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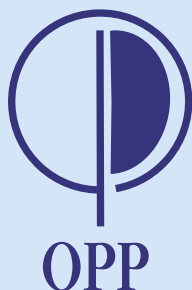
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FROM THE PRESIDENT'S DESK

Mr. Dilip Parekh



Dear Members,

Greetings from Organization of Plastics Processors of India!

In my last and earlier messages I have been talking to you regarding the emphasis to be laid on exports of Plastic Value Added Products from India.

During July 2023, India Exported Plastics worth USD 956 million lower by 14.6% from USD 1,119 million in July 2022.

The cumulative value of plastics exported during the period April 2023 to July 2023 was USD 3,741 million as against USD 4,395 million during the same period last year, registering a decline of 14.9%.

In view of the above OPPI is considering taking delegations to countries with big export potential for Plastic Value Added Products.

The Council on Energy, Environment & Water has said India's export of around \$37 billion, amounting to about 43% of the country's exports to the European Union as of 2022, are likely to be impacted due to the bloc's various non-tariff measures (NTM), including the Carbon Border Adjustment Mechanism (CBAM).

As a report titled "Sustainability-driven Non-Tariff Measures : Assessing Risks to India's Foreign Trade", the product categories at risk due to the proposed sustainability - focused EU regulations include textiles, chemicals, select consumer electronics products, plastic and vehicles. These items accounted for 32% of India's exports to the EU in 2022, valued at about \$27 billion. We have represented to Joint Secretary (Petro-Chemicals) that the implementation of QCO on Polyethylene should be deferred to April 2024.

Amid weakening global prospects, the Indian Economy is gaining strength led by domestic private consumption and fixed investment with strong public sector capital expenditure.

I once again appeal to you to concentrate efforts on exports of Plastic Value Added Products.

With Best Wishes,

Dilip Parekh
President

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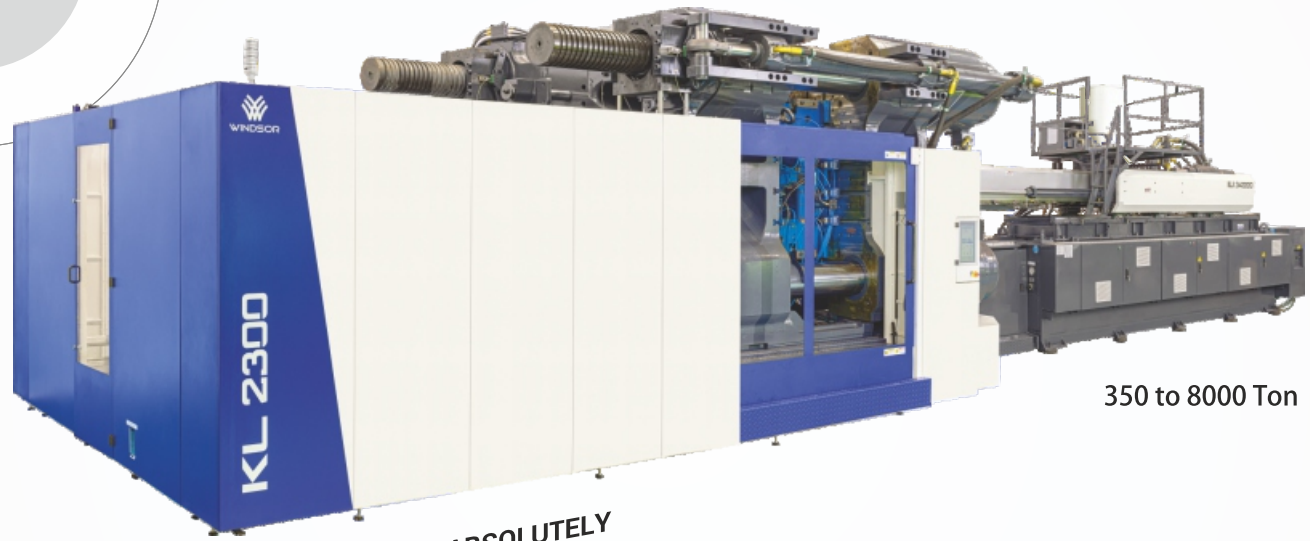
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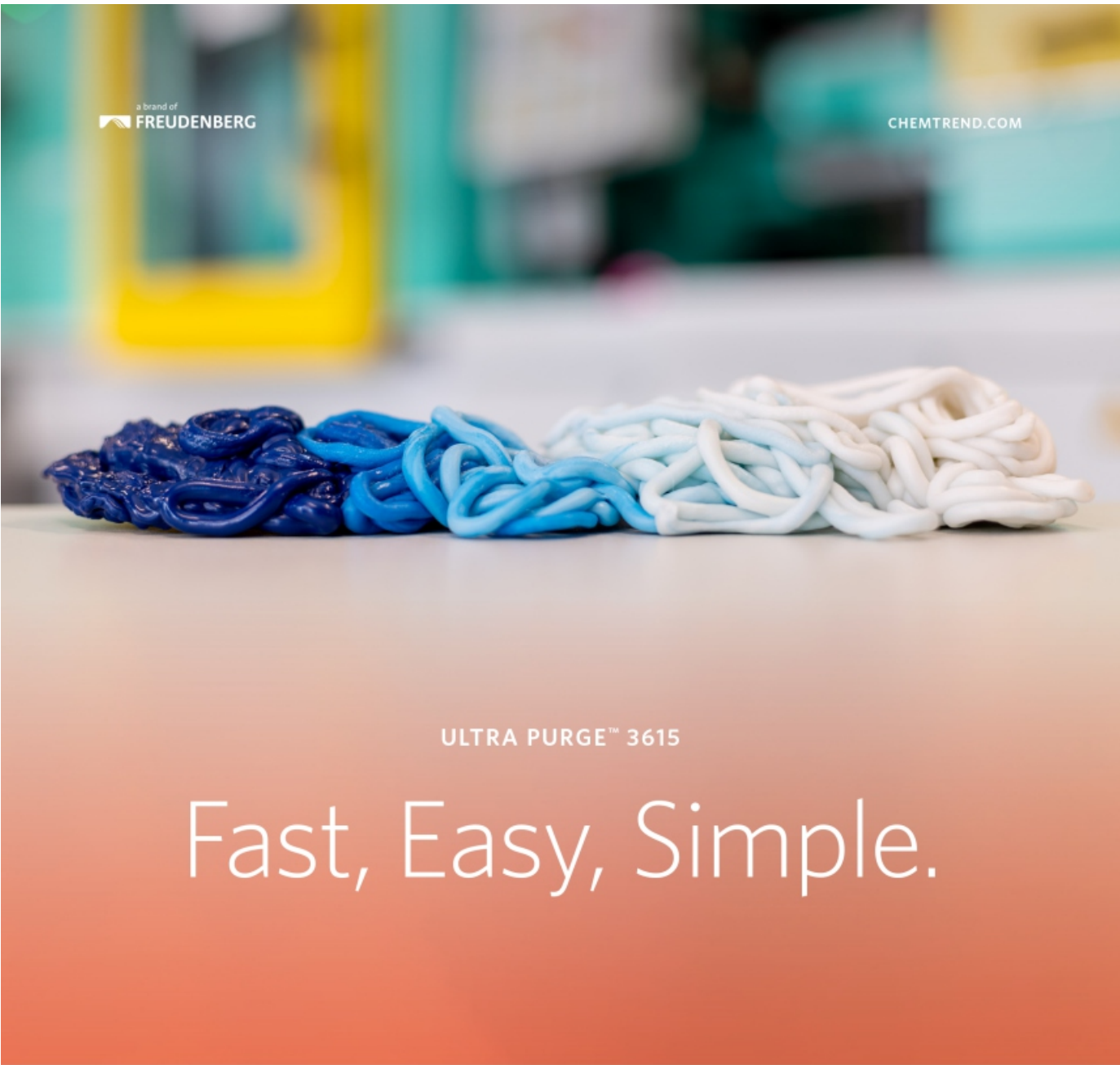
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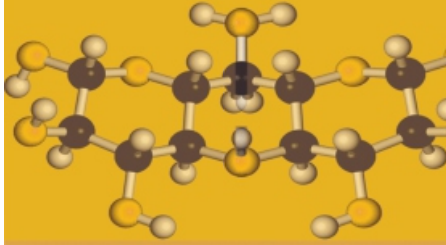


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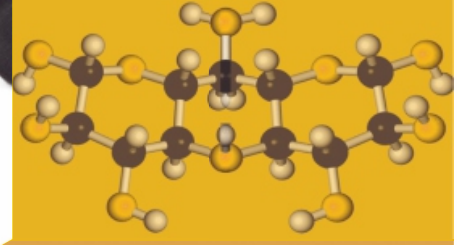
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NEWS FROM INDIA

Mrs. Nivedita Shukla Verma, IAS Takes Over as Secretary, Department of Chemicals and Petrochemicals



Mrs. Nivedita Shukla Verma is an officer of the Indian Administrative Service and joined service in 1991. Prior to her present assignment as Secretary in Department of Chemicals and Petrochemicals, she worked as Joint Secretary in Cabinet Secretariat of Government of India, Principal Secretary of Food & Civil Supplies Department in the State of Uttar Pradesh and as Additional Secretary and Special Secretary in Ministry of Defence. She has also served as District Magistrate of Rampur, Dehradun and Saharanpur Districts in the State of Uttar Pradesh. She holds a Post Graduate degree in English Literature and Post Graduate Diploma in Public Policy and Management from Indian Institute of Management, Bengaluru.

India's Prime Minister Shri Narendra Modi Lays the Foundation Stone for BPCL's Rs 49,000-cr Bina Refinery Complex

India's Prime Minister, Shri Narendra Modi, laid the foundation stone for the downstream petrochemical chemical and refinery expansion at Bharat Petroleum Corporation Ltd's (BPCL's) existing complex in Bina, Madhya Pradesh, on 14th September 2023. Proposed to be constructed at an initial cost of Rs 49,000 crore at BPCL's Bina refinery in Bina Sagar, Madhya Pradesh, this state-of-the-art petrochemical refinery is being built in line with the aspirations of New Bharat.

According to a statement from the Ministry of Chemicals and Fertilizers, Government of India, the planned investment of Rs 49,000 crore will bring prosperity and happiness to the entire Bundelkhand region. Under this project, the capacity of the Bina refinery will be enhanced to 11 million metric tonnes per annum (MMPA) which will produce more than 2.2 million tonnes (2,200 kilotons) of petrochemical products.

The Ministry has proposed to complete the construction and setting up of plant and machinery

within five years. The ethylene cracker complex will use captive feedstock like naphtha, liquefied petroleum gas (LPG), kerosene, etc. from the Bina refinery. Once completed, this petrochemical complex will bring many diversified employment opportunities to the young entrepreneurs of the Bundelkhand region.

Rising imports of various grades of raw materials (US\$ million)			
Particulars	Average monthly import for the December-February period		Increase (%)
	Between FY 2017-18 and 2021-22	Between FY 2022-2023 period	
Linear low-density polyethylene (LLDPE)	18.67	64.45	245.23
Ethylene-alpha-olefin copolymers, having a specific gravity below 0.94	33.09	97.5	194.63
Polymers of ethylene, in primary forms	29.45	80.73	174.1
Polyamide (6-12) nylon moulding powder, flake chip	27.04	68.72	154.12
Polyethylene with a specific gravity of above 0.94	181.18	454.41	150.8
Low-density polyethylene (LDPE)	30.95	70.11	126.5

Source: Department of Chemicals and Petrochemicals

Additionally, this petrochemical complex will open the door to various downstream manufacturing units in the fields of plastic, pipes, packaging materials, plastic sheets, automobile parts, medical equipment, moulded furniture, and other items of household and industrial applications. This petrochemical refinery will also help India steadily move towards self-reliance in ethylene production.

The Ministry's statement further mentions that the government of Madhya Pradesh has been supporting the project by providing fiscal incentives under the State Goods and Services Tax (SGST) refund, interest-free loans, interest subsidy assistance, concessional power, and exemption of stamp duty, among others.

This investment will further result in creating more than 100,000 direct and indirect employment opportunities, along with savings of foreign exchange valued Rs 20,000 crore per annum, which India currently invests in importing various ethylene products. During the financial year (FY) 2022-23, India imported linear low-density polyethylene (LLDPE) worth US\$ 64.45 million, marking a staggering increase of over 245 percent from the average value of its imports reported at US\$18.67 million between FY2017-18 and FY2021-22. The value of imports of polymers of ethylene in primary forms jumped by 174 percent to US\$ 80.73 million in FY2022-23, compared to the previous five years' annual average of US\$29.45 million. Imports of

other grades of polymers also experienced rapid growth in recent years.

India's polymer import for calendar 2022	
Particulars	Volume ('000 tonnes)
Polyvinyl chloride (PVC)	1435
Polypropylene (PP)	960
High density polyethylene (HDPE)	595
Linear Low Density Polyethylene (LLDPE)	540
Low Density Polyethylene (LDPE)	340
Polycarbonate (PC)	229
Ethylene-vinyl Acetate (EVA)	182
Polyamide (PA)	170
Chlorinated Polyvinyl Chloride (CPVC)	164
Polyethylene terephthalate (PET)	140

Source: All India Plastic Manufacturers Association (AIPMA)

Opportunities in ancillary industries

India's Ministry of Chemicals and Fertilizers is confident that several ancillary industries will automatically develop with the emergence of hundreds of greenfield units in and around Bina Sagar to associate with BPCL's Bina refinery. Additionally, there will be a large number of employment generation opportunities in downstream industries and service units.

The project aligns with India's aspiration to make the country self-sufficient in polymer supply under the 'Atmanirbhar Bharat Mission', establishing a global manufacturing hub for chemicals and petrochemicals while moving towards realizing the

goal of making India a US\$ 5 trillion economy in the foreseeable future. India is also taking all possible measures to see its economy grow to the level of a developed country by the country's Centenary Year of Independence in 2047.

In addition to polymers, BPCL's Bina refinery will produce aromatics (benzene, toluene, mixed xylene, among others) from the complex, which have significant usage in downstream industries, ancillaries, and service units such as lamination films, bubble, and stretch wraps, shipping sacks, housewares, lids, shopping baskets, drip irrigation tubing, toys, etc.

Industrial products, including multilayer films, garbage bags, raffia bags, housewares, storage bins, water tanks, crates, luggage, industrial containers, pipes for gas and water, cable sheathing, etc., will also find potential around the BPCL's current Bina refinery. Additionally, BOPP films, automobile parts, furniture, housewares, woven fabrics, jumbo bags, raffia bags, rigid packaging, food packaging, storage containers, paint pails, pipes, etc. will be preferred derivative products of the feedstock proposed to be produced at Bina complex. Production of petrochemicals or chemicals (styrene, phenol, acetone, cumene, nitrobenzene, aniline, etc.) proposed to be produced at this complex will find applications in a wide gamut of industries such as paints, pharma, and automotive sectors.

This project will catalyze industrial development in Madhya Pradesh and the entire Bundelkhand region, with easy access to petrochemical

feedstock. It will enable the government's vision of setting up a 'Petroleum Chemicals and Petrochemicals Investment Region (PCPIR) in Madhya Pradesh, which will attract major investments in segments such as films, fibers, injection moulding, blow moulding, pipes, conduits, automobile parts, among others.

Source: PolymerUpdate

Reliance Industries' Transitions Towards a Practical Solution for India's Serious 'Energy Trilemma'

Reliance Industries Ltd (RIL), India's largest private sector company, has announced its uniquely positioned offering to provide a practical solution to India's ongoing and serious 'energy trilemma'. The world's fastest - growing Indian economy calls for a greener and more sustainable approach to ensure its continued growth over the long term, aiming to achieve the goal of becoming the third-largest gross domestic product (GDP) by 2027, as envisioned by India's Prime Minister Shri Narendra Modi. Moreover, the present situation warrants immediate action on climate change to reduce carbon footprints and attain the status of a 'developed nation' by India's Centenary year of Independence in 2047.

Speaking at the shareholders' meeting, RIL's chairman and managing director, Mr. Mukesh Ambani, stated, "India's 'energy trilemma' demands action to overcome three challenges: i) Affordability of energy: Ensuring that every citizen and every

economic activity in India has access to adequate and affordable energy; ii) Sustainability of energy: Rapidly transitioning from fossil fuel-based energy to clean and green energy; and iii) Security of energy: De-risking the expanding needs of a fast-growing Indian economy geopolitical rivalries, conflicts, and political supply disruptions."

India's position in energy security					
Particulars	Unit / base	2019-20	2020-21	2021-22 (P)	2022-23(P)
Crude oil production in India#	MMT	32.2	30.5	29.7	29.2
Consumption of petroleum products*	MMT	214.1	194.3	201.7	222.3
Production of petroleum products	MMT	262.9	233.5	254.3	266.5
Gross natural gas production	MMSCM	31,184	28,672	34,024	34,450
Natural gas consumption	MMSCM	64,144	60,981	64,159	60,311
Natural gas consumption	MMSCM	64,144	60,981	64,159	60,311
Crude oil imports	MMT	227.0	196.5	212.4	232.6
Petroleum products imports	MMT	43.8	43.2	39.0	43.8
Gross petroleum imports	MMT	270.7	239.7	251.4	276.4
Petroleum products export	MMT	65.7	56.8	62.8	61.0
LNG imports	MMSCM	33,887	33,198	31,028	26,647
Net oil and gas imports	\$ billion	92.7	63.5	113.4	144.1

Source: Ministry of Commerce and Industry, Government of India; #includes condensates

RIL's new energy and material business, which envisions a total investment of Rs 75,000 crore, addresses this 'trilemma'. Green energy is becoming affordable as

its costs are already lower than those of non-renewable sources, and they are expected to decrease further. Additionally, green energy generated through sunlight and wind speed is sustainable, as the Sun and wind are unlikely to disappear. Furthermore, green energy enhances security because India will no longer be dependent on large - scale imports of its energy needs.

Green initiatives in the oil and gas business

Gas plays a pivotal role as a transition fuel in India's pursuit of clean and sustainable energy. In collaboration with British Petroleum (BP), RIL has revitalized gas production in the KG-D6 Block which had almost ceased a few years ago, now reaching approximately 20 million standard cubic meters per day (MMSCMD) in the financial year (FY) 2022-23. The partnership achieved successful commissioning and the secure delivery of gas from the R-Cluster and Satellite-Cluster projects in FY 2020-21 and 2021-22, respectively.

In the current year, RIL has successfully commissioned one of the most intricate and cost-efficient deep-water projects of this magnitude - the MI Field, situated within the KG-D6 Block. This includes a state - of - the - art Floating Production Storage and Offloading (FPSO) unit, one of the world's largest and most intricate, with a gas production capacity of 14 MMSCMD. Achieving this commissioning within less than three years establishes it as one of the swiftest projects in the industry. The company is well on track to further elevate production to 30 MMSCMD, which will

constitute 30 percent of India's gas production and 15 percent of its current gas demand.

“At a time when global energy supplies and prices are experiencing unparalleled volatility and uncertainty, this gas stands as a significant source of clean energy, leading to annual savings of up to US\$7 billion in imports for the country. We are pursuing further additional enhancements through our exploration endeavours in KG-UDW1 and KG-UDW2 blocks in the Krishna - Godavari Basin, with the objective of sustaining gas production over the next 15-20 years,” stated Mr. Mukesh Ambani.

RIL stands as India's sole company boosting proven capabilities in exploring and producing oil and gas from deep and ultra-deep blocks. The company has committed to harnessing these capabilities in areas related to renewable energy, including offshore, wind, and Geothermal initiatives.

Net carbon zero by 2035

RIL is accelerating its journey to achieve net carbon neutrality by 2035, leveraging renewables and bio - energy to foster a sustainable and environmentally friendly business model. The company is making significant progress in establishing a new energy ecosystem that encompasses solar, solar, wind, batteries, hydrogen, and bio - energy platforms.

“This will enable us to expedite the development of our renewable generation assets, providing round-the-clock electricity for our captive requirements and meeting the growing needs of Indian

consumers. The cost of renewables will be considerably lower compared to fossil fuel-based energy. As a result, this will lead to reduced energy costs and improved profitability for the O2C business,” stated Mr. Ambani.

Furthermore, the company is accelerating circularity and integration with consumers. It is also focusing on scaling up chemical recycling technology to create application-specific green products, which will enable the company to access high-value, high-potential customers in new value chains. Through technology and innovations, RIL has commenced the conversion of certain low-value refinery streams at Jamnagar, Gujarat, into recently launched highly specialized Halo - Butyl Rubber grades and a new Purified Isophthalic Acid plant, which is currently in the commissioning phase.

Strong tailwinds in new energy

With climate change looming large, the world is undergoing a multi - decadal era of transformation from fossil fuels to green energy. This shift necessitates substantial investments in skills and capabilities, technology and innovation, as well as the establishment of large - scale manufacturing ecosystems. All of these factors will provide robust momentum to the company's new materials and energy business.

With the goal of positioning India as a global leader and pioneer in energy transition, the upcoming years are poised to be transformative, as RIL maintains its focus on expediting the execution of its Dhirubhai

Ambani Green Energy Giga Manufacturing Complex at Jamnagar, Gujarat. Additionally, the company prioritizes the establishment of a fully-integrated, end - to - end solar photovoltaic (PV) manufacturing ecosystem. This endeavour will result in one of the world's largest, most technologically advanced, flexible, and cost-competitive solar giga factories, capable of transforming sand into solar PV modules. The company's plan entails the phased operationalization of this solar giga factory by the end of 2025.

Giga-scale wind power generation

RIL has made significant progress in developing a manufacturing ecosystem necessary for achieving cost - efficient wind power generation at giga scale. One of the major cost drivers in wind blade manufacturing is carbon fiber. The company's large-scale entry into carbon fiber production provides a unique advantage for further integration and cost reduction in wind turbine manufacturing.

The company is also exploring the possibility of partnering with leading technology players in wind equipment manufacturing to deliver the most cost-efficient solutions. Moreover, the company aims to leverage its engineering and construction capabilities, coupled with its large - scale manufacturing ecosystem, to expedite and facilitate the installation of at least 100 gigawatts (GW) of renewable energy generation by 2030.

Concurrently, the company's priority is to establish a battery gigafactory by 2026. This facility

will manufacture battery chemicals, cells, and packs, encompassing containerized energy storage solutions. The giga factory will also include a battery recycling facility to create a truly integrated ecosystem. RIL's sodium - ion battery technology is also on the verge of commercialization, positioning the company to achieve a leadership role by industrializing sodium-ion cell production at the megawatt level by 2025 and rapidly scaling up to giga-scale thereafter.

Green hydrogen foray

According to Mr. Ambani, RIL has drafted a roadmap to achieve a targeted cost for electrolyzers, and subsequently for green hydrogen, by attaining competitive costs in renewable power generation and implementing a giga-scale deployment of input materials. Collaborating with technology partners, RIL aims to initially demonstrate this on a megawatt-scale, leveraging its engineering capabilities, large-scale manufacturing expertise, and local resources to optimize the project for giga - scale implementation.

Concurrently, the company is in the process of planning a fully integrated, automated, giga-scale electrolyzer manufacturing facility. "This will enable us to establish large - scale green hydrogen production at Jamnagar, progressively transition our captive requirements, and simultaneously integrate green ammonia and green methanol production for domestic and international markets," Mr. Ambani added.

Source: Polymer Update.

Amcor Announces Acquisition of Scalable Flexible Packaging Plant in High-growth Indian Market



Amcor, a global leader in developing and producing responsible packaging solutions, announced it has entered into an agreement to acquire Phoenix Flexibles, expanding Amcor's capacity in the high - growth Indian market.

Phoenix Flexibles has one plant located in Gujarat, India, and the business generates annual revenue of approximately US\$20 million from the sale of flexible packaging for food, home care and personal care applications.

Amcor currently has four flexible packaging plants in India. The business has delivered double-digit organic sales growth per annum over the last three years, significantly outpacing growth in the underlying market, and is also investing to double its local footprint in the Pharmaceutical and Medical packaging categories.

The addition of Phoenix Flexibles' well capitalized and strategically located production facility will immediately increase Amcor's capacity to satisfy continued high demand and drive strong returns for shareholders. The acquisition also adds advanced film technology, enabling local

production of a broader range of more sustainable packaging solutions, and brings capabilities allowing Amcor to expand its product offering in attractive high-value segments.

Amcor Flexibles Asia Pacific President Mike Cash said, "Amcor continues to see substantial opportunities to grow our flexible packaging business in India. With this acquisition, we are investing to maintain and build upon the significant momentum the business has delivered over several years. The scalable nature of the acquired facility, combined with the localization of new capabilities, further enhances our customer value proposition in this attractive high - growth market."

Cosmo First Results – Expects Worst to be Behind

Cosmo First Limited declared its financial results for the quarter ended June 2023.

The results for the quarter would have been better by Rs. 20 Cr but for the non - repetitive inventory loss arising from the sharp drop in prices of raw material towards the quarter end.

In Rs. Crores	Q1 Fy24	Q4 Fy23
Net Revenue	658	715
EBITDA	55	74
EBITDA %	8.4%	10.4%
PAT	14	32
EPS (In Rs.) (not annualized)	5	12

During the quarter, the BOPP demand has started picking up and the demand-supply balance

should get restored in the coming quarter(s). In the case of BOPET where the supply is far in excess of demand, it will take many more quarters for a supply - demand gap to bridge. Margins are therefore likely to remain under pressure with little downside risk.

The exports markets showed signs of improvement with better speciality sales. Cosmo with over two third of its revenue coming from BOPP speciality films could withstand the margin pressure better than the industry. We continue to build our speciality films portfolio by adding speciality polyester films including shrink label and sun shield films which would further strengthen our overall margins and also the ability to withstand margin pressures, if any in the future.

The Company's Petcare vertical (Zigly) continues to grow rapidly and clocked monthly revenue (GMV) with a run rate revenue of Rs.3 crores on the back of expanding retail footprints, innovative sales promotion, and increasing online presence. The acquisition of Petsy, an online venture in the Petcare space, is complete and would further accelerate the growth of the Petcare vertical.

The Speciality Chemical subsidiary is set to launch newer adhesives in H2, FY24.

Commenting on Company's performance Mr. Pankaj Poddar, Group CEO, Cosmo First Ltd. said "The Company is working on multiple growth drivers including speciality BOPET films, sun shield film, rigid packaging, specialty chemicals, petcare, etc. We are

optimistic that these initiatives will provide impetus to faster growth of the Company in the coming years. In the short-term, we remain focused on increasing specialty sales & grow new businesses."

Cosmo - Shaping Future Trends, Cosmo Films Showcases New and Innovative Products at Domestic and International Exhibitions

Cosmo First, a global leader in speciality films participated in four prominent trade shows in the label and packaging industry. The company exhibited at Label Expo, Brussels from 11-14 September 2023, Pack Expo, Las Vegas from 11 - 13 September 2023, ANUTECH, Mumbai from 7-9 September 2023, and IICE, Kolkata from 13 - 15 September 2023 highlighting its latest product offerings and industry - leading innovations.

These exhibitions provided a platform for Cosmo First to display its innovative solutions that are reshaping the packaging industry. With a focus on sustainability and cutting - edge advancements, Cosmo First showcased how its products are creating a global impact across various sectors. Sharing his thoughts on the same, Mr. Pankaj Poddar, Group CEO, Cosmo First Limited said, "As pioneers of innovation, we have engineered high - quality and sustainable products to meet the evolving needs of our clients. Such events hold immense significance, as it offers us a platform to engage with customers and industry

leaders in these regions and widen our consumer base. This underscores our commitment to delivering industry - first and environmentally conscious solutions to our esteemed clientele."

Cosmo First showcased its extensive range of speciality packaging, label, lamination, synthetic paper, promotional films and industrial films along with Cosmo Plastech (Rigid Containers) and Cosmo Sunshield (Window Films) for various applications in these exhibitions. The company leveraged these exhibitions to foster new collaborations and partnerships, exchange industry knowledge, and gain a deeper understanding of customers' requirements to deliver the most effective and innovative packaging solutions. With a strong focus on innovation, quality, and sustainability, Cosmo Films has emerged as a preferred partner for several leading brands across the globe.

SABIC Receives BIS Certification for Five Plants to Export ISI - Mark Polyethylene to India From September

Saudi Arabia's Basic Industries Corporation (SABIC), a Saudi Arabian - controlled petrochemical manufacturing company, has announced that its five ethylene resin - producing plants have received compliance certificates from the Bureau of Indian Standard (BIS). As a result, all orders placed on SABIC Asia Pacific Pte Ltd, an affiliate of SABIC, for the supply of low-density polyethylene (LDPE), linear low-density polyethylene

(LLDPE), high-density polyethylene (HDPE) to India shall bear the relevant license number starting from September 1, 2023.

In a letter addressed to its Indian customers, Dhaval Shah, Senior Manager of Distribution (Rest of Asia) at SABIC Asia Pacific Pte Ltd, stated, "SABIC values your business association and is committed to upholding high standards of quality as a responsible supplier. We are pleased to inform you that SABIC's five manufacturing plants supplying polyethylene (PE) for moulding and extrusion to India are now BIS certified. Therefore, effective September 1, 2023, all orders placed with SABIC Asia Pacific Pte Ltd for supplies to India will include the ISI (Indian Standards Institution) Mark and the corresponding license number affixed on each bag containing PE resin from our certified plants."

The five BIS-compliant plants include Arabian Petrochemical Company Petrokemya Al-Jubail Complex, Yanbu National Petrochemical Company (Yansab), Saudi Yanbu Petrochemicals Co (Yanpet), Eastern Petrochemical Company (Sharq), and Saudi Kayan Petrochemical Company (Saudi Kayan).

SABIC's handling of annual product volume (million tonnes)						
Particulars	Calendar year 2021		Calendar year 2022		Change (%)	
	Production	Sales	Production	Sales	Production	Sales
Petrochemicals and specialties	45.9	37.2	47.9	40.0	4	7
Agri-nutrients	7.6	6.2	8.3	6.7	9	9
Hadeed	4.6	4.4	5.2	5.2	12	19
Consolidated	58.2	47.8	61.4	51.9	6	9

Implementation extensions

Founded in 1976, SABIC is a publicly traded company based in Riyadh, Saudi Arabia, and is ranked among the world's largest petrochemical manufacturers. According to the company website, 70 percent of its shares are owned by Saudi Aramco while the remaining 30 percent are publicly held. The company operates in approximately 50 countries around the world and boasts 65 world-class manufacturing and compounding plants across the Middle East, Asia, Europe, and the Americas. However, the company has not provided any information regarding whether the cost of PE resin will increase after obtaining the BIS certification.

In fact, under the auspices of the government of India, the BIS introduced quality control norms for polyethylene for the first time in early 2021, initially for a period of six months. The implementation of this notification, however, has been repeatedly extended to six-month intervals. Currently, it has been extended four times, with the current norms set to expire on October 1, 2023. Similar notifications were also issued for polypropylene (PP) and polyvinyl chloride (PVC), with their deadlines extended by another six months, until February 2024. Traders are hopeful that the implementation deadline for the quality norms for PE will also be extended for another six months.

"The plastic upstream and downstream industries were severely affected by the spread of the coronavirus (COVID-19) and its subsequent waves during the calendar years 2020 and

2021. These two years witnessed a significant blow to the global economy, and the entire plastic value chain, from raw materials to finished products, was no exception. Consequently, the Indian government's decision to mandate BIS certification for trading was premature," said a senior official from a prominent plastic products manufacturing company.

Reports indicate that other producers in the Middle East, Northeast Asia (excluding China), and Southeast Asia have also obtained BIS certification. However, some producers are still awaiting the final audit check reports, which were recently completed. They are expected to obtain BIS certification in September. With this development, nearly all primary clients of SABIC are anticipated to secure BIS licenses within the next few months.

Industry concerns

Traders were initially displeased with the requirement and implementation of a distinct BIS quality standard, especially given that global players like SABIC adhere to stringent quality regulations in developed regions such as the United States and the European Union. Other producers in developed countries expressed concerns about the scrutiny of their plants and products, fearing potential breaches of their intellectual property rights (IPRs).

However, industry leaders like SABIC view India as a promising and expansive market for the future, which is why they pursued BIS certification. This move is likely to motivate

other international suppliers to also seek BIS licenses for exporting PE to India in the future, according to an importer. Meanwhile, India's Ministry of Chemicals and Petrochemicals has already coordinated third-party inspections, facilitating visits and ensuring necessary assessments at manufacturing locations sites across the globe.

Certain global suppliers also raised objections to the separate requirements of imprinting the ISI Mark alongside the BIS logo on bags designated for exports to India. All these concerns voiced by global PE manufacturers have been resolved to facilitate a smooth transition from non-BIS Mark compliance to embracing the quality standards represented by the ISI logo.

A true global leader

With Saudi Aramco's acquisition of a 70 percent stake in SABIC in June 2020, SABIC is now positioned as Saudi Aramco's chemical arm and a leader in the global chemical industry. Collaborative efforts with Saudi Aramco in the realm of petrochemicals have already been fortified, capitalizing on strong customer relationships, market positions, and an appealing product portfolio to cater to the growth markets of China, India, Southeast Asia, and North America.

These markets will be served through a variety of feedstock asset platforms and associated investment models. Primarily situated in Asia, Saudi Arabia, and North America, these growth platforms will be empowered by a combination of competitive advantages originating from both

Saudi Aramco and SABIC. These advantages encompass favourable and abundant feedstock, integration of refinery petrochemicals, cutting-edge technology, such as crude oil-to-chemicals (O2C) project, and robust strategic partnerships where applicable.

The industry is facing mounting pressure to take substantial measures against plastic waste, repurpose waste as feedstock, and earnestly mitigate the release of greenhouse gases during manufacturing processes. In the forthcoming years, SABIC envisions that sustainability will assume an even more central role in the strategic direction, striking a balance between business expansion and the trajectory toward carbon neutrality and a circular economy.

Mr. Ashok Chaturvedi, CMD, UFlex Limited, Unveils a Report on 'Recyclability of Multi-layered Aseptic Packaging' at a PPRDC Roundtable



Mr. Ashok Chaturvedi, Chairman and Managing Director, UFlex Limited, released a study report on 'Recyclability of Multi-Layered Aseptic Packaging' at a special roundtable organized by Plastics Packaging Research and Development Centre (PPRDC). The report was unveiled in the

presence of Mr. Deepak Mishra, Joint Secretary, Department of Chemicals and Petrochemicals, Government of India, and Prof. (Dr.) Shishir Sinha, DG-CIPET.

Mr. Ashok Chaturvedi, Chairman and Managing Director, UFlex Limited said, "We welcome the government's initiatives toward clean India as it is a stepping-stone for a clean planet. As a global leader in packaging, we have made significant investments in industrial and MLP (multi-layer mixed plastic) waste recycling facilities across our global locations and very recently, in multi-layer aseptic recycling technology".

"Historically, multi-layer aseptic packaging is considered "non-recyclable" as the packaging structures are made of a mix of materials (such as paper, polyethylene, and aluminum foil). Multi-layer aseptic packaging mostly ends up in landfills or is incinerated. UFlex has invested in an advanced Enzymatic Delamination Technology to enable aseptic packaging recycling. Enzymatic delamination utilizes enzymes to break down the bonding between different layers of the packaging materials, allowing for the separation of individual layers such as paper and polyethylene / foil laminate which can be reused in the production of new products. Uflex has set up a state-of-the-art aseptic packaging recycling facility in Gwalior and would like to invite brand owners, civic bodies, NGOs, and recyclers to visit our facilities and learn more about this technology". "This report will help brand owners and recyclers appreciate the technical processes, possibilities, and financial returns on recycling

MLAP (multi-layer aseptic plastic) waste. In a country like India, this could provide a direction for the treatment of aseptic plastic waste in a sustainable manner and bring circularity in aseptic packaging”.

“We all realize that this world cannot do without plastic packaging, and it is the biggest contributor to our farmers' income. 90% of the produce from farmers is made available to consumers thanks to MLP packaging. While we have invested our own time and money, and developed technology to pave the way for recycling in India, we believe that adequate regulatory support in creating the right environment to boost recycling is the need of the hour. Often, a well-drafted law accelerates the pace of change like nothing else.”

Mr. Anantshree Chaturvedi, Vice Chairman and CEO of Flex Films International, said, “The PPRDC roundtables are a great initiative to bring all stakeholders together to discuss industry trends and best practices toward a collective goal. We recently showcased our global sustainability project called 'Plastic Fix' at the PRDC roundtable that applies recycling, pyrolysis, biodegradable enzymes, and other practical solutions to enhance the recyclability and circularity of plastics.”

UFlex Announces Financial Results for the Quarter Ended June 30, 2023

The research and development and business teams at UFlex continued the momentum of progressive innovations across



business verticals in Q1FY24. The focus on continuous innovation and development has enabled the company to win several awards and patents in the quarter ended 30 June 2023.

Packaging Films

High-barrier alox (F-PSX) film:

The F-PSX is a high-barrier transparent BOPET film. It has a protective printable layer atop a high barrier vacuum deposit on one side and primer coated or untreated on the other side. The critical attributes of F-PSX include excellent moisture and oxygen barrier properties, higher yield over PVDC coated films, PVDC/EVOH (PE) coated film replacement, environmentally friendly, high clarity, and product visibility.

Chemicals Business

Flex beam shrink sleeve matt opaque white:

The flex beam shrink sleeve matt opaque white is an electron beam (EB) curable flexo white for shrink sleeves films developed by the UFlex Chemicals business. EB Shrink exhibits high opacity matt finish, tailored adhesion properties, and shrink characteristics that are formulated to print on a variety of shrink films as well as coated papers, films, and label stock on latest generations machines like Comexi Ci8 and other EB Flexo machines. It offers excellent rheology and flexibility with a

shrink property of more than 70%. It provides enhanced opacity and adhesion to all types of sleeve material like PVC, PET, PET-G, OPS, OPP, etc.

Flexseal HSL OGR (HV): It is an environment-friendly aqueous dispersion coating by UFlex Chemicals, especially designed as oil and grease-resistant, heat-sealable coating for paper and paper board applications. It is suitable for direct food contact applications as per FDA regulations. This product is approved and commercialised for paper board food tray applications.



Flexseal HSL 1025(G): The Flexseal HSL 1025(G) is an environment-friendly aqueous dispersion by UFlex Chemicals, especially designed as a heat-sealable coating for Kraft papers used in eCommerce paper bag applications. This coating is primarily used on paper for coating-to-coating side sealing on registered areas via the rotogravure process.

Flexcote HSLV 1170/ HF 200:

The Flexcote HSLV 1170/HF 200 is a 2K PU solvent-based adhesive developed by UFlex Chemicals that involves the development of high solids with medium to high-performance for lamination for ketchup, hand wash, and sauce (applications). This product can run at a high solid 45-50%, against the conventional product which runs at 30-35% on a gravure cylinder. Hence, leads to a saving of solvent by 10-15%.

Holography Business

Dhoop - Chaav: It is a cutting-edge, multicolour petrol effect design film developed by UFlex Holography. Designed for decorative applications, this film is specially designed for sequins application in textiles. It imbibes a unique effect where, unlike the typical imported iridescent rainbow films, the Dhoop-Chaav film stands out with its distinctive effect, showcasing a visual appeal that's both captivating and unparalleled.

Flexible Packaging Business

Large format liquid pouches with spout: Developed by UFlex Flexible Packaging, these demonstrate technological advancement and material science expertise. Pouch capacity ranges from 3 to 5 litres with innovative, ergonomically suited carry handles, and integrated spouts for enhanced user experience and easy dispensation. This packaging is designed to allow at least 70% less usage of plastic material unlike rigidids.

3-D Pouch with slider for 1kg Albikr Alleppey Green Cardamom:

The product comes with ultra-user-friendly zip closures that provide an assurance of complete fastening and reliable product freshness. The BOPP matt finish film gives a neat and softer look to the packaging, making it look more natural.

DeHaat: This is a five-panelled pouch that is designed with registered tactile coating and a dynamic QR code. These features not only make the packaging stand out but also enable consumer connect.

Engineering Business

Rotary horizontal high-speed form fill and seal machine with gripper:

Over the last decade, the flexible packaging industry has grown to astonishing heights. Among the increasing competition, manufacturers must practice continual innovation and development to stay ahead of the curve. There is a constant need for businesses to evolve to adapt to the needs of customers around the globe. A new design of a rotary horizontal high-speed form fill and seal machine with a gripper by UFlex Engineering enables output pouches to be held into the grippers to make them free from carrier belts. This ensures the quality of the pouch and controls leaks.

ONGC Plans Oil-to-Chemical Plants in Pivot Towards Energy Transition

India's oil and gas producer ONGC is planning to set up two oil-to-chemical plants in the country to convert crude oil directly into high-value chemical products as it prepares for energy transition that is shaking up the industry worldwide, Chairman Arun Kumar Singh said.

Crude oil, which companies like ONGC pump out from below seabed and from underground reservoirs, is a primary source of energy. It is processed in oil refineries to produce petrol, diesel and jet fuel. With the world looking to transition away from fossil fuel, companies around the globe are looking at new avenues to use crude oil.

Petrochemicals are chemical products derived from crude oil and are used in the manufacturing of detergents, fibres (polyester, nylon, acrylic etc.), polythene and other man-made plastics.

"The demand for petrochemicals is expected to remain strong and will continue to be a key driver of oil and gas demand in the future," Singh said in the firm's latest annual report. "With this objective, ONGC is collaborating with other entities to explore opportunities in the oil to chemical (O2C), refining, and petrochemicals. We are also planning to set up two greenfield O2C plants in India." He, however, did not give details.

The firm already has two subsidiaries, Mangalore Refinery and Petrochemicals Limited and ONGC Petro-Additions Limited that run petrochemical units at Mangalore in Karnataka and Dahej in Gujarat, respectively.

"MRPL and OPaL are strongly engaged in the diversification plan from oil to the petrochemical sector," Oil and Natural Gas Corporation (ONGC) said in the 2022-23 annual report. "ONGC is also partnering with players to explore opportunities in the Oil to Chemical (O2C) and Oil to Petrochemicals (O2P)."

The International Energy Agency (IEA) estimates and global oil demand will plateau by 2030 as penetration of electric vehicles and increased uptake of alternative drive technologies for commercial vehicles ebb demand for fossil fuels. And so energy firms around the world are looking at alternatives. Crude oil-to-chemicals (COTC) technology

Officials said the tests of plastic products claiming to be biodegradable are underway at Central Institute of Plastics Engineering and Technology at Bhubaneswar and none of them has passed the test till now. They added that the government faces a tough challenge on how to check greenwashing by companies. Greenwashing is the practice of making products appear more sustainable than they really are and this involves strategic marketing ploys, misguided publicity materials or advertisements.

Currently, the government gives certificates only to "compostable plastic manufacturers", which is different from certificates for manufacturing biodegradable plastic.

Scientists involved in tests that a product can be certified as "biodegradable" only when it's found that after 90% of degradation, there is no adverse impact of the product or its ingredients on the environment. They added that there are also discussions across the globe whether "biodegradable plastic is a myth".

In the case of compostable plastic, the materials are treated in controlled environmental conditions in industries such as "pits" to them break down into water, biomass, and gases such as carbon dioxide and methane.

Tiwari said in the absence of proof, any claim of certain plastics as biodegradable tantamount to misleading advertisement. The government has set up the Central Consumer Protection Authority to deal with misleading advertisement. The government

has set up the Central Consumer Protection Authority to deal with misleading advertisements. As per the statutory guidelines, the manufacturers or advertisers must keep scientific evidence for the claims they make while advertising their products.

Jain Irrigation in Talks with Credit Fund Alpha to Raise Rs. 200 Crore

Mr. Anil Jain, promoter of Jain Irrigation Systems, micro irrigation systems company, is in advanced talks with private credit fund Alpha Alternatives to raise Rs 200 crore to repay inter-company deposits. The money is expected to be raised at over 20% interest rate. The company's combined net debt is Rs 3,600 crore as of March 31, 2023, and it is looking to pare down debt to Rs 3,000 crore by the end of FY24.

"Jain Irrigation is in talks with private credit fund Alpha Alternatives to raise money to repay some existing debt including inter-company deposits, and the loan will be sanctioned within a few days," said a source close to the development.

Private credit funds are looking at high yield returns of 21-24% in special situations and looking to invest in companies encountering difficulties in servicing debt.

Spokespersons of both Jain Irrigation and Alpha Alternatives did not respond to requests for comment. In March 2022, lenders approved restructuring of ₹3,878 crore debt through an out-of-court process, with 40% of the debt converted into long-term NCDs at an interest rate of 0.01%.

Joint Task Force to Speed Up the Long-languishing West Coast Refinery Project for an Early Start

India and Saudi Arabia have decided to establish a joint task force to identify and rectify shortcomings in order to expedite the early implementation of India's largest greenfield, the West Coast refinery project, also known as the Ratnagiri Refinery and Petrochemicals (RRPCL) project. This project has languished for an extended period. The decision was made during the first India-Saudi Arabia Strategic Partnership Council meeting held in New Delhi early last week, coinciding with Saudi Arabia's Crown Prince Mohammed Bin Salman Al Saud's state visit to India on the occasion of the Group of 20 countries (G20 Summit), which was held between September 9 and 10, 2023, under India's chairmanship. The announcement followed a bilateral meeting between Crown Prince Salman and India's Prime Minister Narendra Modi on the sidelines of the G20 Summit.

To expedite the implementation of the greenfield West Coast refinery project, both leaders agreed to establish a task force with representatives from both countries and initiate construction work on the project without further delay. Although the task force's composition was not disclosed, it is expected that the framework will be developed through bilateral discussions. Officials engaged in these joint discussions are anticipated to convene shortly to commence work on the project.

allows the direct conversion of crude oil to high-value chemical products instead of traditional transportation fuels. It enables the production of chemicals exceeding 70 per cent to 80 per cent of the barrel producing chemical feedstock as opposed to about 10 per cent in a non-integrated refinery complex.

According to IEA, petrochemicals are rapidly emerging as the primary driver of global oil consumption, with the industry projected to contribute over a third of the growth in oil demand by 2030.

"ONGC aims to capitalise on this trend, with plans to substantially expand its chemical and petrochemical portfolio from the current 4.2 million tonnes per annum to 8 million tonnes by 2030," the annual report said. "MRPL and OPAL are strongly engaged in the diversification plan from oil to the petrochemical sector. ONGC is also partnering with players to explore opportunities in the O2C and oil to petrochemicals (O2P)".

GAIL Collaborates with LanzaTech to Convert Waste CO2 into Valuable Chemicals

GAIL has entered into a partnership with US-based LanzaTech Global to explore setting up a pilot project for CO2 capture and conversion into useful materials.

The partnership will explore innovative technology solutions that advance GAIL's Net Zero 2040 goals and have the

potential to support wider decarbonisation applications globally, the country's largest gas utility said.

"GAIL and LanzaTech will explore setting up a pilot scale Co2 capture and conversion project that has the potential to be a role model for converting Co2 into useful materials, instead of emitting it into the atmosphere," it added.

Combining LanzaTech's carbon capture and utilisation (CCU) technology, with GAIL's renewable H2 and CO2 gas streams, the project will enable resource utilisation where the building blocks of everyday consumer goods viz. fuel, packaging and clothing, can be made from bio-recycled material instead of virgin fossil fuel.

GAIL CMD, S K Gupta, said: "The possibilities of the collaboration with LanzaTech are promising and significant to improving our carbon footprint. Using LanzaTech's cutting-edge technology will enhance our environmental stewardship and open new avenues for driving sustainability across our operations."

LanzaTech's CCU technology works like a brewery. The proprietary bacteria consumes carbon-rich pollution from industrial facilities and converts it into CarbonSmart™ chemicals, to create rubber, plastics, synthetic fibre, and fuels.

These materials form the building blocks for consumer products such as clothing, laundry detergent, and sustainable aviation fuel (SAF). LanzaTech's technology platform is designing

a future where consumers can continue using indispensable products they use every day, without depending on materials derived from virgin fossil fuels. Such products are expected to be well accepted by climate conscious consumers, even at a premium.

No 100% Biodegradable Plastic in India, Claims Misleading: BIS



Amid growing claims by companies about their products using "biodegradable plastic" for marketing their brand, the Bureau of Indian Standards (BIS) on Wednesday said as of now, there is no 100% biodegradable plastic in India. It said firms making such claims or 'greenwashing' their products are liable to face action under "misleading advertisements" rules of Consumer Protection Act.

Responding to a question from TOI, director general of BIS, Pramod Kumar Tiwari said, "It has not been established whether any plastic is actually 100% biodegradable. Research is still going on this in the country and across the world. We had suggested to the country and across the world. We had suggested to the Central Pollution Control Board (CPCB) and the environment ministry not to issue any plastic product as biodegradable and they have accepted it."

Company-wise current installed crude oil refining capacities	
PSU Refineries	Capacities (million metric tonnes per annum)
Indian Oil Corporation Ltd	61.7
Chennai Petroleum Corporation Ltd	10.5
Hindustan Petroleum Corporation Ltd	15.8
Bharat Petroleum Corporation Ltd	27.5
Numaligarh Refinery Ltd	3.0
Mangalore Refinery and Petrochemicals Ltd	15.0
Oil and Natural Gas Corporation Ltd	0.066
Total	141.566l
Joint ventures	
Bharat Oman Refinery Ltd	7.8
HPCL Mittal Energy Ltd	11.3
Total	19.1
Private sector refineries	
Reliance Industries Ltd	68.2
Narayana Energy (formerly Essar Oil)	20.0
Total	88.20
Grand total	248.856

Source: Ministry of Petroleum and Natural Gas

West Coast Refinery Project (WCRP)

The West Coast Refinery Project (WCRP) was originally conceived in September 2014 when three of India's leading government-owned public sector undertakings (PSUs) in the oil and gas sector - Indian Oil Corporation Ltd (IOCL), Hindustan Petrochemical Corporation Ltd (HPCL), and Bharat Petroleum Corporation Ltd (BPCL) - joined forces to establish RRPCL also known as Ratnagiri Refinery, with equity participation in the ratio of 50:25:25. RRPCL took shape with these Indian PSUs signing an MoU in 2017.

In 2019, Saudi Aramco and Abu Dhabi National Oil Company (ADNOC) expressed their interest in partnering with a 50 percent

stake in the WCRP, aiming to bring in US\$35 billion of foreign direct investment (FDI) to India. The initial estimated cost of the RRPCL was Rs 300,000 crore, with a production capacity expected to reach 60 million tonnes per annum (MTPA), making it India's first and largest integrated greenfield refinery project.

Global crude oil refinery status (million barrels per day or bpd)		
Calendar year	Refinery throughput	Refining capacity
2022	81.94	101.90
2021	79.51	101.37
2020	75.92	101.79
2019	82.81	101.97
2018	83.09	100.35
2017	82.06	98.97
2016	80.61	98.69
2015	80.07	98.17
2014	77.88	97.74
2013	76.99	96.68
2012	76.60	95.42

Source: Statistical Review of World Energy, Energy Institute, London

Originally scheduled for commissioning by 2022 in the Ratnagiri district of Maharashtra, the US\$44 billion project faced delays due to political interference related to land acquisition. This led to a change in location to a new site near Mumbai, and the approval process for this site is currently underway. The project's commissioning deadline has been extended to 2025, with the estimated project cost increasing to US \$70 billion.

Additionally, the project faced extensive delays due to periodic lockdowns experienced over two years between 2022 and 2021. Despite the cost overruns, which were considered temporary setbacks, the development of the WCRP remains a national priority. The commissioned plant

is expected to contribute up to 2 percent of India's gross domestic product (GDP) and 10 percent of the state of Maharashtra's GDP. This project is also anticipated to create 150,000 jobs during the construction phase and 20,000 jobs in the operational phase. The WCRP represents a significant step forward for India's economic and energy security, providing access to efficient and sustainable fuels as well as value-added products.

The WCRP will require a land bank of 15,000 acres, which will be developed into a massive refinery-petrochemical complex. This complex will feature three refining units, each with a capacity of 20 MTPA, collectively processing 1.2 million barrels of crude oil per day (bpd). It will also include marine storage and port facilities, three single-point moorings, a pipeline end manifold, four 48-inch submarine pipelines, small jetties, anchorage areas, a crude oil terminal and storage, blending plant, desalination plant, on-site utilities, and other facilities.

Pre-feasibility study

The public-sector Engineers India Ltd and a Mumbai-based private engineering firm, Jacob Engineering, jointly conducted the pre-feasibility study for this project. A configuration study was proposed to assess the initial cost of the project. Upon completion of the configuration study, the project was set to advance to the Front-End Engineering Design (FEED) stage, which will eventually address the technology aspect.

The WCRP presented significant opportunities for US energy companies, including consultants specializing in refinery design, and technology, as well as licensors of refinery and petrochemical technology. Consultations with manufacturers of process automation, equipment, chemicals, and catalysts could have also found ample opportunities within the WCRP. Initially, it was observed that WCRP developers were particularly interested in collaborating with foreign suppliers of niche petrochemical technology to enhance the complex's capabilities in


producing value-added petrochemical products. This approach aimed to increase the project's profitability while reducing India's overall dependence on imports of such products.

Downstream petrochemicals

In addition to fuels, RRPCL proposed to produce a variety of downstream petrochemicals to meet India's rapidly growing fuel and petrochemicals needs. Both, India and Saudi Arabia have agreed to extend their full cooperation to the WCRP. In fact, the Saudi Arabian partners

have already allocated funds to the tune of US\$50 billion out of the total promised investment of US\$100 billion for India, including funds dedicated to the refinery project.

The International Energy Agency (IEA) in its June 2023 report, stated that the fate of the planned 1.2 million bpd Ratnagiri Refinery is unclear. Land acquisition constraints represent the latest roadblock for the project, which was first proposed in 2017. Even if it is eventually approved, the IEA expects that this WCRP will not come online until 2028.




PET Preforms Molds end Application


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- > Carbonated
- > Pharma
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- > Edible Oil
- > Liquor
- > Cosmetics
- > Wide Mouth Jars




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PLASTIC PRODUCTS AND NEW TECHNOLOGIES

Berry Creates Unique rPET Bottle for New Sustainable Luxury Brand

A new luxury artesian mineral water is being packaged in a bottle using exclusively 100% recycled PET (rPET) bottles*, manufactured by Berry Global.

NEUE Water has been consciously conceived for today's modern, on-the-go lifestyle. As well as its recycled content, the unique ergonomic flat shape of the bottle enables it to fit easily into pockets, bags and seatback storage in planes and trains. Equally important, the bottle's sturdy construction makes it suitable for refilling for multiple use, and it can be recycled at its end of life. Berry's technical expertise and its longstanding experience in using recycled plastic were both critical in realising the original design concept from NEUE Water's founder Michael Lowers. The flat shape challenged the injection stretch blow moulding (ISBM) process for traditional PET bottle manufacture, and Berry successfully adapted the technology in order to accommodate the new design.

The attractive bottle shape also features an uninterrupted convex window on one side, that

magnifies the label area for the six limited-edition artist labels to deliver an eye-catching product on shelf. The artwork will continue to change around the fashion seasons. The inaugural collection features six vibrant one-of-a-kind prints by Berlin-based artist Studio Raaad.

NEUE Water is drawn from one of only two artesian wells in Denmark, which is renowned for a soft, rounded flavour. It is bottled just metres away from the source, enabling a low impact production. In the months since its launch, NEUE Water sold out within its first week of launching at Harrods, and won multiple awards, including gold for design at the Fine Water Society's annual Taste and Design Awards, and a Good Brand Award from Sublime Magazine for Advancing Social & Environmental Sustainability.

Mondi and Fressnapf Introduce Recyclable Packaging for Dry PET Food Range

Mondi, a global leader in sustainable packaging and paper, has collaborated with Fressnapf, Europe's market leader for pet supplies, to switch their packaging



to a new range of premium mono-material recyclable solutions using process colour printing technology. Fressnapf | Maxi Zoo's exclusive brand SELECT GOLD dry pet food range will now be packed in Mondy's FlexiBag Recyclable, BarrierPack Recyclable and Recyclable StandUp Pouches. These mono-material packaging solutions provide strong barrier properties providing protection from moisture, fat and odour and are strong and flexible to pack and store. As certified by Institute cyclos-HTP, the mono-material packaging is recyclable with other mono-polyethylene (PE) films using various existing recycling streams across Europe, contributing to a circular economy.

The adaptability of the packs enabled Fressnapf | Maxi Zoo to design around 150 pet food packaging designs from 300 g to 12 kg. All packaging sizes offer long shelf life and ease of use for consumers.

BOBST - How to Make the Right Investment Decision in Flexible Packaging



Having the knowledge to make successful investments is a significant step towards growth in the packaging industry. Making the right investment decision can mean the difference between remaining stagnant or getting ahead of the competition. In a market as varied and competitive as flexible packaging, increasing your production capacity and capabilities to enter new markets could be important steps towards consolidating your position and expanding your client base.

It is more important than ever to be confident that you are purchasing equipment that provides flexibility to your process in a cost-effective way. With the right solution on your factory floor, you will have the opportunity to exploit your growth potential by directly accelerating the quantity and improving the quality of the work you are able to produce.

The consumption of inks and substrates as well as energy directly impact the machine's productivity and these essential factors cannot be disregarded. It is therefore crucial to seek out solutions that minimize expenses in the flexible packaging production process to guarantee

the most profitable outcome for your business, while also delivering top quality packaging for your customers.

However, the quality of the equipment is not only reflected in how much it can produce, the quality it delivers, and the savings it offers. Investing in robust equipment with a long life is the key to avoiding costly maintenance and repairs, which directly harm your process, in addition to costing you precious time. Furthermore, it is vital to consider the quality of the after-sales support and services, which will help you eliminate any losses caused by unwanted downtime.

With that in mind, BOBST has developed a complete range of innovative solutions and services for all processes in the production of flexible packaging, including lamination, metallization, coating and printing. As the best option for any new investment, BOBST delivers quality, reliability, and support, so you can be ready to serve an increasingly demanding market and exploit new profitable segments.

When it comes to meeting the requirements of converters seeking highly productive and cost-effective equipment, BOBST stands out as the ultimate choice for new investments. BOBST excels in providing excellence throughout the entire flexible packaging production process, offering new equipment and services to guarantee unmatched performance and instilling unparalleled confidence.

Source: (POLYMERUPDATE Newsletter - 30th August 2023)

Child's Play is Serious Business

European power company Fortum, headquartered in Finland, has announced that its Fortum Circo recycled plastic material has been approved for toy applications in the EU. Fortum Circo is produced from post-consumer plastic waste. This waste is separately collected and delivered to the company's plastic recycling plant, where it goes through a number of steps - including NIR sorting and separating - prior to being processed and compounded, also at the plant. As the entire process is carried out in-house, Fortum says it can guarantee a consistent quality of recycled raw material 'from batch to batch and from month to month'.

The overall goal is to have safe materials that reduce the use of virgin plastics, said Mikko Koivuniemi, Business & Technology Development Manager at Fortum. "We already test our materials as part of our R&D process and we were sure of its safety, but the initiative to get our Fortum Circo tested for compliance with the Toy Safety Standard was actually suggested by the customers." Having now demonstrated compliance with the EU Toy Safety Standard EN 71 - 3, Fortum's Fortum Circo PP, HDPE and LDPE grades will now also be able to be used in an even wider range of products. The EN 71 - 3 Toy Safety Standard is designed to assess the potential release and migration of chemicals if a toy or components of a toy were to be swallowed by a child. The European

Committee for Standardisation (CEN) sets the standards for toy safety.

To ensure that regulations are fit for purpose, material development and regulation must go hand in hand. This means that as raw material producers, Fortum's responsibility is to ensure the materials it makes are Safe and Sustainable - by - Design. Policymakers, however, on their part must ensure that the regulatory measures relating to a product are coherent, fit for purpose and assessed based on their actual use cases, Koivuniemi added. "At the same time, the packaging manufacturers need to consider the recyclability of their products and ensure as much of the product as possible can truly be recycled. This is done by making smart raw material choices."

Covestro - Sensor Roof Module for Autonomous Driving



- 14 sensors and cameras integrated in closed component
- Polycarbonate enables lightweight, aesthetic and durable design
- Covestro presents a LiDAR roof module for Chinese automaker Human Horizons at the ISAL Symposium Automotive
- Supplier Webasto recently unveiled the prototype of an aesthetic and fully integrated

sensor roof module for autonomous driving. Polycarbonate plastics from Covestro enable lightweight, aesthetic and durable component construction. © Webasto Group

The safety of all road users is the most important prerequisite for the introduction of autonomous driving. To achieve this, cars must "learn" to recognize obstacles and dangers in good time and react appropriately. This is only possible through the use of sophisticated sensor technologies. Automotive supplier Webasto recently unveiled a prototype of an aesthetic and fully integrated sensor roof module for autonomous driving. For its production, Webasto uses the transparent polycarbonate Makrolon® AG and the black PC - ABS Bayblend® T95 MF from Covestro: The first mentioned product was developed for use in glass - like exterior components and is highly permeable to various sensor signals. At the same time, it meets high mechanical requirements. In addition, it offers the necessary design freedom for embedding all relevant electronic components while at the same time providing an attractive exterior design for the component.

It is not without reason that the 14 sensors and cameras are located in the roof module: At the highest point of the car, they are ideally positioned to provide a complete overview of the surroundings. The lightweight plastics also ensure a low center of gravity for the vehicle and thus better road holding. However, while technology developments for

autonomous driving are making progress, previous solutions for positioning the sensors are often not yet visually satisfactory. Webasto has now presented a new concept that also meets demands for aesthetic vehicle architecture.

"We are proud to work with Webasto and other partners to develop innovative solutions for autonomous driving," says Dr. Fabian Grote, Head of Global Technical Marketing Mobility in Covestro's Engineering Plastics segment. "The complete sensor technology is hidden under a seamless roof module made of Makrolon® AG. Our plastic is lightweight, durable, robust and transparent, and offers an ideal solution for integrating sensors into vehicles. We are pleased to be contributing to more sustainable mobility."

The sensors and cameras measure the distance and speed of objects in front of and alongside the vehicle and also reliably detect traffic lights, traffic signs and road markings. To function optimally, they must not get too warm. This is ensured by a thermal management system from Webasto. Here, the high heat resistance of polycarbonate ensures that the roof module retains its shape even at high outside temperatures and in strong sunlight and does not impair the function of the sensors. Cleaning and de - icing systems, on the other hand, ensure flawless operation in winter.

The new sensor roof module concept offers plenty of functionality and design freedom. Polycarbonates from Covestro are permeable to LiDAR

radiation, which is a prerequisite for autonomous driving.
© Webasto Group



Cooperations with leading automakers

Covestro is also a leading supplier of material solutions for autonomous driving and is working with various partners on the use of special polycarbonate grades for the cover panels of LiDAR sensors. At the International Symposium for Automotive Lighting (ISAL) in Darmstadt, Germany, Sept. 25 - 27, 2023, the company will showcase a roof module equipped with LiDAR sensors from Chinese automaker Human Horizons.

Human Horizons is equipping its new HiPhi Z model with LiDAR sensors protected by a housing made of PC - PET Makroblend® UT235 M. The optical signals from these sensors pass through a cover glass made of the special polycarbonate Makrolon® AX ST, which ensures maximum efficiency.

A total of a dozen cameras and several LiDAR and RADAR sensors are installed in the Chinese luxury model. As a result, it achieves driving assistance level 3 of autonomous driving.

The Ultimate Children's Bike, the Frame and Fork are Made with Recycled Carbon Fibers Produced on an Mx 1600 from KraussMaffei



The new Lion Bike by former professional cyclists Marcel Kittel and Tony Martin features a frame and fork made of a high - performance polymer with recycled carbon fibers produced by specialist Weber Fibertech (Markdorf, Germany).

The frame and fork are made with polyamide 6 (PA6) and 40% recycled carbon fibers. Thanks to these durable and 100% recyclable materials, the main components can be produced using a state - of - the - art injection molding process.

In particular, Weber uses the KraussMaffei MX 1600 injection molding machine in combination with the water injection molding (WIT) process, which uses technology from PME fluidtec (Mahlberg, Germany), a specialist with more than 100 successful WIT processes on the market. WIT is said to be ideal for producing functionally complex, highly integrated plastic components with hollow body construction.

This is the first time PME used the mass back - pressure method in the WIT process for bicycle

frames. The melt displaced by the water is pressed back into the plasticizing unit and reused in the next shot for the frame or fork. This means that there is no waste during production, which in turn saves material during production and is beneficial for the carbon footprint.

According to KraussMaffei, when comparing the production of Lion Bikes with conventional aluminum frames and forks, CO2 emissions are 67% lower for each bike produced. Moreover, component production in Germany means a shortened supply chain and transport route.

“The technical performance of the MX series has won us over, and there's no turning back,” Friedbert Schmitt, CEO of Weber Fibertech, says. “In particular, we were impressed by how, with a screw diameter of 120 millimeters, injection was carried out at 300 millimeters / second, thus achieving a large volume with rapid mold filling.”

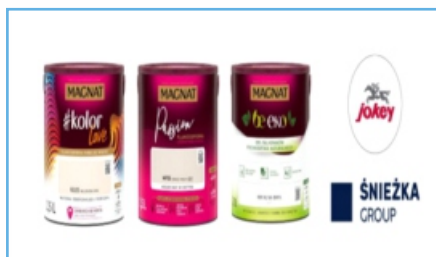
Safety - wise, Lion Bikes provide added visibility. They have a special paint that makes the frame glow and an unusually large lighting system with daytime running lights that is completely integrated into the frame.

First finished Lion Bikes are expected to be available on the market beginning spring 2024.

“With the processing of high - performance polymers and recycled carbon fibers and the production made in

Germany, we are sending an important signal in the direction of sustainability in the bicycle industry," Schmitt, adds.

Jokey Poland Manufactures Recycled Packaging for ŚNIEŻKA



The use of recycled packaging conserves resources and promotes the circular economy for plastics. Jokey already uses a variety of packaging solutions with post-consumer recyclates, especially in the non-food sector, and supplies them to customers throughout Europe. The use of recycled packaging conserves resources and promotes the circular economy for plastics. Jokey already uses a wide range of packaging solutions with post-consumer recyclates, especially in the non-food sector, and supplies them to customers throughout Europe.

One of the best-known brands of the Śnieżka Group is the wall paint segment Magnat. It is sold primarily in DIY and home improvement stores, for example by the French Leroy Merlin chain of shops. Śnieżka is currently gradually converting part of the product line to the JCT line to the JCT 25C, which Jokey Poland produces with post-consumer recyclates (PCR). is produced. These come

from household and commercial collections, with a share of 40 per cent. Another 10 per cent of the buckets are made of the company's own regrind. In this way, the Polish paint specialist is also making a clear statement in favour of a resource-conserving recycling management.

Thanks to the in-mould labelling process, the colourful design in deep red covers the entire bucket as before. This means that the product can continue to be perceived as an eye-catcher in the premium segment. The recycled packaging also protects the product contained in it thanks to its high product just as reliably as packaging made of virgin plastic. This means that the colour stays fresh for a long time, even after first use.

Driving the Polish Circular Economy Forward Together

"The use of packaging with recycled raw materials is the result of Śnieżka's sustainability strategy announced at the beginning of 2023," says Waldemar Jezioro, purchasing manager at Capital Group. "We want our products to have minimal impact on the environment. That is why we focus our efforts, including in the packaging area, on finding ecological solutions. For example, we offer our newly launched products MAGNAT #KolorLove and MAGNAT Be Eko in packaging with at least 40 per cent recycled content."

And Sławomir Fura, Area Sales Manager at Jokey Poland, affirms: "We are pleased with Śnieżka's decision to rely on

our environmentally friendly packaging solutions for the filling of premium colours in the future. This means that another international Jokey customer is taking up our sustainability approach and can reduce its ecological footprint along the entire value chain." The JCT 25 produced by Jokey Poland with PCR content is technically up to 100% recyclable, thanks to the use of mono-material, like all Jokey packaging. This conserves valuable resources and promotes circular economy.

Microban® Launches Natureinspired Technology for Polymers and Coatings



Microban International is pleased to introduce its latest groundbreaking technology – Ascera™. This patent-pending, next-generation antimicrobial technology uses an active ingredient inspired by nature*, and is designed for use in olefinic polymers and solvent-based coatings.

Ascera is sustainable, metal-free and less toxic than alternative technologies, and provides the lifelong antimicrobial product protection that Microban is known for around the world. As the global leader in antimicrobial and odor control technologies, Microban is committed to the development of solutions that support product sustainability by extending their useful lifetimes.



PLASTIC RAW MATERIALS

Deferment of QCOs on Maleic Anhydride, Ethylene Vinyl Acetate Copolymers and Polyethylene Material for Moulding and Extrusion.

As per the Gazette of India dated 27th September 2023 the Implementation of QCOs on Maleic Anhydride, Ethylene Vinyl Acetate Copolymers and Polyethylene Material for Moulding and Extrusion have been deferred to 24th April 2024, 03rd April 2024 and 05th January 2024 respectively.

Organization of Plastics Processors of India thanks the Department of Petrochemicals, Govt. of India for this kind gesture.

DuPont Announces Agreement to Divest ~80% Ownership in Delrin® Business to TJC

DuPont announced a definitive agreement to sell an 80.1% ownership interest in the Delrin® acetal homopolymer (H-POM) business¹ to TJC LP (TJC) in a transaction valuing the business at \$1.8 billion.

TJC has received fully committed financing in connection with the transaction, which is expected to close around year-end 2023, subject to customary closing conditions and regulatory approval.

At close, DuPont will receive pre-tax cash proceeds of approximately \$1.25 billion, subject to customary transaction adjustments, a note receivable of \$350 million, and will own a 19.9% non-controlling common equity interest in the Delrin business.

“Today's announcement largely completes our planned exit of the former M&M segment, advancing our position as a premier multi-industrial company,” said Ed Breen, DuPont Executive Chairman and Chief Executive Officer. “This transaction is structured to maximize value for our shareholders, providing significant cash proceeds at close to be deployed in line with our strategic priorities while providing an opportunity for DuPont to participate in future upside potential upon exit of our retained equity interest in the Delrin business.”

“We are excited to partner with TJC given their successful track record of creating value through an operations-focused approach and are confident in their ability to drive growth and opportunity for employees and customers of the Delrin business,” Breen continued.

“Delrin is widely recognized as the material of choice for safety critical and high cost-of-failure applications across diverse end markets,” said Ian Arons, TJC Partner. “For over 60 years the Delrin business has leveraged its differentiated technologies and global manufacturing presence to provide its customers high quality, innovative solutions. We are thrilled to have DuPont as a partner, and we look forward to working closely with the entire Delrin team to drive future growth in the business.”

The results of operations of the Delrin business will continue to be presented as discontinued operations in DuPont's consolidated financial statements through transaction closing.

Goldman Sachs & Co. LLC is serving as DuPont's financial advisor and Skadden, Arps,

Slate, Meagher & Flom LLP is serving as legal counsel. Citi is acting as financial advisor and Kirkland & Ellis LLP are serving as legal counsel to TJC.

Ineos Styrolution Launches World's First Fully Bio-attributed ABS

The Terluran ECO product line now consists of mechanically recycled and bio - attributed materials.

Ineos Styrolution has introduced the first bio-attributed Terluran ABS materials. The new grades complement the mechanically recycled Terluran ECO materials that were introduced earlier. They are the final jigsaw-puzzle piece in Ineos Styrolution's polystyrene and ABS portfolio, now consisting of mechanically recycled and bio - attributed solutions for all three product lines — Styrolution PS, Terluran, and Novodur, its specialty ABS. Terluran is used in a range of applications in various industries, including automotive, household products, electronics, construction, toys, and sports and leisure.

Terluran is Ineos Styrolution's standard ABS consisting of acrylonitrile, butadiene, and styrene co-monomers. The new Terluran ECO grades are based on the attribution of renewable feedstock according to an ISCC-certified mass balance approach: It can be used as a replacement for conventional feedstock for all three components in ABS. This approach allows maximized use of renewable feedstock in the

material while minimizing the CO2 footprint. Only additives will come from conventional feedstock.

Ampacet Introduces ProVital™ + Permstat, Medical-grade Permanent Antistatic Masterbatch



Ampacet, a global masterbatch leader, has introduced ProVital™ + Permstat, a non - migratory antistatic masterbatch specifically developed to provide immediate and permanent antistatic properties to polyolefin films used in pharmaceutical processes.

Ampacet ProVital+ Permstat, when used in the external layers of packaging films, creates a dissipative polymeric network within the bulk layer of the film, allowing the electrostatic charges accumulated on the film surface to dissipate throughout the external layer. The antistatic effect is immediate, consistent during the lifetime of the film and lasts as long as the film is in use.

Thanks to its dissipative effect, ProVital+ Permstat efficiently empties powder from packaging materials, preventing some particles from remaining inside of the bag due to the static effect. In sealed bags, the use of ProVital + Permstat eliminates the presence of static powder in the sealing area. ProVital+ Permstat can be incorporated into polyethylene cleanroom films,

which are used to store and transfer pharmaceutical raw materials or active pharmaceutical ingredients used in drug production.

ProVital+ Permstat provides full consistency of formulation with a no-change policy for raw materials at the CAS and commercial level, with manufacturing under consistent process parameters and controlled - room production to minimize cross contamination risks.

ProVital+ Permstat provides full consistency of formulation with a no - change policy for raw materials at the CAS and commercial level, with manufacturing under consistent process parameters and controlled - room production to minimize cross contamination risks.

LyondellBasell Launches New Product Grades of Circulenrecover in North America

LyondellBasell announced the launch of eight new product compounds under the CirculenRecover portfolio. These products can help customers achieve circularity in their use of plastic packaging by increasing usage of recycled content and diverting more plastic from landfill or incineration. The CirculenRecover brand includes products containing up to 100 percent Post - Consumer Resin (PCR) that are designed to meet the performance requirements of many common applications.

"With the new Circulen Recover product compounds, customers focused on applications such as

blown film or caps and closures are able to deliver high-quality products while reaching their sustainability goals," said Wisdom Dzotsi, senior director, Circular & Low Carbon Solutions Americas for LyondellBasell. "As we continue to innovate our products and solutions, we focus on the needs of our customers while striving to progress the circular value chain." Now available in North America, these new compounds in the CirculenRecover portfolio offer single-pellet solutions across a range of PCR levels to fit brand owners' needs.

While the products provide value in a wide variety of end uses, they are particularly well suited for industrial and food packaging applications including consumer rigid and flexible packaging such as caps, closures, crates, bottles or film. Benefits of the CirculenRecover compounds include: Carefully screened raw materials to ensure quality and product safety Improved consistency and processability versus dry blends Formulated to provide the optimal PCR content per application and brand goal These new solutions are part of the broader Circulen product portfolio announced by the company in 2021. TheCirculenproduct portfolio includes: CirculenRecoverpolymers are made from plastic waste through a mechanical recycling process; CirculenRevivepolymers are made using an advanced (molecular) recycling process to convert the more difficult to recycle plastic waste into feedstock to produce new polymers, which have a wide range of uses; and CirculenRenewpolymers are sourced from renewable feedstocks such as used cooking

oil, which have a wide range of uses. This announcement supports the company goal of producing and marketing at least two million metric tons of recycled and renewable - based polymers annually by 2030.

FLAME RETARDANT Polypropylene from Gabriel - Chemie



One of the group's major goals is sustainability, in line with the new upcoming regulations of Chemical Strategy for Sustainability (CSS). This is why Gabriel-Chemie has introduced a new range of FR products for Polypropylene (PP). The range includes more sustainable formulations of classic halogenated solutions, but is also extended with the addition of new halogen-free solutions and even zero-halogen solutions. The products can be used in many applications ranging from electrical cable conduits to junction boxes, fuses and distribution boards for conventional and photovoltaic applications.

Applications

- Thick-walled articles made of PP
- Injection moulded articles
- Blow moulded articles
- Pipes

FLAME RETARDANT Via several recycling cycles Internal tests have successfully confirmed the benefits of using zero halogen masterbatches to improve the recyclability of the final product, in accordance with the requirements of the Ecodesign Regulation. This is a very important factor as it has been estimated that over 80% of the environmental impacts of products are determined during the product design phase. The new zero - halogen masterbatches increase the value of the recycled material at the end of the product life cycle and allow the recycled material to retain its flame retardant properties for a new generation of products.

LG Chem and Eni Sustainable Mobility Join Forces for a Potential New Innovative Biorefinery in South Korea

South Korea's leading chemicals producer LG Chem and Italian energy group Eni Sustainable Mobility jointly announced that they are exploring the possibility to develop and operate a new



biorefinery at LG Chem's Daesan chemical complex, 80 kilometers southwest of Seoul, South Korea. Together, the companies are examining the technical and economic feasibilities for the proposed project. Final decision

for the investment is scheduled by 2024 and the plant will be completed by 2026 at the existing integrated petrochemical complex in Daesan, Korea.

The new biorefinery will leverage LG Chem's integrated value chain as well as the existing utilities and facilities of the industrial site. The potential biorefinery aims to meet the growing demand for more sustainable fuels and plastics produced by low - carbon processes, as well as to help progressively decarbonize the energy and mobility sector. It is designed to process approximately 400,000 tons of bio-feedstocks annually using Eni's Ecofining™ process, developed in collaboration with Honeywell UOP.

It will also have the flexibility to process renewable bio-feedstocks and produce multiple products including Sustainable Aviation Fuel (SAF), Hydrotreated Vegetable Oil (HVO), and bio-naphtha. LG Chem and Eni will combine expertise in this initiative. Committed to producing more sustainable chemicals, LG Chem will leverage on its knowledge and resources to ensure the project's success. LG Chem has been manufacturing eco-friendly plastic products using bionaphtha since 2020.

In April 2021, it became the first South Korean chemical company to receive ISCC Plus certification for nine Bio-Circular Balanced products. Four months later, LG Chem started shipping its first bio - balanced SAP (Super Absorbent Polymer) products — also certified with ISCC Plus — to overseas markets. In October 2022, LG Chem expanded its ISCC Plus certified eco-certified product portfolio to over 50 items, reaffirming its ever - growing commitment to sustainability.

LG Chem will now work closely with Eni to increase the visibility of its eco-friendly integrated brand LETZero. Eni will bring its extensive experience in biorefining, along with its Ecofining™ technology. In 2014, Eni has accomplished the world's first refinery-to-biorefinery conversion at Porto Marghera, Venice, followed by a second converted biorefinery that has been working in Gela (Sicily) since 2019.

In June 2023, Eni entered in a joint venture with PBF Energy acquiring 50% interest of St. Bernard Renewables LLC biorefinery in Louisiana (USA) also based on the use of the Ecofining™ technology. Furthermore, leveraging on its worldwide footprint and knowledge in supplying, Eni will provide the South Korean biorefinery with sustainable feedstock mainly based on waste and residues from the processing of vegetable oils, used cooking oil, and also vegetable oils from drought-resistant crops in degraded, semi - arid, or abandoned soils not in competition with the food chain.

Metal - Detectable Nylon 66 Compounds for Cable Ties, Fasteners



Material targets applications where foreign object contamination causes health concerns and reputational damage. Ascend Performance Materials has announced the launch of pre-colored, metal-

detectable Vydyne PA66 compounds for cable ties and fasteners for industries where foreign object contamination causes health concerns and reputational damage, such as in pharmaceutical and food processing facilities. The new product reportedly meets the most stringent performance standards and simplifies the supply chain for cable tie and fastener producers.

“We constantly look for ways to better serve our customers,” says Tim Goossens, cable tie segment leader for Ascend. “This new metal-detectable Vydyne reduces the need for additional tolling or masterbatch steps and ensures the material performs as intended right out of the box.”

Both the United States and European Union have strict performance requirements for materials used in and around food and drug processing facilities. Ascend says it ensures the consistent dispersion of the metal additive within the polymer matrix so that even small metal particles are clearly visible and identified with standard detection equipment. In tests with varying sized cable tie fragments added to cereal flakes, even the smallest fragment was reliably detected using X-ray imaging with a micro-focus tube at 60 kV and 0.3 mA. Metal-detectable Vydyne materials are globally available and offered in two blue-colored grades with high - and low - impact strength. Beyond cable ties and fasteners, both grades also target safety - critical applications in other sensitive market segments, such as machined plastic stock shapes, and any consumables that require HACCP-managed food safety. HACCP is a food safety management system based on Hazard Analysis and Critical Control Points.



PLASTIC MACHINERY

All - Electric IMM - Shibaura Machine



The new all - electric injection moulding machine series from Shibaura Machine was launched at Interplas 2023.

- Enhanced versatility and performance
- Faster injection speeds
- 17 injection capacities and dimensions
- High efficiency through increased power saving
- A comprehensive size range from 30 to 2800 tons
- Compatibility with Shibaura Machine robots
- Expert support by qualified engineers

In addition to supply of the all - electric series, TM Robotics is also responsible for the

parts supply and maintenance of hydraulic Shibaura Machine equipment and any legacy Toshiba Machine - branded machines on the market.

Innovative Compounding Methods for Biomaterials



STEER is gearing up efforts towards evolving starch - based biomaterials through innovative compounding methods using STEER Omega Twin Screw Extruders.

Biomaterials can help meet the rising expectations of the consumer markets, especially in populous countries and mature markets, and can be an effective alternative to non - degradable plastics.

STEER has expertise working with a wide set of materials, such as, carbohydrates (sugar, starch, cellulose), lignin, proteins & fats to develop

biopolymers, such as, PBAT, PLA and those that are environment friendly in nature. Steer has overcome challenges relating to feeding (no choking of hopper), degradation (sensitive to temperature), and foaming (shear sensitive) by effectively balancing the starch component in PBAT (50% - 80%) and PLA (20% - 50%).

When it comes to critical process challenges owing to shear sensitivity of biomaterials, with FGT (Fractional Geometry Technology), STEER achieved outstanding results through effective peak shear control that contributed to higher output, lower melt temperature and high - speed operation.

For more information please visit website, write to sunil.dutt@steerworld.com OR call at +91 99001 01518

Mobilux Integrates Resin Drying and Conveying onto Compact Mobile Cart

A captive molder recently made sweeping changes to its fleet of auxiliary equipment and as a result achieved a completely integrated system that improved the quality

and consistency of its molded parts while significantly enhancing operator safety.



Based in San Diego, SeeScan Inc. makes a wide range of vision systems and instruments that help locate utilities and inspect pipes in what the company describes as a mission "to make the underground visible." At a 120,000 - ft² facility, SeeScan molds its own parts on eight injection presses of 20 to 330 tons. It runs a gamut of engineering thermoplastics, including ABS, PC, nylon and PEI, either neat or glass - filled in a range of colors.

Last year the company initiated a project aimed at upgrading the auxiliary equipment in its plant, with the objective to address some inefficiencies with its previous machines and add more automation to the process, relying less on operators to move materials around. It decided on Moretto, adding eight new dryers and conveying systems, three loss - in - weight gravimetric feeders and a new temperature - control system.

Solving a Resin Moisture Problem

On the drying side, SeeScan was using a rack - mounted central system that was especially problematic on

overnight runs. Explains SeeScan's Director of Tooling Kirk Joy, "Before the night shift, we would transport enough material to the presses to satisfy an overnight run. But we noticed as time progressed that we would be picking up moisture in the process. The parts we made at the beginning of the evening were not the same as those throughout the evening and into the morning."

After consulting with Moretto's West Coast sales representative, Martyn Bramhall of Bramac Machinery, SeeScan bought three different styles of Moretto dryers. These included the feedthroat XD Mini Series compressed - air dryer, which SeeScan deployed on smaller presses for micromolding jobs; XComb wheel dryers; and XD cabinet dryers. All Moretto dryers come with anti - stress (over - drying protection) as standard, notes Mike Mueller, Moretto regional sales manager.

Controlling Color Consistency

Along with drying challenges, SeeScan was looking to upgrade from a labor - intensive color - feeding process. Says Joy, "We had previously been mixing color concentrate with virgin resin manually. An operator would fill the material into bucket, add the color concentrate at the desired letdown ratio, then we'd mix it and put in into the cold hopper. This process was creating a number of issues. At the top of the list was employee health and safety; our operators were regularly handling and picking up barrels of material." SeeScan went with a trio of Moretto's DPK gravimetric loss - in - weight

color feeders. In addition to the three feeders, SeeScan bought additional hoppers that it keeps filled with color on the shelf. "This allows us to store our color concentrate without worrying about any debris infiltration and allows for ultra - fast color changes. All we need to do is purge, switch the hoppers, and we're ready to go," says Joy.

"We are able to decrease scrap significantly because of the accuracy and consistency provided by the feeder," he adds. "The machine - mounted color feeder also integrates well with our process. It doesn't take up any floor space and doesn't get in our way when we want to hang tooling."

Meantime, SeeScan added Moretto's TWP12S High Temp water - temperature control unit, which Joy says is ideal for this plant because it runs so many high - temperature materials: "With high - temperature materials, a lot of times the water temperature will run up to 320° F. That will ruin conventional pump seals. This TCU has a magnetically coupled pump, so there is no pump seal. It also has all - solid - state controls, which is helpful."

"The fact that Moretto has a variety of drying technologies to address our needs and to help us improve consistency has been advantageous."

States Joy, "With Moretto, what we ended up with was a completely integrated solution - from conveying material to blending, drying and more - that has improved our

consistency and reliability and significantly enhances operator safety.”

Turkish Plasmag Plastik Film Successfully Starts New Brückner Line



Etimag (Istanbul, Türkiye) is a leading global printer, converter and manufacturer that specializes in A - grade shrink sleeve solutions: security bands, shrink & preform sleeves, OPP labels, pressure - sensitive labels and many more. From the early days, company founder Mehmet H. Okur had in mind to produce PET shrink film on their own line, in constant high quality and independent from any import. Therefore, the subsidiary company PlasMag Plastik Film Ambalaj Sanayi was founded. And this summer the aspired backward integration became complete reality by putting on stream a 4.2m wide, 3 - layer inline PET-G line from Brückner Maschinenbau, ready to produce monoaxially oriented shrink films from 20 to 80 μm .

Mehmet H. Okur says: “We really had a lot of profound discussions in our family about this investment. But now we are all totally happy with our decision for a state - of - the - art line and particularly with the high - quality films it produces. Our customers are also enthusiastic because we

have been able to increase the quality of our labels and sleeves once again. That's why we are already thinking about another project together with Brückner.”

Murat Derin, Senior Sales Manager at Brückner Maschinenbau adds: “Thanks to the full commitment and good cooperation of both commissioning teams, we were able to master the challenges typical for a newcomer very well. Finally, the line went on stream smoothly - a beautiful joint success.”

HASCO Innovations at FAKUMA



As a full - service provider for mouldmaking, HASCO offers innovative and economical solutions for designers, mouldmakers and injection moulders. Under the motto “Digitalisation meets standardisation”, the company will present at FAKUMA and the subsequent trade shows a number of interesting new and further developments from the fields of Mould Base and Hot Runner.

HASCO Digital

User - friendly tools on the modern homepage, the new HASCO app, CAD updates and further digital services are available to simplify the day - to - day work.

Mould Track

The innovative Mould Track System from HASCO is an intelligent solution with precise indoor localisation technology for the injection moulding sector. The system enables the exact tracking and localisation of injection moulding tools in real time as well as the digital interlinking of processes. HASCO offers with the new Mould Track an intelligent and pioneering solution, and thus once again defines the standard with the increasing digitalisation in the world of mouldmaking.

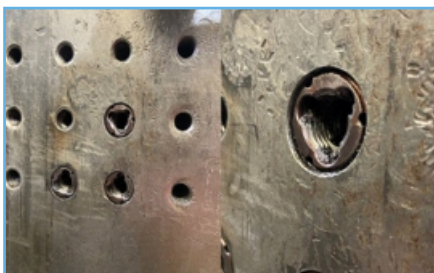
Mould Base Technology

The further development of HASCO's plate range offers mouldmakers maximum flexibility in the production of injection moulding tools. The portfolio of undrilled and drilled plates has been extended with new mould sizes and thicknesses by well over 1,500 new dimensions. In the field of demoulding, further sizes have been added to the extensive ejector portfolio. The focus is on the quality material HSS, which has a higher temperature resistance and strength. The service life can thus be extended and mould maintenance costs significantly reduced. New guide pillars with a snug fit for even easier installation and a firmer fit in the mould plates increase process reliability. The new chemical working substances with NSF certification can be used very sparingly because of their high level of effectiveness and are very environmentally friendly because of their all - synthetic content.

Hot Runner Technology

As the world's first producer of additively manufactured hot runner technology, HASCO hot runner will again this year present a number of new 3D-printed hot runner components. The new Shadowfree technology eliminates the spider lines with needle valve systems and enables up to 40% faster colour changes in the hot runner. Additions have been made to the Single Shot portfolio with hardened nozzle tips and one - hole and Hot Tip torpedoes, which increase the application possibilities of the nozzle range several times. Innovative plug inserts allow fast and space - saving wiring of power / signal plugs to the mould, while state - ofthe - art control technology simplifies the control of the hot runners. With its extensive expertise in standard mould units and hot runners, HASCO provides its customers with individual solutions to all challenges that arise in the field of modern mouldmaking.

Molder Repairs Platen Holes with Threaded Inserts



Automotive molder ITW Deltar Fasteners found new life for the battered bolt holes on its machine platens with a solution that's designed to last. ITW

Deltar Fasteners keeps its mold setters, and the more than 100 injection molding machines on its Frankfort, Ill., production floor, quite busy, undertaking multiple mold changes daily. Based in Troy, Mich., ITW Deltar Fasteners has production operations in Frankfort and Chippewa Falls, Wisc., from which I t molds fasteners, hole plugs, bumpers and baffles for the automotive industry and the military.

Years of numerous, regular mold changes had left many of company's molding machine's bolt holes stripped, and this damage made securing tools to the platens a time - consuming challenge. Back in August 2020, the company began repairing platen holes with C - Sert threaded inserts made by C - Sert Manufacturing (Portland, Ore.), and Kenny Dearing, ITW Deltar Fasteners process engineer, says those repairs have lasted to this day.

ITW Deltar Fasteners' test case for C - Sert were the well - worn platens of a 150 - ton Toyo press, vintage 1995. Featuring large and lengthy clamps and clamp bolts for mold installs, the machine is in ITW Deltar Fastener's sample shop, where it's used for mold trials and training purposes. After successfully repairing the stripped bolt holes, Dearing and his team installed C - Serts in more than 20 of the company's presses to replace stripped holes. To help quantify the value of the thread replacements, ITW Deltar Fasteners points out that the sampling press undergoes two or three mold changes per day with more than 250 mold swaps performed through the

first half of 2023. Dearing says that what used to take at least 15 minutes is now done in five because the mold setters can always "count on using the correct holes."

A Permanent Solution

The C - Serts apply what's known as an interference or metal - to - metal fit, which the company says ensures they will not back out, pull out or vibrate themselves free. Acting as both an insert and a tap, the C - Sert's internal threads are as hard as a tap, making them highly resistant to damage from bolts once installed.

"Other products and attempts to repair did not sustain over time," Dearing says. "They would pull out of the repaired holes or become worn out themselves. I knew we needed a permanent solution to repair these bolt holes to make mold installation quick, easy and safe."

On the advice of his tooling manager, Dearing ordered several C-Sert kits and repaired four badly damaged holes on the Toyo machine in less than 90 minutes. The kits came with a 60 - degree center; a cutting bit to open the stripped hole; cutting oil for the cutting bit; the threaded C - Serts; and a bit to install the inserts into the platen. ITW Deltar Fasteners used its own mag drill to center on the hole and perform the cutting.

Dearing notes that the C - Sert - supplied cutter performed well even after clearing multiple holes for installation, adding that C - Sert offers all the

needed tools for installation. "It's frustrating to buy something only to find out that you need a special tool to install it," Dearing says. "However, the tools needed to install C - Serts can be found in most molding shops."

In addition to boosting productivity, Dearing says the C - Serts have improved safety on the molding floor. "We have a safer and more productive work space because bolt holes that weren't working have been restored, enabling us to use the correct mold clamps in the correct positions to mount molds, as opposed to grabbing a corner of the mold," Dearing explains. "We don't want 'good enough' here - we need to always use proper procedures for mold mounting."

How permanent a solution does ITW Deltar Fasteners think it's found? Dearing says that the company's tooling engineering manager, Greg Mamelson, quipped that "one million years from now, the platens will be dust but the C - Serts will still be there."

Sidel Launches the Fastest Blower for Large PET Containers with EvoBLOW XL



Sidel is demonstrating its blowing expertise by launching the ultra-fast EvoBLOW XL for large PET

containers. The new machine extends Sidel's blowing capabilities for sizes up to 10L PET bottles and is suitable for water, edible oil and food markets.

Leveraging over 40 years of packaging and blowing expertise, Sidel has extended its blowing range with the new EvoBLOW XL machine for large containers. With 75% of parts in common with the existing EvoBLOW range, the solution builds on Sidel's proven performance and has been designed for multiple markets. Future developments are also taking place to extend the technology to address hotfill products.

With ever - changing consumer demands, the packaging industry requires solutions that can handle larger formats while being user - friendly and ergonomic. Sidel offers more flexibility for the packaging industry by launching its new blowing machine to produce larger bottles with the highest level of production efficiency. EvoBLOW XL provides packaging quality, safety and sustainability benefits that can also be emphasised with its connectivity to the Evo - ON software suite, which supports customers to optimise production lines.

High Productivity and Flexible Production

Available as a stand-alone or integrated combi solution, EvoBLOW XL is a versatile machine that can provide a high level of quality and extended performance for a wide range of bottle formats for up to 8L to 10L. It features flexible oven

configurations with a wide choice of bottleneck dimensions which demonstrates its flexibility to handle many types of large bottles. The EvoBLOW XL complements Sidel's existing complete line capabilities for large containers.

EvoBLOW XL also achieves high production efficiency with the highest market blowing outputs, up to 18,000 bottles per hour (bph) and 98% proven Overall Equipment Effectiveness (OEE). The new machine has been designed to offer a high level of flexibility for customers and offers several attractive features for efficient changeovers, ensuring a user - friendly process. Equipped with an ergonomic embedded mould handling tool, heavy mould positioning is simplified and ensures safety. Additionally, the mobile mould storage unit provides fast and safe access to moulds close to the machine. EvoBLOW XL can also be integrated easily with other Sidel solutions such as its latest ultrarapid changeover system Bottle Switch.

A Cost - Efficient and Sustainable Solution

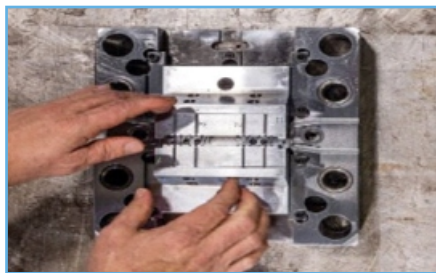
As the demand for rPET continues to rise, EvoBLOW XL has been developed to manage the challenges associated with rPET grades and possesses proven process capabilities from virgin PET to up to 100% rPET. Additionally, EvoBLOW XL offers lightweighting opportunities for customers which can provide significant savings on PET costs and minimise Co2 emissions. This includes the possibility to switch from HDPE to PET large bottles to further reduce the carbon footprint. Further sustainability

benefits are also achieved through the new design of blowing circuits and valves which help reduce energy consumption. While being a sustainable solution, EvoBLOW XL also helps to be cost-effective, maintaining impressive levels of efficiency with the highest market outputs.

Best-in-class Packaging Quality

Sidel's EvoBLOW XL ensures the ideal blowing process to secure an attractive bottle design with high-performance and user-friendly solutions. The machine uses an optimised process and blowing curve with its new powerful blowing circuit and valves to deliver perfect material distribution at the fastest speed with 1,500 bph per mould while securing low blowing pressure and the highest bottle quality.

Challenging Projects Require Experienced Mold Makers



High Volume, High Efficiency

Tackling the most demanding applications, Canon Virginia applies the latest technologies, designs and production capabilities to every precision mold project it undertakes. The

goal at all times is to deliver a robust mold that meets your volume, achieves peak efficiency, and ensures reliability and durability.

Complex Parts, Advanced Technologies

Production of ultra-precise molds requires the kind of commitment to innovation that keeps Canon Virginia a step ahead of ever-changing demands. While we continually utilize the latest technologies to attain success in even the most challenging applications, Canon Virginia draws heavily on decades of experience and technical expertise to bring projects home on budget and on time.

Committed to Quality

Manufacturing quality products means following rigorous standards at every stage of the mold-making process. Bringing together dedicated engineers and a unique tool library, Canon Virginia uses laser confirmation for all high-speed machining centers. The result is higher production efficiency with cutting-edge measurement technology ensuring high precision.

Canon Virginia is ISO 9001, 14001 & 13485 certified and EAR/ITAR compliant.

Experience, Resources, Expertise

For more than three decades, Canon Virginia has been driven to attain the ideal in metal mold design and production. Using various analytic software

packages, Canon Virginia views designs from a multitude of perspectives, including:

- Gate scenarios
- Heat transfer
- Deformation
- Strength
- Mechanical function

Our team members make the difference. Which is why, at Canon Virginia, we continually challenge ourselves to exceed expectations with a goal that extends from our most skilled craftsmen to our newest members, who are developed internally through our state-certified apprenticeship programs.

The Right Choice for the Most Challenging Projects - Talk to US

Canon Virginia thrives on a challenge. That's why, when you bring us your biggest puzzles, we'll use our broad experience to put all the pieces together.

- Complex mechanisms
- Conformal cooling
- Long-life molds
- In-mold assembly
- High-cavitation molds
- Class 101+
- Two-shot molds
- Stack molds

CIRCULAR ECONOMY/ BIO-PLASTICS/ RECYCLING

2024 Paris Olympics Will Use Recycled Plastic for Seats



Spectators attending the 2024 Olympic Games in Paris will sit on chairs made of plastic recycled from local bins.

“There were shortages of virgin materials, which led a lot of manufacturers to switch to waste,” says Marius Hamelot, co-founder of Le Pavé, the eco-construction firm behind the initiative. “Plastics manufacturers stopped operating altogether, not because there were no more orders, but because there was no more material. So they switched over to the waste sector.”

Overcoming logistical challenges and strains on global supply chains, the seating arrangements are part of wider efforts to reduce the environmental footprint of the Olympic Games. Promising to be the greenest games yet, the organizers have said they will slash emissions in

half compared to previous games by utilizing existing structures, encouraging public transportation use, and carbon offsetting.

The seats at Olympic venues such as the Arena at Porte de la Chapelle in Paris and the Olympic Aquatic Centre in Saint-Denis will be made out of recycled plastic. Approximately 11,000 seats will be made from recycled materials, reducing energy consumption and avoiding the production of new waste. Organizers have also stated that electricity will come from renewable resources where possible and they will also include 'low carbon' menus which will offer dishes with less meat.

Additionally, organizers are planning to install an underground water cooling system beneath the Athletes Village.

Paris - based recycling company Lemon Tri has teamed up with eco-construction firm Le Pavé to collect plastic waste and transform it into shredded plastic chips. The shavings are mixed until they achieve an even distribution of colors. They are then heated and compressed in machines. The result is a series of black or white plastic sheets with

flecks of color. From there, the sheets are smoothed, sanded, and sent to other partner companies in France to be cut and assembled.

Numerous tests have been carried out on the chairs, including fire resistance, UV resistance, and toxicity. The chairs have also undergone mechanical resistance tests to see how well they remain anchored to the floor against attempts to rip them off.

The seats are currently in the process of being built and they will be installed in fall 2023. Approximately 80% of the 100 metric tons of recycled plastic collected to make the seats come from the yellow bins located in Seine - Saint - Denis.

“It's collected in Seine - Saint-Denis, shredded in Seine-Saint-Denis, processed in Seine-Saint-Denis, all for a swimming pool that's still in the area,” says co-founder of Lemon Tri, Augustin Jaclin.

Plastic collection has also been conducted at the region's schools and approximately 5 million colored soda bottle caps have been recovered. In addition to helping the environment, the initiative also promotes and raises public awareness regarding sustainable practices.

"It's a huge communication tool," says Augustin. "When we tell children to come and put your bottles in the bins, tomorrow they'll be in the seats of the Olympic swimming pool, it raises awareness [of waste recycling]."

A Toy Story - Circularity Gives New Life to Old Toys



As we all know, toys are a huge market. Capturing the imagination of billions of children yearly, however there are huge environmental questions and concerns regarding the future and sustainability of the toy market. According to the Ellen MacArthur Foundation, nearly 2 billion tonnes of waste is being sent to landfill annually, with this in mind, 80% of toys produced in 2019 ended up in waste or landfill, which obviously means an awful lot of waste plastic.

According to the Ellen MacArthur Foundation, around 40 million toys end up as waste each year in France alone.

Many toy manufacturers are aware that there is an increased need for circularity within the sector, this is echoed in initiatives such as LEGO Replay which encourages the reuse and recycling of the aforementioned toy, the company claims: "The LEGO brick is recognized by LEGO owners to last for

generations. We pride ourselves on the high quality and longevity of our brick. We know that 97% of LEGO owners keep or share their bricks, passing them on to friends or family. As part of our Planet Promise, we want to help LEGO owners ensure that LEGO bricks can be rebuilt and replayed with – having a new creative life." The company recommends that LEGO be passed onto friends or onto friends, if you do not live in the US or Canada, actively promoting a circular economy. So far, LEGO claims it has recycled over 460,000 kgs of LEGO bricks through the scheme.

Similarly, and maybe more topically, Mattel, the creators of Barbie also have a similar reuse scheme. Where parents can return toys by returning them to Mattel with a free shipping label. According to a report in Forbes: "Mattel in late 2019 set a goal for itself of using 100% recycled, recyclable, or bio-based plastics in all of its toys and packaging by 2030. This April it announced a new green goal of reducing plastic packaging by 25% per product by 2030.

Circulareconomyloop.com has extended its research to the world of toys and proposed ideas to increase circularity within the sector, among these is the idea of 'upcycling hubs' in places such as shopping malls and libraries, according to the charity: "The collection points will serve as a go to place for children to bring their toys as well as create gathering points for them and parents (or grandparents). By bringing their old toys there, children will have the opportunity to attend fun workshops, where their toys can be sorted and

categorised into those that can be upcycled and given a new life – while also educating children that once a toy is broken – it doesn't mean that it needs to be thrown away." The charity also insists that such hubs allow for other advances: "business and entrepreneurship by educating children to generate value from what traditionally would've been thrown away."

Design is also a vital factor in extending the lifecycle of toys and avoiding plastic waste. According to the Ellen MacArthur Foundation choice of material and design 'inform durability' and inform companies what happens to toys once they reach the end of their lifecycles.

Applied Testing of Recycled Plastic in Road Pavement Materials



A section of I-155 in Missouri is the latest real world test of roads paved in recycled materials. Researchers at the University of Missouri are using recycled materials including plastic waste in experimental replacements for traditional asphalt pavement. In partnership with the Missouri Department of Transportation, the research team has recently created a real - world test road along a portion of Interstate 155 in Southeastern Missouri. The test road will be used to compare the effectiveness of nine different

types of recycled materials in the creation of asphalt pavement. These include three different types of polyethylene (PE) and ground tire rubber.

According to Bill Buttlar, director at the Mizzou Asphalt Pavement and Innovation Lab, building at full scale will help researchers determine if the rock, asphalt, and plastic and rubber additives successfully bond to create a road that can stand up to weather conditions and heavy traffic. Previously, the group had installed a test road along Stadium Boulevard in Columbia, MO, to evaluate four types of recycled materials. The group specializes in a dry process that enables the addition of recycled materials directly into the mixture before its application to the road surface.

"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.

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.

China launched Operation National Sword in 2017, a program that implemented much more stringent review of that country's imports of plastic waste. Abruptly, the global market for reclaimed plastic lost its number-one buyer. The West suddenly found itself without a market for low-value material it was producing in large quantities.

China's new waste import restrictions affected prices across all reclaimed plastics, but particularly unsorted and contaminated mixed plastic bales. In the aftermath, more MRFs are looking to increase value by separating out higher-value products from their mixed-plastic bales, including PP. PP bales from recovery facilities are one important feedstock for recycling operations at St. Joseph Plastics. As more MRFs add PP to their accepted items, and modernize to improve their sorting capability, availability and quality of these bales is likely to improve.

While post-consumer recycling is an important and growing part of St. Joseph Plastics' business, the majority of the material it processes is post-industrial PP and PE from molding operations.

"It's just as important as post-consumer," says Starr. "Most molders have a scrap rate around 3-5%, and that doesn't include obsoletes. There's a lot of post-industrial material out there, and it all needs to be recycled."

Integrated Plastic Recycling

Today, St. Joseph Plastics is a sophisticated, full-service recycler with over 100 employees. Operations have expanded to three processing facilities, two in St. Joseph itself and one in the city of Sedalia, Mo., two hours to the east. Sedalia is the starting point for bales of post-consumer material. Bales are broken, material is fed through a trommel to remove contamination, then washed, aspirated, sorted, and dried before transport to St. Joseph for further processing.

"Most molders have a scrap rate around 3-5%. There's a lot of post - industrial material out there, and it all needs to be recycled." The grinding operation now boasts eight lines and has moved to the company's Easton Road facility, just a few miles from the original location. These lines are primarily fed scrap material purchased or tolled from a wide variety of injection molding operations. These come in all shapes, sizes and colors, ranging from purgings or simple parts to completed assemblies, which may require removal of contaminating materials such as metal. Molding rejects and other scrap are shredded and ground,

then shipped to customers or passed to the compounding facility for further processing.

The original St. Joseph Plastics site now houses testing, compounding, sorting, and blending operations. Six extrusion lines melt, purify, and pelletize granules and other feed materials.

Silos with integrated blending provide homogeneity in addition to stabilization. "It's really essential to have good blending capability," says Starr. "Our goal is that the whole truckload be uniform, so when the molder gets the product, they set their machines once and run for 42,000 lb."

TotalEnergies Premium Wood Pellets Packaging Now Made of 50% Recycled Polymers from the RE:clic Range



The TotalEnergies Premium Wood Pellets are now packed in high performance polyethylene bags incorporating 50% post-consumer recycled (PCR) materials.

The new innovative packaging is composed of a core layer of rPE2206, a low - density polyethylene (LDPE) grade made of 100% PCR content and part of the RE:clic circular polymer range, and high-performance Lumicene® and Supertough® metallocene virgin resins. It

exhibits identical properties and thickness as fossil - based alternatives with a significantly reduced environmental footprint. Moreover, the printed area of the packaging has been reduced by 60% to improve recyclability and limit ink usage.

This development is the result of an internal effort within TotalEnergies to implement the circular economy in our own use of plastics.

"This project is a great illustration of our commitment to promote sustainability as a Company, by implementing our own innovative developments in our businesses. It contributes to addressing the challenge of end-of-life plastics and marks yet a new milestone in our ambition of producing 30% circular polymers by 2030," said Olivier Greiner, Vice President, and Polymers Europe & Orient at TotalEnergies. "Our customers choose TotalEnergies Pellets Premium as heating energy because it is both a cost-effective and sustainable solution. The new packaging co-developed with the Polymers Division facilitates recycling and helps reduce the carbon footprint of our activity," said François Boussagol, General Sales Manager, Marketing & Services France at TotalEnergies.

Production Milestone Achieved for Partially Biobased PET

Origin said its partially biobased PET was injection molded into preforms by Husky, using that company's established PET processing technology, and then stretch blowmolded into bottles.



Origin Materials Inc. (West Sacramento, Calif.) and Husky Technologies (Bolton, Ont.) announced what they called a milestone in the commercialization of PET incorporating the biobased feedstock FDCA (furandicarboxylic acid), which replaces petroleum-based PET component terephthalic acid (PTA), using standard PET equipment to injection mold preforms from PET/F, which were subsequently blowmolded into bottles.

Origin said this was made possible by its success in polymerizing the bio-based chemical FDCA into the common recyclable plastic, PET. The companies used Husky's well-established PET injection molding technologies, indicating the possibility for a commercial scale manufacturing of PET/F, by incorporating the new "hybrid" material into existing PET production systems.

Origin said its goal is to develop a family of 100% bio-based, low-carbon PET/F polymers offering full recyclability. In addition, the company believes PET/F will have tunable properties, allowing for grades with enhanced mechanical performance and superior barrier properties, compared to standard PET, including the possibility for longer shelf life.

Origin's goal is to enable the production of FDCA, PEF (polyethylene furanoate), and PET/F at commercial scale using its patented technology platform, which turns the carbon found in sustainable wood residues into useful materials, while capturing carbon in the process.

As a chemical building block, Origin says FDCA can be used to make polyesters, polyamides, polyurethanes, coating resins and plasticizers. FDCA is also the precursor for PEF. Origin's PEF is expected to be 100% bio-based, fully recyclable, and offer a significantly reduced carbon footprint.

In response to Plastics Technology questions, an Origin spokesperson said its PET/F resin can run in PET machines just like other PETs. The spokesperson noted that the 'tunable' properties like enhanced mechanical performance and superior barrier properties enabling longer shelf life are controlled by adjusting manufacturing conditions and the quantity of FDCA copolymer. Asked if the resin could serve as a drop-in replacement to PET without tooling changes or in high cavitation systems, the spokesperson said that at this time Origin has not disclosed a level of detail beyond what was previously stated, with respect to manufacturing conditions.

Working with Husky, Origin utilized its PET/F material to create preforms and bottles using existing PET processing technologies.

Polyplastics Launches DURACIRCLE™ Sustainability Initiative for Recycling of Engineering Plastics



Polyplastics Group, a leading global supplier of engineering thermoplastics, has launched the DURACIRCLE™ initiative for recycling of engineering plastics. This effort applies to a wide variety of sustainable solutions that contribute toward achieving a 100% recycling rate for engineering plastics, without being confined to the existing business model of manufacturing and selling plastics. Polyplastics' goal is to achieve carbon neutrality by 2050. Phase one of the sustainability initiative consists of the opening of Polyplastics' new DURACIRCLE™ Re-compounding Service business which will offer high-quality mechanically recycled materials starting by March 2024. Mechanical recycling is a method to melt plastic waste with heat and process it back into pellets for reuse.

DURACIRCLE™ Re-compounding Service is a clear departure from conventional recycling. Its aim is to perform horizontal recycling which is considered difficult with engineering plastics since these materials require high quality in subsequent uses. Horizontal

recycling is a recycling method to recycle products into the same products, such as recovering plastic bottles and recycling them back into plastic bottles. Pre - consumer materials with manufacturing histories that can be traced and pose no concerns of contamination from environmentally hazardous substances are anticipated for use as the raw materials. Pre-consumer materials are raw materials such as hot runners and non - conforming products that arise in manufacturing processes before products reach consumers, also referred to as post-industrial recycling (PIR) materials. In addition to expanding DURACIRCLE™ to markets outside of Japan, Polyplastics plans to develop and offer recycling technologies for post - consumer recycled materials (PCR) which are even harder to reprocess. As environmental needs evolve, Polyplastics is developing future solutions for mechanical recycling, chemical recycling, and biogenic carbon cycles.

Lithium-ion Batteries: Solution for the Direct Recycling of Production Waste Deveoped by Hosokawa Alpine



New process to recycle material scrap from lithium-ion battery production directly from the battery manufacturer. From

consumer electronics to electromobility: The demand for lithium-ion batteries is steadily increasing. But increased battery production also leads to a greater number of rejects during the manufacturing process. This arises, for example, when sorting out defects such as pinholes, inclusions and other coating faults, due to edge trimming or rejects during the finishing process. In total, about 10% (or considerably more depending on the process) of the coated cathode or anode films end up as rejects and have to be recycled.

In particular, the valuable active materials, i.e. the NMC or LFP of the cathode films or the graphite-silicon mixtures of the anode films, should be processed and directly recycled free of impurities. DIRECT RECYCLING ENSURES EFFICIENT PRODUCTION In order to be able to recycle cathode and anode film scrap during production, Hosokawa Alpine has developed a range of solutions. "Direct recycling means that rejects can be recycled at the production site and fed directly back into the production cycle.

That makes production more efficient, and the cathode and anode material can be almost completely recycled. Customers also save themselves the effort involved in external recycling," explains Thomas Weischer, Operations Director Recycling Division at Hosokawa Alpine.

PRODUCTION SCRAP GRINDING WITH THE ROTOPLEX CUTTING MILL With the Rotoplex cutting mill (as part of the process) from Hosokawa Alpine, scrap produced during the manufacture of lithium ions can be efficiently crushed directly at the production site and

therefore prepared for recycling. In the first step of this process, the scrap material is ground. This is done using Hosokawa Alpine's Rotoplex cutting mill, which has to be operated with inert gas both for safety reasons and to protect the material. The Rotoplex is available in a variety of sizes and can process throughputs from 250 to 3800 kg/h.

The cross - scissor - cut rotor developed by Hosokawa Alpine and proven over many years also ensures a very low energy input into the material and is also therefore very efficient. The feed can be supplied directly from coils via unwinding devices or alternatively as "crumpled material" via a feed chute.

Handling under a controlled atmosphere is always guaranteed. After pre - grinding with the Rotoplex, Hosokawa Alpine offers various solutions for delaminating the aluminium or copper film, i.e. detaching the cathode or anode material from the supporting film. Depending on the process, almost all of the active material can be fed directly back into the process. If required, optional further preparation and fine grinding can follow so that the material scrap can be optimally fed back into the coating process.

AIMPLAS Participates in a European Project to Develop Environmentally Sustainable Printed Electronics

Today, scarce metals and unsustainable materials are used to build conductive circuits in electronic devices. To help reduce the dependency on these finite



resources, the REFORM project aims to develop metal-free electronic components from bio-derived adhesives, conductive inks and flexible substrates. AIMPLAS participates in this EU funded project, led by CIDETEC, that focuses on the development of printed green electronics that will accelerate and guide the creation of a new European functional electronics supply chain.

Although each electronic device we own contains very limited amounts of critical materials, they are produced on a vast scale, meaning that the cumulative environmental impact of e-waste is substantial, particularly if components are embedded in ways that make recycling extremely difficult or uneconomic. Those devices that aren't recycled or disposed of correctly can often be found in landfill sites, where all sorts of dangerous toxins and carcinogenic substances, such as mercury, lead and cadmium, leach into the surrounding soil.

The REFORM project seeks to develop environmentally sustainable printed electronics by harnessing organic conductive inks and biodegradable or recyclable materials. Specifically, the project will develop three prototypes; a green smart logistics tag, a green embedded wireless sensor and a micro supercapacitor.

REFORM will employ eco-design principles to produce green printable electronics that meet

the demands of multiple industries and sectors so that e-waste ceases to be a problem in the future. To achieve this goal, the project brings together world-leading academics, non-profit research organisations, industry experts and innovative businesses from across eight different European countries.

AIMPLAS will contribute its experience in the recyclability of the materials and products developed in the project. More concretely, AIMPLAS will develop a pathway to achieve an effective sorting of printed electronics, and a new innovative method for the recovery of metals that contain these products. After the sorting and metal recovery, AIMPLAS will test which recycling method is better for the printed electronics recycling, including chemical and mechanical recycling tests.

REFORM is a 42-month project and has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101070255.

Sutco Managing Director Speaks on Policy Needs for Ensuring Recycling Material Flows Prioritize Sustainability

In a VDMA interview, Mr. Michael Ludden discussed the future of recycling and the interactions between chemical and mechanical. The German Engineering Federation, VDMA, conducted the following interview with Michael Ludden, managing director at Sutco Recycling. Mr. Ludden discussed the

current state of chemical recycling, warning that potential for mechanical and chemical recyclers to compete for the same material flows should not be ignored.

Mr. Ludden, what potential does chemical recycling have in your view?

The potential is clearly between mechanical processing and energy recovery. When incinerating, only the energy of the plastic waste is used, the material itself is lost; therefore, new material has to be obtained from fossil resources. But unlike mechanical recycling, chemical recycling breaks down these compounds instead of utilizing existing polymers as material.

In practice, in which area is it feasible?

For me, chemical recycling becomes feasible whenever mechanical recycling proves difficult. It makes sense to break up the carbon compounds, clean them and polymerize them again. That is not taking place at the moment, however. Unfortunately, the crux of the matter is that chemical recycling currently only deals with reprocessing of polyolefins such as polypropylene and polyethylene. These plastics consist only of chains made up of carbon and hydrogen. The large amount of other plastics that also contain nitrogen, sulfur or oxygen is not the focus of chemical recyclers, because these substances interfere with pyrolysis. However, polyolefins can be processed very well in mechanical recycling. This type of recycling is ecologically much more sensible because the plastics remain intact in their composite structure.



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A central collage of various colorful plastic products. It includes a red car bumper, a plate of white noodles with a kiwi slice, a set of colorful plastic cutlery (forks, spoons, knives) in red and blue containers, a large pile of yellow and green plastic granules, a red plastic table and chairs set, a pile of blue plastic granules, and a red plastic bucket filled with various cleaning products like sprays and bottles.

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