception, create quality concerns and increase rejection rates. Maintaining consistent colour performance is therefore critical for manufacturers seeking to protect their brand image and improve customer satisfaction.

Reliable colour solutions can also contribute to more efficient production by reducing adjustments, minimising waste and improving repeatability throughout the manufacturing process.

In competitive markets, consistency is often a key differentiator.

Supporting a Wide Range of PVC Applications

PVC remains one of the most versatile materials used in modern manufacturing.

Its adaptability allows it to be used in construction, infrastructure, industrial applications, transportation, consumer products and many other sectors. However, each application presents unique processing conditions, technical requirements and aesthetic expectations.

Manufacturers therefore need colour solutions capable of adapting to different formulations and production environments while maintaining consistent results.

Working with an experienced partner helps simplify this complexity and supports efficient product development.

Sustainability and the Future of PVC

Sustainability has become a strategic priority throughout the PVC value chain.

The use of recycled materials, circular economy initiatives and resource optimization are reshaping manufacturing practices worldwide. However, incorporating recycled content often creates additional challenges related to colour consistency and product appearance.

Manufacturers increasingly require solutions that help maintain quality standards while supporting sustainability objectives.

The ability to achieve reliable and repeatable colour performance in recycled PVC applications is becoming an important competitive advantage.

Deepak Nitrite to Invest INR 11,000 Crore to Build India's First Polycarbonate Resin Ecosystem

The company has announced a massive investment pipeline in Polycarbonate Resins, Phenol, Acetone, and IPA. Capex plans for FY 2026-27. Deepak Group's vision of having a state-of-the-art integrated Chemical and Petrochemical complex is shaping up sustainably, in planned phase-by-phase structuring.

Maulik D Mehta, Deputy Managing Director said "Our FY26 – FY28 capex strategy is focused on building a fully integrated advanced materials platform through major investments in Phenol, Acetone, IPA, and Polycarbonate (PC) resins. The company has announced investments of over INR 11,000 crore, including India's first large-scale PC resin ecosystem, targeting strong import-substitution opportunities. These advanced materials are seeing rising demand from EVs, electronics, medical devices, and infrastructure sectors. By integrating the entire value chain, Deepak aims to improve margin stability, reduce dependence on imports, and strengthen global competitiveness. Over the next decade, these investments are expected to shift the company toward higher-value specialty materials and create a long-term manufacturing moat.

Deepak Nitrite is positioning itself as one of the world's largest single-location producers of phenol and acetone.

We see ourselves as our customer's 'Partner-of-Choice' banking on our cutting-edge technological excellence and decades of domain expertise. Deepak Nitrite's scale in Phenol and Acetone strengthens its competitiveness by driving significant cost efficiencies, operational integration, and supply reliability. Being among the world's largest single-location producers enables economies of scale in procurement, manufacturing, logistics, and energy utilization, helping the company maintain competitive margins even during cyclical downturns. The integrated setup also provides feedstock security for downstream products like IPA, BPA, and polycarbonate resins, creating a strong value-chain advantage.

Additionally, large-scale domestic manufacturing reduces India's dependence on imports and positions Deepak as a strategic global supplier amid the China+1 diversification trend. This scale, combined with backward and forward integration, enhances Deepak Nitrite's ability to compete with global chemical majors over the long term.

"Deepak Group's Rs. 8,500 crore polycarbonate resin initiative is among the largest investments in India's specialty materials sector. What are the key milestones and commercialization timelines investors should watch for?

In a unique sync of European technology with Indian manufacturing excellence, Deepak Group is on track to achieve India's first fully integrated polycarbonate facility in Dahej, Gujarat.

For this project, Deepak has entered into a strategic long-term agreement with Praxair India to establish a dedicated onsite HyCO plant at our Dahej facility.

Under this 'Build - Own - Operate' model, Praxair India will manage the dedicated on - site infrastructure, allowing us to maintain a sharp focus on the polycarbonate resin project, significantly enhancing execution visibility and reducing upfront investment and supply chain resilience. Plant dismantling at Stade, Germany is progressing with shipments already underway to India. Commissioning is targeted in 2028.

Our state - of - the - art Deepak R&D Centre (DRDC) at Manjusar, Near Vadodara is expected to drive the next wave of innovation across advanced materials, sustainable chemistry, polymers, petrochemicals, and high - performance specialty chemicals.

Alpek : Supply Disruptions Reshape PET Buying Patterns



The global polyethylene terephthalate (PET) market is undergoing a shift in purchasing behavior as supply - chain disruptions force buyers to reconsider how and where they source resin.

Alpek, one of the world's major producers of PTA, PET and recycled PET, has highlighted the effect of recent disruptions on the market and on customer sourcing decisions.

The company reported exceptionally strong PET margins in the second quarter of 2026, with geopolitical turmoil and elevated ocean freight costs contributing to market volatility. Chinese integrated PET reference margins reached around US\$336 per tonne in May, although Alpek expects some normalization during the second half of the year as underlying global overcapacity continues to weigh on the market.

Supply security becomes a priority

One of the most important changes emerging from the disruption is the growing importance of **security of supply**. PET converters and packaging manufacturers are increasingly looking beyond the lowest - cost supplier and considering factors such as:

- Reliability of deliveries;
- Availability of alternative suppliers;
- Freight and logistics risks;
- Regional sourcing options;
- Inventory requirements; and
- Long - term supply agreements.

For producers, this creates an opportunity to strengthen relationships with customers that previously relied on imported material.

Feedstock sourcing is also changing

The disruption is affecting not only finished PET resin but also upstream raw - material supply. Alpek has indicated that it has been replacing some Middle East - origin raw materials with supplies from **the Americas, Europe and Asia**. The company acknowledged that securing alternative raw materials comes at an additional cost, but that these measures have been necessary to support customers and maintain supply.

This illustrates an important change in the global PET value chain: **companies are increasingly willing to pay a premium for supply reliability when the alternative is production disruption**.

Freight costs add another layer of pressure

The situation has been compounded by disruptions to shipping routes. Higher ocean freight costs, vessel delays and changes in routing are increasing the landed cost of imported polymer and feedstocks. Asia-Pacific supply chains are also experiencing longer transit times and greater uncertainty because of ongoing Middle East - related disruptions.

For PET buyers, this means that the headline resin price does not tell the entire story. **Delivered cost, freight availability and lead time are becoming equally important factors in procurement decisions**.



TOOLING: What You Can Do About Mold Buildup

It depends on the materials and additives you use, and the kinds of mold detail, but adequate venting, not overheating the material, and mold coatings are your best defenses.



This half - cleaned tool still has buildup on the right half. Some resins are more prone to cause buildup than others, but adequate venting and not overheating the resin are essential preventive measures.

This month I would like to discuss buildup in the mold cavities and some solutions to address this issue, both prevention and cleanup. There are numerous root causes for mold buildup, from lack of venting, plate out from the plastic material,

residue from the plastic causing cavity discoloration, and flame - retardant additives, to degraded material from running hotter than recommended or allowing plastic to sit in the barrel and not purging. Buildup can cause gloss issues on parts, visual defects, and sticking problems.

I have experience with many materials, but not all, so some of you will have first - hand knowledge of buildup issues with other materials not mentioned here. Please comment and share if you do.

On some cheaper grades of materials, specifically lower - cost polycarbonates, a nasty thick buildup can occur over time on the cavity surfaces, causing appearance and sticking issues. These deposits can be very difficult to remove. The only thing I have found that can be done to the tooling to reduce - not eliminate - the buildup and assist with the cleaning process is to apply a coating to the cavities. My preference is a diamond chrome. This provides a very hard surface that helps resist the buildup and protects the cavity surface finish.

I have also had buildup issues with nylons containing additives such as UV stabilizers and impact modifiers, where the buildup will cause visual defects with inconsistent gloss on the part.

This can necessitate very frequent cleaning of the cavities to maintain gloss specs, and problems can arise if proper cleaning methods are not used. The best solution I have found with this type of buildup is again coating the tool with diamond chrome, which has a major impact in reducing buildup and protecting the cavities and gloss when cleaning is needed.

Some of you are no doubt thinking, "That costs money," and well, yes, it does. But if the problems with part quality and cleaning time and labor justify the cost, then there is payback. If the part has tight gloss specs, causing scrap or rejects, the cost of coating the cavities is 2 minimal in the big picture.

Buildup from lack of adequate venting can cause visual defects on the part and downtime from the need to clean the tool in the press. Venting methods are a whole topic in itself, so I will not get into it in depth here. The areas in the cavity where such buildup tends to be common are at end - of - fill areas, details that trap gas, and knit lines.

Some materials have more tendency toward gassing and buildup than others, specifically glass - filled materials. But any material can leave residue from gassing if the tool is not properly vented. This will show up as brownish stains on the steel, which can also lead to erosion. This buildup over time can also appear as a non-fill area on the part, specifically in deep ribs and details with PC and PC/ABS. It can be difficult to clean from the cavity details.

These areas are not always easy or inexpensive to vent because they are not at the parting - line surface. They typically require an insert, ejector pin, or vent pin to allow the gas to escape and require cleaning during maintenance on the tool.

Many molders will process around burns on the part, which at times is a necessity, but opens up other issues with the injection - speed changes in the process. So venting must be maximized in these situations before using processing as the solution. At times there can be a fine line between

incurring flash and burns, depending on the skill and knowledge of the toolmaker. There are also times when an overflow tab is necessary on some large parts running glass-filled materials at the end - of - fill knit lines. Venting should always be part of the focus in the tool design, with attention to the material being used (see also 'January's column)

Another type of buildup I have seen is the residue some materials leave over the entire cavity surface. This discolors the cavity and can appear as a brownish color. This can affect the gloss on the part over time and contribute to sticking. I have never coated a cavity to prevent this type of buildup because it can take thousands of cycles to appear.

So this form of buildup is typically not a big issue, in my experience, and can be dealt with as part of regular tool maintenance. Do not confuse this buildup with discoloration on the steel from heat stress. Fine steel details or areas with lack of cooling can discolor from the extreme heats they see.

Processing can also contribute to buildup in your cavities. By running at the high end or above the recommended range for the material, you will be more likely to have outgassing byproducts that will lead to buildup. As mentioned above, additives can contribute to buildup, especially fire retardants when run at higher temps or when melt is allowed to sit in the barrel. And, as many of you readers know all too well, some materials degrade very quickly when allowed to bake in the barrel.

As mentioned in my previous columns, my goal is always to focus on the tool to provide a large process window and address problems. But with buildup situations, I have found that all I can really do is try to protect the cavities with a coating and reduce the intervals for cleaning. So the solution to buildup does require cleaning and extra maintenance on the tool. Media blasting (aluminum oxide, glass beads, and others), dry - ice blasting, or manual polishing by a toolmaker or technician are the typical methods for removing buildup.

Last year, I also developed and put on the market a new cleaner. It dissolves the buildup (and rust), is non - corrosive, and makes cleaning in the press an option. It's called Zap-Ox, and you can learn more about it here.

Rajoo Engineers Ltd. Advances Its Manufacturing Excellence Through a Major Up grade of Shree Yantralaya – The Machine Shop



Rajoo Engineers Ltd., a global leader in plastics extrusion machinery, has completed a significant upgrade of Shree Yantralaya – The Machine Shop, strengthening its position as one of India's most advanced manufacturing facilities dedicated to extrusion technology.

With the successful completion of a major technology upgrade, Shree Yantralaya further strengthens Rajoo's in-house manufacturing capabilities and enhances its ability to deliver world-class machine components with greater precision, consistency, and productivity.

The upgrade includes the commissioning of advanced machining technologies from globally renowned machine tool manufacturers Okuma, Huron, and Jyoti, creating a robust manufacturing ecosystem capable of producing large, complex, and high-value machine components with exceptional accuracy and consistency entirely in-house.

The enhanced facility brings together advanced 5-axis multitasking, vertical turning & milling, and high-performance machining capabilities under one roof, significantly expanding Rajoo's ability to manufacture critical components for next-generation extrusion systems. The upgrade improves process efficiencies, increases in-house value addition, reduces lead times, and further strengthens quality standards across the company's product portfolio.

With this milestone, Rajoo continues to strengthen its integrated manufacturing ecosystem, further advancing its leadership in plastics processing,

converting, and printing technologies while supporting the next generation of manufacturing excellence.

Maxwell Delivers Quality Pelletizing Solutions.



An **underwater pelletizing system** refers to a method of pelletizing where molten polymer is directly cut into pellets at the die face while submerged in water. The pellets are rapidly cooled and solidified, leading to a highly uniform shape and size of the pellets.

Maxwell, a reputable **underwater pelletizing system manufacturer in India**, creates and provides precise **pelletizing systems** to satisfy the expanding needs of the PET recycling, polymer compounding, and plastic manufacturing sectors.

Maxwell is a trusted name in pelletizing solutions, providing cutting-edge engineering and manufacturing expertise. Our strengths encompass:

- Precision-engineered pelletizing components
- High-quality die plates and blades
- Customized system configurations
- Robust design for Indian operating conditions
- Technical support and after-sales service
- Focus on performance, durability, and efficiency

As an experienced underwater pelletizing system manufacturer in India, Maxwell provides solutions that enable customers to attain consistent output and operational excellence.

Haitian Partners with Hennecke on IMC Solutions

As the global automotive industry accelerates toward greener and more premium manufacturing, Haitian International has entered into a strategic partnership with Germany's Hennecke to further develop integrated injection molding and in - mold coating (IMC) solutions for the automotive industry.

Founded in 1945, Hennecke brings more than 80 years of expertise in high - pressure polyurethane metering and mixing technologies, with strong capabilities in high - pressure mix heads, precision metering pumps, and in - mold coating.

By combining Hennecke's expertise in PUR processing with Haitian's injection molding technology, the partnership will strengthen Haitian's turnkey PUR paint - free solutions.

Upgrading IMC for Large - Scale Production

Compared with traditional injection molding + post-painting, in - mold coating offers a more efficient process with lower emissions and more consistent quality. Haitian has already introduced PUR paint-free turnkey solutions and expanded IMC applications from interior parts to exterior components for the automotive industry.

With this partnership, Haitian and Hennecke will work more closely on system-level integration across design, development, manufacturing, and control. By combining Haitian's injection molding technology with Hennecke's PUR metering, mixing, and coating expertise, the two companies aim to improve process accuracy, stability, and production efficiency - especially for mass production of large, high - gloss automotive exterior parts.

Proven in Real Applications

Recently, Haitian presented a proven IMC application during an open house. The highlight was the JU7500M/2400 automotive grille solution, built on a PC / ABS + PUR material system and optimized for front grille applications.

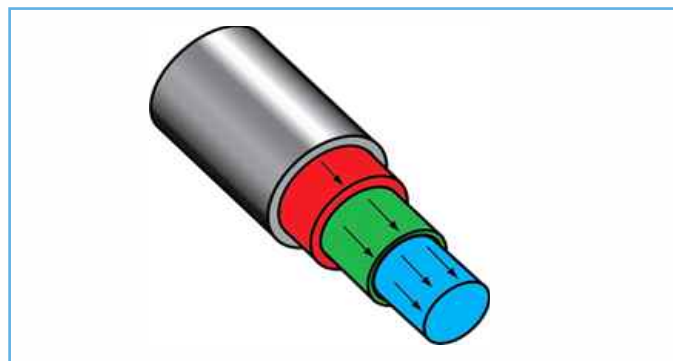
The solution integrates Haitian's multi - component technology with PUR equipment to deliver precise metering, stable coating thickness, and better pressure control, helping reduce defects such as bubbles and orange peel while improving yield. At the same time, optimized molding and coating processes shorten cycle time, improve material use, and remove the need for a separate painting workshop, helping lower overall production costs.

The solution can also be adapted for automotive, home appliance, and 3C applications, with coating effects and automation levels tailored to customer needs.

A New Benchmark for IMC Technology

This partnership brings together two complementary strengths to support the next stage of IMC development. It addresses the production challenges of large exterior parts with demanding surface finish requirements while meeting the growing market demand for higher appearance quality and lower - carbon manufacturing.

What the Reynolds Number Means for Injection Mold Cooling and How to Achieve It.



At a Reynolds number below 4,000, coolant flows in smooth layers with minimal mixing, resulting in poor heat transfer and unstable mold temperatures. Source (all images): Burger & Brown Engineering

The Reynolds number is one of the most important, yet often misunderstood or overlooked, metrics for injection molding.

Injection molding systems rely on water flow to keep molds at the proper operating temperature to ensure good parts are produced. The Reynolds

number (Re) predicts fluid flow patterns within those systems. Water is typically used up to 210°F, oil up to 650°F; a glycol/water mixture typically requires three times the flow rate of water to achieve re.

The magic Re for molders is generally considered to be 4,000, because that is the point at which water flow transitions from laminar to turbulent. Turbulent flow is the ideal state of mold cooling fluid, as turbulence provides superior cooling. Re is most efficient between 4,000 and 8,000.

The formula for determining the Re is: $Re = (velocity \times diameter) \div kinematic\ viscosity = (V \times D) / \nu$.

Velocity is the speed of fluid in the pipe; diameter is the inside diameter of the flow passage; and kinematic viscosity quantifies the degree of resistance to flow. High temperatures decrease the viscosity of substances, including water.

Temperature spikes and uneven cooling - the result of design and maintenance issues - can produce a range of injection molding problems including:

- Long or inconsistent cycle times
- Deformed or warped parts
- Weld/knit lines and sink marks
- Poor surface finish
- Incorrect dimensions
- Part-ejection issues

Fortunately, there are relatively simple solutions to each of these problems, from sockets and valves to leak - detection monitors and line - cleaning systems.

Efficient cooling is also an important part of calculating overall equipment effectiveness (OEE). OEE is the primary manufacturing benchmark and takes into account three variables:

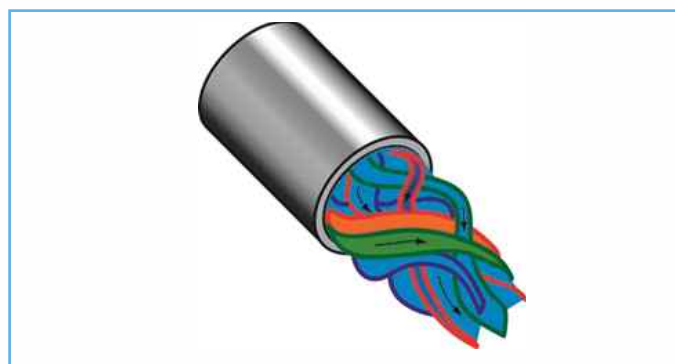
- Availability: Machine uptime
- Performance: Time to produce a fixed number of parts
- Quality: Good parts

Cooling affects cycle time and therefore performance.

Fix Cycle Times and Deformed Parts

Inefficient heat removal can result from reduced or blocked coolant flow in injection molding system lines or too many pressure drops in the circuit. In these cases, molders will experience inefficient coolant temperature control and longer wait times for the sprue to solidify. As a rule of thumb, the coolant circuit outlet temperatures should be no more than 5°F higher than the circuit inlet.

When scale builds up in cooling circuits, it degrades the thermal transfer from mold to coolant media. In fact, scale as minimal as 0.020 inch is comparable to adding 2 inches of steel between the coolant and polymer.



Cooling circuits that are not maintained degrade quickly as flow is reduced and scale builds faster, especially in smaller cross sections. This means that mold temperatures slowly increase over time, affecting dimensions, surface finish, part geometry and degating. It can also lead to reactive process changes to address quality issues that ultimately lengthen cycle times, affecting the availability and performance variables of OEE and key performance indicators (KPIs).

When your cooling system is out of spec, it's time to descale your lines. Industrial descaling systems keep your cooling circuits effective by circulating chemical solutions to remove scale. Circulator systems are available with electric and compressed air-powered options as well as filters to extend solution life.

Mixtures are available with additives to protect against rust and specific blends for specialty mold steel. Biodegradable solutions with no special disposal methods are readily available and often preferred.

Head Off Cooling Issues

It's difficult to predict cooling line scale development and growth. Creating a thermal map of the mold after tooling tryouts and process development can help. Thermal cameras are a great tool as are contact pyrometers.

First, create an initial schedule to monitor mold surface and cooling line temperatures. Then gather data to develop a permanent schedule for consistent cooling circuit maintenance. Keep in mind that:

- Every mold is different
- Descaling coolant circuits is a must
- Cascades / bubblers need special attention
- Bore scopes can be a valuable tool

Control Coolant Temperature

Coolant temperature control inside the mold is critical to performance and quality, so maintaining an effective Re is crucial to efficient thermal transfer. Establishing and maintaining efficient coolant flow through the mold is essential. The push to conform coolant circuits to the part - forming surfaces can create pressure drops with every turn.

With that in mind, remember that baffles and cascades, though necessary at times, will reduce pressure within the circuit. In addition, jumping circuits with hose connections to reduce the total number of connections in a bid to improve single - minute exchange of die (SMED) will typically increase pressure drop across circuits. The application of conformal cooling can also create flow concerns. With all these factors, remember that as pressure drops so does the Re and cooling efficiency.

Manifolds allow cooling circuits to be consolidated, reducing the number of connections and improving SMED initiatives. Properly configured manifolds allow individual circuit management for maintaining efficient coolant flow.

Flow meters with thermometers on the outlet side, both analog and digital, allow monitoring and control of coolant during process development and through

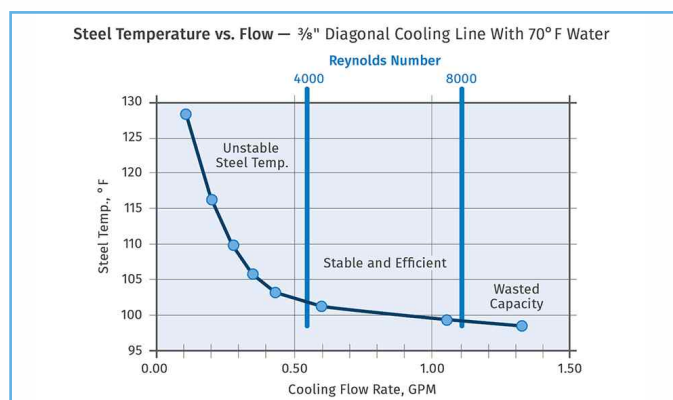
production to ensure no more than a 5°F coolant temperature delta. Digital meters can be integrated with modules that monitor temperature and flow interfacing with numerous devices to meet Industry 4.0 initiatives.

Requirements for Consistent Parts

Uniform mold cooling is vital to consistent part cooling. Amorphous and semi - crystalline resins require careful attention. Part geometry, dimensions and surface finish are all affected by mold temperature.

In - mold stress creates instability within a finished part that might not be realized until the part is in the field. Surface finish, especially critical for lens molds, is also sensitive to mold temperature. Reducing cycle time is a typical target of continuous improvement activities but it can also affect quality.

Dimensional issues can arise when a mold is running below ideal temperature, which causes resin to solidify early while potentially causing short shots and out-of-spec dimensions. A part can be "frozen" into a desired dimension only to change as it thermally cycles in the field. If a mold temperature is set too high, shrinkage will increase, creating dimensionally out - of - spec parts, including an increased possibility of flash. Inconsistent mold temperatures can also lead to warpage caused by in - mold stress.



This chart shows the relationship between steel temperature and coolant flow rate in a 3/8-inch cooling line with 70°F water. Efficient cooling is achieved when a Reynolds number remains between 4,000 and 8,000. Below this range, steel temperature becomes unstable; above it, excess flow leads to wasted capacity.

CIRCULAR ECONOMY/ BIO-PLASTICS/ RECYCLING



Carbios to Commission China PET Bio Recycling Plant in 2028

Carbios reports that commissioning of the PET bio recycling plant it is developing with Wankai New Materials in Haining (Zhejiang Province) has been postponed and is now expected by H1 2028. According to the company, the project continues to advance through preparatory steps for construction oversight and through validation of locally available waste streams.

Carbios indicates that the revised schedule reflects additional technical work required to adapt its enzymatic bio recycling process to the specific characteristics of the site.

The facility is designed for a processing capacity of 50,000 tons of PET waste per year. Carbios describes it as China's first PET bio recycling plant and as a milestone in the deployment of its enzymatic bio recycling technology in Asia.

The revised timeline indicates when enzymatically bio recycled PET from this route may become available at industrial scale in the region, a factor in sourcing and qualification planning for applications subject to recycled-content requirements.

Reactor that Transforms Waste Plastics into Renewable Fuels Ready for Customer Trials



The R2 Plastic can Handle Plastic Feedstocks Such as Polyethylene, Polypropylene, and Polystyrene.

Aduro Clean Technologies, a Canadian developer of patented water - based technologies to chemically recycle plastics and transform heavy crude and renewable oils into new - era resources and higher - value fuels, is entering the final stages of completion of its pilot - scale Hydro chemolytic continuous flow plastic reactor.

The R2 Plastic reactor is in its final assembly phase, with plans for testing, commissioning, and certification having been finalized. Final assembly is expected to be completed by mid - November 2022.

"My full appreciation and thanks for the Aduro team that is working tirelessly to complete the significant milestones ahead of us," said Offer Vicus, Chief Executive Officer of Aduro. "The commissioning of the R2 Plastic unit is a major building block towards commercialization and is part of several significant projects the company has undertaken over the last year. Among these are completing the expanded and upgraded laboratory facilities, commissioning of the R2 Bitumen unit and our Flash Drum."

Recycling Waste Plastics

Aduro's water - based technologies are designed to chemically recycle waste plastics, convert heavy crude and bitumen into lighter, more valuable oil, and transform renewable oils into higher - value fuels or renewable chemicals. The Company's Hydro chemolytic technology activates unique properties of water in a chemistry platform that operates at relatively low temperatures and cost.

The R2 Plastic unit is Aduro's customer engagement unit and is designed to handle various plastic feedstocks such as polyethylene, polypropylene, and polystyrene as single stream materials, followed by a mixture of these feedstock streams. The R2 Plastic will also be used to evaluate the impact of materials found in multilayer plastics, such as paper, paper board, polymeric materials, metalized layers, or aluminium foil.

The reactor aims to advance Aduro's plans of processing higher contaminated materials which are currently rejected by existing technologies. This data will support the company's scale - up and optimisation program for its pre - commercial pilot R3 Plastic reactor.

The R3 Plastic unit is a continuous flow reactor with a targeted throughput of 2,000kg per day. The preliminary design, materials and component scoping of the unit have been started with a plan to commission the unit before the end of 2023. Aduro is also working on measures to secure and maximize non - dilutive sources of funding to support its roadmap to commercialization.

While the R2 Plastic unit is the key tool in the firm's approach to building a pipeline of commercial projects, the R3 Plastic unit forms the next scale - up step before finalizing the plans for a commercial unit design and workflow . With R2 Plastic,

Aduro will engage with potential customers through product sample analysis and characterization, data, material exchange and technology demonstrations with the aim of facilitating business discussions and building a commercial pipeline.

"With the planned commissioning of R2 Plastic and the commencement of the planned customer trial program, the team at Aduro is very excited to be approaching this pivotal stage for the company," Vicus added.

Degassing Extrusion Technology for Postconsumer Recycling

Eremas Volex technology gets optimized screw geometry for improved degassing under real world operating conditions.

Emema announced improvements to its Volex technology, originally introduced last year for the Intarema TVEplus recycling extruder. Volex adds water - stripping technology to a single - screw extruder with a special screw and cylinder geometry, reducing the volatile organic compounds (VOCs) by as much as 75%. Compared with standard degassing on the TVEplus, the Volex technology reduces VOCs by 40%.



Now, Volex has been further developed under practical operating conditions. Targeted optimization of the screw geometry enables degassing performance levels that previously required a larger machine size, according to the company. The updates mean that Volex can be used with and without water stripping, with the optional water injection opening up additional potential for sensitive applications.

"Decontamination and deodorization effects that, compared with standard systems on the market, can only be achieved through several hours of thermal

post-treatment of the pellets can already be realized directly during the extrusion process thanks to Volex. This reduces energy consumption and operating costs for recycling companies,” explains Markus Huber - Lindinger, managing director at Erema. “The increase in melt surface area, combined with TVEplus technology, results in an optimal balance between degassing performance and thermomechanical stress on the input material.”

Erema has optimized the process specifically for defined application areas, including applications with high quality requirements where odor plays a role but don't require food - or cosmetic - grade standards. These include, for example, components for automotive interiors such as cable ducts or packaging for household chemicals such as cleaner bottles.

Plastipak Introduces Pak PET™ Single Pellet Solution to Support Recycled Content Goals in PET Packaging



Plastipak Packaging, Inc., a global leader in packaging and recycling solutions, today announced Pak PET™ Single Pellet Solution, a sustainable PET resin designed to help manufacturers increase recycled content while maintaining packaging quality, consistency, and operational efficiency.

As companies continue to advance sustainability commitments and circular economy initiatives, many are seeking practical solutions that support recycled content goals without introducing additional complexity into manufacturing processes.

Pak PET™ Single Pellet Solution combines virgin PET performance with built - in recycled content in a single, ready - to - use resin. The single - pellet formulation is suitable for a variety of PET packaging applications,

including beverage and food containers, home and personal care packaging, pharmaceutical packaging, and thermoforming applications.

“Companies are looking for solutions that help them advance sustainability goals while maintaining the performance and reliability their operations require,” said Pedro Martins, Executive Managing Director, Europe. “Pak PET™ Single Pellet Solution was developed to provide a practical approach to incorporating recycled content into PET packaging while simplifying processing and supporting consistent quality.”

Key Benefits of Pak PET™ Single Pellet Solution Include :

- 30% recycled content integration
- Consistent packaging performance
- Simplified processing and qualification
- Drop-in compatibility with existing PET operations
- Food - contact approved for applicable packaging applications
- Certified post-consumer feedstock traceability through EN15343 certification
- Support for sustainability and circular economy initiatives

Pak PET™ Single Pellet Solution is manufactured at Plastipak's facility in Verbania, Italy, and is designed to help preform and resin customers achieve their sustainable packaging goals across a broad range of applications.

Coming soon in August of 2026 the introduction of Pak PET™ Single Pellet Solution builds on Plastipak's long-standing commitment to packaging innovation and recycling leadership.

As one of the few companies with expertise spanning recycling, resin production, preforms, and packaging manufacturing, Plastipak helps customers achieve sustainability goals while maintaining operational performance.

Plastipak operates five recycling centers globally and utilizes more than 500 million pounds (249,500 metric tons) of post - consumer recycled resin annually.

Through continued investments in recycling infrastructure and packaging innovation, Plastipak is helping advance circular economy solutions for customers around the world.

PPRDC and Indian Institute of Packaging Launch Advanced Recycling Certificate Course to Build India's Circular Economy Workforce

Following the overwhelming success of its Foundation Certificate Course on Plastic Recycling, the Plastics Packaging Research & Development Centre (PPRDC), in association with the Indian Institute of Packaging (IIP) and supported by the Ministry of Commerce & Industry, Government of India, has announced the launch of its 2 - month Advanced Certificate Course on Plastic Recycling.

The Foundation Course (Module-I) received an exceptional response, with over 50 participants appreciating the program for its informative, relevant, and industry - focused curriculum that contributed significantly to their professional development.

The newly launched Module - II: Advanced Course is designed to provide participants with in - depth technical knowledge and practical skills in modern plastic waste management and recycling technologies. The program aims to equip professionals to establish or manage recycling facilities capable of converting plastic waste into value - added products.

The advanced curriculum covers key subjects including advanced recycling technologies, waste sorting systems, process value chain optimization, design for recyclability, AI - based waste identification and sorting, PCR traceability and quantification, process quality control, lab setup, regulations and certification systems, and value - added compounded product development.

Participants will also receive specialized training in mechanical, chemical, and physical recycling, contaminant classification, solid - state polycondensation (SSP/LSP) for PET, deodorization techniques, AI - driven sorting traceability, and international standards including BIS compliance.

A key highlight of the program is its strong emphasis on industry exposure and practical learning. In addition to classroom sessions, participants will visit operational recycling facilities equipped with AI - based sorting systems, polymer sorters, sink - float separation units, washing plants, milk pouch recycling units, and extrusion facilities. Industry experts and entrepreneurs will also conduct guest lectures, providing valuable insights into real - world recycling operations.

The course concludes with a Capstone Project, where participants or teams will develop a mini recycling business plan, such as setting up a recycling unit or launching a recycled product line, and present their projects before industry mentors for evaluation and feedback.

Designed for Diploma Graduates, Engineers, Managers, Entrepreneurs, Start - ups, and Process Teams, the program consists of 26 sessions, covers 18 faculties and 12 comprehensive subjects, offering participants a holistic understanding of the plastic recycling ecosystem.

The course is being offered in dual mode, combining online theoretical sessions with hands - on practical training on material testing and recycling machine operations, ensuring participants gain both conceptual knowledge and operational expertise.

With India's increasing focus on sustainability and circular economy initiatives, this advanced certification program is expected to create a skilled workforce capable of driving innovation and growth in the country's plastic recycling sector.

Dover Sees Recovery in Plastics Processing Equipment Demand

Dover Corporation is seeing encouraging signs of recovery in demand for plastics processing equipment, pointing to a gradual improvement in capital spending across the plastics industry. The company's latest performance indicates that orders for polymer processing equipment are strengthening, with bookings running ahead of shipments in some areas.

The development is significant for the global plastics machinery sector, which has experienced a period of cautious investment amid economic uncertainty,

high interest rates, inventory adjustments and softer demand in several end - use markets. The recent improvement in order activity suggests that processors are beginning to regain confidence and are preparing for higher production requirements.

Dover, through its businesses serving the polymer processing industry, provides technologies and equipment used in areas including extrusion, compounding, pelletizing and related material - processing applications. The company's performance is therefore considered an important indicator of investment sentiment among plastics processors.

A key factor behind the improving outlook is the increasing need for **modern, energy - efficient and automated processing equipment**. Plastics manufacturers are looking beyond capacity expansion and are increasingly investing in machinery that can improve productivity, reduce energy consumption, enhance process control and minimize material waste.

Technology and Sustainability Driving Investment

The shift towards circularity is also creating new opportunities for equipment manufacturers. Growing demand for recycled polymers and higher-quality recycled materials is encouraging processors and recyclers to invest in advanced extrusion, compounding, and filtration and pelletizing systems.

Automation and digitalization are further influencing machinery investment decisions. Equipment equipped with advanced controls, real - time monitoring, predictive maintenance capabilities and data-driven process optimization can help processors improve operational efficiency while maintaining consistent product quality.

Positive Implications for the Plastics Machinery Market

The improvement in orders could indicate that the plastics processing equipment market is moving towards a recovery phase. If the trend continues, machinery manufacturers could benefit from stronger backlogs and increased shipments in the coming quarters.

For India, the development is particularly relevant as the country's plastics processing industry continues to expand its focus on **capacity enhancement, technology upgradation, recycling, energy efficiency and smart manufacturing**. Indian processors are increasingly looking for machinery capable of handling recycled and advanced materials while delivering higher output with lower operating costs.

Dover's improving order trend therefore offers a positive signal for the wider plastics processing machinery industry. While the pace of recovery will depend on global economic conditions and end - market demand, strengthening equipment orders suggest that processors are gradually moving from a period of cautious spending towards renewed investment.

Plastics Waste in Singapore Statistics.

According to Singapore's **Ministry of Sustainability and the Environment (MSE)**, plastic waste generation has remained close to **1 million tonnes per year** in recent years.

Year	Plastic Waste Generated	Approx. Recycled*	Approx. Disposed*	Recycling Rate
2019	930,000 tonnes	—	—	—
2020	868,000 tonnes	—	—	—
2021	982,000 tonnes	—	—	—
2022	1,001,000 tonnes	—	—	—
2023	957,000 tonnes	48,000 tonnes	909,000 tonnes	5%
2024	918,000 tonnes	43,000 tonnes	875,000 tonnes	5%

*The detailed recycled/disposed figures shown for 2023–24 are from Singapore's National Environment Agency (NEA).

Important Observations

- **2022 was the peak in the reported period**, with approximately **1.001 million tonnes** of plastic waste generated.
- Plastic waste generation declined from **957,000 tonnes in 2023 to 918,000 tonnes in 2024**, a reduction of about **4.1%**.
- Despite the large volume generated, Singapore's **plastic recycling rate was only 5% in both 2023 and 2024**.
- In 2024, around **43,000 tonnes of plastic were recycled**, while approximately **875,000 tonnes were disposed of**.

- Plastic therefore remains one of Singapore's **largest waste streams with a low recycling rate**. NEA identifies plastics, together with food and paper / cardboard, as major components of waste that is not recycled.

Plastic Waste Generated :

2019 → 930 kt
 2020 → 868 kt ↓
 2021 → 982 kt ↑
 2022 → 1,001 kt ↑
 2023 → 957 kt ↓
 2024 → 918 kt ↓

The data show that plastic waste generation has generally remained around **0.9 – 1.0 million tonnes annually**, even though it has declined from the 2022 peak.

Singapore's Overall Waste Picture

In 2024, Singapore generated approximately **6.658 million tonnes of total waste**. Plastics accounted for **918,000 tonnes**, or roughly **13.8% of total waste generated**. Only **43,000 tonnes** of plastic were recycled.

For comparison, Singapore's overall recycling rate was **50% in 2024**, while plastics were only **5%**.

Why is Plastic Recycling Low?

Singapore faces several structural challenges:

- **High contamination of recyclables** – contaminated plastic is difficult and expensive to process.
- **Limited domestic recycling market** – Singapore is a small market, so much of its recyclable material is exported for processing.
- **Collection and freight costs** – NEA says rising collection/freight costs and volatile global commodity prices have affected plastic recycling.

- **Mixed plastic types** – different polymers and multilayer packaging make sorting and recycling more difficult.
- **High dependence on incineration** – Singapore uses waste - to - energy incineration extensively, with non - recyclable waste ultimately going to landfill after incineration.

Policy Measures

Singapore has been introducing measures to reduce plastic waste, including:

- **Disposable Carrier Bag Charge** – major supermarket operators have been required to charge for disposable carrier bags since July 2023.
- **Beverage Container Return Scheme (BCRS)** – Singapore is implementing a deposit-return approach for beverage containers.
- **Resource Sustainability Act 2019**
- **Zero Waste Masterplan**
- Increased emphasis on **Reduce, Reuse and Recycle (3R)** initiatives.

Plant - Based Resin as a Processable Plastic Substitute

An Oklahoma company, Utopia Plastix, has developed resin products made directly from plants, which can be processed by traditional plastics processing methods like injection molding and extrusion.

Utopia uses plants directly as a raw material. The process makes use of the molecules already present without putting them through chemical changes. It all starts with cover crops.

The material has a natural color to it. It can be colored, and can even be transparent, but there is a limitation to the optical properties. "It's not going to be this high shine film," says Perry, "we are still talking about crops."

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