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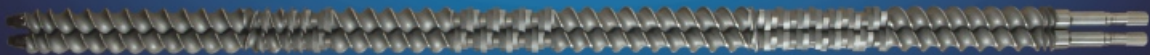
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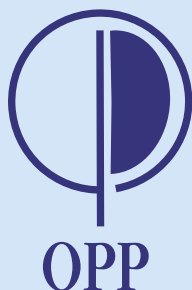
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FROM THE PRESIDENT'S DESK

Mr. Dilip Parekh



Dear Members,

Greetings from Organization of Plastics Processors of India!

The Concept of Circular Economy and Sustainability has become the most pursued subject by the Governments, Businesses, and Citizens all over the globe. Therefore it has become extremely important to follow and implement the Circular Economy and Sustainability Policy.

The resources of our planet are limited for this reason, we are committed to establishing the circular economy as a sustainable, future-oriented concept in the industry and to protect the Earth in a way. Sustainable and efficient use and processing of all raw materials is required to protect the environment.

UP Government is ensuring that convergence with national missions such as Swachh Bharat Mission and National Mission for Clean Ganga for enabling knowledge and developing infrastructure to manage litter. In line with the clarion call given by Prime Minister Narendra Modi to phase out single-use plastics, the Ministry of Environment, Forest and Climate Change, (MoEFCC), Government of India, notified the Plastic Waste Management Amendment Rules, which prohibits identified single-use plastic items with low utility and high littering potential.

UP started complying with the local regulations and national commitments. Regular enforcement drives are carried out for compliance of the prohibition on carry bags, thermacol and cutlery. As a result several metric tonnes of SUPs have been confiscated and fines have been imposed on defaulters.

Plastic waste used for road construction amounts to 100 tonnes, which was used in Lucknow, Kanpur, Meerut and Jhansi. Facility for plastic waste to oil of 6 tonne/day capacity has been installed in Jhansi and the Urban Development Department has already sanctioned budgets and design of Material Recovery Facilities (MRFs) to be set up in each urban local body of the state. Manufacturers and corporates are making efforts ranging from undertaking buyback schemes for collection of plastic wastes to increasing the recycled content in their plastic packaging. The state government is undertaking various initiatives focused on a shift from the linear 'take-make-waste' model to 'plastics circular economy' regime.

Tackling the issue, a joint project was been initiated by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) in partnership with the MoEFCC, Government of India, and the Department of Environment, Forest and Climate Change (DoEFCC), Uttar Pradesh. Working closely in four cities- Varanasi, Prayagraj, Mirzapur and Kanpur- efforts are being made for developing a circular economy approach across the entire life cycle of plastics in Uttar Pradesh.

I appeal to all our members to follow the example set up by Government of UP.

With Best Wishes,

Dilip Parekh
President

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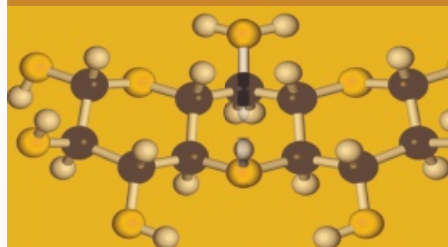
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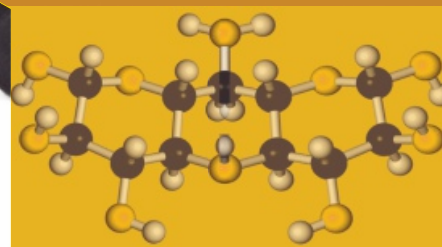
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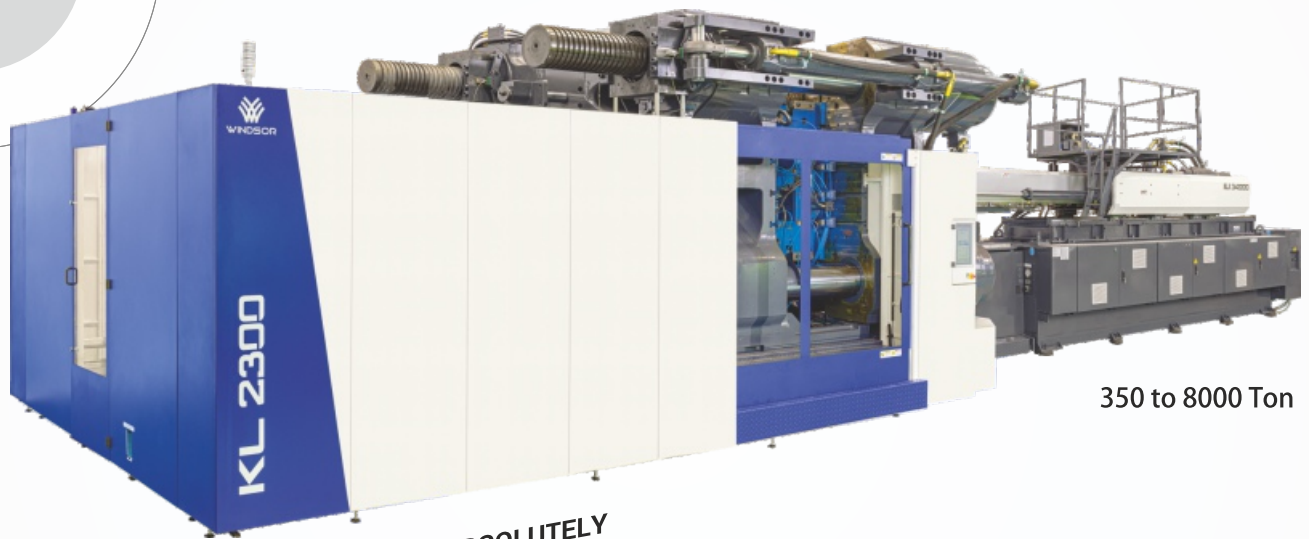
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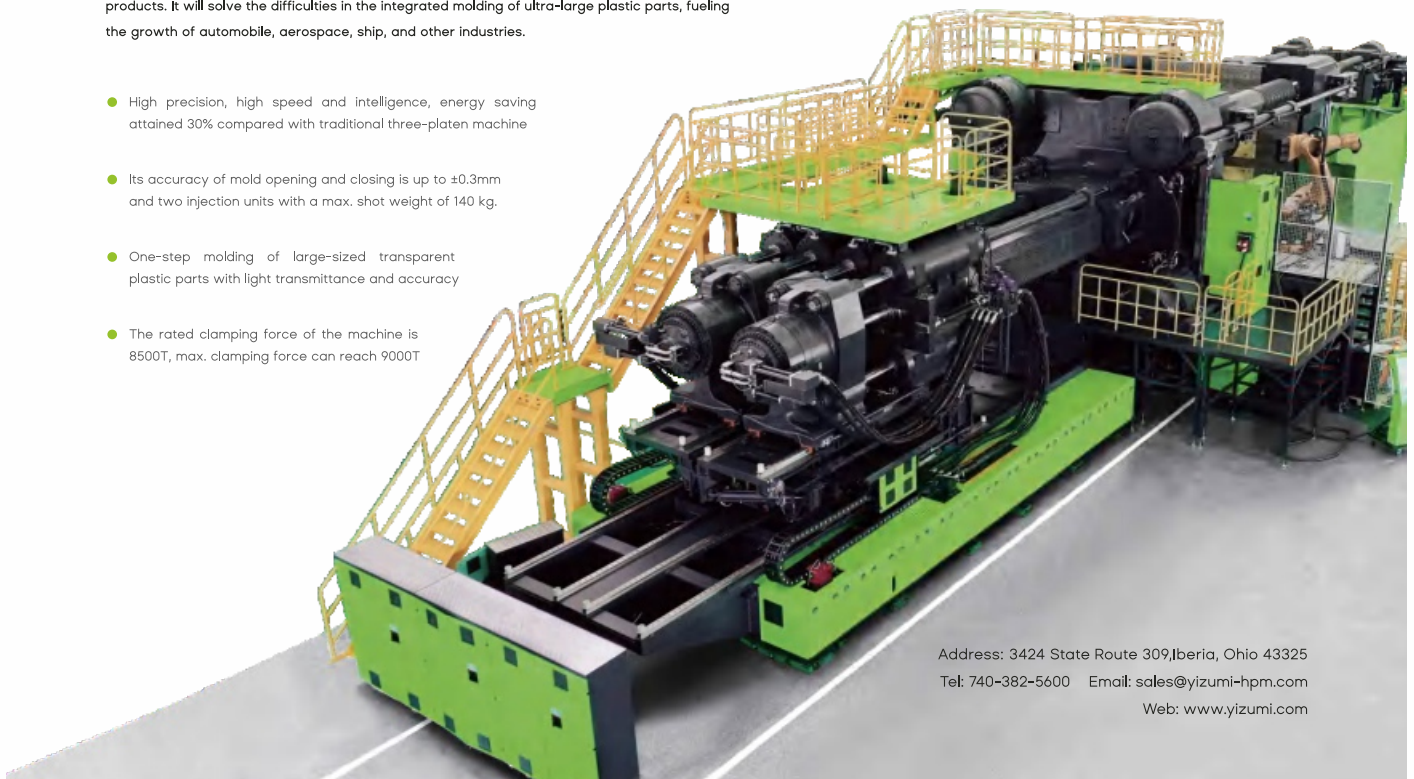
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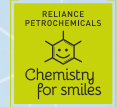
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NEWS FROM INDIA

Contribution of Plastic Sector in Making India a Developed Nation will be Invaluable: Hon'ble Piyush Goyal



The domestic plastic sector in the country has done well in the recent years and has tremendous potential to grow further, Union Minister of Commerce & Industry Shri Piyush Goyal said.

The sector's contribution in making India a developed nation will be unparalleled and invaluable, he said addressing through video conferencing the 2nd Technology Conference for Growth of Plastic Industry in Mumbai jointly promoted by OPPI and AIPMA.

Plastic exports of the country were stalled at around 500 million dollars till 2020, but the scenario has changed in the last two years and the country has managed to touch the 776 million mark in the export sector.

Plastic industry's contribution was 12 billion dollars and it has the potential to grow. The sector has the potential to add business opportunities, jobs for the young generation, opportunities in the world and it can help the government to grow the entire ecosystem of the plastic sector over the next few years, Goyal said.

He pointed out that the government is always ready to listen to their suggestions for the orderly growth of this industry in the near future. He informed that two FTAs were finalised with Australia and the UAE last year and currently the government is actively negotiating with many other countries.

The government, he said, is looking to engage with the developed world more significantly. He appealed to the plastic industry to significantly use these FTAs and expand their basket, access newer markets and promote greater exports.

He pointed out the potential for huge import in this sector by both the UAE and Australia. While underlining the importance of quality, he said the government is striving for quality and high standards and will not accept substandard production in this sector.

Therefore, the government is awaiting the suggestions from the industry to make it more reliable and at par with the global standards and will implement them immediately, he added.

India has asked Japan, South Korea to Renegotiate FTAs: Shri Piyush Goyal



Commerce and industry minister Piyush Goyal said that India has asked Japan and South Korea to renegotiate the comprehensive economic partnership agreement (CEPA) to make the trade more balanced and equitable.

While both the trade agreements were signed more than a decade ago, the pacts have been often discussed in the context that the Indian industry has failed to benefit from the agreements and the gains mostly have been one-sided.

During FY23, India's trade deficit with Japan rose to \$11.03 billion from \$8.22 billion a year ago as exports grew at a slower pace as compared to imports. In the case of South Korea, the deficit widened to \$14.57 billion in FY23 from \$9.39 billion a year ago. This is because exports contracted nearly 18 per cent, while imports grew over 21 per cent.

"They have not allowed their exports into the country...what it was 10 years ago, it is the same today with Japan ... Japan's exports to India have meanwhile grown 200 per cent," Goyal said at an industry event.

The minister also said that the trade agreement with ASEAN was an "ill conceived" agreement and unfair to Indian industry.

Government Sets Up Working Group to Decriminalise Legislations for Ease of Business

Commerce and Industry Minister Shri Piyush Goyal informed the Lok Sabha that the government has set up a working group to decriminalise laws to further promote ease of doing business. Replying to a debate on the Jan Vishwas (Amendment of Provisions) Bill, 2023, he said the group will look at areas, where more decriminalisation of provisions is required.

He said that the group comprised representatives from industry associations, business chambers, legal professionals, legal experts and officials of seven ministries.

Besides, it would also have representatives of the National Housing Bank (NHB), National Bank of Agriculture and Rural Development and Central Pollution Control Board.

The Bill was later passed in the Lok Sabha through a voice vote as Opposition members protested and raised slogans on the Manipur issue.

The Bill seeks to amend 183 provisions across 42 Acts administered by 19 ministries to reduce the compliance burden on individuals and businesses.

Goyal said this process would continue and it would help India to promote economic growth.

It was first introduced in the Lok Sabha on December 22, 2022. Subsequently, it was referred to the Joint Committee of Parliament.

The Joint Committee on the Jan Vishwas (Amendment of Provisions) Bill, 2022, held detailed discussions with all the 19 ministries/departments, along with the Legislative Department and Department of Legal Affairs.

The committee adopted its report on March 13. It recommended a few more amendments to the Bill. It also made seven general recommendations, out of which, 6 have been accepted. Under the bill, both imprisonment and/or fine are proposed to be removed in some provisions; imprisonment is proposed to be removed and fine retained in a few provisions; and imprisonment is proposed to be removed and fine enhanced in certain provisions.

For effective implementation, the bill proposes measures such as pragmatic revision of fines and

penalties commensurate to the offence committed; establishment of adjudicating officers; establishment of Appellate Authorities; and Periodic increase in the quantum of fines and penalties.

Goyal also said that the government has so far repealed more than 1,500 obsolete laws. "The government has decriminalised 3,600 laws and reduced the burden of 40,000 compliances under different laws in the last nine years to promote ease of doing business and ease of living," he said.

Some of the acts that will be amended through the bill include The Press and Registration of Books Act, The Boilers Act, The Indian Forest Act, The Drugs and Cosmetics Act, The Deposit Insurance and Credit Guarantee Corporation Act, The Warehousing Corporations Act, The Food Corporations Act, The Patents Act, The Prevention of Money-laundering Act and The Food Safety and Standards Act.

Govt. to Consider PLI Scheme for Chemicals and Petrochem Sectors: Sitharaman



The central government is considering providing financial support under the production-linked incentive (PLI) scheme to boost domestic manufacturing in

chemicals and petrochemicals sectors, Union Finance Minister Nirmala Sitharaman said. “We are in favour of having India becoming a manufacturing hub, and therefore, of course, we will consider PLI also for chemicals and petrochemicals,” Sitharaman said at an industry event. The PLI scheme was launched in April 2020 support to manufacturing in some selected sectors. So far the benefits of this scheme have been extended to 14 sectors with an incentive outlay of Rs 1.97 lakh crore (\$26 billion). Telecommunications, electronics, white goods, textiles and pharmaceuticals among the key sectors that have been extended the benefits under the PLI scheme. Addressing the third 'Global Chemicals & Petrochemicals Manufacturing Hubs in India' summit, the finance minister stressed the need to correct the trade imbalance in chemicals and petrochemicals sector by boosting domestic production.

The value of combined exports of chemicals and petrochemicals products from India stood at around \$9 billion in 2022-23 while the value of imports of these products during the same year stood at \$13.33 billion, resulting in a trade deficit of over \$4 billion. “Many of these imports are items which can be produced in the country itself,” the finance minister said emphasizing on the need to boost domestic production of chemicals, particularly speciality chemicals that include active pharmaceutical ingredients (APIs), dyes and pigments. Speciality chemicals account for nearly 22 per cent of India's chemicals and petrochemicals industry. However, it contributes more than

half of India's total exports of chemicals and petrochemicals. “I understand the need for more robust support for specialised chemicals. The emergence of this market is driven by the country's strong process engineering capabilities, low-cost manufacturing capabilities and abundant manpower,” she added.

According to the finance minister, major challenges facing the chemicals and petrochemicals industry in India include pollution control regulations, rising labour costs, carbon emission reduction and sustainability. Underlining India's target of achieving energy independence by 2047 and cutting greenhouse gas emissions to zero by 2070, Sitharaman said, “Net zero can't be achieved unless each industry and sector contributes to it.” Shri Khuba said the central government is working with state governments to set up chemical parks in different parts of the country that will help boost manufacturing in the sector.

\$10-billion Semiconductor PLI to Help India do in a Decade What China did in 25-30 Years: Rajeev Chandrasekhar

India is on track to becoming a key player in the global semiconductor supply chain in the next decade with USD 10 billion of incentives and assistance provided to encourage local chip manufacturing, Union minister Rajeev Chandrasekhar said on Thursday. The production-linked incentive scheme last year attracted firms like Vedanta and

Taiwan's Foxconn, who promised multi-billion dollar investment in setting up units to manufacture chips, which are used in products ranging from mobile phones to cars.

Minister of State for Electronics and Information Technology Rajeev Chandrasekhar said there is “not one person in the semiconductor global ecosystem” that does not see India as “a very credible, viable and fast charging destination for semiconductor investments and innovation”. He also said that India is on track for the next 10 years in the semiconductor space with USD 10 billion (about Rs 81,993 crore), compared to China's three decades of progress.

The government is implementing a “comprehensive curriculum” in partnership with the industry for creating 85,000 globally skilled talent for VLSI (very large scale integration), with students from post - doctorate degrees, masters and undergraduate courses, he said. “We have rebuilt the electronics ecosystem since 2014, exporting over one lakh crores and crossed almost eight lakh rows of total electronic production... and becoming an increasingly big presence in global value ... supply chains for electronics,” the MoS said.

He also announced that the government is “charging forward” in the design part of the semiconductor ecosystem with 30 startups, among which five have received direct financial support from the government. Slamming the opposition, he said that India has missed the bus “repeatedly” on electronics and semiconductors.

Squeezing Margins Lower India's Polymer Production by 7.89% in FY 2022-23

India's polymer production declined by 7.89 percent in the financial year 2022-23 as primary producers lowered their activities due to a sharp depletion in profit margins across all product categories. The uncertainty in the global economy, which erupted after Russia's invasion of Ukraine in February 2022, had a severe impact on the worldwide economy, leading to a decrease in polymer prices despite sustained capacity addition.

According to the Department of Chemicals and Petrochemicals, total polymer output in India stood at 11.49 million tonnes in the financial year 2022-23, compared to 12.47 million tonnes in the previous year. However, the apex industry body, the Chemicals and Petrochemicals Association (CPMA), reported India's polymer production at 11.92 million tonnes in the financial year 2022-23, as against 12.86 million tonnes in the preceding year. The CPMA annual report for 2022-23, released recently, stated that the country's overall polymer production was reported at 12.35 million tonnes in the financial year 2020-21.

Reliance Industries Ltd (RIL), the leading polymer producer, stated in the post - annual result presentation that the company's downstream margins declined sharply during the financial year 2022-23, with polymer margins falling by 15 - 32 percent. Polyester margins also fell by 9 percent due to a subdued demand trend in China, the

European Union, and the United States. Margins remained under pressure across the major product groups, consequently lowering the overall industry's production. RIL reported a 2.6 percent decline in the production of the entire oil - to - chemical (O2C) products, including polymers, which amounted to 66.4 million metric tonnes in the financial year 2022-23, compared to 68.2 million metric tonnes in the previous year.

India's petrochemical production ('000 tonnes)			
Categories	FY 2022-23	FY 2021-22	Variations (%)
Synthetic fibre	4,006.38	4,040.01	(-)0.83
Fibre intermediate	4,988.03	5,481.67	(-)9.01
Polymers	11,486.62	12,470.65	(-)7.89
Synthetic rubber	344.86	382.63	(-)9.87
Synthetic detergent intermediates	703.02	780.39	(-)9.91
Performance plastics	1,960.16	1,697.68	15.46
Olefins total	11,296.05	12,527.02	(-)9.83

Source: Department of Chemicals and Petrochemicals, Government of India

Overall domestic polymer production is estimated to remain at 15 million tonnes and 15.51 million tonnes in the financial years 2023-24 and 2024-25, with an average operating rate of 93 percent for both years. Against this, the installed production capacity of polymers is projected to reach 16.16 million tonnes and 16.74 million tonnes in the next two years.

Strong demand

The polymer demand in India recorded phenomenal double-digit growth in the financial year

2022-23, driven by a strong recovery in pent-up demand across urban and rural markets, along with escalated usual consumption. According to the CPMA's annual report, the domestic polymer industry, like the global one, was dominated by polyolefins such as polyethylene (PE) and polypropylene (PP).

India's petrochemical production ('000 tonnes)					
Particulars	2020-21	2021-22	2022-23	2023-24(f)	2024-25(f)
Capacity	14157	14190	14405	16162	16739
Production	12350	12857	11922	14995	15512
Operating rate (%)	87	91	83	93	93
Import	3601	4089	6344	4601	5250
Exports	1799	1024	490	351	380
Net trade	(-)1802	(-)3065	(-)5854	(-)4250	(-)4870
Demand	14696	15913	17523	18832	20132
Demand growth (%)	-	8.3	10.1	7.5	6.9

Source: Chemicals and Petrochemicals Association (CPMA), India; (f) = Forecast

After experiencing flat growth in 2020-21, the polymer demand witnessed a rebound, growing at 10 percent in the financial year 2022-23, following an 8.3 percent upsurge reported in the previous year. While the demand for polyvinyl chloride (PVC) shot up by 30 percent, all types of polyethylene (low-density or LDPE, linear low - density or LLDPE, and high - density or HDPE) recorded a 9 percent growth in demand, with propylene growing by 5 percent.

RIL reported the highest - ever demand sales for polymers, elastomers, and polyethylene terephthalate (PET), supported by realization for the full financial year 2022-23. According to a company statement, the favourable domestic demand environment and economic support from ethane cracking contributed to the company's profitability. The CPMA forecasts India's polymer demand to continue its growth momentum in the coming years as well with a growth projection of 7.5 percent and 6.9 percent. India's polymer demand is expected to breach all previous records, reaching 18.83 million tonnes and 20.13 million tonnes in the financial years 2023-24 and 2024-25, respectively.

The petrochemical industry in India experienced robust growth in 2022 and was one of the few industries that recovered well after the pandemic spread. It has the potential to keep growing in the upcoming years as well. Overall, the business environment started improving in 2022, with the economy returning to normalcy. The demand saw a pickup from end-use sectors as consumers once again began purchasing. Packaging remained the key downstream sector for polyethylene, supported by a strong recovery in food packaging. Essential goods manufacturers in India have also added smaller packaging sizes to their product lines to increase accessibility for low-income customers.

Balancing import

The rising consumption has helped balance demand with supply in India. With the

increasing purchasing power, the demand for petrochemical is on the rise. These products cover all essential daily use items, ranging from housing, clothing, construction, automobiles, horticulture, furniture, household items, packaging, medical appliances, and much more. The per capita consumption of polymers has reached saturation levels in the United States, whereas India is expected to maintain high economic growth, propelling the country's polymer consumption. It is important to highlight that faces a deficit in PE and, therefore, depends on imports to fulfill the demand. Presently, imports are arriving to cover up the shortfall caused by the demand - supply gap. Encouraging more investments in this segment is necessary to bridge the demand - supply gap going forward. Additionally, India has been experiencing a deficit of around 2 million metric tonnes of PVC for a long time now, which the industry requires government policy intervention to address. RIL plans to add 1.5 million metric tonnes a year of fresh capacity, while the Adani Group has also decided to revive its proposal to set up 2 million metric tonnes after putting this project on hold for a few months.

First Annual Report of India Plastics Pact Shows Progress Towards Targets Set

The annual report 2021-22 of the India Plastics Pact (IPP) was launched on 22 June 2023, provides an overview on the current usage of plastic packaging by the signatories, and their

progress towards the targets in 2030. Consider this. Collectively, about 5,00,000 tonnes of plastic packaging were placed in the market by Indian Plastic Pact signatories in 2021. Of this, 92% was in the form of primary packaging, and 8% in the form of secondary and tertiary packaging.



It's this sort of data mapping which made the launch of the India Plastics Pact Annual Report 2021-22 a genuine forum for knowledge sharing. During a hour - long virtual event on 22 June 2023, the speakers shared data about the plastic packaging consumed by signatory's businesses. The annual data indicates the progress made and if the IPP targets are being met.

Speaking about the data reporting process, Geetanjali Vats, chairperson, India Plastics Pact advisory committee, and global plastic sustainability lead, Asia and ANZ, Hindustan Unilever said, "This is the first time such a report on plastic packaging has been collected and reported under a voluntary initiative across Asia. Data reporting is crucial as it ensures transparency, accountability. Also it shows that this Pact is all about action. The annual reporting process provides us an opportunity to see where the Pact is standing in terms of action."

The report also provides a view of progress with respect to the four targets: 391 million items classified as problematic or unnecessary were placed on the market by signatories, to be tackled by innovation or designed out of packaging. In terms of design, 64% of plastic packaging placed on the market by the Pact members was recyclable. The current recycling rate, drawn and calculated from government and other sources, is about 15%, not including plastic waste sent to incinerators, cement kilns or for energy recovery. Only 1% of packaging by weight contains recycled plastic, indicating the need to increase closed-loop recycling. The good news is: packaging formats where it is possible to increase recycled content have been identified with the help of one of Pact's workstreams.

The data will indicate areas for focused work ahead, and some which have been identified are films and flexible packaging and increasing recycled content in plastic packaging. Voluntary projects which bring stakeholders together on a single platform is important from the perspective of managing plastic packaging waste holistically. They can bring awareness about good practice, technology developments and the need to improve design packaging by using, for example, monolayer structures or compatible polymers in a multi-layer packaging format.

The three signatories who showcased their brand and product profile at the launch event were Mondelez, ITC and Marico. Ankit Gupta from ITC showcased the Fiama Showergel product and how ITC has added 50% recycled PET in the bottles of

sizes 125-ml, 250-ml and 500-ml. Gupta also shed light on ITC's Savlon PET soap wrapper which contains 70% recycled plastic. Naveen Damisetty from Mondelez gave insights on Cadbury Dairy Milk Lickables' spoon which contains 100% rPET. Mobashshir Nasim from Marico shared that Marico is using 10% rPET in the bottles of Nihar Shanti Amla.

In India, a large number of packaging manufacturers are medium and small-scale enterprises who stand to benefit from information and guidance on changes in processes or designs which can have a large impact on recyclability of packaging once it appears in the waste stream.

Other than these benefits, the data points to gaps in the current ecosystem. For example, the low rate of closed-loop recycling indicates the need for high-quality recycling infrastructure to meet EPR targets. A higher market demand for recyclates arising from commitment to targets of the India Plastics Pact and EPR can drive investments into advanced chemical and mechanical recycling. This would lead to upgradation of recycling capacity in general for recyclers in the MSME segment.

The India Plastics Pact, a voluntary business initiative, works with businesses across the plastics value chain towards a transition to a circular economy for plastic packaging in India. The IPP is the first of its kind in Asia and joins a network of 13 other Plastics Pacts across the globe. All 13 Pacts share a common vision of creating a world where plastic is valued and doesn't pollute the

environment. The Confederation of Indian Industry (CII) hosts the India Plastics Pact's secretariat.

Delhi's Pragati Maidan Complex Gets a Swanky Look



At Level 3 of the Convention Centre, a grand seating capacity of 7,000 individuals awaits, making it even larger than the seating capacity of approximately 5,500 of the iconic Sydney Opera House in Australia.

The redeveloped ITPO complex (India Trade Promotion Organisation), which will host India's G20 Leaders meetings was inaugurated on July 26, 2023 led by Prime Minister Shri Narendra Modi.

With a campus area of approximately 123 acres, the ITPO complex, (also known as the Pragati Maidan complex) is India's largest MICE (Meetings, Incentives, Conferences, and Exhibitions) destination. In terms of the covered space available for events, the redeveloped and modern IECC Complex is among the Top 10 Exhibition and Convention Complexes in the world, rivaling the colossal names such as the Hannover Exhibition Centre in Germany, the National Exhibition and Convention Center (NECC) in Shanghai. The magnitude of the

NEWS FROM INDIA

International Exhibition - cum-Convention Centre or IECC's stature and infrastructure is a testament to India's capability to host world - class events on a grand scale.

At Level 3 of the Convention Centre, a grand seating capacity of 7,000 individuals awaits, making it even larger than the seating capacity of approximately 5,500 of the iconic Sydney Opera House in Australia. This impressive feature establishes the IECC as a venue fit for hosting mega conferences, international summits, and cultural extravaganzas on a global scale.

The Exhibition Halls offer seven innovative spaces for showcasing products, innovations, and ideas. These state - of - the - art halls provide an ideal platform for exhibitors and companies to engage with their target audience, fostering business growth and networking opportunities.

The IECC also boasts a magnificent Amphitheater with a seating capacity of 3,000 individuals. Equivalent to three PVR theatres combined, this grand amphitheater sets the stage for captivating performances, cultural shows, and entertainment events, captivating the audience with its mesmerizing ambience.

The IECC also has a huge parking space to accommodate up to 5,500 vehicles of visitors. The ease of access through signal-free roads ensures that visitors can reach the venue without any hassle.

APChem's Green Hydrogen Project Cited at G20!



It's a monumental moment in APChem's history. APChem is proud to announce that, in collaboration with **Plastic Center Denmark** and **Aalborg University Denmark**, they secured a groundbreaking €2.3 million from the **Indo - Danish Green Hydrogen Funding Call**.

The pioneering project launched at the 11th Clean Energy Ministerial and Mission Innovation Event - CEM-11/MI-8 in Goa, aims to produce Green Hydrogen from Plastic and Biomass Waste. This innovative approach, as part of the G20 forum, places us at the forefront of plastic circularity and decarbonisation, reinforcing India's commitment to clean energy and the environment.

The Government of India, acknowledged the efforts and dedication, by felicitating **APChem's CEO, Suhas Dixit** at the launch. **Dr Jitendra Singh, Minister of State** (Independent Charge) for the Ministry of Science and Technology, together with **Dr Mrs Anita Gupta, Head of the Climate Change & Clean Energy Division** and **Dr. Ranjith Krishna Pai, Director at Technology Mission Division, DST**, Government of India, bestowed this honour.

This is more than just a project! It's an embodiment of APChem's vision for a sustainable future, a

testimony of global collaboration, and a significant step towards plastic circularity.

Walmart Promises to Double Exports of India-Made Products to US \$10 Billion by 2027

Bentonville (United States) - headquartered omnichannel retailer Walmart Inc is planning to more than double its use of India-made products for retailing across its stores worldwide, aiming to participate in India's growth story and capitalize on the country's rapidly growing economy. Walmart's total value of Indian goods procurement stood at around US\$ 3 billion per annum by the end of the calendar year 2020, estimated to have grown to between US\$4-4.5 billion per annum by the financial year 2022-23. The US retail major forecasts its overall Indian product exports to reach US\$10 billion per annum by the end of the calendar year 2027.

India is already one of Walmart's top sourcing markets, with products such as apparel, homeware, jewellery, hardlines, and other popular items reaching customers in 14 markets, including the United States, Canada, Mexico, Central America and the United Kingdom, among others. Walmart's new export commitment is expected to provide a significant boost to India's micro, small and medium enterprises (MSMEs). The expansion in sourcing will also help develop hundreds of new suppliers in categories such as food, pharmaceuticals, consumer goods, health and wellness, general merchandise, and other products.

To expedite the plan, Walmart President and Chief Executive Officer Doug McMillon recently met with India's Prime Minister Narendra Modi in New Delhi, expressing his enthusiasm for India's economic growth. McMillon displayed interest in growing alongside India's economic development and strengthening ties with Indian suppliers based on quality, trust, and punctuality.

"We are working toward exporting US\$10 billion per annum from India by 2027 and are committed to strengthening logistics, skill development and supply chains to make India a global export leader in toys, seafood, and other goods. Our recent visit to India reinforces the shared value we bring working alongside the country. Together, we will continue to support the country's manufacturing growth and create opportunity," McMillon said.

McMillon added further, "As an international retailer that brings value to customers and communities worldwide, Walmart understands that local entrepreneurs and manufacturers are vital to the success of the global retail sector. We see huge potential for Indian suppliers to grow their businesses by leveraging the unique scale and global distribution opportunity the company provides. By significantly accelerating our annual Indian exports in the coming years, we are supporting the 'Make in India' initiative and helping more local businesses reach international customers while creating jobs and prosperity in India. It is also a way for Walmart to bring more high-quality, India-made goods to millions of customers worldwide."

Spread online and offline

It is worth mentioning here that the Walmart team leaders also interacted with Indian suppliers, merchants, grantees, artisans, and MSMEs, seeking their continuous support in achieving the company's ambitious growth in India's exports as planned. The global retail major enables customers to conveniently purchase goods across its approximately 11,400 physical stores, online, and through their mobile devices.

The company holds a unique distinction, with over 265 million customers and members visiting its retail stores worldwide, spread across 26 countries. With over US\$572.75 billion of revenue in the fiscal year 2022, Walmart has employed approximately 2.2 million business associates worldwide. The retailer continues to be a leader in sustainability, corporate philanthropy, and employment opportunity.

Phasing out plastic usage

The leading global retailer is planning to reduce the usage of plastic bags and transition to recyclable paper bags in some of its leading stores in the United States as part of its approach to phasing out single-use plastics in a staggered manner. The shift to environmentally friendly materials is expected to result in a reduction of 65 million plastic bag mailers, equivalent to over 2,000 tonnes of plastic materials, in circulation in the United States by the end of the current financial year.

In a recent statement, the multinational tech - powered retailing company stated, "Our

commitment to regeneration is central to our identity and how we innovate at Walmart. Customers have expressed their excitement about these enhancements that make it easier for them to make more sustainable choices that support the planet and the next generation," said Karisa Sprague, Senior Vice President, of Fulfilment Network Operations, the procurement arm of Walmart.

Given that customers receive hundreds of millions of packages shipped from Walmart each year, the retailer is taking steps to make it even simpler for customers to reduce plastic waste. Going forward, nearly all orders shipped from fulfilment centres, stores, and marketplace items will arrive in recyclable paper bag mailers replacing plastic mailers.

Helvoet Has Launched the First Automated High Volume Production Line for Health Tech Components in Pune



Helvoet India has been known for many years amongst the top moulding companies in India for the Mobility and Industrial markets. In the recent years the Pune factory has followed the footsteps of other Helvoet locations and has started to supply critical components for medical and life science applications.

After supplying over 6 million of IMD (In-Mold-Design) decorated visual housing components, now, the launch of the first automated production cell for a glucometer assembly has successfully been realized.

This production cell is installed in a climate and dust controlled environment and involves two 2k injection moulding processes, followed by a sophisticated assembly and testing procedure, where single components are mounted, ultrasonic welded and several functional and visual checks are being performed. At the end each part is marked by laser for batch traceability.

This serial production kick-off is yet another big achievement for Helvoet Pune to establish themselves also a leading manufacturer for Health Tech components in India. With local partners we have organized a special Helvoet baby tree which we will share with our colleagues and our partners with the goal to grow a long term relation which will enable us to enjoy its result in the future.

India to Become 3rd Largest Economy by 2027, Two Years Before Previous Forecast: SBI Research

India is currently ranked third, a movement of seven places upwards of what it was in 2014. Interestingly, the incremental increase by India between 2022-2027, is expected to be more than the current size of Australia's economy at USD 1.8 trillion, the report said.

“At this rate, India is likely to add USD 0.75 trillion in every two years, implying that India is all set to touch USD 20 trillion by 2047, at least on current numbers,” the report said, adding that India's global share in GDP will cross 4 per cent by 2027.

The share of India's GDP is now at 3.5 per cent, as against 2.6 per cent in 2014 and is likely to reach 4 per cent in 2027. State-wise, SBI Research said estimates indicate that at least two Indian states, Maharashtra and Uttar Pradesh, will break the USD 500 billion mark in 2027 in terms of economy — when India achieves the 3rd place in global economy.

“The GDP size of major Indian states in 2027 will be more than the size of some of the Asian and European countries like Vietnam, Norway and so on,” it added. (ANI)

This report is auto-generated from ANI news service. ThePrint holds no responsibility for its content. India is currently ranked third, a movement of seven places upwards of what it was in 2014. Interestingly, the incremental increase by India between 2022-2027, is expected to be more than the current size of Australia's economy at USD 1.8 trillion, the report said.

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“The GDP size of major Indian states in 2027 will be more than the size of some of the Asian and European countries like Vietnam, Norway and so on,” it added.(ANI).

Diyani Engineering: Revolutionising the Bagging, Conveying and End - of - line Equipment for the Polymer Industry

Diyani Engineering is a company that has been in business of manufacturing the bagging machine and conveying equipment from 2007. With in-house well-equipped design, latest software and manufacturing facilities, Diyani Engineering has been providing state-of-the-art solutions to the plastic and polymer industry.

As the demand for packaging machinery increases, companies are looking for reliable and efficient solutions that can handle high volumes of packaging with ease. This is where Diyani Engineering comes in, providing innovative solutions that are tailored to meet the specific needs of each customer.

Diyani Engineering serving within three business vertical, Packing, Conveying & End of line Automation. The company's range of bagging machine includes, fully automatic, semi-automatic machines for any type of solid granules and powder material. These machines are designed to handle different types of packaging materials, such as woven sacks, paper sacks, jute bags, and bulk bags. They are also capable of handling different sizes and weights of bags, ranging from 5 kg to 1000 kg.

One of the key features of Diyani Engineering's bagging machines is their accuracy and speed. The machines are equipped with sensors and controls that ensure accurate weighing and filling of bags, reducing wastage and Maximizing efficiency. The machines can also operate at high speeds, allowing for faster packaging and increased productivity.

Pre Bagging material conveying by pneumatic and vacuum, screw feeder, belt feeder, up to silo. Post Bagging conveying line includes, Belt Conveyor, Roller Conveyor, Slat Conveyor up to ware house delivery. End of line Automation includes, sealing machine, stitching machine, check weigher, bag turner, metal detector, bag palletizer, pallet stretch wrapping and ware house automation. These machines are designed to transport materials from one location to another, minimizing manual handling and reducing the risk of injuries.

JJ Plastalloy Introduces its Latest Innovation - NIR Detectable Black Masterbatches



Introducing NIR Detectable Black Masterbatches by JJ Plastalloy - Specially designed for recyclability & sustainability. Plastic waste is usually pre-sorted according to grades at recycling facilities using near-infrared (NIR) optical sorters to facilitate recycling of plastic packaging.

These sorters have limitations in identifying and separating plastics containing carbon black, a commonly used black pigment, due to its absorption of significant amounts of ultraviolet and infrared light. The result is that non-detected black plastic waste goes to landfills or incineration.

Consequently, black plastic products are not widely recycled. Therefore, we found that there is a pressing need to develop technology that can detect black carbon in the optical sorting process. Earlier this year, JJ Plastalloy developed a NIR Detectable Black masterbatch solution that enables and facilitates effective sorting of plastic waste as it becomes detectable using existing sorting technology.

This technology has been certified according to the COTREP recyclability test protocol. Designed for circularity, this certification demonstrates that

plastics containing these masterbatches can effectively be separated using automated Near - Infrared (NIR) sorting equipment to avoid plastic waste.

We are proud to announce that JJ Plastalloy, is the first Indian masterbatch company to develop NIR Detectable Black Masterbatches. A pioneering move in green technology and sustainability, we hope to strengthen the recycling process in India.

Nucleating Masterbatches from Kandui Industries



Kandui Industries Pvt. Ltd. has developed nucleating masterbatches, a kind of additive masterbatch which is used to improve the crystallisation properties of thermoplastics.

They contain a high concentration of nucleating agents, which are materials that promote the formation of small, well-organised crystals within the plastic matrix. The addition of nucleating additive masterbatches to plastics can provide a number of benefits, including increased stiffness, improved dimensional stability, enhanced transparency and faster processing times.

They are commonly used in the production of products such as injection - moulded parts, films and fibres. Nucleating additive

masterbatches are typically added to plastics during the compounding process, which involves melting the plastic resin and mixing it with the additives.

The resulting mixture can then be extruded, moulded or processed in other ways to create the final product. Overall, nucleating additive masterbatches are an important tool for improving the performance and properties of plastic materials, and they are widely used in a variety of industries, including packaging, automotive and consumer goods.

Nucleation has traditionally been used to improve physical properties of polypropylene. Recently it has evolved to offer many more benefits including cycle time reduction, warpage

improvements, dimensional control, barrier enhancements and improved aesthetics. Nucleating agent has also been used in producing polyethylene based products.

Researchers Use Mycelia to Transform Paddy Straw Into Bioplastic



Every year during winter, air pollution in Delhi and surrounding areas become a major headline.

AQIs that fall under the 'severely polluted' category and a smoky haze across the sky is a common phenomenon in the Indo-gangetic belt. One of the primary causes of this is stubble burning, which contributes to as much as 26% of Delhi's air pollution. What if there was an economically viable solution that could help avoid stubble burning? This was the genesis for Dharaksha, a deep-tech material startup that converts paddy straw stubble into biodegradable packaging material. Founded by Arpit Dhupar and Anand Bodh in 2019, the startup makes sustainable packaging material using crop stubble waste that otherwise would have been burnt in the field. The company utilises its proprietary biotechnology process to develop packaging material that can biodegrade in 60 days in normal soil conditions.



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PLASTIC PRODUCTS AND NEW TECHNOLOGIES

Cosmetic Containers from Recycled Plastic Developed by LG Chem and COSMAX



LG Chem Collaborates with COSMAX to Develop Cosmetic Containers from recycled plastic to deliver real eco-friendly values to customers.

LG Chem announced that it has entered into an MOU with COSMAX at LG Twin Towers in Yeouido to collaborate on the joint development of cosmetic containers using eco-friendly materials and conduct joint marketing targeting global cosmetic companies. Opportunity to Promote K-Beauty Using Eco-friendly Materials

COSMAX is the Original Design Manufacturer (ODM) for cosmetics, providing product development and manufacturing services to over 1,000 global customers, including L'Oréal. Both LG Chem and COSMAX,

as leading companies in the fields of chemicals and cosmetics, anticipate that this agreement will be an opportunity to promote K-Beauty using eco-friendly materials to global customers.

Starting with the supply of recycled plastic PCR ABS, LG Chem plans to propose various eco-friendly materials to COSMAX and collaborate with them in the entire process from the development of cosmetic containers to its marketing.

For PCR ABS, LG Chem plans to supply eco-friendly materials with differentiated technology, such as transparent products considering aesthetics, as well as antibacterial products with a focus on safety and health. It also plans to expand its supply to materials using pyrolysis oil (chemical recycling) and bio-based raw materials.

The cosmetics industry has a fast consumption and replacement cycle of products, and a significant amount of plastic is used and discarded. Therefore, switching to containers using eco-friendly recycled plastic materials is essential.

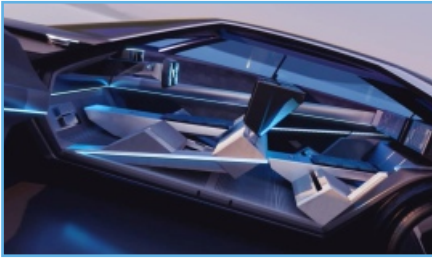
Due to the recent strengthening of eco-friendly regulations such as the introduction of carbon border

taxes in the EU, many global cosmetic companies have announced their commitment to attaching carbon footprints to their products and expanding the use of recycled plastic by 2030.

Kim Sangmin, senior vice president / head of Business Unit, ABS Business Unit, stated, "Through our collaboration with COSMAX, the world's leading cosmetics ODM company that actively takes the lead in ESG management, we will actively support the development of eco-friendly materials for our customers and contribute to strengthening the resource circulation system in the cosmetics market."

Peugeot Drives New Revolution in Car Interior Design with Stratasys 3D Fashion Technology

Stratasys Ltd. (Nasdaq: SSYS), a leader in polymer 3D printing solutions announced that global automotive manufacturer Peugeot has integrated Stratasys' innovative 3D Fashion™ technology into the interior of its new Inception concept, achieving a level of resolution that would not have



been possible with traditional embellishment methods. Heralding a new era for the Stellantis-owned Peugeot brand and embodying its vision for future electric vehicles, the Inception concept is the first design manifesto led by the company's brand design director, Matthias Hossann, and represents a major change for the marque. The car incorporates an interior design described by the company as 'revolutionary', and features advanced materials produced exclusively using Stratasys J850™ TechStyle™ 3D printers.

The vehicle interior of the Inception concept is aligned with Peugeot's new design architecture for electric vehicles. It features a minimalistic cockpit designed to support the car's overall objective of reinventing the driver experience. Integral to this experience are immersive seats covered with a velvet made from 100% recycled polyester. This velvet extends onto the floor and features stunning 3D patterns created with Stratasys' 3D printing technology. "At Peugeot, we always like to combine function with aesthetics," said Maud Rondot, CMF Designer, Advanced Design Team at Peugeot, the department responsible for the future vision of the Peugeot brand. "Our objective with the Inception concept's seating area was to modernize the velvet material used and decompartmentalize the design by extending it to also

serve as a visually impactful floor mat," she explained. According to Rondot, where the floor area space would typically need to be treated with a protective overlay, the Inception concept instead leverages direct-to-textile 3D printing to deliver a unique coalescence of functionality, texture and aesthetics. She believes this would not have been achievable with other technologies.

Advanced Design team to use materials that would befit the car's specific look and embody the brand's vision for future electric vehicles. To support this move towards new architecture, new space and decompartmentalization, Peugeot worked with single material effects. This saw the team select a metallic shade for the velvet, which is designed both visually and symbolically to play with light and convey something more futuristic, before using the J850 TechStyle 3D printer to create the semi-transparent 'micro-architectures'. "Instead of covering the whole stretch of material, it was really advantageous that we could leave the velvet visible," Rondot added. "3D printing gave us the ability to modify and reprint the files very easily, but also important is its durability and efficiency; indeed, as a technology it doesn't require molds, which is revolutionary in terms of industrialization.

About Stratasys is leading the global shift to additive manufacturing with innovative 3D printing solutions for aerospace, automotive, consumer products, healthcare, fashion and education industries. Through smart and connected 3D printers, polymer materials, a software ecosystem,

and parts on demand, Stratasys solutions deliver competitive advantages at every stage in the product value chain.

The world's leading organizations turn to Stratasys to transform product design, bring agility to manufacturing and supply chains, and improve patient care.

POLIFILM's Innovative Adhesive Formulation Enables Manufacturers to Continue Processing Coated Surfaces Immediately after UV Curing



UV coatings are becoming increasingly popular in many industries. The global protective film specialist POLIFILM PROTECTION has developed a protective film that, unlike other conventional protective films, can be laminated onto the surface immediately after UV curing, without the risk of problematic adhesion. The surface is thus optimally protected and is immediately ready for any further processing required.

UV coatings are being used more and more frequently in the construction, furniture and automotive industries as well as in many other areas of application whether on metal, plastic and glass. Manufacturers benefit from the fact that the coating cures in

seconds under UV light, which enables immediate further processing making the whole process more efficient. UV coatings also do not necessitate solvents, which means they are more environmentally friendly which is becoming ever more important with increasing strict environmental protection regulations.

Fresh UV coating: hardened but not cured

The problem could be that even when UV cured coatings are supposedly dry within seconds, the chemical process of curing is still not fully complete. It takes 24 to 48 hours for the coating layer to react completely. If a protective film with a conventional adhesive formulation is applied to a UV coating that has not yet cured, the elements in the adhesive interact with the elements in the coating. The result is an uncontrolled increase in adhesive strength, resulting in the film being difficult to remove after application, either leaving residue behind after removal or, in the worst case scenario, not being able to be separated from the coated surface. Therefore, any advantage gained through fast drying times during productivity are cancelled out by time consuming reworking or increased rejections wasting valuable resources and time.

POLIFILM PROTECTION develops saturated adhesive

With the new POLIFILM PROTECTION protective film for UV coatings manufacturers do not have this problem. The protective film specialist from Wipperfürth has succeeded in developing an acrylate adhesive

that is saturated resulting in problem free adhesion. Regardless of whether the film coated solution is laminated onto the paint surface directly after UV irradiation or later, it adheres to the surface with optimum adhesive strength whilst still being able to be removed easily after application without leaving any residue or the need for reworking. Manufacturers therefore benefit because the coated surface is ready for further processing immediately with optimum protection. In addition, the new protective film offers a low roll-off force as well as six months of UV resistance, which is indispensable especially for outdoor applications such as on construction sites.

"With our new protective film for UV cured finished surfaces, we offer a simple but highly effective and efficient solution for every surface," explains Fulvio Camerini, Technical Director of the Italian production & development site of POLIFILM PROTECTION. "Whether on furniture, kitchen units, wall panels, household appliances or automotive interiors, we enable our customers to optimise their production whilst at the same time ensuring complete surface protection."

Pregis and NOVA Chemicals Deliver a Sustainable Packaging Solution Designed for Food Applications

Pregis partnered with NOVA Chemicals Corporation ("NOVA Chemicals") to co-develop a sustainable packaging solution for food-safe applications used in stand-up pouches (SUPs), fitment



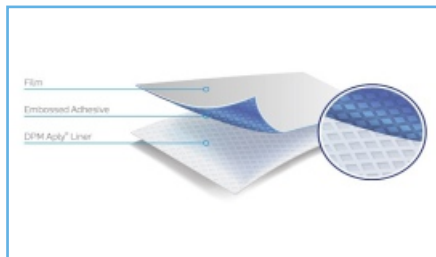
pouches, and lay-flat bags. The Pregis film structure, manufactured with Nova Chemical's SYNDIGO™ rPE-0860-FC recycled polyethylene resin, delivers on the market need for high-quality, food-safe recycled content solutions without compromising on performance. This solution goes beyond the FDA-LNO (letter of non-objection) to provide packaging converters, and consumer packaged goods companies, with a mechanically recycled content film that offers unmatched safety and quality. The outcome of this joint development effort is a sustainable solution that delivers on film clarity, printability, and processing performance.

Pregis has invested north of \$100 million to build state of the art blown film extrusion operations with the goal of solving the customer needs of today – and tomorrow. The food-safe recycled content polyethylene film is a welcome addition to the Pregis Performance Flexibles Renew™ Series of sustainable high performance films.

Pregis and NOVA Chemicals are committed to addressing the changing demands of consumers while minimizing their environmental impact.

Through their joint efforts in creating sustainable packaging solutions for food, brand owners and retailers can now choose alternatives that actively promote a circular economy for plastics.

FLEXcon Launches Bubble-free Durable Labeling Products



FLEXcon Global, an innovator in adhesive coating and laminating, announced the launch of FLEXcon DPM Aply with Air Egress Liner, a series of durable labeling products with air egress channels in the adhesive imparted by the liner to facilitate smooth bubble-free label application on challenging surfaces such as molded plastics and powder-coated paints.

This innovative combination of FLEXcon's durable labeling and nameplate films, including vinyls, polypropylenes, and polyesters, with a high-performance permanent solvent-based acrylic adhesive, and a high-performance air-egress liner design yields the highest performing narrow-format industrial and durable labeling solutions in the marketplace.

DPM Aply products are designed for narrow-format brand identification labels / nameplates and safety / hazard / instructional labels for Consumer Durables, Automotive, and Industrial applications. Four of the six products are UL-recognized and easily adoptable into print providers' UL files. Flat UL adoption fees are reimbursable via FLEXcon's UL Adoption Program. "Label aesthetics are a major concern for OEMs in these

markets," says Jason Berthiaume, Product Manager, FLEXcon. "Trapped air under the label caused by poor application can lead to unacceptable appearance and label failures which, in turn, can send a negative message about the quality of the product."

The line offers these benefits:

- **Easy Application without Bubbles.** The embossed liner creates air egress channels in the adhesive that eliminate bubbles, wrinkles, and rework, yielding a superior appearance.
- **Smoother Appearance.** Lower depth of air egress channels compared to competitive products translates into a smoother label appearance, especially with silver polyester.
- **Outdoor Durability.** Vinyl and polypropylene films provide five-year exterior durability based on 2500 hours Xenon Arc for meeting long-term durable label needs. Polyesters provide two years.
- **Excellent Adhesion.** Industry proven acrylic adhesive bonds well to low-and high-surface energy plastics, painted metal, powder-coated paint, polycarbonate, and fiberglass with no label lift.
- **No Curling On Press.** Layflat 90 lb. air egress liner provides optimal converting performance, ideal for roll-to-sheet and sheet-form converting for narrow-format digital printing applications.
- **Sustainability.** Durable polypropylene options enable printers and end users to meet

sustainability goals without sacrificing performance. UL-recognized options in the DPM Aply line are currently in inventory in 60" master rolls and ready to be finished and shipped.

Creating a De-inkable, Recyclable* Mono-material PE-pouch with Barrier Properties



The partnership is advancing packaging circularity. In a breakthrough development, a fully recyclable* mono-material PE pouch has been created that has similar properties to barely recyclable multi-material laminated pouches. The new pouches utilize the latest polymers, inks, functional coatings, adhesives and conversion technology and were the product of a unique value chain collaboration of ExxonMobil, Henkel, Kraus Folie, Siegwark and Windmüller & Hölscher. The innovation allows for pouches that provide a high oxygen barrier, outstanding package integrity and excellent shelf-appeal, and produces an almost colorless recycle after the removal of printing ink and the oxygen-barrier coating layer.

Delamination and Deinking:

In order to produce a colorless recycle, the delamination and removal of the printing ink and

coating from the laminate structure is crucial. To this end, Siegwirk's delamination/deinking primer technology was applied on a Windmüller & Hölscher MIRAFLEX", a flexo printing press with a downstream unit. Depending on the requirements either solvent- (SB) or water-based (WB) primer from Siegwirk's CIRKIT® ClearPrime product range are available. Applying industrial hot-washing conditions enables delamination and deinking of the pouch, giving an almost colorless recycle.

High Oxygen Barrier:

Excellent oxygen barrier properties had been achieved through the use of Loctite® Liofol BC 1582 RE, a recently introduced 1-component barrier coating from Henkel, and CIRKIT® OxyBar BC 1582 from Siegwirk. The coating can be applied on both flexo and gravure presses at industrial machine speeds on various substrates, giving excellent transparency. Its compatibility with recycling has been confirmed by Cyclos HTP and it also meets Critical Guidance by American Plastic Recyclers (APR). To match these requirements, appropriate colored and white inks from Siegwirk were used.

Laminating Adhesive:

To improve recyclability, the partners used Henkel's new solvent-free, 2-component polyurethane laminating adhesive, LOCTITE® LIOFOL LA 7102 RE / 6902 RE. The system has been designed for mono-material structures and been recognized for its compatibility with recycling as certified by RecyClass.

Package Integrity:

Outstanding packaging integrity is achieved using ExxonMobil's latest generation of performance polyethylene such as Exceed™ S and Exceed™ XP, in combination with Exact™ materials in the sealant layer. The MDO-PE films had been developed by ExxonMobil and Kraus Folie, employing ExxonMobil HDPE and Enable™ performance polyethylene, and produced on their VAREX™ extrusion line with inline MDO unit.

Shelf Appeal:

High primer transparency combined with consistent print quality and the inherent gloss of the ExxonMobil PE-based MDO film helps to deliver an excellent shelf appeal of the final pouch. Deinking primer, print image and barrier coating had been applied in one step using a Windmüller & Hölscher MIRAFLEX" with a downstream unit.

Collaborating to Create a New Generation of Stretch Hood Films with Sustainability Benefits that also Maintain Performance



ExxonMobil Product Solutions performance polymers protect and preserve products with extremely damage-resistant stretch hood packaging that can

withstand the most demanding stresses, helping brand owners protect their goods through the value chain.

Applications and benefits

Typical stretch hood packaging applications include beverages, packaging food and bottled goods, household appliances, products packed in bags (sand, cement, resins, etc.), packaging materials, and paper and building products.

- Toughness, high tear and tear propagation resistance with excellent puncture resistance for high package integrity, keeping palletized products and appliances protected during transportation and storage to reduce the amount of damaged and returned goods
- Controlled elasticity and high holding force for load stability that keeps products secure during transportation from the factory floor to retail outlets and homes
- High film transparency for easier barcode reading and brand visibility
- Expanded film stretch ratio, which can make it more adaptable to different pallet shapes and sizes
- High snapback and elastic recovery

Ampacet Introduces AA Scavenger for PET and rPET Bottles

Ampacet, a global masterbatch leader, has introduced AA Scavenger 0846, an

additive designed to reduce the level of acetaldehyde in PET and rPET bottles and preserve the organoleptic properties of water. One of the most common thermoplastics in the world, polyethylene terephthalate (PET) is widely used in bottles, containers, trays and other beverage and food packaging. A drawback of PET use for water packaging, however, is the risk of contamination by acetaldehyde (AA), a byproduct of thermal degradation of PET that can occur during PET processing extrusion or injection molding. Ampacet AA Scavenger 0846 acts as a scavenging agent, enabling processors to reduce and control the level of acetaldehyde present in bottle walls and protect the contents from contamination and off taste. At a very low addition rate, Ampacet AA Scavenger 0846 reduces the migration of acetaldehyde by up to 80% while maintaining product quality and brand reputation. By controlling acetaldehyde migration, AA Scavenger 0846 also contributes to circular economy initiatives by allowing the use of higher percentages of recycled PET in preforms and bottles without affecting end product taste.

Toray Leverages Proprietary Nano-multilayer Technology to Create Film that Cuts Electric Vehicle Power Consumption and Supports 5G Communications

Toray Industries, Inc., announced that it has developed a high heat-insulating solar control film for advanced mobility

applications. The film draws on the company's innovative nano-multilayer technology to deliver a transparency that is comparable to that of glass. It also offers world-class thermal insulation from the sun's infrared rays.

In deploying this film on electric vehicles and other advanced mobility applications, Toray demonstrated that the film can cut air-conditioning power consumption. The company additionally found that the film can extend cruising ranges and improve cabin comfort through excellent thermal insulation. It also showed that the film supports 5G communications, whose high radio wave transmittance is essential for autonomous driving.

Global warming has made it vital to conserve energy and cut carbon dioxide emissions. The spread of electric and fuel cell vehicles has accelerated accordingly. This has increased the need for better thermal insulation to enhance cruising ranges and ride comfort.

Toray's PICASUS™ (see note 1) is a nano-multilayer film featuring several hundred to one thousand layers with nanoscale thicknesses polymer layers. Toray enhanced this technology to control the thickness of each layer at the nanometer level. It thereby innovated a high heat-insulating nano-multilayer film (note 2) offering an outstanding transparency and insulating performance that is hard to attain with conventional technologies.

Toray applied this film to the windshield of an electric vehicle. It can cut air-conditioner power consumption during summer driving by around 30%, extending

the cruising range by about 6% (note 3). The company additionally confirmed that the film boosts passenger comfort by reducing body temperatures in summer by 2°C from the levels recorded with regular heat-insulating windows (note 4).

It is important to improve radio wave transmittance to support the 5G mobile network, as electric vehicles employ a range of communication devices to enable automated driving and increase safety.

While the metallic sputter glass that some automobiles incorporate offers superb heat insulation, it impedes radio wave transmission. Toray's film delivers both outstanding insulation and transmittance, as it is metal-free.

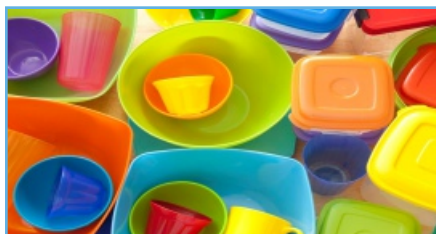
Toray is testing film for automotive windshields and sunroofs and conducting full-fledged customer assessments with a view to deploying the film commercially on vehicles. As well as improving cruising ranges and comfort, Toray's film technology should contribute to carbon neutrality in advanced mobility through its high radio wave transmittance and help expand connected and automated driving technologies.

Toray will keep leveraging core technologies in organic chemistry, polymer chemistry, biotechnology, and nanotechnology to undertake R&D and conceive innovative materials that drive fundamental social change. In so doing, it will endeavor to materialize its corporate philosophy contributing to society by creating new value through innovative ideas, technologies, and products.



PLASTIC RAW MATERIALS

Tosaf Color Service Launches Masterbatch Carrier System



Toast Masterbatch Top view of lots of plastic kitchen utensils, mostly containers

A newly developed, universally applicable masterbatch carrier system from Tosaf Color Service now complies with all common food contact requirements, according to the company. These include the recommendations of the German Federal Institute for Risk Assessment (BfR) as well as the complex and varied regulatory requirements of the USA and China (FDA, China Food Safety Law).

According to Tosaf, any colour where applicable, functional as well as combination masterbatches based on this carrier system can be used across continents without the need for any appropriate applications ranging from translucent and opaque rigid and flexible packaging, toys and household items to components for machinery and equipment used in food processing.

The new UN-F (Universal Food) carrier system is based on a product, which itself already has the relevant approvals, from an established plastics additive manufacturer. As Rudolf Reinhart, Product Manager at Tosaf Colour Service, explains: "Our new carrier system has a very similar structure to our previous standard and is therefore just as compatible with the thermoplastics used in these applications. It also has virtually identical mechanical and processing characteristics, such as good suitability for even sparingly dispersible products. This has been confirmed by all preliminary testing of the carrier system carried out in-house and at Kunststoff-Institut Lüdenscheid and by pilot masterbatch applications at customers. The key difference is that it doesn't contain potentially harmful chemical substances that could migrate into foodstuffs."

Microban Displayed Antimicrobial Solutions for Plastics at InterPlas

Microban International, the global leader in antimicrobial solutions, participated in InterPlas Thailand 2023.

Microban showcased newest antimicrobial innovations for sustainable plastics at InterPlas Thailand 2023.

Promotes Wider Reusability & Recyclability

Plastics enhanced with Microban antimicrobial technologies remain inherently cleaner and fresher for longer. This not only helps to extend the lifespan of the product but also promotes wider reusability and recyclability initiatives, reducing the need for premature disposal and replacement.

Common treatable applications include:

- Food storage containers
- Consumer goods and electronics
- Household appliances
- Medical equipment
- Automotive interiors...and much more!

Plastics are not impervious to the effects of microbial attack.

Bacteria, mold, and mildew, can thrive on plastic surfaces, resulting in premature degradation, staining, and foul odors. This not only diminishes the aesthetic appeal of plastic products but can also lead to diminished performance, leading to premature disposal and replacement.

Additive Masterbatches for Upcycling Recycled PET from Nexam Chemical



Nexam Chemical launches additive masterbatches for recycled PET, thus achieving new success in projects with additives for recycled PET. Nexam has received its first production order worth SEK 0.5 million for thermoformed food packaging. Nexam Chemical has since the beginning of 2022 worked in a project with an Israeli food packaging manufacturer with the goal of increasing the amount of recycled PET in their products.

Increases Intrinsic Viscosity of rPET

Nexam's additive enables the use of a larger amount of recycled PET in the packaging than would otherwise have been possible. The product is now fully developed and technically approved.

The new additive masterbatch facilitates the upcycling of low IV rPET obtained from trays or fibers into a higher intrinsic viscosity (IV) rPET grade. This masterbatch effectively reduces brittleness, enhances melt strength, and stabilizes the process, resulting in faster throughput.

- NEXAMITE®M021200 is an IV enhancer in PET carrier, provides a highly efficient increase in

intrinsic viscosity (IV) and enables the upcycling of rPET. It allows for the recycling of PET into applications that require high IV. This additive is suitable for use in all rPET and PET applications and has been approved for use in food packaging applications. Moreover, it is free from epoxy and epichlorohydrin derivatives.

- NEXAMITE®M992000, a linear IV enhancer in PET carrier, provides an increase in intrinsic viscosity (IV) for enhanced properties. It effectively reduces acid concentration, leading to improved hydrolysis resistance. Additionally, this additive is free from epoxy and epichlorohydrin derivatives.
- NEXAMITE®F101 is an IV enhancer specifically designed for fiber spinning applications. It enables the recycling of fibers from both fiber-to-fiber and tray-to-fiber processes. With this enhancer, it becomes possible to use lower IV rPET for fiber spinning without the need for solid state polymerization (SSP). NEXAMITE®F101 is also free from epoxy and epichlorohydrin derivatives.

Reactive Recycling is a molecular tool to simplify and improve today's recycling. Recycled plastic has lost some properties compared to new raw material. In order to better use recycled plastic, you simply have to improve properties that have been lost, which you do with the help of additives. The recycling process becomes faster, simpler, and more cost-effective compared to several other methods.

NIPPON SHOKUBAI Group Signs MOU with Affiliates to Produce Bio-Olefins

NIPPON SHOKUBAI CO., LTD. (Headquarters: Osaka, Japan, President: Kazuhiro Noda, hereinafter "Nippon Shokubai"), PT NIPPON SHOKUBAI INDONESIA (Headquarters: Banten, Indonesia, President: Shinichiro Yoshimoto, hereinafter "NSI") and PT Chandra Asri Petrochemical Tbk (Headquarters: Jakarta, Indonesia, President: Erwin Ciputra, hereinafter "Chandra Asri") have signed a Memorandum of Understanding (MOU) to jointly explore green chemical* business opportunities.

Through this MOU, Nippon Shokubai as well as its affiliates, NSI, and Chandra Asri will explore the potential to produce 'bio' materials such as bio-naphtha, bio-olefins, and various products that use renewable energy, to produce sustainable derivative products such as acrylic acid, acrylic ester, and superabsorbent polymer (SAP). Study will be conducted to see the feasibility of producing a 'bio' feedstock and creating a new green supply chain in NSI and Chandra Asri's existing plants in Cilegon, maximizing the Company's asset footprint, core competencies, and technologies.

This initiative marks another key program incorporated within Chandra Asri's overarching Environmental, Social, and Governance (ESG) Framework launched in 2022 as part of the Company's focus to maintain its position, including the achievement to listed within the

top 1 percentile of comparable peers, as rated by Sustainalytics, the global ESG rating agency. This bio' project is also planned to be certified by an independent certification body. This initiative is also in line with "Strategic Transformation for Environmental Initiatives" in the Nippon Shokubai Group's long - term vision, "TechnoAmenity for the future" and "Promoting the use of bio - based materials" in its roadmap for reducing GHG emissions by 2050.

It will also reduce CO2 emissions throughout the product lifecycle, contributing to lower carbon emissions toward the Republic of Indonesia's long-term plan, "Indonesia's Long-Term Strategy for Low Carbon and Climate Resilience 2050."

Sinopec Signs Key Terms Agreement with Kazakhstan for Polyethylene Project



China Petroleum & Chemical Corporation (HKG: 0386, "Sinopec") has signed a key terms agreement with KazMunayGaz, the national operator of the oil and gas industry of Kazakhstan, for developing a polyethylene project in the Atyrau Region. Sinopec Signs Key Terms Agreement with Kazakhstan for Polyethylene Project The agreement, signed during Kazakh President Kassym-Jomart Tokayev's visit to

China, marks that Sinopec will participate in and push forward the project as a cooperative partner. The polyethylene project will be the largest natural gas and chemical project in the region, the investment decision of which is expected to be finalized in 2024, and when Sinopec formally joins the project in the future, all parties will sign an equity acquisition agreement and other legally binding documents of relevance. Sinopec and KazMunayGaz have been long-term partners with a solid foundation of cooperation, and the signing of the agreement is bringing the partnership to a new level, leveraging Sinopec's leading advantages in engineering, marketing and sales, production, and operation, as well as KazMunayGaz's firm and strong capabilities in the local market and wealth of resources, to promote mutually beneficial cooperation and achieve win-win development. Sinopec is a listed company on domestic and international stock exchanges with integrated upstream, midstream, and downstream operations, strong oil and petrochemical core businesses, and a complete marketing network. Its parent company, China Petrochemical Corporation, is the largest refining company and the third largest chemical company in the world, with a top 5 ranking on Fortune's Global 500 List.

Introducing Tosaf Fusion: Tailored Solutions for Polymer Compounding and Packaging Industries

Tosaf Fusion, founded in 2017, is in an exciting era of expansion, as seen by the company's imminent transfer to a larger plant in Israel's Alon Tavor Industrial Area.



The new building, with an operational area of 7000 square meters, will house five extra production lines. Tosaf Fusion enables continuous supply and efficient delivery to clients by using Tosaf's production resources. This strategic partnership helps the organization handle rising demand while maintaining high product quality.

Chemical Processes to Introduce Functional Molecules

With a broad product portfolio and the support of Tosaf's vast production capacity, logistics, and inventory, Tosaf Fusion offers tailor - made solutions that empower compounders and packaging manufacturers to achieve remarkable results. As the only global company that can manufacture both masterbatches and grafted polymers, Tosaf Fusion stands at the forefront of innovative solutions. Specializing in grafted polymers, the company employs advanced chemical processes to introduce functional molecules, creating entirely new polymers with enhanced properties.

These grafted polymers serve as binding materials for compounders involved in diverse applications, such as glass fiber compounds, wood plastic composites (WPC), and aluminum-polymer bonding. Tosaf Fusion's expertise extends to the nylon world and encompasses the production of impact modifiers for nylon as well as TIE layers for films.

Tosaf Fusion's products find applications across various industries, including compounders, flexible and rigid packaging manufacturers, and film producers. Partnering with Tosaf Fusion opens doors to an array of additional products available through Tosaf's comprehensive range.

The company's solutions not only cater to immediate needs but also align with sustainable practices. Compatibilizers developed by Tosaf Fusion enable the enhancement of properties in recycled materials, making it easier for manufacturers to utilize scrap materials effectively.

Customization and a Collaborative Approach

One of Tosaf Fusion's key differentiators is its commitment to customization. By adjusting polymer flow and binder concentration, Tosaf Fusion can create custom - made solutions that precisely meet customers' needs. This ability to adapt and provide personalized support ensures seamless integration of Tosaf Fusion's products into existing processes, resulting in enhanced efficiency and optimized results.

Leading Tosaf Fusion is Dr. Meirav Fleischer, with a background in compounding and film production, she comprehends the challenges faced by customers and possesses the expertise to provide tailored solutions. "The company's technical focus ensures that customers receive hands-on support and guidance", says Dr. Fleischer.

Fleischer further added, "Tosaf Fusion values open communication, sharing

knowledge, and working collaboratively with customers rather than selling mysterious "black boxes." This approach fosters strong partnerships and mutual growth".

With its upcoming expansion, collaborative approach, and expertise in customization, Tosaf Fusion is poised to continue transforming the industry by delivering tailor-made, innovative solutions that unlock new possibilities for businesses worldwide.

SABIC Launches New PCR-based NORYL™ Portfolio to Help Customers Reduce Carbon Footprint



SABIC, a global leader in the chemical industry announced its new PCR-based NORYL™ resin technology, formulated using 25 percent or more post-consumer recycled (PCR) content and aimed at providing additional, sustainable material options for customers. The technology was validated through the commercialization of several grades, including NORYL NH5120RC3 resin containing 30 percent PCR content, which helps to lower its global warming potential (GWP) by 10 percent compared to the incumbent, fossil-based grade.

The latest PCR-based technology can be incorporated into more than 200 existing NORYL resin

grades, as well as an unlimited number of new grades based on specific customer requirements. These include a glass fiber-reinforced grade and an unreinforced, non - FR grade. Further, SABIC offers resin customization services to meet specific application requirements, as well as a full array of technical support services. It can help support circularity while maintaining the robust physical properties required for demanding applications. This innovative and sustainable solution is among the first polyphenylene ether (PPE)-based material technologies to incorporate such a significant level of recycled content.

"Our new PCR-based NORYL resin technology is another milestone in SABIC's long-term strategy to address customers' sustainability requirements and support circularity," said Joshua Chiaw, director, Business Management, LNP & NORYL, Specialties, SABIC. "Incorporating a high level of PCR content is just one of our approaches to making our products more sustainable. We have also pioneered chemical upcycling of single - use polyethylene terephthalate bottles and are expanding our use of bio - based feedstocks. These sustainability achievements can be found across SABIC's Specialties business and demonstrate that we are not simply looking to the future – we are delivering breakthrough products today."

Meeting The Challenge Of Creating PCR-based Engineering Thermoplastics

"Developing PPE - based engineering resins with high percentages of recycled material

is not trivial and poses a range of technical challenges,” said Luc Govaerts, technology director, Specialties, SABIC. “With our product and process expertise, our scientists developed a new PCR-based portfolio, and we are now launching our first flame-retardant NORYL material with consistent performance, including hydrolytic and dimensional stability and mechanical property retention in harsh outdoor environments. Depending on application requirements, customers may be able to replace incumbent, fossil-based NORYL grades with our new PCR-based technology and achieve desired performance while reducing their carbon footprint.”

New NORYL NH5120RC3 resin further supports sustainability with non-brominated / non-chlorinated flame retardance. The material, which may be well suited for electrical applications such as heating / ventilation / air conditioning (HVAC) enclosures and photovoltaic / solar junction boxes, has a UL94 flame rating of V1 at 1.5mm. It also delivers a good balance of flow, heat performance and creep resistance.

Metal - Replacement PP Compounds for Sheet, Thermoforming

Resins are also said to offer options to compression and injection molding for forming form large, complex structural parts.

Two new PP compounds from SABIC — H1090 resin and STAMAX 30YH611 resin — are billed as breakthrough materials well-suited for sheet extrusion and thermoforming that are said

to offer a unique alternative to traditional sheet metal forming, compression and injection molding, allowing customers to form large, complex structural parts.

These new products are 30% glass fiber-reinforced, intumescent, flame retardant materials and can be used for electric vehicle (EV) battery pack components such as top covers, enclosures and module separators. Both grades offer excellent thermal barrier properties to help delay or contain thermal runaway propagation.

Furthermore, the extrusion and thermoforming of these materials offer design, system cost, inherent thermal and electrical insulation and weight advantages vs. stamped sheet metal. Compared to injection molding of thermoplastics and compression molding for thermosets, which requires expensive tooling and equipment, extrusion and thermoforming can be more cost-effective and efficient for several cases.

SABIC's development and validation of these new materials is made possible by BLUEHERO, an initiative that supports the automotive industry's mission to create reliable, safe and efficient EVs, with an emphasis on helping optimize structural battery components. BLUEHERO leverages, among other things, SABIC's knowledge of and expertise in large part molding, compression molding, thermoforming and advanced injection molding.

According to Abdullah Al-Otaibi, general manager, ETP & Market Solutions, SABIC: “By providing new alternatives to traditional

materials and processes, SABIC can enable customers to design and manufacture the next generation of battery components while driving down costs and gaining a competitive advantage. Our experts have helped pioneer the successful adaptation of glass fiber-reinforced materials for the extrusion and thermoforming of large, complex, structural parts. The development and validation of these novel resins showcase SABIC's leadership in polymer technologies for vehicle electrification.”

SABIC has validated the mechanical and fire safety performance and the manufacturability of SABIC PP compound H1090 resin and STAMAX 30YH611 resin in EV battery applications with complex geometries, both in its labs and with customers. These materials not only provide new options for the replacement of sheet metal or thermosets in final applications, they can also be used to create prototypes to determine the feasibility of investing in injection molding tools.

Combining Distinct Properties

Both short glass fiber-reinforced SABIC PP compound H1090 resin and long glass fiber-reinforced STAMAX 30YH611 resin feature a distinct combination of intumescence for fire safety and balanced stiffness and ductility. Exposing these materials to vertical and horizontal flames at 1200°C for 10 min. demonstrates excellent flame-retardant behavior. Efficient charring and intumescence keep the temperature of the reverse side of parts lower than 210°C and help prevent burn-through.

Intumescence is enhanced by non - brominated / non - chlorinated FR that meets the UL94 V0 standard at 1.5 mm.

In addition to excellent stiffness, strength and impact resistance over a wide temperature range, key properties of SABIC PP compound H1090 resin and STAMAX 30YH611 resin include dimensional stability, low coefficient of thermal expansion (CTE) and good creep resistance. As the polymer matrix for both products, PP reportedly offers good electrical insulating properties, low density, global availability and good processability.

In addition to these products, SABIC offers injection and compression moldable flame retardant long - and short - glass PP materials, which are well suited for several internal components and complete enclosures of EV battery packs.

Avient and BASF Collaborate to Bring Colored Ultrason® to the Global Market for High - Performance Polymers



Avient Corporation and BASF are now collaborating to offer colored grades of Ultrason® high-performance polymers to the global market. The colored grades feature BASF's Ultrason®

polyarylethersulfones (PAES) as high - quality base polymer combined with Avient's Colorant Chromatics™ high - temperature color formulation expertise for color concentrates and pre-colored solutions.

The collaboration will offer customers in industries such as household and catering, electrical & electronics (E&E), and healthcare a distinctive benefit by providing comprehensive technical support from the base polymer to the final - colored product. As a result, customers will be able to react more quickly to design trends, meet technical requirements as well as color standards, and thereby increase speed to market. The full-color Ultrason® portfolio can also help contribute to a more sustainable lifestyle by enabling reusable, high - quality, and stylish household and catering articles.

Products can be reused by consumers and recirculated by caterers many times while maintaining performance and design. Thus, they support a circular economy, avoiding single-use plastics and reducing packaging waste caused by conventional catering, take-away, and to-go articles.

“The market requirements for colored, high - performance polymers are clear: you have to react quickly and also be able to supply various volumes of colored material,” says Anne Hippert, general manager, Colorant Chromatics at Avient. “With this collaboration, we can offer the best of both worlds in high-performance polymers. Avient is well - known for its specialized color solutions, respecting the customers' final application

requirements, and BASF is well-known for its excellent Ultrason® quality and broad material competency.

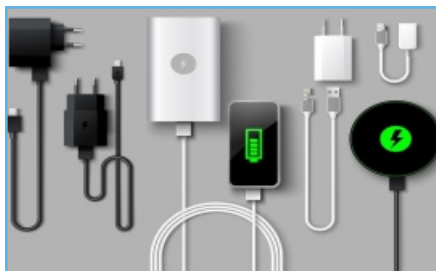
Together, we are committed to bringing innovative PAES to the market, meeting color challenges across multiple industries, including the household and food industry, where we see the use of Ultrason® as a perfect fit for our customers' sustainability efforts by promoting appealing colors for reusable and safe applications.”

“Avient's Colorant Chromatics business is known for being a strong and agile color solution provider for specialty polymers while BASF is a well-recognized producer of high - quality Ultrason®,” says Florian Hennenberger, global business development Ultrason® at BASF.

“By working together, we can now offer customized colors with Ultrason® as a base material to existing and new customers. By combining the global networks of both companies with the color formulation expertise of Avient and the broad material competency and portfolio of BASF, this collaboration will lead to smoother and less complex product development for our customers.”

Avient and BASF have a long history of collaboration in the field of PAES. Through this next stage of cooperation, the companies can more readily meet the demand for various - sized orders with short lead times, with the capability to serve different industries. The colored grades will be formulated and sold by Avient as Colorant Chromatics™ made with Ultrason® by BASF.

Avient Launches Halogen-free Flame-retardant TPE Grades Made with Sustainable Raw Materials for USB-C Cable Jackets



Avient Corporation is expanding its reSound™ BIO bio-based and reSound™ REC recycled content Thermoplastic Elastomer (TPE) portfolios with the launch of a new range of halogen-free flame-retardant (HFFR) grades containing recycled and bio-based resin. These new grades have been developed to meet the growing demand for consumer electronic applications made with sustainable raw materials and meet strict FR compliance without compromising performance or processability, like USB-C connector cable jackets.

“Consumer electronic product brands and manufacturers are increasingly searching for material solutions to enhance the sustainability of their products and operations and to meet rising consumer demands,” says Matt Mitchell, global marketing director, Specialty Engineered Materials at Avient. “To meet those needs, we are now offering added value for our customers in the USB-C cable market with a new product line of flame-retardant TPEs that incorporate post-consumer recycled (PCR) or bio-based content, resulting in a 15% to

25% product carbon footprint (CPF) reduction over incumbent virgin solutions.”

Besides relying on the verified halogen-free technology of all flame-retardant reSound TPEs, Avient's new low-PCF HFFR formulations include two reSound BIO grades with up to 45% bio-based content and one reSound REC FR grade with up to 30% PCR content. All three products have a hardness range of 80 to 90 Shore A and a UL94 V-0 flammability rating at 3.2 mm wall thickness. This can help customers meet the VW-1 test specification for cables according to UI1581 while achieving enhanced sustainability targets.

The new HFFR grades also exhibit good ultraviolet (UV) resistance performance and excellent processability for extrusion molding. They can be used in various consumer electronic cable applications, such as USB-C cable jackets for smartphones, tablets, personal and laptop computers, chargers, adapters, television sets, gaming devices, and more. These new HFFR reSound BIO and reSound REC TPE grades are currently manufactured in Asia and are available globally.

About Avient

Avient Corporation provides specialized and sustainable material solutions that transform customer challenges into opportunities, bringing new products to life for a better world. Examples include:

- Dyneema®, the world's strongest fiber™, enables unmatched levels of performance and

protection for end-use applications, including ballistic personal protection, marine and sustainable infrastructure and outdoor sports

- Unique technologies that improve the recyclability of products and enable recycled content to be incorporated, thus advancing a more circular economy
- Light-weighting solutions that replace heavier traditional materials like metal, glass and wood, which can improve fuel efficiency in all modes of transportation and reduce carbon footprint
- Sustainable infrastructure solutions that increase energy efficiency, renewable energy, natural resource conservation and fiber optic / 5G network accessibility

Asahi Kasei and Mitsui to Collaborate on Biomethanol Supply and Procurement Systems



Asahi will use the biomethanol to produce engineering resins such as acetal. Asahi Kasei Corporation and Mitsui & Co., Ltd. will establish a supply and procurement scheme for biomethanol produced in the United States. Through this scheme, Asahi Kasei plans to use the biomethanol procured from Mitsui to produce in Japan engineering plastics with a lower carbon footprint than existing products.



PLASTIC MACHINERY

Integrated Injection System for Blood - Collection Tubes



Husky Technologies announced the installation of the first integrated injection molding system for blood collection tube (BCT) production in India at CML Biotech Limited (Kerala), one of the largest BCT manufacturers in the country.

CML Biotech is utilizing Husky's ICHOR injection molding system, an integrated unit based on the company's long - earned expertise in high - cavitation PET preform technologies. ICHOR features an integrated robot and auxiliaries, with a single HMI and integrated controls. In a video without specifying the cavitation, Husky advertises a 5.3 second cycle time for the system with 97% efficiency. It also touts advanced mold alignment for reduced wear and extended tool life.

The ICHOR system will be monitored in real - time through Advantage + Elite, Husky's predictive monitoring service. Husky says this will ensure that the system's performance is optimized, and any potential issues are detected before impacting production.

Earlier in 2023, Husky announced investment and expansion in the Indian market, a country it's done business in since 1999. These include additional capacity and capability for manufacturing hot runners; the addition of an Advantage + Elite monitoring center; the expansion of local OEM parts inventory; and the support of its 10 - person strong team of trained service technicians.

Since the sale of that first PET system into India in 1999, Husky says its presence in the country has grown to include more than 250 systems in the field and delivery of more than 500 hot runners per year.

Husky says the ICHOR system for the production of blood - collection tubes installed in India is the first of the line to be installed.

Plastic Injection Moulding Machines, Made in India by Supremac Machinery



Supremac Machinery is one of the leading companies in India, engaged in the business of manufacturing & exporting of plastic injection molding machines, which are fully automatic, under brand name of "SUPERMAX". The products offered by Supremac are used to mold highly meticulous industrial components. Our products are applicable in distinct plastic molding industries. Our cost effective range of products comprises to our models types. These products are developed & designed as per the specific standards led by various governing bodies including Bureau of Indian Standard.

We manufacture machines as per the standard quality norms using latest & most energy efficient hydraulic & electronic

Systems capacity ranging from 50 tons to 350 tons. We also undertake manufacturing of tailor made machines to cater special needs of Our clients. We manufacture machines for special purpose materials like Rigid PVC, PPR, PET ABS, Glass filled Nylon, etc.

Supermac Machinery has been established in the year 1990 at Ahmedabad, India under the visionary of Mr. Panchal who has immense in - sight about the concerned industry segment. Since then, we are involved in manufacturing & delivering standard industry products in a cost effective range through which we can successfully meet the customer's specific needs. With our customer oriented services and technological sophistication, we are able to maintain an impressive record in a very short period.

Sustainability in the Bag: AD*STAR Sacks Developed and Patented by Starlinger



High - quality tear - proof plastic sacks save tonnes of dry bulk goods that would otherwise go to waste or contaminate the environment. Made of woven polypropylene tape fabric, Starlinger's AD*STAR block bottom valve sacks are highly resistant to breakage and can help to reduce product loss in the dry bulk industry. AD*STAR sacks were developed and patented by Austrian machine

manufacturer Starlinger & Co. GmbH, the leading supplier of machinery and complete plants for the production of woven plastic packaging. The sacks are used for packaging a wide range of freeflowing goods such as cement and other building materials, fertiliser, chemicals or resin, and also for food like flour, sugar and animal feed.

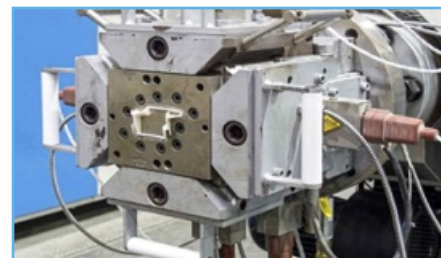
Strong and Recyclable Packaging AD*STAR sacks are block bottom valve sacks made from coated polypropylene tape fabric and sealed with a patented hot - air method without the use of glue or sewing threads, making them a mono - material packaging that is easy to recycle. The sack bottom and top are closed in a special conversion process by means of hot air welding. The use of high - strength polypropylene for fabric production and the tight sealing of the sack bottom and top ensure low breakage even during rough handling, dropping, or after contact with water. The precise production process on Starlinger's AD*STAR sack conversion lines ensure high - quality sacks with minimum size variations. Currently, more than 17 billion AD*STAR sacks are produced on Starlinger lines installed on five continents every year.

Is Your Die Flow Changing Despite Following all the Correct Formulas?

Let's troubleshoot and look at the steps which may be causing the flow shift.

- **Pressure** : Back pressure is usually monitored and recorded in most extrusion shops but is seldom manipulated to

optimize the process. When a new tool is tuned, the pressure is recorded as a standard and not questioned if it is correct. Many articles have been written on the how low head pressure can cause poor screw performance in a single - screw extruder. What we are looking for in pressure as it pertains to flow shift in the die is consistency. A consistent pressure should always be presented to the die for stability.



- **Melt Temperature** : Much like pressure, the melt temperature should always be presented to the die in a consistent manner to ensure stability.
- **Die Land** : If the die - land ratio is not sufficient, the lowered residence time (along with a lack of back pressure) will create flow shift and instabilities. Many shops tend to start out light on the land ratio and do not have sufficient land for stability after the land is reduced in the development process. Be steel safe and err on the extra landside. As an added benefit, land reduces the swell of the material as it exits the die. Most materials call for a 15:1 land ratio or greater.
- **Heater Bands** : In a past article, I wrote about the five heater band principles being one of the most overlooked variables of the extrusion process. Let's assume you have read the article

and corrected any deficient principles of the five and heat to the die is correct and consistent. At this point, you may want to go back and read that article and do a double check on the heater bands. to use the shuttle function, it is perfectly capable of operating as a standard single - mold machine. "It does not hold your machine captive," he says.

Ok, so what if the pressure, melt temperature, die land and heater bands all check out, but the dreaded flow shift happens anyway. There is one more thing to do, which many times will stop flow shift : Lubricate the tooling.

Lubrication Can Improve Drag Flow The cavity of a streamline plate does not fill equally because the channel lengths are different, with varying lengths of drag flow. The bigger the tool, the larger the cavity to fill and the greater the potential for problems. Lubricate all components of the tooling while hung on the extruder, before starting up. The initial pressure will be reduced but will increase and reach a stabilization point. Many times, the improved drag flow will eliminate the flow shift issue.

Double Production and Stay Competitive in Injection Molding

The Shuttle Mold system enables users to inject parts in two molds with a single injector, turning cooling time for one part into productive time for another. The Shuttle

Mold System from Canon Virginia allows a molder to turn cooling time into productive time. The system enables the injector to make parts in a second mold while the part in the first mold cools.

Every injection molding machine knows cooling time is lost productivity. They spend hours of engineering time and thousands of dollars just to shave a few seconds off a cycle. Unfortunately, improvements to cooling time necessarily bottom out. There is simply no way around the fact that plastic must cool down before it can come out of the mold, and you can only reduce cooling time so much before you run into issues affecting part dimensions and physical properties.

Faced with this reality, one company decided that instead of making cooling time shorter, it would turn this lost time into production time. To do this, **Canon Virginia** uses a shuttle system to switch between two molds using a single injection molding machine. Because they can simultaneously mold two parts at the same time, total part cycle time can be dramatically reduced which the available capacity of the molding machine goes up significantly. Here's how they do it.

Two Molds Are Better Than One The **Shuttle Mold System** from **Canon Virginia** relies on a simple premise: Rather than waiting for the part to cool before beginning a new cycle, the system runs two separate molds in a single press simultaneously. The process

begins with the system injecting plastic into the first mold, which the system then unclamps and moves the mold out of position as it shuttles the second mold into place. As the part in the first mold cools outside the machine, the system clamps the second mold into place and injects the plastic into it. Finally, the system unclamps and moves the second mold out of position, bringing the first mold back into place where it can eject its part and restart the cycle.

According to Canon Virginia Director of Business Development Wayne Daniel, this process came about after Canon started changing how they thought of cooling time. While common practice treats any time spent cooling as time wasted, the company recognized that there were diminishing returns with that approach. "It's a known fact that molded parts have to have cooling time, whether it's short or long," he says. "Instead of reducing it, we asked ourselves how we can utilize it."

Here we can see the Shuttle Mold in action. After the first part is injected, the mold moves out of the way and the machine moves on to inject in a second mold.

Depending on the process, the Shuttle Mold can **improve efficiency** as much as **200%**. "It's not a fit for every process," Daniel says, "as it relies on a cooling time long enough to accommodate an additional injection." Smaller injection molding machines and parts with short cooling times simply do not see as much benefit as

parts more suited to the process. "Once you get to 30-second cycle times, the Shuttle Mold can start showing productivity improvements over a single - mold process," says Daniel. "Once we can effectively double the production over a single mold, we can hit 200% efficiency."

Additionally, the cost savings the Shuttle Mold System provides are exceptional. Compared to the cost of buying two separate machines, including dryers and other auxiliary equipment, purchasing a single machine with the capacity of two provides excellent savings. "You can double your production speed for one part," Daniel says, "or you can produce two different parts with a single machine. Both options save you a lot of money in the long run."

The Nuts and Bolts

While the concept is simple, the engineering that went into making the Shuttle Mold is advanced. "It requires integration with the machine maker, including both the physical shuttle and the software," Daniel says. "However, it can work with any molding machine that can be easily upgraded."

When cooling times are around 30 seconds, the Shuttle Mold can start showing productivity improvements over a single - mold process. Under the right conditions, Canon Virginia can effectively double the production rate, as this chart shows.

While the tooling is quite like a standard injection mold, the mold base needs to meet certain conditions to work with

the rollers that shuttle the molds into position. "This is not a problem for new molds," Daniel says, "as this can be incorporated in the tool design. It does mean reworking existing molds, however." Other modifications are relatively minor such as relocating existing water and electrical connections.

As you can see here, the two molds used in the Shuttle Mold System do not have to be identical. You can have two molds making the same part, or you can have completely separate parts in production.

According to Daniel, injection molding machines are not limited to always using the Shuttle Mold system on machines equipped with it. If, for example, a company needs to run other molds on the machine and does not wish to use the shuttle function, it is perfectly capable of operating as a standard single - mold machine. "It does not hold your machine captive," he says.

Canon Virginia is actively involved in supporting its customers, working with them to develop processes and providing support. "We developed this system to improve the cost and efficiency of producing inkjet printer parts in - house," Daniel says. "It started out with an end - user focus because we are end users."

Since the first public demonstration at the 2018 National Plastics Expo, Canon Virginia has seen interest in its system grow. "At first, we sometimes see resistance to the

idea, as it runs counter to the philosophy most molders work by," Daniel says. "But shaving a few seconds off of cooling, or even cutting cooling time in half just isn't as efficient as working straight through the cooling cycle."

Ensuring Repeatability : The Key to Effective Injection Molding Automation

One of automation's key promises is repeatability : the same movement to the same location, time and time again. But to achieve that, all elements involved - robot, machine, EOAT, mold - must be in and stay in alignment.

As finding and training talented staff becomes ever more difficult, injection molders across the country are looking to improve their current automation and add more. While automation is a perfect fit for molding, it can come with some growing pains and at times feel like a step backwards.

If your robot is alarming every 5 minutes, leaving parts in the mold, damaging the parts or dropping them on the floor, it may feel like the automation you installed to take the place of the operator now requires a technician to stand by and babysit it. All automation is reliant on repeatability - the same thing needs to happen, the same way, on every cycle. When everything is repeatable, automation works great - that is what it is good at. The more variation you add, the more problems you will see ;

so let's look at some of the sources of variation and how to deal with them.

Variation from Robot Alignment

A largely overlooked source of variation in molding automation is the alignment of the robot to the machine. If the robot wrist is not parallel to the platen, it will be difficult to get the end of arm tool to line up with the mold properly. Adding an alignment check to the robot preventive - maintenance plan will allow you to correct any misalignment before it affects your production. This can be as simple as bringing the wrist plate up to the platen and visually checking for misalignment; or you can be more precise, mounting a dial indicator to the robot and checking alignment across the platen. Misalignment can be corrected in two places: at the point where the robot base is mounted to the machine (usually the stationary platen) and at the wrist itself.

Variation from Mold Alignment

Not having a level mold can cause problems in automation as well. Just 1 degree off level causes a 0.2 - in. position shift across 12 in. That will be the difference between cleanly picking the part and running into it with the gripper fingers. Most molders have their techs level the mold before clamping it in. The tech sets his bullet level on the mold; eyeballs it to see that the bubble is on center; and clamps it in. For a two - to four - cavity mold with easy - to - grip parts, that may work fine. For large molds with small parts and delicate features, consider adding alignment pins to

the back plates of the molds and sockets to the movable platen. This is a one - time expense that will ensure correct mold alignment on every setup.

Variation from EOAT Alignment

When the end - of - arm tool (EOAT) is attached to the robot wrist you have potential for misalignment to the robot wrist and to the mold. I highly recommend using a quick - disconnect system for the EOAT. This ensures correct alignment to the robot wrist every time with minimal effort. For large, multicavity tools, I also recommend including alignment points for the EOAT in the mold design. For those, I usually use two small taper - lock fittings. The female fitting gets installed on the mold, and the male fitting mounted to the end - of - arm. Then when you set up the end - of - arm, you can use the taper locks to align the EOAT to the mold before tightening down the mounting bolts.

Other Variation from EOAT

Each different mold you run will have its own EOAT. Many end - of - arms are built using aluminum extrusions commonly known by the trade name 80/20. Many manufacturers offer EOAT build kits that mount to the aluminum extrusion and allow you to build custom EOAT by attaching suction cups, grippers, fingers, etc. to the extrusion in the correct position. The shortfall of this method is that adjustable EOAT can, and will be, adjusted. It can also come out of adjustment over time due to rough handling and storage, or movement and vibration during production. Also common with these types of

EOAT is a large number of air/vacuum tubes zip - tied onto the end - of - arm. This makes it more difficult to set up repeatedly, as the hoses get tangled, and if they're not properly traced they can cause the end - of - arm to not function properly.

Cloud - Based Platform Monitors Machine and Plant Health



SACMI says Smart Care is a cloud - based platform designed to help customers optimize plant control and maintenance via new assistance services and proactive problem - solving.

SACMI says Smart Care runs continuous in - depth health checks on machines, exploiting artificial intelligence (AI) to analyze large quantities of data collected in the cloud. On the basis of real - time data and user assigned parameters, processors can monitor key KPIs such as plant availability and MTBF (mean time between failure).

The platform can also provide statistical reports on shutdown causes by analyzing all machine-generated alarms and mean time to repair (MTTR). Users can also keep other process variables under control, analyzing them either individually or in aggregate form according to relevant criteria.

CIRCULAR ECONOMY/ BIO-PLASTICS/ RECYCLING

Planned Facility to Produce Mechanically Recycled Polystyrene for Food Packaging



EGN, Ineos and Tomra plan 40,000 tpy recycling plant for PS in Germany. Sorting technology supplier Tomra and styrenics market leader Ineos Styrolution are part of a partnership with plans to develop a recycling plant for post-consumer PS in Krefeld, Germany.

The third project partner is the regional waste management company EGN Entsorgungsgesellschaft Niederrhein, a subsidiary of the utility company Stadtwerke Krefeld. The partners announced on Tuesday that EGN would build the mechanical recycling plant which will be able to process up to 40,000 tonnes of post-consumer PS per year. The facility, which is expected to go into operation in mid-2025, is to produce recycled polystyrene for food packaging applications.

The municipal waste management company EGN is to be responsible for sorting and washing the collected PS waste, while Ineos Styrolution will be responsible for the "super-cleaning" purification process necessary to comply with European Food Safety Authority (EFSA) requirements for food contact applications.

An agreement has been reached with Tomra to provide sorting technology and feedstock, said Ineos. Tomra Feedstock will collect post-consumer polystyrene waste from discarded food packaging and deliver it to the new site in Krefeld, according to the project announcement.

When contacted by EUWID EGN managing director Pierre Vincent said the company was investing €60m in the project which would create 30 new jobs. He expects the dairy industry to especially benefit from the new offering. The process allows them to "mechanically recycle from yoghurt pot to yoghurt pot, creating a true circular economy for this material," Mr Vincent said.

Jürgen Priesters, managing director of Tomra Feedstock, said, "We are proud to contribute to

this first commercial - scale polystyrene mechanical recycling facility for food contact applications. Polystyrene has the right composition to be mechanically recycled for food applications. The mission of Tomra Feedstock is to keep PS in true circularity."

Ineos CEO Steve Harrington called the project an exciting step forward for the industry. "Already, we see high interest from customers and brand owners to secure long - term contracts," he noted.

The plastics group Ineos announced plans to significantly expand its production of recycled PS last autumn. It said at the time, it had initiated a cooperation with a recycling company in the state of North Rhine-Westphalia as part of which it planned to build a recycling plant for polystyrene packaging from the Germany's "yellow bag" separate collections for household packaging waste.

Covestro Drives Forward Technologies for Recycling

In view of the upcoming UN conference which aims to develop a legally binding agreement on

plastic pollution, Covestro is emphasizing the need for more innovative recycling technologies, required to boost the currently low recycling rates of used plastics. Covestro has already achieved success with the development of its novel chemical recycling. In addition, the company plans to establish a global research center for processing plastic waste together with six other chemical groups.

In Paris, from May 29 to June 2, another round of international negotiations ("INC-2") will focus on drafting a global agreement against plastic waste pollution, which should be in place by the end of 2024. The international community initiated the process in spring 2022 at the United Nations Environment Assembly. According to the Organization for Economic Cooperation and Development (OECD), around 22 million tons of plastic waste, including microplastics, enter the oceans and the environment each year¹. Without countermeasures, the annual amount could double by 2060.

"Resource consumption is on the rise and mountains of waste are growing – with negative consequences for the environment and climate. We urgently need to take countermeasures here and fundamentally change consumption habits and production patterns," emphasizes Dr Markus Steilemann, CEO of Covestro. "We need to make the circular economy a reality, and recycling is crucial here, in addition to the production of long-lasting and resource-conserving products. Covestro can and wants to play a central role in this." Joint research center for processing plastic waste

Currently, the global recycling rate of plastic waste is only nine percent². But with more recycling on an industrial scale, one study suggests that nearly 60 percent of plastic production could be met by recycled materials by 2050, reducing petroleum consumption by 30 percent³. This is where the World Economic Forum comes in, through its Low Carbon Emitting Technologies initiative, which promotes collaboration on a global scale to accelerate the development of low carbon emitting technologies for chemical production, including processing plastic waste. Seven international chemical companies, including Covestro, have signed a collaboration agreed to establish a research and development center together with the Dutch research institute TNO. Initial work will focus on the sorting, cleaning and conditioning of plastic waste to make it suitable for subsequent recycling technologies.

One key problem is that some types of plastic cannot be recycled, or can hardly be recycled at all. That is why Covestro is pushing the development of chemical recycling as an additional method. This involves breaking down used plastic into its chemical components so that new material can then be produced from these molecules.

Breakthrough for mattress foam recycling

Covestro has achieved a technological breakthrough for the chemical recycling of soft foam for mattresses. So far, around 40 million of these end up in waste incineration plants or landfills each year in the

European Union alone⁴. With the new "Evocycle CQ-Mattress" process, the two central foam components can now be recycled. At the company's Leverkusen site in Germany, this process is being further developed in a pilot plant with the prospect of industrial use.

The chemical recycling of rigid foam for insulating buildings and refrigeration appliances is the focus of a Europe - wide research project CIRCULAR FOAM initiated in 2021 and coordinated by Covestro. Here, 22 partners from nine countries are working together. If the material cycle can be closed, around one million metric tons of waste and three million metric tons of CO2 emissions per year could be saved in the European Union from 2040.

In order to also improve the recycling of food packaging made of paper and cardboard, Covestro has been offering a new development on the market since May 2023. For this purpose, the company has developed a special coating material that, unlike conventional coatings, can be recycled together with the packaging. It is also produced itself in the spirit of circularity - with raw materials that are partly based on plants.

¹Source: Global plastic waste set to almost triple by 2060, says OECD

²Source: Plastic pollution is growing relentlessly as waste management and recycling fall short, says OECD

³Source: Recycling and the future of the plastics industry | McKinsey

⁴Source: The End-of-Life of Flexible Polyurethane Foam From Mattresses and Furniture - Europur

54,000 Tonnes of rPET Per Year: ALPLA Expands Recycling Plant in Poland



ALPLA is continuing the global expansion of its circular economy with the expansion of its recycling plant in Radomsko (Poland). The internationally active packaging and recycling specialist is investing around eight million euros in the third extrusion line at the site. The annual production capacity will increase from 30,000 to 54,000 tonnes of food - grade PET recycling material (rPET). This makes the PET Recycling Team (PRT) Radomsko one of the largest recycling plants of its kind in Europe. ALPLA is expanding the PET Recycling Team (PRT) Radomsko in Poland with a third extrusion line. With an annual production capacity of 54,000 tonnes, the recycling plant is one of the largest plants of its kind in Europe.

Packaging specialist ALPLA is securing the long-term supply of food - grade PET recycling material (rPET) by expanding the recycling plant in Radomsko. The internationally active company is investing around eight million euros in a state - of - the - art extrusion line. Ten years after its opening, the PET Recycling Team (PRT) Radomsko is one of the largest recycling plants for this material in Europe with a production capacity of 54,000 tonnes of food-grade rPET pellets per year.

“ALPLA stands for sustainable packaging solutions made of plastic. As a system provider, we develop products optimised for recycling, process high proportions of recycle in production and take care of efficient recycling. With our global focus on recycling and our commitment in Central and Eastern Europe, we make a significant contribution to the regional bottle-to-bottle cycle,” explains Dietmar Marin, ALPLA Managing Director Recycling Division. Packaging and recycling specialist ALPLA processes used PET bottles into food-grade PET recycling material at the PET Recycling Team (PRT) Radomsko.

Promoting the recycling loop

By 2025, all PET beverage bottles in the EU should contain at least 25 per cent post-consumer recycled (PCR) material. With the expansion of the site in Poland, ALPLA is creating the basis for meeting the EU requirements in the regional markets. “We actively work with customers to create closed loops for PET packaging and accompany them on their sustainability path. To this end, we are taking care of meeting tomorrow's needs today and already have some excellent examples in reality,” emphasises Mariusz Musiał, ALPLA Country Manager Poland. “With this investment we are targeting the Polish market in particular and ensuring that sufficient rPET is available to our customers”, adds Beata Szykiewicz - Razik, Commercial Director of PRT Radomsko.

ALPLA invests around 50 million euros annually in the global expansion of its recycling

activities. With lighthouse projects such as reusable PET, bottles made from 100 per cent rPET and the recent start of production at the joint venture recycling plants ENVICCO (Thailand) and PET Recycling Team Targu Mures (Romania), the company is fully on track. This was followed in June 2023 by the announcement of the first recycling plant in Africa in Ballito, South Africa. The total annual production capacity of all recycling companies and collaborations is around 266,000 tonnes for rPET (recycled PET) and 74,000 tonnes for rHDPE (recycled HDPE).

One of Europe's Main Recycling Hubs for Beverage Cartons Starts Operations, Backed by Tetra Pak and Stora Enso



Lausanne, Switzerland, 21 June 2023 – With a joint investment of around €29 million by Tetra Pak and Stora Enso, a new recycling line for post-consumer beverage cartons is starting operations in Poland. The line has the potential to triple the annual recycling capacity of beverage cartons in the country - from 25,000 to 75,000 tonnes – and provides scope to absorb the entire volume of beverage cartons sold in Poland, as well as additional volumes from neighbouring countries, including the Czech Republic, Hungary, Slovakia, Latvia, Estonia and Lithuania.

Featuring an annual capacity of 50,000 tonnes, the state-of-the-art line at Stora Enso's production unit in Ostrołęka (Poland) handles solely beverage carton material separation, detaching fibres from polymers and aluminium. The fibres are then recycled into cardboard materials, effectively contributing to material circularity by turning used paper - based packaging into new paper - based packaging materials. This new paper recycling facility is complemented by Czech company Plastigram Industries that, together with Tetra Pak, is industrialising a solution to recycle polyAl¹ into new products.

"For decades, we have been working to enhance beverage carton recycling capacity, co-investing with recyclers, technology providers and suppliers in new equipment and facilities" comments **Lars Holmquist, EVP Sustainability & Communications at Tetra Pak.** "In 2022, Tetra Pak contributed nearly €30 million² to collection and recycling projects worldwide, with plans to go further and invest up to €40 million annually over the next years. As part of the Alliance for Beverage Cartons and the Environment (ACE), we support the industry ambition to increase the collection for recycling rate of beverage cartons to 90% and the recycling rate to 70%, in the EU, by 2030. I am very pleased to see that our collaboration with Stora Enso translates into one of the largest recycling hubs for beverage cartons in Europe, contributing to this ambition. This is also an excellent example of how systemic and collective actions can help keep quality renewable materials in the loop - like paper fibres from recycled cartons."

"We are very pleased to see the results of our close cooperation with Tetra Pak, who, like Stora Enso, has the development of sustainable solutions at their core. This new modern solution marks a significant addition to European recycling capacity and a concrete step forward in the circularity of consumer packaging. In addition to complementing the current scope of our production site in Poland, the recycling facility will significantly contribute towards the recycling and waste reduction goals of the EU's proposal for a Packaging and Packaging Waste Regulation," says **Hannu Kasurinen, EVP Packaging Materials at Stora Enso.**

The new line is set to ramp up recycling of beverage cartons throughout Central and Eastern Europe, signaling the beverage carton industry's willingness to support the circularity goals of the proposed EU Packaging and Packaging Waste Regulation (PPWR), and showcasing the pivotal role of recycling in helping the green transition of the food packaging sector. The industry has already invested approximately €200 million to increase the capacity for beverage carton recycling in the EU and plans to invest a further €120 million by 2027.³

UPM Biochemicals and Selenis form Strategic Alliance to Develop Sustainable PETG

Partnership to develop PETG made from renewable, sustainably sourced forest biomass for use in a variety of packaging applications



Finland's UPM Biochemicals and Portugal - based Selenis, a subsidiary of the IMG Group, have formed a strategic partnership to produce sustainable PETG (polyethylene terephthalate glycol) resin that will accelerate the introduction of renewable, sustainable forest-sourced materials into plastic applications. Highly - transparent and FDA - approved PETG is used in a broad range of applications including cosmetics and personal care packaging, heat shrink sleeves, and durable goods, such as bulk dispenser.

UPM will supply Selenis with its new sustainable bio monoethylene glycol (MEG), called UPM BioPura, to make partial BioPETG. UPM BioPura is produced from sustainably sourced, certified hardwood obtained from forests in the regions around Leuna in Germany, where the company is building the world's first industry scale biorefinery converting woody biomass into next generation biochemicals. The biomass does not compete with food resources and will enable manufacturers a viable option to redefine their net zero targets and significantly reduce their scope 3 emissions by switching effortlessly from fossil - based, to a renewable, drop - in ingredient.

Selenis is a global premium supplier of specialty copolyesters for diverse markets and applications. The company focuses its product innovation on

developing products that are fully recyclable in the PET stream and has revolutionary technology that upcycles plastic waste into new polymers, replacing fossil-fuel feedstocks with recycled polyester raw material. According to the company, converters and brand owners can now customize their PETG products to reduce their carbon footprint, by adding bio and recycled content, with no performance trade-offs. Said Selenis' chief sustainability officer Marta Matos Gill,

“We center our innovation efforts in markets where the pressure for recyclable solutions is higher because the life of the product is shorter, meaning end-of-life solutions are more critical. The packaging and the cosmetics industries are two examples where brand owners prioritize circularity.”

Said Michael Duetch, UPM's v.p. for biochemicals, “We will work with Selenis to deliver outstanding solutions for their customers, enabling them to innovate towards sustainable packaging solutions with a significantly reduced greenhouse gas footprint. As the packaging industry is truly striving for a more environmentally friendly future, incorporating biobased materials like UPM BioPura alongside an ever-increasing share of recycled materials will be an essential part.”

Evolving Opportunities for Ambitious Plastics Recycler

St. Joseph Plastics grew from a simple grinding operation and now pursues growing markets in recycled PP, food-grade

recycled materials, and customized post-industrial and post-consumer compounds.

Consumer goods brands have set ambitious targets for incorporating recycled plastics into their products, in response to consumer preferences and regulatory mandates. If the targets are to be met in the near future, the industry will rely upon mechanical recyclers to reprocess a range of materials reclaimed from various points in the value chain into a variety of resin grades and compositions for a multitude of applications. An example is St. Joseph Plastics of St. Joseph, Mo., which has been building up this proficiency since the 1980s..

St. Joseph Plastics was founded in 1987 by Jerry Thacker, an injection molding machine operator who found a market for plastic scrap that was being discarded by his employer. By 1990, the business had moved from a garage to a 5-acre facility and grown to include two grinders and five full-time employees. Despite the success of the young venture, Thacker decided to sell. The new owners took over a business with an expanding customer base but plenty of space for growth, both literally and in terms of sophistication.

“We really wanted to make the processes better, hire good people, and differentiate through quality,” says Rob Starr, St. Joseph's current owner and president. “At the time we were maybe a 'C' level supplier, and our goal was to work our way up to 'A'. We want to be our customers' and suppliers' Number 1, so that when market

conditions are tough and the other guys are being knocked out, we're the ones to supply that last piece of business.” With a focus on building relationships and producing quality regrind, St. Joseph Plastics continued to expand throughout the 1990s and 2000s, engaging new customers and finding new sources of scrap.

Fundamentally, the focus of the business remained the same: buying, grinding and selling. Then, in 2009, the company decided to expand its offerings to include pellets and purchased its first extruder. From 2010 to 2012, further investments in a lab and additional extruders prepared St. Joseph Plastics for entry into the compounding business. “You really can't do anything until you have a good lab, and it took some time to build that up. We then became a compounder and started to offer more resins to more customers,” says Starr.

Recycled Materials Lost a Major Outlet

Around that same time, material recovery facilities (MRFs) had started to collect and provide the first bales of post-consumer PP. St. Joseph began tests with the material and soon developed and successfully marketed pellets of that versatile resin. For years, however, many MRFs did not collect PP or did not separate resin codes 3 to 7 (that is, a mix of plastic waste from which PET and HDPE have been removed). Around 2018 to 2020 the economics began to change.



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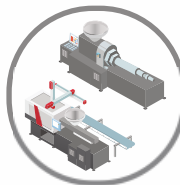
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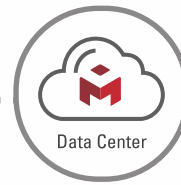
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