

THE ECONOMIC TIMES

# POLYMERS

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## A FABULOUS JOURNEY

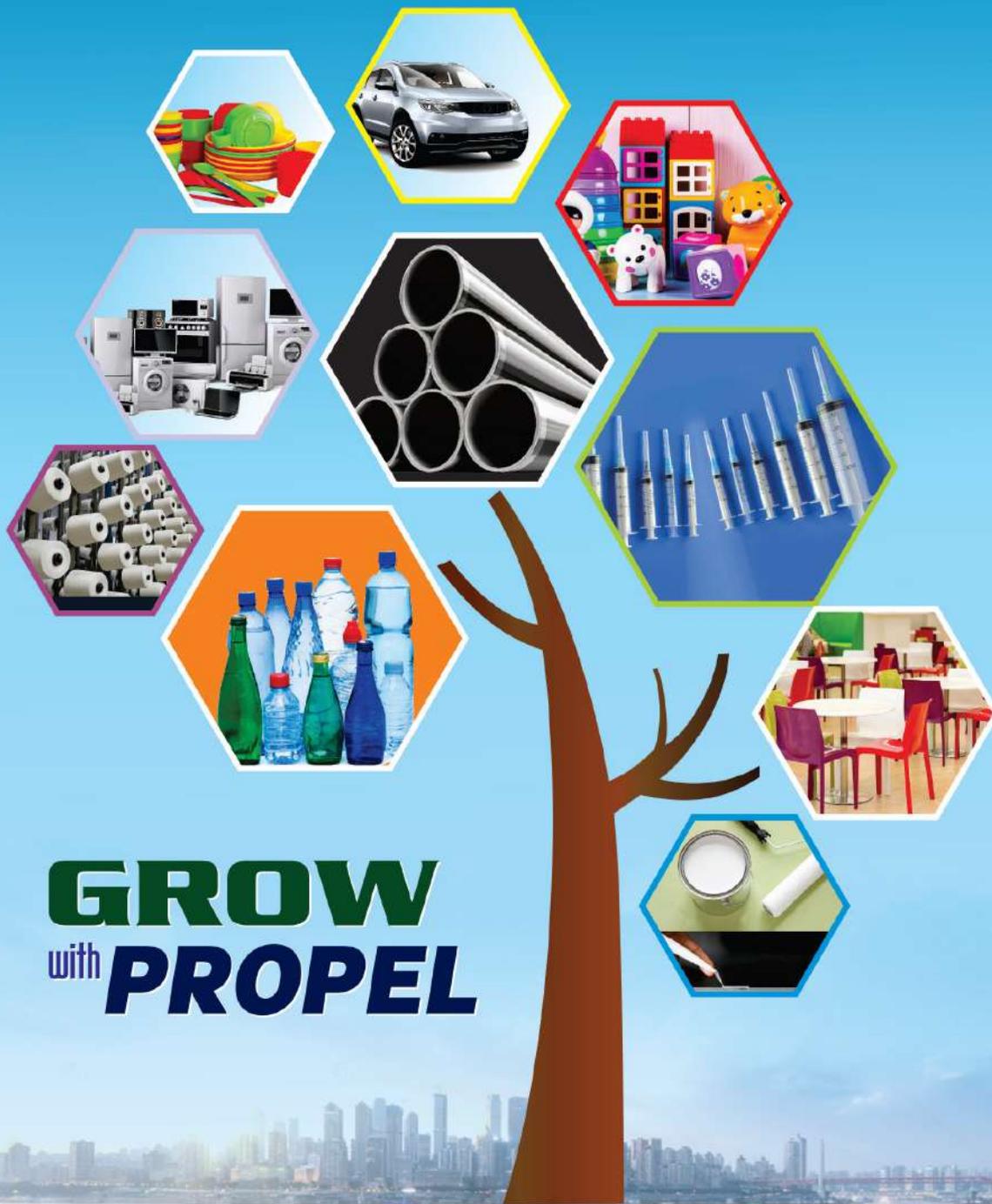
AJAY KHURANA, CHAIRMAN, REHAU – SOUTH ASIA,  
NARRATES HOW THE COMPANY HAS GONE  
FROM STRENGTH TO STRENGTH IN 23 YEARS

COVID19  
A WARRIOR  
CALLED PLASTIC

3D PRINTING  
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POSSIBILITIES

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# Perfect Storm or Perfect Opportunity

“I came; I saw; I conquered.” Julius Caesar had originally used this phrase to describe a quick and decisive victory in the ‘Battle of Zela’ in 47 BCE. Cut to 2020 CE. The name of Caesar seems to have been replaced by the name of another conqueror – Corona virus! And just like Caesar did, it came, it saw and it conquered.

Well, the victory of Corona virus has been equally quick. But is it equally decisive? Time will tell. In the meanwhile, the virus has managed to unleash the ‘Perfect Storm’ on planet earth. The kind of disruption it has caused is both unprecedented as well as unimaginable!

But there have also been a few rays of hope. The wave of humanity has, so far, proved to be much stronger than the disaster that the virus has caused. And one silent champion that has served the cause of humanity in this battle is plastic! From face masks to face shields, from ventilators to make shift beds, and from gloves to testing kiosks, plastic has once again proved its worth remarkably well. And herein lies the perfect opportunity for the industry because its survival hinges on it. It is the perfect time to clean up the bad name that plastic has acquired particularly in the last decade or so. It is extremely important to highlight to the world that plastic has come to the rescue of the human race in these tough times. If it was not for plastic, the war against corona would have been far more difficult. Tell them that what is stopping the Corona virus from achieving its decisive victory is not just the human spirit, it is also this wonder material called plastic!

“From face masks to face shields, from ventilators to make shift beds, and from gloves to testing kiosks, plastic has once again proved its worth remarkably well.”

Editor & Chief Community Officer



**electronica**  
Plastic Machines



As COVID-19 continues to impact communities around the world, there's one force that humanity owes to – the doctors, nurses, policemen, delivery personnel, municipal workers and every one working in the essential services.

Thank You  
**CORONA  
WARRIORS**

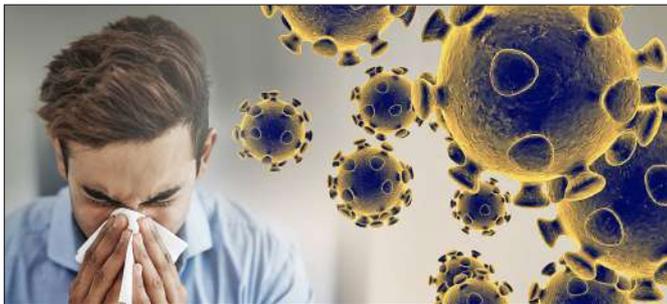


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## BASF India 2019-2020 results show growth

**B**ASF India Limited (BSE code: 500042) registered sales of Rs. 75,510.5 million for the financial year which ended on March 31, 2020, as compared to Rs. 60,256.7 million in the previous year, representing an increase of 25 percent. The Company reported profit before tax (before exceptional items) of Rs. 371.1 million as compared to loss before tax (before exceptional items) of Rs. 542.0 million in the previous year. In the quarter ending on March 31, 2020, the Company registered sales of Rs. 18,485.9 mil-



lion, as compared to Rs. 13,180.0 million for the corresponding period of the previous year, an increase of 40 percent. Profit before tax (before exceptional items) stood at Rs. 295.1

million for the quarter that ended on March 31, 2020, compared to loss before tax (before exceptional items) of Rs. 379.0 million for the corresponding period of the previous year. "Sales as well as operational profits across segments showed an improvement compared to the corresponding quarter in the previous year. Successful execution of projects with customers drove profitable growth despite ongoing slowdown, especially in the automotive sector," said Narayan Krishnamohan, Managing Director, BASF India Limited.

## 3M India develops unique solar reflective coating

**W**ith focus on the hot summers in India, 3M India's R&D team has developed 3M Scotchkote Polytech Exp RG700. This is a solar reflective coating which reduces heat inside any enclosure and can be applied on various metallic and non-metallic substrates. Commenting on this innovation, Dr. Mukesh



Madhup, Manager- Technical, Product Development, Electrical Markets Division 3M India, said, "This innovation is a significant milestone in 3M India's R&D effort. We are greatly satisfied with the impact this solution has had on the Indian rail coaches' heat reduction so far. Our teams are now scaling up the production as this

solution finds prevalent application in the HVAC industry. We are also exploring application of this solution across other countries such as Singapore, Germany and China." The coating has so far been applied in over 100 rail coaches. It is believed to have contributed to Indian Railways vision of sustainable procurement, passenger comfort and energy conservation by over 20 percent. Additionally, it has significantly contributed to passenger comfort. It is estimated that if applied over 15,000 rail coaches, it can save up to 162 thousand megawatts of electricity.

## MSMEs must attract foreign investment: Nitin Gadkari

**U**nion Minister for MSMEs and Road Transport & Highways Nitin Gadkari has called upon the MSME sector to consider technology upgradation and to look for foreign investment to forge ahead in the post-COVID scenario. He said, the relief package announced by the Prime Minister for MSME sector should be utilised by the medium and small scale industry to jump back into action. Addressing the members of Confederation of Faridabad Industries Association and Materials Recycling Association of India in two separate video conferences from Nagpur today, the Minister said, this package will energize the local indigenous industry with new life. Gadkari said, the stimulus package announced by the Finance Minister will prove substantially helpful for MSME sector. He informed that by this 31st March, nearly 6 lakh MSMEs were restructured,

## CII Competition Law Compliance Manual released

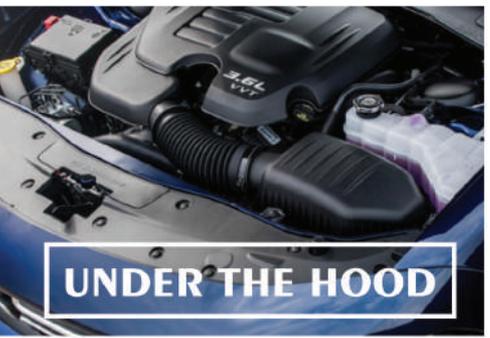
**C**II has released the Competition Law Compliance Manual: COVID - 19. It contains Guidelines for corporates to keep in mind while collaborating - to ensure continued compliance with the Competition Law in the current crisis situation. CII has listed few Guidelines for compliance by companies to ensure they are on the right side of the law. Some of these include: For co-operation with competitors, principles to keep in mind for companies to understand what companies can do and cannot do to deal with the current crisis from a competition law perspective - Scope of the collaborations; Detailed documentation; Firewalling to prevent exchange of CSI; Ex ante review by legal counsel. Dominant enterprises which enjoy market power in particular must ensure that their business activities do not in any way lead to an abuse or market exploitation. They must accordingly refrain from (i) limiting production, services or technical development, (ii) excessive pricing and (ii) bundling non-essential products / services with essential services. Companies having market power in the manufacture and sale of essential commodities must avoid entering into any exclusive distribution agreements.



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## TVS Group develops respiratory assist device

The TVS group, the Sundaram Medical Foundation, and IIT-Madras have jointly developed a low-cost automated respiratory assist device called The Sundaram Ventago. This was done in collaboration with esteemed hospitals like Kauvery Hospital and the Madras Medical College and with guidance from global educational institutions like MIT-Boston. The Sundaram Ventago is designed to internationally accepted medical standards with an objective to give every patient equal access to quality medical support at an affordable cost.



Commenting on the Sundaram Ventago development, Sriram Viji, Deputy Managing Director – Brakes India, TVS Group said, “The Sunda-

ram Ventago is a ‘Make in India’ product with a local supply chain, based on proven global technology. It can be produced quickly in larger numbers. The Sundaram Ventago will also have a great impact post-COVID as this device can make respiratory support more affordable and available to all.” The Sundaram Ventago provides physicians a simple and cost-effective option when incoming patients with respiratory difficulty surpasses ventilator capacity and is especially useful in remote and rural areas where ventilator facilities are not available.

## Freudenberg sales in India grows by 5.7 percent

Freudenberg has performed well in the 2019 financial year, despite the difficult economic and geopolitical market environment. At Rs.74,583 crore (or €9,467.8 million), sales in 2019 were at about the same level as in 2018 (Rs.76,235 crore or €9,455.4 million). Freudenberg



also performed strongly in India, with sales growing by 5.7 percent to Rs.2,533 crore (or €321 million). This rise is the

result of continuous investments in existing and new projects. “We once again focussed heavily in our future, in machines, equipment, acquisitions and, above all, in the three focus areas of our 2018 to 2020 strategic planning period: Mobility, Digitalization and Sustainability,” said Georg Graf, Freudenberg’s Regional Representative in India. Freudenberg’s seven Business Groups in India have a total workforce of some 2,844 employees at around 50 locations – running six R&D centers and 16 production sites.

“Following the coronavirus-related complete shutdown, our companies in India will work hard to reach normal operating levels again,” says Graf. “Together with our colleagues, customers and partners we are doing our part to pave the way for long-term growth. We continue to provide world class products made by the dedicated workforce to the Indian community aligned with our vision of long-term commitment and supporting the ‘Make in India’ initiative”. Freudenberg expects the environment to remain challenging in the 2020 financial year.

## Emerald Sage to acquire stake in Apollo Tyres

The Competition Commission of India (CCI) has approved the proposed acquisition of 9.93 percent stake by Emerald Sage Investment Limited in Apollo Tyres Limited. The proposed combination envisages subscription by Emerald Sage Investment Limited (Emerald) to 10.80 crores compulsorily convertible preference shares constituting approximately 9.93 percent of the post-issue paid up share capital of Apollo Tyres Limited (Apollo).

Emerald is an investment holding company incorporated under the laws

of Mauritius. Shareholders of Emerald are certain private equity funds managed by Warburg Pincus LLC, which acts as a manager to certain private equity funds. The portfolio companies owned by these private equity funds are active in a variety of sectors including energy, financial services, healthcare and consumer, industrial and business services, technology, media and telecommunications. Apollo is engaged in manufacturing and sale of automotive tyres.



## NTPC & ONGC to set up JV

NTPC Ltd. and Oil and Natural Gas Corporation Limited (ONGC) have signed a Memorandum of Understanding (MoU) to set up a Joint Venture Company for Renewable Energy business. The MoU will enable both companies to accelerate their footprint in Renewable Energy. As per the MoU, NTPC and ONGC will explore the setting up of offshore wind and other Renewable Energy Projects in India and overseas.



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## KHS invests €20 million in site modernization

The KHS Group has invested €20 million in modernizing its headquarters on Juchstraße in Dortmund, Germany. In a bundle of measures underway since 2015 the company has built a huge, approximately 4,300 sq m production shop and fully renovated another. The last construction machines will disappear in the spring, marking the end of the extensive process optimization and other measures at the KHS production site in Dortmund. According to plant manager Dr. Joachim Konrad these were absolutely essential to strengthen KHS' competitiveness. "As a company active worldwide we find ourselves in a competitive situation and want to



carry on manufacturing in Germany. We've therefore further digitalized and automated our infrastructure and processes in Production." Here, key elements of the modernization included extending the production area and renewing the machine park. At its production site on Juchstraße KHS has erected a completely new production shop. In an area measuring 4,300 square meters the systems

supplier has now created conditions that enable the relevant technology for container and pack conveyors to be merged and order processing to become more efficient. KHS has also modernized one of the oldest production buildings on the company premises. With an investment volume of six million euros for this project alone the engineering company has not only renewed the shop floor and roof; it also optimized its Sheet Metal Manufacturing Department housed in the hall, incorporating new technology that includes a faster, more efficient fiber laser, a combined punching/laser machine and a larger, fully networked sheet metal warehouse.

## DSM Engineering Plastics changes name



DSM Engineering Plastics will now be known as DSM Engineering Materials. With its new business group name, DSM Engineering Materials would like to emphasize the broad character of its specialty materials portfolio and expertise. Additionally, it brings better expression to its advanced materials engineering capabilities and know-how. DSM Engineering Materials is grounded in a strong heritage in servicing the needs of its customers. We will continue to rely on our proven industry leadership and expertise in advanced materials, and market-focused research to bring innovative solutions to our customers, just like we have done in the past. Recently DSM announced that it will offer a full alternative range of its existing portfolio based on bio- and/or recycled-based engineering materials by 2030.

## Arburg injection moulds face masks from LSR

After Arburg started producing protective glasses on Allrounder injection moulding machines at its headquarters in Lossburg (Germany) in mid-April, the mechanical engineering company has now launched an additional project to combat the spread of the coronavirus: Since 11 May, face masks are injection moulded from LSR (liquid silicone rubber) and PP (polypropylene). About 3,500 of these multifunctional high-tech masks are expected to be produced daily under series production conditions.



"The demand is enormous. We are receiving specific requests from hospitals and nursing homes from all over the region," says Gerhard Böhm, Arburg Managing Director Sales, regarding the current situation. "We developed the high-quality and sustainable masks made of flexible LSR and PP ourselves and additively manufactured the first prototypes with our Freeformers. The LSR component and mould simulation was carried out using the Sigmasoft software from Sigma Engineering. In a record time of only around five weeks, our partners Polar-Form and Foboha built the corresponding injection moulds for the LSR and PP components. This means that we can now start series production in Lossburg." The companies Ewikon (cold runner) and Männer (hot runner) were also involved in the implementation of the mould technology. Other partners were Barth Mechanik (gripper) and Packmat (packaging technology), the raw material for several 10,000 masks was sponsored by the chemical group Wacker and Borealis.



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# LohiaCorp



## Mondi to produce one million surgical face masks

Mondi is set to build new production lines in its plant in Gronau, Germany, to produce melt blown nonwoven fabric and surgical face masks. This is part of Mondi's efforts to mitigate the spread of COVID-19 and respond to increased demand by health authorities, businesses and consumers for face masks. Mondi Gronau has a proven track record of producing and handling films, laminates, nonwovens and elastic ear laminates for hygiene products. This knowledge will be applied to the entire value chain of face mask production. "We are well positioned for the in-



creased production of face masks and melt blown nonwoven fabric in Gronau. Our people have the needed know-how and expertise on working with these materials and the technology required. The in-house

production capability of all substantial components positions us to build up a long-term competitive local supply. Once up and running, we will be able to produce more than one million face masks per day," said Jürgen Schneider, Managing Director, Mondi Personal Care Components (PCC). The production lines will produce melt blown nonwoven fabric and surgical masks. Given the shortage of melt blown fabric in the market place, Mondi's plant in Gronau will offer approximately 50 percent of its production to other face mask manufacturers in Europe.

## Light-weight specialist Yajima opens US HQ

Yajima Industry Company Ltd., with specialty in lightweight automotive and aerospace products and components and supplier to Subaru of Indiana Automotive Inc., announces the establishment of Yajima USA, located in the Purdue Research Park in West Lafayette. Yajima specializes in the production of sheet metal pressed products using an integrated system from product design



to production, including the die design and its production within the group of Yajima Industry, which are the strengths of the company. Yajima also provides special products and components to the motorsports aftermarket by making use of its technology to design and produce innovative, lightweight automotive and aerospace parts. "The founding of Yajima USA in the Purdue Research Park and its association with Purdue's Composites Manufacturing Simulation Center is another example of the success of the Purdue Research Foundation's efforts to bring high-technology companies to Indiana to promote the economic vitality of the state of Indiana and the region," said Brian Edelman, president of the Purdue Research Foundation.

## Open collaborative platform UNITE4COVID launched

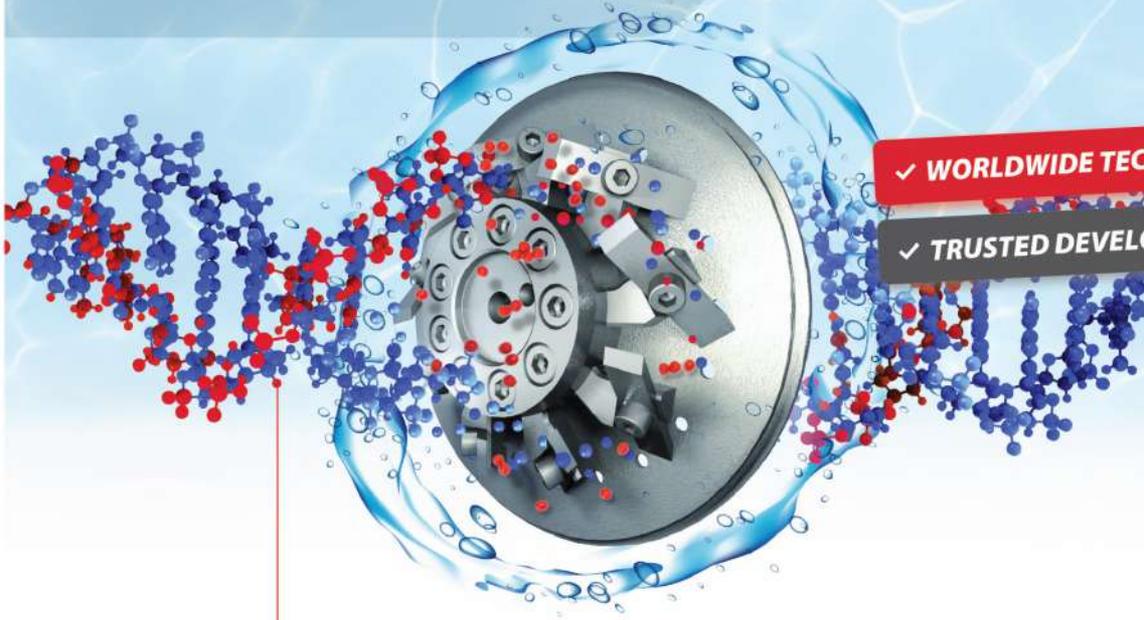
Royal DSM has announced the launch of UNITE4COVID, a digital, open, collaborative marketplace designed to provide solutions for healthcare professionals, as well as a forum and collaboration hub for inventors, manufacturers and certification labs in the fight against corona. In response to the COVID-19 pandemic, the manufacturing industry continues to provide help to relieve the urgent need for personal protective equipment (PPE) and other safety equipment. From materials to production, manufacturers are coming together to help relieve the urgent need for medical supplies, equipment and replacement parts. To connect those who wish to help with those who seek help, DSM has launched a digital platform, UNITE4COVID.org.

## Groupe Renault acquires mask production line

Groupe Renault has announced the acquisition of a mask production line to meet its needs and guarantee the health and safety of its employees on its sites and in its commercial network in Europe (industrial and tertiary sites, and the Renault and private dealership network). This production unit will be located at the Renault plant in Flins (France) and will start production next July. It will be capable of designing up to 1.5 million surgical masks per week. By equipping itself with a French-technology mask production line, the Group intends to implement a long-term solution to secure its supplies, cope with the risks of shortages, delays and price inflation, and thus help to reduce the strong pressure of demand on this market. All the machines and materials used for manufacturing will be of French or European origin. About twenty employees will be trained in June by the manufacturer of the production unit to be assigned to this mask manufacturing area. The line will comply with the Group's safety standards and the masks produced will be certified in accordance with current standards.

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## BASF and DiDi enter partnership

**B**ASF will provide DiDi with sustainable automotive re-finish products developed at its research and production site in Jiangmen. These products, designed for the Chinese market meet the stringent standards implemented in various cities in China. As strategic partners, the two companies are committed to the sustainable development of the carsharing industry in and out of China. Paint-related products under the RODIM® brand will be part of the offerings to help body shops enhance workflow and overall performance for automotive refinishing.



In addition, a dedicated expert team from BASF will perform timely professional technical services for DiDi, including training for body shop operators.

DiDi currently has 25 own body

and paint shops in China and will be expanding to more than 200 owned and franchised shops globally by the end of this year. “Simplification is in our DNA. We focus on simplifying processes and operations while our business is expanding,” said Gu Haijie, President of Xiaoju Autocare. “BASF is the one-stop solution provider that can help us standardize the painting process of our new shops. This will help us increase efficiency by integrating the whole value chain of contractors, dealers, and repair centers.”

## Contec, Inc., Milliken partner to produce disinfectant

**T**he demand for antibacterial cleaning supplies continues to climb in response to the COVID-19 pandemic, and healthcare institutions are looking for effective alternatives to traditional solutions. To fill this need, Contec, Inc., the industry leader in critical cleaning products and cleanroom supplies, is scaling up production of its Sporicidin brand disinfectant, most often used for mold and water damage remediation, and turned to diversified global manufacturer and materials science expert Milliken & Company to help produce mass quantities. “Milliken immediately came to mind when we decided to bring on a new manufacturing partner,” shared Jack McBride, Contec, Inc. CEO. “Milliken is a trusted, key community player with the mass production, quality systems and speed-to-market capabilities needed to help us provide critical cleaning solutions to healthcare facilities without delay.” “Companies are adapting their core competencies to meet the global challenges brought on by COVID-19,” said Halsey M. Cook, president and CEO of Milliken & Company. “Partnering with Contec, Inc. was a natural fit, and gave Milliken the opportunity to quickly reconfigure our manufacturing capabilities and rapidly solve problems for our customers and communities.”

## JLR scales up production of NHS-approved face visors

**J**aguar Land Rover is scaling up production of its protective face visors in a continued effort to support the fight against Coronavirus. New tooling, developed by WHS Plastics, will produce a further 14,000 visors each week for key workers across the UK. The carmaker recently announced the manufacture of 3D-printed face visors at its Advanced Product Creation Centre in Gaydon, home to one of the most advanced 3D-printing facilities in Europe. Visors have been produced and shipped to NHS Trusts across the UK, including the Great Western Hospitals NHS Foundation Trust and South Warwickshire NHS Foundation Trust. Now, using injection mould tooling supplied by WHS Plastics of Sutton Coldfield, the operation will produce in excess of 2,000 per day – with one polypropylene headband generated every 30 secs. Each face visor has been designed to be reusable and can be easily dismantled and cleaned before being used again, safeguarding NHS trusts against future shortages. Paul Nicholson, Group Managing Director for WHS Plastics Ltd, said: “In manufacturing, we are uniquely placed to support our essential services, to help deliver critical equipment to those on the frontline here in the Midlands. It’s a small effort, but by working with Jaguar Land Rover we can help turn the tide.”



## Songwon gets new distributor

**S**ongwon Industrial Co., Ltd. has signed an exclusive distribution agreement with Biesterfeld France. As from May 1, 2020, Biesterfeld France has been exclusively distributing the Songwon polymer stabilizer range in France. Biesterfeld France is part of the German Biesterfeld Group, ranked by ICIS as one of the Top Ten chemical distributors worldwide.

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## Siemens opens its Additive Manufacturing Network

In response to the ongoing global health crisis caused by the outbreak of the COVID-19 virus, Siemens is making its Additive Manufacturing (AM) Network along with its 3D printers, available to the global medical community to speed design and production of medical components. The AM Network connects users, designers and 3D-print service providers to enable faster and less complicated production of spare parts for machines like ventilators. The Siemens AM network is available globally and covers the entire value chain – from upload and simulation to checking the design up to



the printing process and associated services. Doctors, hospitals and organizations in need of medical devices as well as designers and service

providers with medically certified printing capacities can register for free access to the Siemens AM Network. “Having worked on Additive Manufacturing for years, we offer AM solutions along the entire value chain and can print 3D parts quickly according to acute demands. To help fight COVID-19, we have opened our AM Network for hospitals and other health institutions needing spare medical parts to efficiently manage their design and printing requests”, said Klaus Helmrich, Member of the Managing Board of Siemens AG and CEO Siemens Digital Industries.

## Covestro & Teknor Apex enter agreement

Materials manufacturer Covestro and global plastics compounder Teknor Apex intend to cooperate closely on compounding thermoplastic polyurethane (TPU) and have signed a cooperation agreement to this effect. TPU is an extremely versatile plastic, which Covestro has been producing in pure form for many years for use in various industry sectors. Through compounding, i.e. mixing with other materials, the array of achievable properties can be increased considerably further. This is a particular strength of Teknor Apex.

“We are happy to team-up with such a competent and complementary partner for processing TPU on a global scale,” says Dr. Thorsten Dreier, the new global head of the TPU business at Covestro. “Together with Teknor Apex, we want to develop customized products to grow together with our existing and new customers.” Covestro supports the marketing of the jointly developed products by Teknor Apex with its Desmoflex brand. “We are excited to become Covestro’s preferred global compounding partner. The combination of Covestro’s expertise in TPU resin with Teknor Apex’s custom formulation and compounding capabilities provide a compelling value driver for our combined customers worldwide,” says Sachin Sakhalkar, Vice President, TPE Division, at Teknor Apex.

## Mitsubishi Chemical acquires Gelest

Mitsubishi Chemical Corporation (MCC) has announced that its subsidiary Mitsubishi Chemical America, Inc. has entered into a definitive agreement to acquire all of the issued and outstanding shares of Gelest Intermediate Holdings, Inc., the parent of Gelest, Inc. Completion of the transaction is expected in 2020, pending customary regulatory review and approval. Gelest is an American manufacturer, and supplier of silicones, organosilanes, metal organics, and specialty monomers for advanced technology end markets including medical devices, life sciences, microelectronics, and personal care. “We are excited to acquire Gelest as its business fits well within MCC’s long term strategy,” said Steve Yurich, President of MCA. “Since becoming familiar with Gelest, we have recognized the tremendous capabilities in research and development and production that help create its outstanding position with key customers. Furthermore, MCC’s operating resources and customer network will enhance the ability to bring Gelest’s technologies to market and accelerate the development of new customer solutions to drive advances in digital social infrastructure, vision care, and other life sciences applications. We look forward to working alongside the team at Gelest to drive the continued growth of the company.”

## Clariant to increase capacity

Clariant is expanding production capacity for its isethionates derivatives - Hostapon SCI - mild surfactants to support the increasing shift by personal care formulators and brands towards using mild surfactants to differentiate applications. It also supports the growing consumer trend for hygiene products. The investment at facilities in Europe and the USA will bring additional capacity on stream during Q1 2021. “As one of the leading company for specialty chemicals in personal care, Clariant continues to invest and support the latest trends in the sector. Mild surfactants are a growing sector driven by consumers seeking new mildness claims, invaluable in helping formulators to answer needs for mild cleansing hygiene, sensitive skin solutions, solid formats and more natural ingredients,” commented Christian Vang, Global Head of Business Unit Industrial & Consumer Specialties.

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**JENS LIEBERMANN APPOINTED AS VP FOR BASF SEMICONDUCTOR BIZ**

Jens Liebermann has been appointed Vice President for the global Semiconductor business under the business unit Electronic Materials of BASF's Dispersions & Pigments division effective March 1, 2020. Jens succeeds Dominic Yang, who led the Semiconductor business in the past years and will retire from his current position. Jens will be based in Seoul, South Korea. Jens Liebermann played leading role in the strategy development and organizational restructuring of BASF's Electronic Materials business. Prior to his current role, he headed Global Business Management for BASF's Metal Systems Business. He started his career at BASF's Coatings Division focusing on automotive in Germany in 2007. Since then, he held various positions in marketing, sales, business management and strategy for the Coatings, Coating formulations, raw materials and Electronic Materials business in BASF. During the recent past years, he focused on the IC industry supplying specialty raw materials and formulations to the Electronic industry.



**ENGEL FRANCE & ENGEL BENELUX HAVE NEW MANAGING DIRECTORS**

Romain Reyre and Arthur van Dijk are the new Managing Directors in injection moulding machine manufacturer Engel's international sales network. Romain Reyre will be in charge of the sales and service subsidiary in France, while Arthur van Dijk is joining Engel Benelux.

Engel France SAS is completing a generation change in management. Philippe Sterna, MD of the sales and service subsidiary for 20 years, is retiring. His successor is Romain Reyre.

Reyre has been with Engel since 2016 and was most recently Regional President, managing Engel's business in South East Asia. He is now returning to his home country France. "We are pleased to be able to fill this important position internally," says Dr. Christoph Steger, CSO of the Engel Group. Romain Reyre brings a total of 30 years of experience in the international plastics industry to his new responsibility and knows the plastics industry market in France just as well as the international network.



**MARCEL BEERMANN TO HEAD PROCUREMENT AT LANXESS**

Marcel Beermann (47) will take over as head of the Procurement and Logistics group function at specialty chemicals company Lanxess on June 1, 2020. He succeeds Frederique van Baarle (48), who will become head of the High Performance Materials business unit on the same date. Beermann is currently head of marketing and sales for high-performance plastics in the Europe, Middle East and Africa (EMEA) region at Lanxess. "Over the past one and a half years, Marcel Beermann has been able to further deepen his profound understanding of the markets and players in the chemical industry in a leading position in our operational business. He has done an excellent job here, as he did during his ten years as head of the Mergers & Acquisitions group function. I am very pleased that he can now contribute his extensive know-how to our global purchasing and logistics operations and wish him every success in his new role," said Hubert Fink, member of the Lanxess Board of Management.



**SPX FLOW APPOINTS J.P. PHILLIPS**

SPX Flow has announced the appointment of J.P. Phillips as Americas Key Account Director - Strategic Partnerships. J.P. has held the position of District Sales Manager - Food & Beverage at SPX Flow for the past five years. Previously, he worked at AMPCO Pumps as well as the Food Equipment and Engineering Company, which is now Cummins Wagner.

Ava Drayton, VP, America Key Account and System Sales at SPX Flow, said: "J.P. has proven success in his previous roles and is a welcome addition to our Key Account Management Team. We place a lot of value on long-term, sustainable relationships with our key customers and having the correct level of skills, resources and business acumen to support them is a critical part of our business." J.P. will be based out of the SPX Flow

office in Charlotte North Carolina. He will provide strategic direction and leadership in the development and maintenance of long-term relationships and will help ensure a culture of customer-focused innovation and profitable growth using disciplined practices and processes.



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## Manjushree Technopack opens new plant at Silvassa

**M**anjushree Technopack Limited (MTL) has announced the launch of a new greenfield plant in Silvassa in Western Indian. The new plant has a capacity of 10,000 MTPA and MTL has committed an investment of Rs. 100+ crore for the same. The plant will cater to diverse sectors of clients including FMCG, lubricants, agrochemicals and paints. For MTL, the new plant is a strategic investment that is expected to help forge deep relationships with existing customers and pave the way for acquiring new customers. The Silvassa plant will focus on the production of plastic containers and bottles for a diverse range of food and non-food segments. The plant is



extensively equipped with Extrusion Blow Moulding technology, which is best suited for packaging products like shampoo bottles, surface cleaners, toilet cleaners, lubricants, paints and fertilizers. Announcing the launch of the new plant, Sanjay Kapote, CEO, MTL said “West India will play a critical role in our growth and we are estimating 10 percent of

MTL’s business coming from this region. With the launch of the new plant at Silvassa, we will bolster our relationship with scores of brands who are active in the region. Like Silvassa, we aim to be present in more manufacturing hubs across the country in the next 4 years as part of our growth strategy.”

## Domo Chemicals to invest €12 million in new plant

**D**omo Chemicals has announced plans for a new state-of-the-art plant in Zhejiang, China. The new plant will be capable of producing 50,000 tons of sustainable and innovative engineered nylon compounds each year. The company signed a new factory project through “cloud contract” with PingHu Du-Shan port Economic Development District on February 20, 2020. Production is expected to commence in the fourth quarter of this year. DOMO Chemicals will invest €12 million in the new plant, which will have more than 11,500m2 floor space. The company plans to install multiple production lines at the first stage of development, which would offer an estimated capacity of 25,000 tons/year. There will be enough additional space available to cope with future demand requirements. The move is in line with the company’s global growth strategy with a strong focus on the Asia Pacific (APAC) region. Ludovic Tonnerre, Vice President, Global Engineering Plastics stated: “Domo Chemicals has only been operating in China since 2015, but we are growing rapidly. Despite the current coronavirus challenges, we are confident that China will lead the world in embracing a future generation of sustainability and e-mobility solutions. We are very grateful to the government and relevant departments for their patience and assistance and are confident in our long-term cooperation, relationships and mutual opportunities.” The new plant will be located in the convenient transportation port area of DuShan Pinghu city, Zhejiang province, which is in close proximity to Shanghai and facing the East China Sea. The modern factory will integrate R&D, production, and sales. It will mainly develop and produce modified engineering plastics such as nylon 6, nylon 6.6\* and high temperature nylon (HTN).

## Piramal Glass to expand Jambusar Plant in Gujarat, India

**P**iramal Glass Ltd (PGL) has announced an investment of Rs.300 crore (US\$42 Million) in its greenfield project in Jambusar, Gujarat, India. The expansion plan includes one new furnace with seven new manufacturing lines across ~300,000 sq.ft. plant, catering primarily to high-end specialty spirit, food & beverage and pharmaceutical markets primarily for exports to countries in Asia, Europe and the US. Piramal Glass is already catering to the high-end Specialty Spirits from its plant in the US. This top-of-the-line facility will be one-of-its-kind in Asia as there is a growing need for high-end water bottles, spirits bottles and food packaging.



The Jambusar plant already houses three furnaces with 23 manufacturing lines and produces 540 tonnes per day of glass. It currently employs 2130 people and with this expansion it will create an additional direct employment to ~ 700 people.

Piramal Glass with global sales of Rs. 2,500 crore (US\$357 Million) operates from India, Sri Lanka and the US through its four manufacturing facilities and several decoration plants. Globally, PGL has 1435 tonnes per day of glass from 12 furnaces and 63 production lines. Forty percent of its sales are in high-end Cosmetics & Perfumery market, 37 percent in Specialty Spirits market and 23 percent in Pharmaceutical market. Vijay Shah, Vice Chairman, Piramal Glass said, “This world-class plant equipped with cutting-edge technology rooted in the principles of digital manufacturing, will also create job opportunities in the region.”

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## DSM to expand capacity at plant in Evansville, Indiana, US

Royal DSM has announced it is futureproofing and expanding the capacity of its high-performance materials compounding plant in Evansville, Indiana, USA. With the investment, DSM will enhance the site to produce the next generation of advanced materials, including bio-based thermoplastics. The project is expected to be completed in Q3 2021.

The extensive modernization and expansion of the site is being driven by increasing customer demand for advanced material solutions for electrification, metal replacement and lightweighting in multiple industries. It includes the addition of the latest state-of-the-art production technologies, increasing efficiency and sustainability throughout the facility.

“As demand from our customers for sustainable sources of advanced materials grows, so does our need to invest”, said Jud Gibson, Vice President Commercial Americas at DSM Engineering Plastics. “The expansion of our North American operations helps to ensure we have the right



tools to meet this need today and in the future.”

Shruti Singhal, President at DSM Engineering Plastics said: “This investment reinforces our focus on North America being a key growth market for our business. It also underlines DSM’s commitment to serve our customers by continuously improving the technology and sustainability of our facilities around the world.”

## Tata Motors Lucknow plant going green

Tata Motors Lucknow plant has minimized the use of energy in its functions and processes with its constructive and consistent efforts. The company’s Lucknow plant has



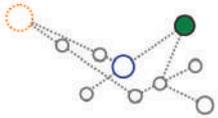
adopted an Energy Management System (EMS), which has ensured a substantial reduction of 38 percent in specific energy consumption over the last four years, i.e. from 406 kWh / equivalent vehicle in FY2015-16 to 250 kWh / equivalent vehicle in FY2018-19. Tata Motors’ Lucknow plant is moving swiftly towards improving its energy efficiency by leveraging innovation, optimizing operations, implementing energy-efficient technologies, adoption of energy conservation measures, use of renewable sources of energy, low-cost automation and introducing employee suggestion schemes. Speaking on the initiatives, Pramod Choudhary, Plant Head - Tata Motors Lucknow, “Environment protection features as a top priority agenda in our business and we have set the action plans for carbon emission control, energy conservation, water conservation, and waste management. Our Lucknow plant has always been cognizant of the need for energy conservation and has been steadily making progress towards attaining 100 percent renewable energy sourcing for all its operations by 2030. We have increased the share of renewable energy to over 16 percent in the last two years by installing 4MWp capacity Roof top Solar power plant in the plant premises. We will continue to drive such innovative initiatives.”

## Arburg formally opens new training center

Arburg has recently inaugurated its new training centre in the presence of around 170 invited guests from the region. The new 13,700 sq m building will allow customers to benefit from the latest digital training technology and machine equipment. “Our intention to build such a training centre was simply about people,” emphasized Michael Hehl, Managing Partner and Spokesperson for the Management in his opening speech. “That is because despite high



tech and increasing digitalisation, people still play a crucial role for a successful future.” The new training centre, offering 13,700 m<sup>2</sup> of floor space, features a large machine hall with space for 15 Allrounders to provide practical training courses on Arburg technology. But there is also ample space for theory courses, with 11 classrooms being available, all of which are equipped with a modern smart board. In addition, each course participant uses his or her own touch-screen PC running a simulated control system. The PCs are networked with each other. But there is even more digitalisation than that: data can be transferred from the smart board in the classroom to a smaller board on the respective machine. This enables real-time interaction and cooperation independent of location or device. The new building will increase the total floor space at the German headquarters by almost five percent to around 180,000 sq m. In architectural terms, the training centre resembles the Customer Center inaugurated in 2009.



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# How Plastic is saving us from Coronavirus!

**The material plastic though considered an environmental hazard, is contributing as a wonderful material in the form of personal protection equipment (PPE) - protecting doctors, nurses, frontline health workers, law enforcing agencies, sanitation workers and volunteers from the virus.**

By Dr. Vasi Shaikh

**C**oronavirus outbreak is the world's worst and most challenging crisis since Second World War with no modern parallels. The global reach of the coronavirus, and the societal and economic shutdowns, has touched everyone and everywhere. People are forced to stay away from work. The economic hit could be enormous, affecting every sector for a long time. The crisis, once expected to last for a month or two, is here to stay for an extended period. This pandemic is a test of our resolve, solidarity and trust in science.

With no specific vaccines or treatments available, the best way to prevent or slow down the transmission is protecting yourself and others from infection. Even a moderate outbreak will require huge number of isolation wards, hospital beds, ventilators, medical equipment, accessories and testing kits than the country has. This will create a panic situation and impose an enormous pressure on health-care systems. The world's infected population has crossed three million mark and over two hundred thousand



deaths have already occurred.

Amidst this havoc, one material which is contributing silently and rising against the pandemic is "Plastic." Yes, the material plastic though considered an environmental hazard, is contributing as a wonderful material in the form of personal protection equipment (PPE) - protecting doctors, nurses, frontline health workers, law enforcing agencies, sanitation workers and volunteers from the virus.

PPE is made of polypropylene (PP), a non-woven material that can

be used only once. Banned just a few months ago, its demand has almost doubled across the world during this crucial time of pandemic. From 25 percent in 2018, the share of PP in total polymer consumption is poised to almost double by 2030. Due to the shortage of protective gears, WHO has called on the industries and governments to increase manufacturing by 40 percent to meet rising global demand.

PPE, including masks, gloves, respirators, face shields, head and foot covers, medical gowns and aprons, is made up of single use plastic. Also, there is a key role of other plastics in the manufacture of protective goggles, thermal thermometers, other medical equipment and even ventilators. In the absence of treatment or vaccines, the above gears and equipment have become life-saving shields for health workers. We can't stop COVID-19 without protecting health workers first.



**"PLASTICS ARE ALSO BEING USED IN SAMPLE COLLECTION TUBES, SYRINGES, BLOOD BAGS, THERMAL THERMOMETERS, ANTI-MICROBIAL VINYL FLOORING, CURTAINS, SANITIZER BOTTLES, CLEANING EQUIPMENT, FOOD PACKAGING, VENTILATOR PARTS ETC."**



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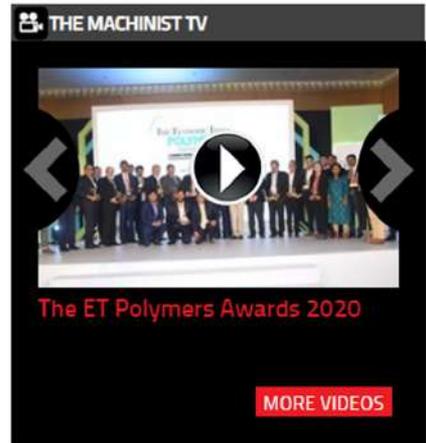
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The company's Head Office in Chennai also resumed operations in the same manner.

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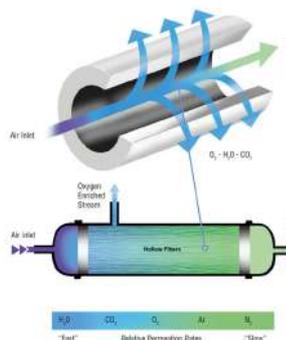
Masks and respirators are manufactured using non-woven fabrics (similar to thick carry bags resembling cloth, available in market) made from plastics like polypropylene to filter the virus. They are also available in many different grades (filtering ability) depending on the level of protection the user requires. Other plastics such as polystyrene, polycarbonate, polyethylene, or polyester are also used to make masks.

Scientist world over are working 24/7 to tackle the present calamity. There is a proposal to consider adopting “bag valve masks”. Bag valve masks are small, handheld, self-inflatable devices made from metal and plastic gears, used to deliver breathing support in emergency situations. Another innovation, which selectively separates oxygen from atmospheric air, uses membranes entirely made up of polymers. ‘Oxygen enrichment units’ which make use of polymeric hollow fiber membranes are one of the critical needs of COVID-19 patients due to poor lungs condition.

A shortage of PPE is forcing health workers to use alternative safety gears made of plastic water jars, plastic sheets, plastic laundry bags and even garbage bags. Though it sounds funny, some doctors in rural areas have created an artificial wall between them and patients using thin transparent plastic sheet (polyethylene), during routine checkups so as to avoid direct contact and any chances infection.

Smart helmets, to be worn by police officials, have been developed.

**“PPE, INCLUDING MASKS, GLOVES, RESPIRATORS, FACE SHIELDS, HEAD AND FOOT COVERS, MEDICAL GOWNS AND APRONS, IS MADE UP OF SINGLE USE PLASTIC. ALSO, THERE IS A KEY ROLE OF OTHER PLASTICS IN THE MANUFACTURE OF PROTECTIVE GOGGLES, THERMAL THERMOMETERS, OTHER MEDICAL EQUIPMENT AND EVEN VENTILATORS.”**



These detect people with fever up to five meters away and sound an alarm when anyone with high temperature comes close. Efforts are underway to develop robots that will serve medicines and food in isolation wards and reduce exposure risk.

To meet the urgent need researchers have developed low cost face shields for doctors and health workers by using transparent plastic and foam sheets that are readily available. 3D plastic printing technology has also come to the rescue. Amidst the shortage of ventilators, researchers have also developed a 3D printed four way plastic splitter, so that one ventilator can be used for

four patients during emergencies. Few more innovations such as 3D printed masks etc. also make use of this technology. Another team of researchers have developed a low-cost, indigenous prototype of polymer swab to collect of samples for coronavirus testing.

Safe disposal of infected secretions and body fluids from COVID-19 patients in hospitals and quarantine centers is another important issue. To tackle this, scientists have developed a polymeric superabsorbent material which absorbs infected body fluid efficiently. This technology allows safe disposal of medical waste reducing the risk of secondary infection.

In addition to the above, plastics are also being used in sample collection tubes, syringes, blood bags, thermal thermometers, anti-microbial vinyl flooring, curtains, sanitizer bottles, cleaning equipment, food packaging, ventilator parts etc.

Though the above innovations and applications are not a direct treatment of the disease, they have proved to play a decisive role in containment of the disease. Haphazard usages of plastic along with poor littering habits have made people think that the use of plastics should be banned. However, the present situation makes us introspect and rethink that we have a choice of making judicious use of this gifted material. 

**HAPHAZARD USAGES OF PLASTIC ALONG WITH POOR LITTERING HABITS HAVE MADE PEOPLE THINK THAT THE USE OF PLASTICS SHOULD BE BANNED. HOWEVER, THE PRESENT SITUATION MAKES US INTROSPECT AND RETHINK THAT WE HAVE A CHOICE OF MAKING JUDICIOUS USE OF THIS GIFTED MATERIAL.**

*All images courtesy of author. The author is Professor, School of Polymer Engineering, MIT World Peace University, Pune*

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# A fabulous journey

In the last 23 years, Rehau has gone from strength to strength in terms of growth and expansion in India, says **Ajay Khurana**, Chairman, Rehau – South Asia

By Niranjan Mudholkar

**Rehau entered India in 1997. How's been the journey for the organization since then?**

In the last 23 years, Rehau has gone from strength to strength in terms of growth and expansion in India. Our journey has been fabulous as we have been able to capture extensive market share and our approach has changed from B2B to B2B2C. From a small office with only three employees, we have now grown into a vast network of 350+ offices and retail centres spanning across the country.

**How's been the last year for Rehau South Asia in terms of business? What kind of numbers have you clocked and were they in line with your projected figures?**

The last year has been very rewarding for Rehau South Asia and we have successfully achieved double digit growth.

**What have been the key challenges and how have you faced them?**

Demonetisation, GST implementation and liquidity crisis had a serious impact on Indian economy, however we successfully navigated through all these challenges since Rehau is a completely process driven organisation.

**uPVC windows is the key business focus for Rehau. How big is this market in India and where does Rehau stand in terms of market share and position?**

A global leader in polymers, Rehau provides a gamut of solutions worldwide as well as in Indian market. Especially, furniture and windows comprise our key verticals in India and in both these segments we enjoy dominant position. Rehau has



**“I SEE UPVC WINDOWS SEGMENT GROWING AT A COMMENDABLE GROWTH RATE IN INDIA. ALTOGETHER UPVC WINDOWS AND DOOR SEGMENT IN INDIA IS EXPECTED TO REACH US\$1,810 MILLION BY THE END OF 2025, GROWING STUPENDOUSLY AT A CAGR OF 7.84 PERCENT DURING 2019-2025.”**

pioneered uPVC windows concepts and it remains continuously engaged in R&D activities to develop world class range of smarter uPVC windows supported by state-of-the-art hardware and components for its valued customers.

**Based on your understanding of the market, do you see the uPVC windows segment growing?**

Yes, I see uPVC windows segment growing at a commendable growth rate in India. Altogether uPVC windows and door segment in India is expected to reach US\$1,810 million by the end of 2025, growing stupen-

dously at a CAGR of 7.84 percent during 2019-2025.

**You are also the founder member of UWDMA (uPVC Windows & Doors Manufacturers Association). Briefly tell us about the work of the association and its plans for 2020-21.**

UWDMA (uPVC Windows & Doors Manufacturers Association) is formed to promote the benefits of uPVC windows and doors to the Indian construction industry and general public at large. UWDMA continuously strives to provide all the possible solutions to its valued mem-



bers. The association is committed to create awareness and educate the end users, planners, specifiers, technocrats, builders, architects and so on by highlighting the comprehensive value propositions of uPVC windows and doors including energy conservation, eco-friendliness and re-cyclability. In 2020-21, UWDMA aims to further extend its collaborative efforts to achieve sustainable industrial growth by providing technical support and networking platform through its events meant to facilitate knowledge sharing on latest innovations in the industry. UWDMA will also organise awareness seminars to benefit all its associates and fabricators.

**Tell us something about Rehau's manufacturing capabilities and capacities in India.**

We have three manufacturing plants in India out of which two plants are located in Pune and one plant is situated in Vadodara. Running in full capacity, we are producing our exclusive products including edgebands and windows in these plants.

**“REHAU PROVIDES OPTIMAL SUPPLY CHAIN SOLUTIONS, SUCH AS JUST-IN-TIME DELIVERIES. OVER MANY YEARS REHAU HAS DEVELOPED A WIDE NETWORK OF MANUFACTURING CENTRES AROUND THE GLOBE AND IT PRODUCES ITS PRODUCTS IN A NUMBER OF PLANTS IN DIFFERENT COUNTRIES.”**

**Are you catering only to the domestic market from your manufacturing facility or are you also exporting? If yes, then please share some information about your exports business.**

Apart from catering to the domestic market, we are also exporting our exclusive range of products to the countries in Indian subcontinent and Africa. Rehau has emerged as a frontrunner in offering cutting-edge premium product range of distinctive designs blended with the right balance of ergonomics and comfort in all these countries.

**Tell us something about your R&D activities. What role does innovation play in your business?**

Our highly efficient R&D team remains engaged in research and development with the aim to develop and introduce highly innovative products. At Rehau, research and development into new processes as well as into core process engineering is the remit of Corporate Research and Development Process Technologies (C-R+D PT). The aim is to en-

sure that the company has the global process engineering wherewithal in place for accommodating the wide variety of Rehau product solutions. Further, Rehau pools its know-how related to polymers, additives, paints and pigments at the Corporate Research and Development Material (C-R&D MAT) department which is Rehau's global material expertise network. Simultaneously a wide range of tests are conducted on materials and components in the associated central laboratories.

**Any plans of expansion in the near future?**

We are very bullish on our expansion in India. Our retail approach is integrated with new formats of retail experience centres aimed at bringing the exclusive products of Rehau closer to its valued customers.

**Rehau also provides optimal supply chain solutions. Tell us about the same.**

Rehau provides optimal supply chain solutions, such as just-in-time deliveries. Over many years Rehau has developed a wide network of manufacturing centres around the globe and it produces its products in a number of plants in different countries. Our business continuity plan has always been to be as flexible and secure as possible in order to maintain supply and stock of a full range of products for all our customers. 

## New age recycling

**A team of researchers has discovered a new way to recycle a versatile plastic material, called polyurethanes, which could prevent the material from becoming waste.**

Researchers at the University of Minnesota are part of a national team in the Center for Sustainable Polymers that has found a better way to recycle a versatile plastic material, called polyurethanes, which could prevent the material from becoming waste.

In the past, a few methods have attempted to recycle polyurethane waste, but these techniques result in a material of lower quality. Now, researchers have found a way to recycle used polyurethanes into equivalent or even higher quality material using an innovative method. Their findings are reported in the journal *ACS Central Science*, published by the American Chemical Society.

“We are quite excited about this new research from the Center for Sustainable Polymers because of the tremendous potential for recycling of polyurethane materials that are typically considered as waste,” said Marc Hillmyer, director of the Center for Sustainable Polymers based at the University of Minnesota and a chemistry professor at the University of Minnesota. “It also demonstrates how the powerful combination of polymer chemistry and polymer processing can be ap-



**Researchers from the University of Minnesota and Northwestern University have improved the recycling process of polyurethane through the development of a twin-screw extrusion process that improved mixing and air removal in foams.** *Credit: Sheppard et al., ACS Central Science*

plied to help solve environmental problems.”

Conventional polyurethanes can't be simply recycled by heating because the material consists of polymer networks held together by strong chemical bonds that don't flow when heated. Instead, polyurethanes can only be downcycled into less useful materials using either mechanical methods or chemical recycling. Other past methods have made innovative types of polyurethanes with cross-links that can be broken and reformed, allowing it to be recycled. But this approach requires the industry to commercialize new starting materials, and it wouldn't address the issue of conventional waste lingering in landfills. These methods also haven't been tested on foams, a

very common form for polyurethane products.

In this new study, researchers from the University of Minnesota and Northwestern University ground up polyurethane foam or film and then mixed the particles in a catalyst solution. After drying, the particles were compression molded to form new films. Compression molded films formed good-quality products, but compression molded foam produced cracked and inhomogeneous materials.

The researchers solved this problem by developing a twin-screw extrusion process that improved mixing and air removal in recycled foams, compared to the compression molding approach. They say this new method could be used for continuous recycling of the large amounts of polyurethanes waste currently in landfills and newly produced.

“The extrusion process removes air simultaneously as the catalyst enables the polyurethane to flow like a liquid,” said Christopher Ellison, a University of Minnesota chemical engineering and materials science professor and one of the senior authors of the study. “This reactive process is similar to those already used in the plastics industry for other purposes meaning the technology could have impact quickly.”

The research was primarily funded by the National Science Foundation through the Center for Sustainable Polymers. The study's authors from the University of Minnesota Department of Chemical Engineering and Materials Science, authors from Northwestern University Department of Chemistry.

**“THE EXTRUSION PROCESS REMOVES AIR SIMULTANEOUSLY AS THE CATALYST ENABLES THE POLYURETHANE TO FLOW LIKE A LIQUID. THIS REACTIVE PROCESS IS SIMILAR TO THOSE ALREADY USED IN THE PLASTICS INDUSTRY FOR OTHER PURPOSES MEANING THE TECHNOLOGY COULD HAVE IMPACT QUICKLY.”**

**Christopher Ellison**, a University of Minnesota chemical engineering and materials science professor.

*Source: University of Minnesota*

# Hot and happening!

**Vishal Agarwal**, President, Yudo Hot Runner India Pvt. Ltd, explains the significance of hot runner systems in the industries that use plastics.

By Niranjana Mudholkar

**Yudo Hot Runner India Private Limited specialises in hot runner systems. What exactly is a hot runner system, and which are the industry sectors that it helps directly in the plastics segment?**

Our systems are used in making the mold for any plastic part. We are a subsidiary of South Korea based MNC and are world leader in hot runner systems, we as Yudo produce more than three times systems every year compared to the second largest brand in the world. The plastic injection molding segment, where we work, is huge. It caters to the automotive segment where in majority of plastic parts are very big and heavy in size like bumpers, instrument panels, door panels and centre consoles. At the same time, it caters to the packaging segment, which is completely different and where the weight of the caps and closures are hardly one gram or so. Both of these segments have completely different requirements of the respective products and hot runners as well. But we are successfully addressing them. The same goes for the white goods sector and the electrical sector. Of course, our major chunk of business comes from the automotive and the packaging segments in India.

**Yudo has a huge factory in China and we all know about the havoc that coronavirus has created in that country. How is Yudo helping its customers affected by this outbreak?**

Yudo is present in more than 40 countries. Although we have manufacturing operations in eight countries with more than 24 plants, fifty percent of our manufacturing capac-



**“WE REROUTED ALL OUR PROJECTS FROM CHINA TO OUR KOREAN FACTORY ALTHOUGH THEY ARE ALMOST 20 PERCENT TO 25 PERCENT MORE EXPENSIVE. HOWEVER, AS A PART OF OUR COMMITMENT AND FOR**

**THE FAITH WHICH CUSTOMERS HAVE ALWAYS SHOWN IN US, WE DID NOT PASS ON THAT EXTRA COST TO THE CUSTOMERS.”**

ity is in China. Actually, during the Chinese New Year festival itself, we understood that this seems to be much bigger problem. As a precaution, we rerouted all our projects to our Korean factory although they are almost 20 percent to 25 percent more expensive. However, as a part of our commitment and for the faith which customers have always shown in us, we did not pass on that extra cost to the customers. Deliveries have already started from Korea, and its almost 90 percent on track now.

**Over the last few years, Yudo has benefitted from the Indian growth story and has also contributed to the ‘Make in India’ campaign. How are you leveraging on the progress so far to serve your customers better in the time to come?**

We are present in Indian market from the last 20 years. We started at a time when the usage of hot runner systems in the plastic industry in India was not even one or two percent. But today, India has become one of the most promising markets in the world. We have started manufacturing small systems in India almost two

years back and have received fantastic response where we are able to reduce our delivery time from 21 days to just 10 days. Now, we are planning to increase our manufacturing capabilities and our next target is to bring down the delivery time for big systems from one month to 18 days within this year (2020) itself.

**The plastic tooling industry is the heart and soul of the sectors that use dies and moulds. How is Yudo enabling the evolution of the tooling industry in India?**

First of all, nowadays more than 90 percent plastic parts requirements cannot be met without hot runners. I am referring to the parts that need surface finish without any defects or part warpage. Also, there are so many new materials now especially in engineering plastics. Thanks to these new materials, many metal parts are now getting converted into plastics parts, especially in the automotive sector. Processing these materials is not possible with the conventional way of tooling. At the same time, we do a lot of flow analysis before the tooling is made where in it is possi-

ble to detect the defects in almost all the parts, and these can be rectified even before the tool is started. The production time is reduced considerably by using our systems specially for packaging segments. You would be surprised to know that all over the world the tooling for CPVC material till very recently was done with conventional way only. But we are the only company to have successfully proven hot runners in the world for CPVC where the ROI is not two years or three years but only six to

**“WE HAVE STARTED MANUFACTURING SMALL SYSTEMS IN INDIA ALMOST TWO YEARS BACK AND HAVE RECEIVED FANTASTIC RESPONSE WHERE WE ARE ABLE TO REDUCE OUR DELIVERY TIME FROM 21 DAYS TO JUST 10 DAYS.”**

seven months. This is changing the CPVC tooling segment drastically. Last but not the least, tooling machining accuracies required with hot runners automatically go quite high as the tolerances we work is around 2

microns to 6 microns; that's less than the thickness of your hair to give you a perspective. So, yes, our hot runners are playing a big and important role in the evolution of the plastic tooling industry. 

## UPDATES

### Collaboration to develop solutions for plastics traceability

#### Unique chemical-based barcode to connect objects with a digital twin

Security Matters, Ltd and BASF have signed a binding joint development agreement to develop solutions for plastics traceability and circularity. Plastics, with unique characteristics and when used properly, contribute to a more sustainable and resource efficient future. However, to move towards a circular economy, more plastic waste needs to be recovered and reused. Though there is great progress towards chemical recycling, the more common method is to mechanically recycle plastic. Currently, recycled plastic loses its mechanical performance properties and quality compared to virgin plastic due to polymer degradation and residual impurities. The recycling infrastructure is also expensive and complicated, and simply does not exist in many parts of the world.

In their cooperation, Security Matters and BASF aim to offer a solution for this. Security Matters will contribute its technology to enable physical and digital tracking of closed loop recycling, authenticate sustainability claims and improve sorting of plastic waste. The partnership leverages BASF's extensive experience in plastic additives, regulatory know-how, and understanding of the plastics value chain. Both companies will also combine their research & development capabilities and required resources as part of the agreement.

Security Matters will provide its track and trace solution that marks physical objects with a unique and unalterable chemical-based barcode and connects them to a digital twin. The barcode withstands manufacturing and recycling processes, without altering the appearance or performance of the object. Using proprietary technology, the barcode captures a wide variety of information embedded in the plastic and can be used for closing the plastic loop. “To tackle the global challenge, we have to rethink plastic appli-

**SECURITY MATTERS WILL CONTRIBUTE ITS TECHNOLOGY TO ENABLE PHYSICAL AND DIGITAL TRACKING OF CLOSED LOOP RECYCLING, AUTHENTICATE SUSTAINABILITY CLAIMS AND IMPROVE SORTING OF PLASTIC WASTE.**

cations with their end of life in mind. It is essential to progress towards a circular economy approach that closes the loop on end-of-life resources and allows us to recover and recycle plastics as efficiently as possible,” said Achim Sties, Senior Vice President, Performance Chemicals Europe, BASF SE. “We are jointly developing this game-changing technology that could capture information of the polymer and how the plastic moves through the entire production and distribution process. We will be able to devise an appropriate additive package for our customers and other players in the value chain using recycled material to capture more material value and increase resource productivity.”

“We are honored to be working with BASF as the global leader in Plastic Additives. This collaboration is the first step in demonstrating how our technology can be used in a circular application. By providing transparency of product lifecycles, we can create an entire technology-driven ecosystem that promotes circularity and sustainability for plastics. Together we can accelerate the progress of the plastic industry towards a more innovative, resilient and productive economy,” said Haggai Alon, Founder and Chief Executive Officer, Security Matters, Ltd.

## The Volvo Group and Daimler Truck AG join hands

**D**aimler Truck AG and the Volvo Group have signed a preliminary non-binding agreement to establish a new joint venture. The intention is to develop, produce and commercialize fuel cell systems for heavy-duty vehicle applications and other use cases. Daimler will consolidate all its current fuel cell activities in the joint venture. The Volvo Group will acquire 50 percent in the joint venture for the sum of approximately EUR 0.6 billion on a cash and debt free basis.

The Volvo Group and Daimler Truck AG will be 50/50 partners in the joint venture, which will operate as an independent and autonomous entity, with Daimler Truck AG and the Volvo Group continuing to be competitors in all



other areas of business. Joining forces will decrease development costs for both companies and accelerate the market introduction of fuel cell systems in products used for heavy-duty transport and demanding long-haul applications. In the context of the current economic downturn cooperation has become even more necessary in order to meet the

Green Deal objectives within a feasible time-frame.

The common goal is for both companies to offer heavy-duty vehicles with fuel cells for demanding long-haul applications in series production in the second half of the decade. In addition, other automotive and non-automotive use cases are also part of the new joint venture's scope.

## TVS Motor Company acquires Norton

**T**VS Motor Company announced the successful acquisition of Britain's most iconic sporting motorcycle, "Norton", in an all-cash deal for a consideration of GBP16 million by acquiring certain assets of Norton Motorcycles (UK) Limited (in administration) through one of TVS Motor's overseas subsidiaries. This will be one of the most interesting acquisitions of a storied motorcycle maker in recent times and will reflect TVS Motor Company's and India's rapidly rising prominence in the international two-wheeler market.



**"Norton will continue to retain its distinctive identity with dedicated and specific business plans." - Sudarshan Venu, Joint MD, TVS Motor Company**

Founded by James Lansdowne Norton, in Birmingham, in 1898, Norton Motorcycles is among the most popular British motorcycle brands of all time and is one of the most emotive marques today. Since the 20th century, Norton Motorcycles is renowned for their classic models and eclectic range of luxury motorcycles ranging from authentic retro classic reboots of the famous Com-

mando to their contemporary 200 bhp, 1200cc V4 super-bikes. Commenting on the acquisition, Sudarshan Venu, Joint Managing Director, TVS Motor Company said, "This is a momentous time for us at TVS Motor Company. Norton is an iconic British brand celebrated across the world, and presents us with an immense opportunity to scale globally. We will extend our full support for Norton to regain its full glory in the international motorcycle landscape."

Sudarshan Venu further added, "Norton will continue to retain its distinctive identity with dedicated and specific business plans."

## Toyota European R&D base name changed

**T**oyota Motor Corporation (Toyota) announced that its European research and development base, Toyota Motorsport GmbH (TMG), has changed its company name to Toyota Gazoo Racing Europe GmbH (TGR-E). TMG was initially established as Andersson Motorsport GmbH in Köln in 1979, then changed its name to TMG in 1993, when it became a wholly-owned subsidiary of Toyota.

In addition to the company's engagement in motorsports activities, which it has been conducting since its establishment, in recent years, the company has expanded its work with the GAZOO Racing Company (GRC) by applying the expertise and experience it has cultivated in motorsports over the years to the development of GR series production cars. The change in the company name reflects its closer relationship with GRC. Going forward, TGR-E will continue to serve as the hub for Toyota's motorsports activities in Europe, working together with GRC from its base in Köln, Germany, and engage in activities including supplying engines for cars participating in both the FIA World Endurance Championship (WEC) and the FIA World Rally Championship (WRC), and helping to develop the GR Supra GT4. TGR-E will also utilize the knowledge and expertise it has accumulated through its motorsports activities over the years in the development of production cars, and so contributing to the creation of ever-better cars. Akio Toyoda, President of Toyota said, "The absolute mission of participating in motorsports, which is a battle of works produced by manufacturers, is winning."

## Toyota Yaris Cross makes world debut

Toyota has announced that its new compact SUV, the Yaris Cross, originally planned to be revealed at the 2020 Geneva Motor Show, has made its world debut. As a new SUV that inherits the qualities of the brand's flagship compact car, Yaris, Yaris Cross will be launched in Japan in Autumn this year, and in Europe mid- 2021.



size while providing SUV-like interior comfort and luggage room. The exterior design, though simple, expresses the robustness of an SUV. The interior design is also shaped to give it a feeling of higher quality and comfort.

By adopting the all-new hybrid system and the TNGA platform (GA-B) for compact cars, the 'Yaris Cross' offers a higher dimension of basic and environmental performance. Also, the vehicle achieves an easy-to-handle body

next-generation compact car. Yaris Cross will be manufactured at Toyota Motor East Japan Co., Ltd. for the Japan market, and at Toyota Motor Manufacturing France for the European market.

## Groupe Renault changes strategy for China market

Groupe Renault has unveiled its new strategy for the Chinese Market to focus on electric vehicles (EV) and Light Commercial Vehicles (LCV). With regards to the ICE passenger car segment, Groupe Renault has entered into a preliminary agreement with Dongfeng Motor Corporation under which Renault transfers its shares to Dongfeng. DRAC will stop its Renault brand-related activities. Renault will continue to provide high quality aftersales service for its 300,000 customers through Renault dealers but also through Alliance synergies. Further development for Renault brand passenger cars will be detailed later within future new mid-term-plan Renault.

Furthermore, Renault and Dongfeng will continue to cooperate with Nissan on new generation engines like components supply to DRAC and diesel license to Dongfeng Automobile Co., Ltd. Renault and Dongfeng will also engage in innovative cooperation in the field of intelligent connected vehicles. "We are opening a new chapter in China. We will concentrate on electric vehicles and light commercial vehicles, the two main drivers for future clean mobility and more efficiently leverage our relationship with Nissan," said Francois Provost, Chairman of China region of Groupe Renault.

## Emerald Sage to acquire stake in Apollo Tyres

The Competition Commission of India (CCI) has approved the proposed acquisition of 9.93% stake by Emerald Sage Investment Limited in Apollo Tyres Limited. The proposed combination envisages subscription by Emerald Sage Investment Limited (Emerald) to 10.80 crores compulsorily convertible preference shares constituting approximately 9.93% of the post-issue paid up share capital of Apollo Tyres Limited (Apollo).

Emerald is an investment holding company incorporated under the laws of Mauritius. Shareholders of Emerald are certain private equity funds managed by Warburg Pincus LLC, which acts as a manager to certain private equity funds. The portfolio companies owned by these private equity funds are active in a variety of sectors including energy, financial services, healthcare and consumer, industrial and business services, technology, media and telecommunications.

## Hyundai Motor India partners with Air Liquide

Hyundai Motor India (HMI) has entered into a partnership with Air Liquide Medical Systems Pvt. Ltd. (ALMS) a Manufacturer of ICU Ventilators, to augment the production and supply of Ventilators in Tamil Nadu and other states. With this partnership HMI and ALMS aim to achieve a target of 1000 ventilators in the Phase 1 of production, and to scale up subsequently.

Ventilators are medical devices

used by healthcare professionals that take over the work of breathing from a patient who is unable to breathe on their own by delivering air with high concentration of oxygen to their lungs. For patients severely affected by COVID-19, ventilators are critical to ensure continuous oxygen is supplied to overcome respiratory insufficiency.

Commenting on this arrangement with Air Liquide Medical Systems Pvt. Ltd., SS Kim, MD &

CEO, Hyundai Motor India Ltd., said, "Ventilators and other respiratory aids are critical devices in the fight against COVID-19 and to this end, Hyundai & Air Liquide Medical Systems are working together to ensure a steady supply of Ventilators in India. As a Socially Responsible and Caring Brand, Hyundai is committed to serving society in every way and will continue to support the Government in India's war against COVID-19."

# Applications in Supply Chain

**Block chain can enable direct interaction among various parties in a supply chain, establishing program driven trust and eliminating intermediaries.**

By Dr. Pranjal Kumar Phukan

The supply chain industry consists of several non-trusting parties interacting with each other, exchanging a humongous amount of information through documents. The application of Block chain to the supply chain industry promises a huge benefit in terms of streamlining of operations, speedy and efficient processes, and elimination of time, effort- and money-consuming paperwork.

Block chain can enable direct interaction among various parties in a supply chain, establishing program driven trust and eliminating intermediaries. One example could be the tracking of refrigerated goods by recording the temperature across the value chain with the help of IoT devices. Further, the movement of goods from the manufacturer to the end consumer, along with the various parameters associated with the goods, can be tracked on a live basis with IoT sensors and devices tagged to the goods. This will further help in the elimination of fake products as their ownership can be traced.

In the pharmaceutical industry, it would be possible to track the movement of a medicine strip across the value chain - from the manufacturer to the last distribution point -

proving the source, and differentiating it from a fake.

Similarly, in agriculture, produce can be tracked from farm to fork, and IoT technology can be used to monitor storage conditions like temperature to ensure it is not spoilt along the way. IBM & Maersk led consortium Travelens, Walmart Led consortium Food Trust and Samsung & port of Rotterdam consortium Deliver have made substantial progress in the recent past to create a cross border, multi-party block chain systems in the Supply Chain and Logistics domain.

## Block chain in Manufacturing

A lot of activity in Block chain technology is centred on financial applications, asset tracking, and supply chain. The application of a framework to identify various aspects in the manufacturing sector gives us an idea of the segments that are amenable to the application of Block chain technology. The activities that may see strong benefits from Block chain technology are mostly in the proof of concept stage, and their real eco-



nommic impact can be felt in three to five years.

## Initiatives in India

The following are the Block chain applications being implemented in India currently:

- Land records - APCRDA is implementing DLT for recording Land registration. This is being implemented by ZEBI, a Hyderabad based company.
- University certificate- Zebi is also implementing Block chain based certificate management for 35 Universities/ Colleges in Karnataka & AP.
- Unsolicited Commercial Communication tracking: Tech Mahindra along with Microsoft & IBM has implemented a DLT solution for registering customer preferences and tracking customer complaints about the UCC. All the telecom companies and TRAI along with approved Third party service providers and approved Telemarketers are sharing the data of the preferences recorded & violations as per complaints by customers. Any cellular service provider unable to block such UCC calls will be heavily fined.
- Some of the states have started



**“IN THE PHARMACEUTICAL INDUSTRY, IT WOULD BE POSSIBLE TO TRACK THE MOVEMENT OF A MEDICINE STRIP ACROSS THE VALUE CHAIN - FROM THE MANUFACTURER TO THE LAST DISTRIBUTION POINT - PROVING THE SOURCE, AND DIFFERENTIATING IT FROM A FAKE.”**

coming up with tender notices for Block chain based Land records management system.

- Trade finance and Letter of Credit applications have started growing.
- HSBC India and ING Bank Brussels have successfully executed a block chain enabled, live trade finance transaction jointly with Reliance Industries and Tricon Energy on a R3 Corda powered platform. The block chain enabled Letter of Credit transaction facilitated shipment between Reliance Industries and Tricon Energy. Industry first integration between an electronic Bill of Lading provider and a block chain-based trade finance platform enabled the transfer of title.
- Bank chain by SBI led consortium is exploring Block chain for a variety of use cases like shared KYC / AML, syndication of loans / consortium lending, trade finance, asset registry & asset re-hypothecation, secure documents, cross border payments etc.. This is however under a lot of experimentation and has not stabilised.
- Telengana Government is exploring Block chain for Motor Vehicle Department applications to track the vehicle lifecycle from manufacturing to end of warranty period & is evaluating some PoCs.
- West Bengal has implemented Block chain based issuance of Birth certificates to new born.

## Market Forecasts

The digital ledger market for block chain products and services is anticipated to reach \$60.7 billion in 2024, up from \$708 million in 2017. IBM and Microsoft are driving block chain as their clients are making the transition to cloud services. Accenture has measurable market share as well. Private investments into block chain companies topped \$4.5 bil-

**“A LOT OF ACTIVITY IN BLOCK CHAIN TECHNOLOGY IS CENTRED ON FINANCIAL APPLICATIONS, ASSET TRACKING, AND SUPPLY CHAIN. THE APPLICATION OF A FRAMEWORK TO IDENTIFY VARIOUS ASPECTS IN THE MANUFACTURING SECTOR GIVES US AN IDEA OF THE SEGMENTS THAT ARE AMENABLE TO THE APPLICATION OF BLOCK CHAIN TECHNOLOGY.”**

lion in 2017. This is 8 times more than the same period in 2016. There are 15.2 million users. That is 0.2 percent of the global population. A new law paves the way for Bit coin to be more frequently used in daily transactions. The impact of block chain technology goes well beyond Bit coin, it promises to re-make the banking and finance and insurance industries. It promises to create digital currency for all transactions. Block chain brings together shared ledgers with smart contracts to allow the secure transfer of any asset. Physical assets like a shipping container, financial assets like a bond, and digital assets like music can be transported across any business network. Block chain does for trusted transactions what the Internet did for information.

## For Supply Chain

Block chain is a decentralised ledger that can be used to streamline processes while keeping them secure. In supply chains instead of each business in the chain (manufacturer, shipper, buyer) all using their own paperwork for tracking and invoicing, the block chain allows everyone to see each step in an open, secure ledger. IBM has a lead in block chain technology. IBM has been developing block chain to implement distributed databases. These are positioned to implement IoT and supply chain applications, going way beyond crypto-currencies. IBM has put the technology into production for its own supply chain.

IBM has positioned to bring block chain adoption to financial institutions, which have recognized the technologies benefits but have been cautiously slow to adopt it. Banks are accepting the block chain cloud platform from IBM. IBM has been selected by a consortium of seven large European banks to build and host Digital Trade Chain, a trade finance platform based on block chain, designed to simplify and facilitate domestic and cross-border trade for small and medium enterprises. IBM has implemented enterprise block chain to help quickly bring a highly scalable system into production IBM has collaboration with 10 food suppliers, including brands Nestlé, Tyson Foods, Unilever, Walmart, and Kroger, to track food products from farm to grocery store shelves in the interest of efficiency and food safety. This market becomes a \$2.5 billion market by 2024.

## Conclusion

Block chain can transform supply chains, industries, and ecosystems. Interestingly, even organisations like banks, that would appear to be losing out to the new technology, can see opportunities to exploit it in the streamlining of their operations. In-depth transformation of supply chains will not happen overnight. However, supply chains can already start using block chain in some areas of their operations. 

*The author is a supply chain expert based in Dibrugarh, Assam*

# Ready for the future!

**Keeping in mind the potential of future economic growth from the medical devices industry, it is evident that India is on its way to becoming future-ready.**

By Anand Srinivasan

**T**he Healthcare Industry in India is one of the most important sectors not only for its social significance, but also in terms of generating revenue and employment. Due to increasing health awareness, penetration of health insurance and government healthcare schemes like Ayushman Bharat, the Indian Healthcare Sector is experiencing a new wave of opportunities. There are, however, some important challenges that the sector needs to address in order to make healthcare accessible, affordable and of consistent quality. As per a FICCI-KPMG report, India's healthcare sector is poised to touch a whopping US\$280 billion in size by 2025 and grow at a compound annual growth rate of 16 percent. Medical Devices industry is one of the most important industries in the healthcare sector to ensure safety and well-being of patients across the world. Currently, India imports 80 percent of its medical devices and efforts need to be made to encourage manufacturing of medical devices locally. With the right use of innovation and technology, medical devices need to be constantly improvised and upgraded to meet the highest quality of standards and global norms.

### Standards of quality and efficacy

The Government of India made a



**“CURRENTLY, ONLY 23 CATEGORIES OF MEDICAL DEVICES ARE REGULATED IN INDIA UNDER THE DRUGS AND COSMETICS (D&C) ACT AND THE RECENT CONCERNS RAISED OVER THE SAFETY OF PATIENTS REQUIRES BRINGING ALL MEDICAL DEVICES UNDER REGULATION.”**

very positive move last year by proposing a single regulatory framework for all medical devices to meet certain standards of quality and efficacy. India has approximately 800 medical device manufacturers, but standard regulation for materials used in medical devices still remains a major concern for the health sector. Currently, only 23 categories of medical devices are regulated in India under the Drugs and Cosmetics (D&C)

Act and the recent concerns raised over the safety of patients requires bringing all medical devices under regulation. While the recent development from the Health Ministry to reach a consensus on the Medical Devices Bill to improve safety and promote domestic manufacturing of Medical Devices is underway, it will be equally important to ensure the right use of raw materials to maintain the highest quality standards.

### Selecting the right material

Selection of the right material for developing a medical device is the primary step considering parameters of

functionality, logistics, budget, and prior standardisation set. Physical properties like density, transparency and electrical conductivity are essential for many devices and chemical properties like resistance to degradation through contact with lubricants, solvents, moistures or electromagnetic radiations also need to be critically noted. India is among the top 20 global medical devices market and is the fourth largest medical devices market in Asia after Japan, China, and South Korea. As per the industry estimates, the medical devices industry in India is poised to reach US\$50 billion. 

*The author is Managing Director, Covestro India*

**“AS PER A FICCI-KPMG REPORT, INDIA’S HEALTHCARE SECTOR IS POISED TO TOUCH A WHOPPING US\$280 BILLION IN SIZE BY 2025 AND GROW AT A COMPOUND ANNUAL GROWTH RATE OF 16 PERCENT.”**

# Adapting to the need of the hour

We are ready to diversify to sustain our growth and look for other avenues and equipment demands, says **Haren Sanghavi**, Director, **GMS Plastic Machinery Pvt. Ltd.**

By Nirranjan Mudholkar

## Briefly tell us about the journey of **GMS Plastic Machinery** since its inception.

GMS started in the year 2000 as a joint venture with M/s. Gamma Meccanica S.p.A., Italy. GMS manufactures plastic extrusion machines with core in waste recycling of plastics. Initially, GMS was dependent on Italy for designs and support but as the team developed, we are today completely independent and have created various equipment in India as well. Now, our hundred percent equipment are produced in India.

## How's been the business for **GMS Plastic Machinery** in the last one year?

For the year 2019, we clocked 30 percent higher turnover than the previous year. In 2020, if Covid-19 would not have locked us out, we would have crossed our turnover by 20 percent higher than 2019. Covid-19 will lead us to remain at same level of 2019.

## Where does **GMS Plastic Machinery** stand in terms of market share?

In terms of market share, GMS is the



number one with nearly 450+ machines already performing with our clients to their brim. Most clients have given us repeat orders. We have a 100 percent retaining ratio in the market when it comes to customer satisfaction.

## Where is your production unit located? What kind of manufacturing capabilities and capacities do you have?

Our production unit is located in Bhiwandi, District Thane of Maharashtra. We also have our turning

and fabrication workshop at another location within Bhiwandi.

## How comprehensive is your product portfolio?

We have the technology to produce all types of extrusion equipment but we have concentrated our skills to the plastic waste recycling market. We have created an expertise in the field of recycling and within India we do not have any competition as far as technology goes.

## On an average, how many machines does **GMS Plastic Machinery** install every year?

Our target is to install at least 50+ machines a year but currently we have achieved more than 30+ machines.

## Which are the key industry sectors that you are catering to and which of these have been giving you good growth in the recent times?

Currently, GMS produces recycling machines of all types including washing plants, extruders for corrugated pipes and profiles.



**“WE HAVE THE TECHNOLOGY TO PRODUCE ALL TYPES OF EXTRUSION EQUIPMENT BUT WE HAVE CONCENTRATED OUR SKILLS TO THE PLASTIC WASTE RECYCLING MARKET. WE HAVE CREATED AN EXPERTISE IN THE FIELD OF RECYCLING AND WITHIN INDIA WE DO NOT HAVE ANY COMPETITION AS FAR AS TECHNOLOGY GOES.”**

**The concept of Industry 4.0 is acquiring a lot of significance across industry sectors. What is GMS Plastic Machinery doing in this context?**

GMS has already installed one machine in Bangladesh which is Industry 4.0 compliant. In fact, during this Covid-19 outbreak, we could test its skills at the maximum level and are daily upgrading our program. We will be ready with another equipment in-house to show to our clients in the next few working days.



come to realise that the major concern is not with plastics but with the mode of disposal, segregation at source and littering. If the Gov-

a complete stand still. We are still assessing the loss due to cancelled orders, awaiting payments, pending deliveries and the post-Covid-19 effect. We hope to revive by the year 2021 from this loss.

**“FOR THE YEAR 2019, WE CLOCKED 30 PERCENT HIGHER TURNOVER THAN THE PREVIOUS YEAR. IN 2020, IF COVID-19 WOULD NOT HAVE LOCKED US OUT, WE WOULD HAVE CROSSED OUR TURNOVER BY 20 PERCENT HIGHER THAN 2019. COVID-19 WILL LEAD US TO REMAIN AT SAME LEVEL OF 2019.”**

**Environmental concerns due to plastics waste is a major challenge for the industry today. What are your views on the same, as machine manufacturers are a key element in this ecosystem?**

I am personally part of the AIPMA Environment Team, and as such am aware of the concerns. Having seen the scenario day by day, we have

ernment addresses these issues, then they can achieve 90 percent of the plastic waste issues. Ten percent of the issue is a learning cycle, which will bring immense improvements.

**How has the Corona Virus outbreak impacted your business?**

Corona Virus has affected us 100 percent. We have been brought to

**Where do you see the organisation in the next two years?**

We at GMS expect at least 50 percent growth once industry starts its Capex demand. We are ready to diversify to sustain our growth and look for other avenues and equipment demands. Covid-19 has taught us many lessons and we are working towards solutions that Covid has left us with including how to maintain social distancing and yet handle the installation or service. Accordingly, we have developed e-installations as well as e-service support for companies that are remote and are solving their issues even when our team is not allowed to travel. 📍

## UPDATES

### CHAMPIONS Portal launched to help MSMEs

**Aimed at assisting Indian MSMEs march into big league as National and Global CHAMPIONS**

In a major initiative Union Ministry of MSME has launched CHAMPIONS portal [www.Champions.gov.in](http://www.Champions.gov.in), a Technology driven Control Room-Cum-Management Information System. The system utilising modern ICT tools is aimed at assisting Indian MSMEs march into big league as National and Global CHAMPIONS. The CHAMPIONS stands here for Creation and Harmonious Application of Modern Processes for Increasing the Output and National Strength. Accordingly, the name of the system is CHAMPIONS. As the name suggests, the portal is basically for making the smaller units big by solv-

ing their grievances, encouraging, supporting, helping and handholding. It is a real one-stop-shop solution of MSME Ministry. While taking over as Secretary MSME on April 30, 2020, AK Sharma had indicated that an ICT based system would be set up to help the MSMEs in present difficult situation and also to handhold them to become national and international champions. Accordingly, a comprehensive system known as CHAMPIONS was trial launched on May 9, 2020.

It is a technology packed control room-cum-management information system.

## Building the ecosystem

**Sulajja Firodia Motwani, Founder and CEO, Kinetic Green Energy and Power Solutions Ltd. tells The ET Polymers that while Kinetic Green has the mindset of a new company, it has the strength of being an established player with a very strong brand.**

By Niranjana Mudholkar



**“WE SELECTED THIS SECTOR BECAUSE WHEN WE WERE COMING OUT OF THE TWO-WHEELER JV, WE WERE LOOKING FOR NEW AREAS WHICH WOULD BECOME THE FUTURE OF AUTOMOTIVE TECHNOLOGY. AND ELECTRIC TECHNOLOGY IS WHAT WE HAVE ZEROED IN ON AS THE FUTURE OF AUTOMOTIVE.”**

**Currently emobility is the buzzword. While the OEMs are also getting onto this bandwagon, many non-automotive players are also jumping into the fray? How is Kinetic Green differentiating itself in this crowd?**

When we came into this business in 2014, it was hardly a buzzword. So, we were amongst the few pioneering companies. We have worked hard over the last five years in terms of setting up the business, setting up the manufacturing base and creating a supply chain, setting up a government recognised R&D centre and developing products which are advanced in terms of technology but are yet affordable for the common man.

We have also played a role in policy formation if the country. I have been working very closely with the government as opinion makers. We have been contributing substantially to the EV ecosystem that is evolving in the country. While we have played a pioneering role, others are still getting off the ground. We have already made a lot of progress in this industry through our work. For example, we have sold thousands of vehicles in the market.

We need to understand that electric vehicles technology is a new technology. In fact, it is a disruptive technology. And when a disruptive technology comes to the market, a lot of things change. Business models change; and new players are born. Sometimes existing players are not able

to make the transition for the new disruption and the related business model, and new companies become leaders. We can look at the mobile phone's transition from feature phones to smart phones as an example.

So, I think we are sort of leading this curve of disruption. For example, we have set up an electric vehicle company grounds up. It is not part of any OEM and does not have any legacies of legacies of existing machines, workers, cost structures, dealer mindsets, and so on. That's because we knew that we needed a different kind of a mindset that is different manner for this business.

So, Kinetic Green is a purely EV company. You can say that it is an EV start-up but within an established business group (Kinetic Group). We are a start up in a sense that we don't have the legacies and the baggage. We have the mindset of a new company. But at the same time, we have the strength of being an established player and we have a very strong brand. We have the experience of scaling up an automotive business. Sometimes start-ups start off well, but they are unable to scale up and sustain because it's finally an automobile. Ultimately, people are using it to commute every day. They're risking their lives by entering the vehicle. It has to meet the government standards. You have to provide spare parts and service. Finally, it is an automobile. You need to be able to scale up. You need to be

able to create new and quality products. You need to provide a nationwide dealer network.

So, while we are a pureplay EV start-up, we also have the ability to scale up in terms of experience, manufacturing, brand, linkages in the ecosystem and so on. I think that is our USP that we have the best of both the worlds and we are in a very high growth sector, which is a very unique opportunity.

#### Why did you choose this segment?

Kinetic Green is all about green mobility and the current focus in electric vehicles, but the idea is to provide green mobility to the masses. The vision is to provide green mobility for millions. We selected this sector because when we were coming out of the two-wheeler JV, we were looking for new areas which would become the future of automotive technology. And electric technology

**“TODAY, I AM HAPPY TO SHARE THAT WE HAVE ALMOST HUNDRED PERCENT LOCAL CONTENT. IT’S ONLY ABOUT FIVE PERCENT THAT WE ARE IMPORTING IN THE COUNTRY. OTHER THAN THE BATTERY CELLS, EVERYTHING IS PRETTY MUCH LOCALISED IN OUR ELECTRIC THREE WHEELERS.”**

is what we have zeroed in on as the future of automotive.

#### Tell me something about your products.

Let me tell you that we began our company with two products. Golf carts and three wheelers. Golf carts are used for tourism, on golf courses, in the hospitality industry, in farm houses, in corporate campuses. We began with this because we wanted to understand the technology of electric vehicles.

Then, we zeroed in on three wheelers as the next area of focus be-

cause a three-wheeler runs in a certain periphery. The route is known. It's typically used for the mile connectivity. A rickshawalla doesn't want a vehicle that can travel at the speed of 200 km/h from Pune to Mumbai. He's happy as long as you're giving him a decent range and decent speed along with low running cost. He is happy as long as he is able to make decent money out of it. And the passenger sitting in the vehicle also wants a ride at a very affordable price. The electric three wheeler is able to provide this without putting a stress on the environment. So, you are able to provide green transport and you are able to convince the stakeholders to give support to this new technology. It's a win-win-win situation. It's affordable, it supports employment and it is non-polluting public transport.

So, looking at this sector, we started developing a product range. And I am happy to say that we made the first three wheeler maker in 2016 when there was no supply chain in the country. It had seventy percent import content. Today, I am happy to share that we have almost hundred percent local content. It's only about five percent that we are importing in the country. Other than the battery cells, everything is pretty much localised in our electric three wheelers. When the government came up with the FAME II policy with focus on high level of localisation, from day one we were following it.

Our products have our own design, our own design registrations and our own IPs. We are a self-reliant company in that sense. While designing the vehicle, we have fo-

## It's all about the battery

**Kinetic Green Energy and Power Solutions Limited and Bharat Petroleum Corporation Limited (BPCL) have launched the “e-Drive” initiative. Accordingly, a range of electric three wheelers, specially designed for facilitating swappable battery and a 2-minute battery swap will be deployed by Kinetic Green and BPCL. The solution has already been implemented on a fleet of Kinetic Green E3W at Kochi and Lucknow. Due to separation of battery from the EV, initial EV cost is halved and brought below price of ICE counterparts. Range Anxiety is eliminated as drivers need not worry about range anymore, and they can always swap their battery for a new one, if they need to go longer distance. Re-charging time is eliminated as battery swapping takes only two minutes. The alliance facilitates a convenient battery network as BPCL can leverage its existing 12,000 gas stations to erect the battery swapping stations. According to Sulajja Firodia Motwani, Founder and CEO, Kinetic Green Energy and Power Solutions Ltd.: “This solution reduces upfront cost of EV by 50 percent, and customers never have to worry about battery charging and replacement. Kinetic and BPCL have developed the solution in association with IIT Chennai for a comprehensive IOT based system, a lock smart battery with VBCC protocol for charging, and host of safety features. The system monitors the battery and station, which are IoT enabled and linked to an app.**

cussed on some key areas like light-weighting, aerodynamics, better efficiency, suitability to Indian road and weather conditions, as well as passenger capacity. We are focused on this kind of technology solution, which is affordable and advanced.

**On a personal front, how easy or difficult is it for you as a woman to work, sustain and succeed in this industry?**

It sounds clichéd, but women are making a mark in all sorts of industries and at different levels of organisation. I think with more education, more conviction in themselves and more clarity on a purpose, women are going to pursue all kinds of possibilities.

That being said, in my particular case, I think I have had an unfair advantage because I had a legacy which I could, sort of leverage.

For me, coming into Kinetic had always been my dream. I grew up with that kind of vision for myself because of my family. In fact, I was very close to my grandfather and was his favourite granddaughter. There was this atmosphere of enterprise and entrepreneurship at home. My father and grandfather discussed business; the dinner table conversations were a lot about business and economy. I grew up with the culture of entrepreneurship, but more in terms of service to the nation.

**“SO, WHILE WE ARE A PUREPLAY EV START-UP, WE ALSO HAVE THE ABILITY TO SCALE UP IN TERMS OF EXPERIENCE, MANUFACTURING, BRAND, LINKAGES IN THE ECOSYSTEM AND SO ON. I THINK THAT IS OUR USP THAT WE HAVE THE BEST OF BOTH THE WORLDS AND WE ARE IN A VERY HIGH GROWTH SECTOR, WHICH IS A VERY UNIQUE OPPORTUNITY.”**



**“WE HAVE WORKED HARD OVER THE LAST FIVE YEARS IN TERMS OF SETTING UP THE BUSINESS, SETTING UP THE MANUFACTURING BASE AND CREATING A SUPPLY CHAIN, SETTING UP A GOVERNMENT RECOGNISED R&D CENTRE AND DEVELOPING PRODUCTS WHICH ARE ADVANCED IN TERMS OF TECHNOLOGY BUT ARE YET AFFORDABLE FOR THE COMMON MAN.”**

**A family platform does give you a better platform, but it cannot take you beyond a point unless you are putting the required efforts. Isn't it?**

True, once you have a platform, then of course it is your hard work, the ability to sustain and your personal commitment that makes the difference for you. I took complete responsibility after joining the business and worked really hard.

Having said that, I have never let the fact that I am a woman or the fact that I am a family member cloud my thinking. I always have and continue to work with a lot of integrity, with a lot of enthusiasm and with a lot of commitment. And I think when you are applying yourself to the job wholeheartedly, you are not bothered about such things. Importantly, people around you start realising that you are taking responsibility and that you mean business. Then, they also respond positively and respect you. I have never shied away from responsibility, accountability, hard work, commitment and sincerity. When I had my baby, I was back to work on the fourth day. Yeah, so I didn't take liberties because I am the owner or because I am a woman. I have worked as hard as anybody else. 

# Exploring limitless possibilities

**Additive Manufacturing has moved from being used only in prototypes to be a part of every company's manufacturing plans, says Sridhar Balaram, Founder & MD of Intech Additive Solutions.**

By Niranjana Mudholkar

**What was your motivation to start Intech Additive Solutions in 2012?**

In 2011, when we were recovering from the after math of the Lehmann Brothers, I developed a hunger for innovation and started thinking out of the box. While I was researching out on Laser Induction Hardening, I hit upon Laser Sintering. The technology was so exciting with limitless possibilities and many application ideas poured in. I had sleepless nights for more than a week. The fact that this technology was novel, and in line with my line of work and interest motivated me to initiate a start-up in 2012.

Right after coming into the existence, we started off as service provider in metal 3D printing with our first machine in 2014 with a great urge to achieve novel heights and to be a first of a kind service provider. As we made our journey in this technology we realised that there were gaps to be filled in this technology. To fill the gaps, we started working on our first Software, AMOptoMet, which provides right parameters with better surface finish thereby reducing the time on Design of Experiments (DOE) and R&D for building 3D parts "Right First time".

A strong urge under Make in India concept fuelled us to start the manufacturing of our own 3D printing machines in 2017 and after three years of R&D, we launched the first commercial grade Metal 3D printer "iFusion" designed, developed and manufactured by us.

During the process of building the printer, we saw the need of simple and easy software to for the pre-build process and thus AMBuilder



was envisioned in 2018 and is going to be a reality very soon in 2020.

**Which has been your remarkable project so far?**

Well, we have not been an equipment manufacturer in the entire journey of our manufacturing avenues. The development of iFusion series of 3D printers has been the most interesting project that we have taken up and have been successful with the launch of the printer. This project has provided us to unveil the strengths that a country like India is capable off. iFusion series of printers is completely designed, developed and manufactured by young engineers of India at our Bangalore facility at Intech.

**What is your take on the evolution of the additive manufacturing industry?**

Additive Manufacturing is at the cusp of industrialisation globally. It has moved from being used only in Prototypes to be a part of every company's manufacturing plans. As AM matures with newer manufacturing

technologies, increased applications, larger and highly productive machines, newer alloys and software which drives the hardware, costs are decreasing, making the process more productive, hence driving the industrialisation of AM. While India has been a bit behind the curve and has some catching up to do, there has been a lot of work off late happening in India and it is a question of time

before this technology will reach the same levels as in the industrialised countries

**Tell us more about the different types of this technology?**

Additive manufacturing (AM) can be described as a technique of blending materials by either fusion, binding, or solidifying materials such as liquid resin and powders. It builds part in a layer-by-layer fashion using 3D CAD modelling. The terminologies such as 3D printing (3DP), rapid prototyping (RP), direct digital manufacturing (DDM), rapid manufacturing (RM), and solid free-form fabrication (SFF) can be used to describe AM processes.

Some of the most common types of 3D printing technologies in use today and to name a few such as Stereolithography (SLA), Digital Light Processing (DLP), Fused deposition Modelling (FDM), Selective Laser Sintering (SLS), Selective Laser Melting (SLM), Electronic Beam Melting (EBM), Laminated Object Manufacturing (LOM), Binder Jetting (BJ) & Material Jetting (MJ) are a few.

Each process and piece of equipment has pros and cons associated with it. These usually involve aspects such as speed, costs, versatility with respect to feedstock material, geometrical limitations and tolerances, as well as a mechanical and appearance properties of the products such as strength, texture and colour.

3D printing uses two materials for printing across industries namely polymers and metals.

### Which are the ideal applications of additive manufacturing?

Additive manufacturing initially was started a process for concept modelling and rapid prototyping. From prototyping and tooling to direct part manufacturing in industrial sectors such as architectural, medical, dental, aerospace, automotive, furniture and jewellery, new and innovative applications are constantly being developed. AM can be used in the ideal applications such as fully functional prototypes, production tools, tooling such as molds and inserts, rigid housings, ductwork, spare parts and heat exchangers, heatsinks and so on.

### What are the key advantages of additive manufacturing vis-à-vis traditional manufacturing?

Since the introduction of AM in the 1980s, the benefits of producing small amounts of complex parts have been well understood to manufacturers. With new technology evolving and so many companies adopting AM in recent years, more and more advantages are being explored. Some of the key advantages of AM are:

**Reduced Tooling Costs:** A major cost driver in manufacturing is tooling cost, and for many low-volume manufacturing companies it can be a sizable impediment to entry because it requires a significant amount of capital expense before the first unit is produced. However, additive manufacturing uses tools built on site at a



**“ADDITIVE MANUFACTURING IS AT THE CUSP OF INDUSTRIALISATION GLOBALLY. IT HAS MOVED FROM BEING USED ONLY IN PROTOTYPES TO BE A PART OF EVERY COMPANY’S MANUFACTURING PLANS.”**

fraction of a cost of traditional tooling.

**Quicker Speed to Market:** A critical method for churning out a complex part to the market is to reduce production lead time. By leveraging additive manufacturing, an organisation can enter a new market in days, not weeks or months.

**Easily Test Complex Component Geometries:** Bringing a complex component to market carries much more risk than something that has a more simplistic design because more can go wrong with complex geometry. To de-risk a product launch, it’s important to test and retest the designs so that when your company enters the market, you’ve already worked out the failure modes associated with a specific design.

Traditionally, this was done after production tools were cut and the initial parts were produced from them. This required new tooling or tooling adjustments, which often carry expensive price tags and schedule impacts.

**Better Component Quality:** Components that have intricate parts, especially small components, can benefit from the additive manufacturing processes. Typically, components with small moving pieces require strict manufacturing tolerances and highly controlled assembly processes to reduce the number of component defects. Using the additive

manufacturing technology of today, manufacturers can print entire components, moving pieces and all, with extremely precise tolerances. Thus, improving product quality and reducing failure risk.

### How has the Covid19 pandemic affected your business?

Business will never be the same again mentally, emotionally, financially. Covid19 has and will have a deep impact on business for some time to come. However, I anticipate recalibration of business and process post the war against Covid 19. Digital manufacturing will emerge as a result.

At Intech, we are using our time to realign our focus, our vision and mission. Our teams are busy, re-grouping and re-strategizing. We have charted a long list of activities covering online reskilling and training activities including virtual research & knowledge accreditation, use of digital tools, teamwork and closing in on existing gaps. It’s business as usual for the software teams. We are also encouraging teams to read more and indulge in brain exercising.

### What are the lessons we need to learn from this pandemic?

There will be a big thrust for Make & Made in India. Government of India is most likely to enhance its support to such initiatives. 📍

## Belting an innovation!

**In a unique and patented construction, a technology company has developed belts that allow the rotor blades of wind turbine to be adjusted at any time without the aid of gears or hydraulics.**

Technology company Continental is equipping the wind turbines made by Chinese manufacturer Xinjiang Goldwind Science and Technology with drive belts. In the unique and patented construction, the belts manufactured at the Dannenberg location in Germany allow the rotor blades to be adjusted at any time without the aid of gears or hydraulics. Continental engineers used an optimal combination of two tried-and-tested timing belt technologies to develop the belts. Back in 2018, Continental invested around €2 million in a new facility at the site in Lower Saxony to meet the Chinese company's annual demand for over 100 kilometers of drive belts.

Goldwind is one of the few providers on the market to use a drive belt without a gearbox to adjust the blades, which is becoming vital to be able to respond flexibly to changing wind strengths. "Goldwind relies on timing belts," says Rolf Marwede, who heads Continental's location in Dannenberg. "There are some advantages to this. For instance, the system is less complex and therefore less prone to vibrations and disturbances at the top of the nacelle. Our belts are also extremely low-wear and



durable."

The belts provided by Continental do not require any oil for lubrication and are very low maintenance overall and also largely corrosion-resistant. In offshore wind turbines in particular, this last point presents a major advantage over conventional metal designs that are permanently exposed to salty sea air. "In comparison with gearbox solutions, a simpler design that uses drive belts is also more cost-effective and more efficient in the long term," says Marwede. If there is a defect, the system can also be repaired very quickly because only the belt needs to be replaced, not the whole gearbox.

For Goldwind, it was important to develop a low-maintenance and simpler alternative to the conventional gearbox system. The chosen belt solution was an exact match for

these requirements and is based on Continental's Synchrodrive technology. Galvanized steel cords are integrated into the belt's interior and coated with polyurethane, which furnishes both the teeth and the back of the belt and forms an outstanding connection with the tension member. Polyurethane is particularly abrasion-resistant.

The two opposing impact directions of the steel cords and their strands result in neutral running properties, making the belts extremely resilient. It is not uncommon for there to be around 12 million reverse bending cycles. But what makes the belts used by Goldwind so unique is the special fabric, which is manufactured at Continental's location in Northeim. The specialist in drive belts is making use of its Synchrochain technology expertise for this application. "The fabric reduces wear and absorbs noise and also provides a much more stable structure for the timing belt. This enables us to significantly improve the belt's performance yet further," explains Marwede. The fabric reinforces the teeth and improves run-in behavior, which in turn boosts efficiency. "Ultimately, we have brought together two product groups to develop the ideal solution for Goldwind's application."

Continental manufactures the belts for Goldwind at its Dannenberg site, which is a competence center for the production of polyurethane belts within the company. The technology company installed a new facility for this very purpose last year. The hall out of which the facility operates, which was newly

**"GALVANIZED STEEL CORDS ARE INTEGRATED INTO THE BELT'S INTERIOR AND COATED WITH POLYURETHANE, WHICH FURNISHES BOTH THE TEETH AND THE BACK OF THE BELT AND FORMS AN OUTSTANDING CONNECTION WITH THE TENSION MEMBER. POLYURETHANE IS PARTICULARLY ABRASION-RESISTANT."**

built in 2017, offers space for further production expansion. "At a single location, we can not only offer Synchrodrive and Synchrochain belts, but also combine both product types with each other – just like in Goldwind's application has never been done before and makes us a much more effective partner," sums up Marwede.

Continental therefore sees its partnership with Goldwind as an important cornerstone on which to further develop its focus on the topics of sustainability and resource conservation. In addition to drive belts, the company supplies the wind turbine manufacturer with

**"THERE ARE SOME ADVANTAGES TO THIS. FOR INSTANCE, THE SYSTEM IS LESS COMPLEX AND THEREFORE LESS PRONE TO VIBRATIONS AND DISTURBANCES AT THE TOP OF THE NACELLE. OUR BELTS ARE ALSO EXTREMELY LOW-WEAR AND DURABLE."**

**Rolf Marwede, Head, Continental's location in Dannenberg.**

mounting elements, films for reducing wind resistance, and hydraulic lines. Wind is an unlimited resource. Wind turbines are considered clean, with the wind power they provide being the ideal complement to other energy sources. By the end of 2019, wind turbines with a total output

of around 650 gigawatts had been installed around the world. By way of comparison, 40 gigawatts would be enough to supply electricity to every household in Germany. With installed power of well over 200 gigawatts, China is by far the world's largest wind market. 🌐

## EMOBILITY

### Sodium-ion batteries go down under

**F**aradion Ltd. has announced its first order from ICM Australia. Sodium-ion batteries, owing to their exceptional superiority over lithium-ion batteries, are likely to revolutionise the automobile/mobility, storage and mobile sectors across the world. Faradion's Sodium-ion technology provides similar performance to conventional chemistries, while replacing expensive materials such as cobalt and lithium with the far more abundant sodium. Unlike lithium-ion batteries, Faradion's sodium-ion batteries have exceptional thermal stability and safety. Further they can be safely transported and maintained at zero volts.

India is one of the largest markets for mobile devices across the world. Recently the country has also demonstrated significant progress in the adoption of EV (Electric

Vehicle) technology, making it a priority market for Faradion. Further, as the world seeks out alternatives to China-dependent Lithium-ion batteries, Faradion's Sodium-ion based technology offers a promising solution. In line with this, Faradion is actively exploring manufacturing presence in India for its Sodium-ion batteries for diversified applications.

Having seen significant interest in regions such as the US, Europe and India due to its performance, safety and price point, James Quinn, CEO of Faradion, says Australasia is the next logical region for Faradion given the market conditions.

"Faradion is accelerating large scale industrialisation of its safe, low cost, Sodium-ion energy storage technology. After Australia, we foresee India as our next priority big market, given the huge growth in mobile devices and a bigger electric mobility market waiting to grow rapidly." Quinn concludes.

In recent years, Australia and New Zealand have demonstrated a steady uptake in battery storage in residential, commercial and grid scale applications due to factors including significant reductions in the cost of storage and solar systems; increasing cost of electricity, concerns about blackouts and financial incentives and policies from the government.

Speaking about this order from ICM Australia, Thomas Gregson, ICM Australia Investment Director said, "This order represents a first step for an Australian company to commercialise world leading sodium-ion technology."

**"FARADION IS ACCELERATING LARGE SCALE INDUSTRIALISATION OF ITS SAFE, LOW COST, SODIUM-ION ENERGY STORAGE TECHNOLOGY. AFTER AUSTRALIA, WE FORESEE INDIA AS OUR NEXT PRIORITY BIG MARKET, GIVEN THE HUGE GROWTH IN MOBILE DEVICES AND A BIGGER ELECTRIC MOBILITY MARKET WAITING TO GROW RAPIDLY."**

**James Quinn, CEO of Faradion**

# Because every gram counts

**A provider of vibration technology and plastics applications for the automotive industry has joined hands with a speciality chemicals company to create an all-plastic brake pedal.**

In a battery-electric sports car, every gram of weight counts. That is why the first mass-production vehicle in this segment is using an all-plastic brake pedal. This safety-critical component has been developed by Boge Elastmetall GmbH, a global provider of vibration technology and plastics applications for the automotive industry, in close cooperation with the Lanxess High Performance Materials (HPM) business unit. It owes its high mechanical strength and very low weight to a thermoplastic composite design. Its structure comprises an insert made from Tepex dynalite, a continuous-fiber-reinforced thermoplastic composite from Lanxess, and several tapes.

“The composite structure makes the brake pedal 50 percent lighter than a comparable steel design. The structural component meets the demanding load requirements thanks to the tailor-made fiber-layer construction of the Tepex insert and additional local tape reinforcement. Extensive automation allows the geometrically complex safety-critical component to be manufactured efficiently and in a way that is suitable for large-scale production,” explains



Dr. Klaus Vonberg, an expert in lightweight design at HPM's Tepex Automotive Group.

### **Precise combination of fiber layers arranged in various orientations**

The fully consolidated semi-finished products Tepex dynalite have a thermoplastic matrix that is typically reinforced with layers of continuous glass-fiber fabric. The brake pedal for the battery-electric sports car uses a composite structure with a polyamide 6 matrix, which contains unidirectional fiber layers inside and fabric layers with fibers arranged at 45° angles on the two covering layers. The inner layers are what give the component its excellent tensile and bending strength.

Tapes are thin plastic strips with unidirectionally oriented, high-strength continuous fiber systems embedded in the thermoplastic matrix. Multiple tapes with glass-fiber rovings are used in the brake pedal to reinforce the bottomside of the component. Since the tapes and the Tepex insert consist of mutually compatible plastic matrices, the tapes can simply be welded onto the Tepex insert

using a laser. This results in tailor-made laminates with fiber layers that follow the load paths precisely and are adapted to the exact load-specific component requirements. The covering layers of the insert with their 45° fiber layers, combined with the tapes on top, thereby ensure the high torsional strength of the pedal.

### **Four brake pedal versions in series production**

“This tailor-made fiber-layer structure and the combination of organic sheets and tapes have made it possible to reduce brake pedal weight even further while simultaneously achieving the exceptionally high level of mechanical characteristics that such a safety-critical component needs to provide,” says Dr. Daniel Häffelin from the Innovation Center at Boge Elastmetall. There are currently four different brake pedal designs in mass production based on an all-plastic version. For all component versions, the load paths are also optimized to suit the various torsion directions.

### **Automated processing of tapes and Tepex**

The brake pedals are manufactured in an automated process using hy-

**“THE COMPOSITE STRUCTURE MAKES THE BRAKE PEDAL 50 PERCENT LIGHTER THAN A COMPARABLE STEEL DESIGN. THE STRUCTURAL COMPONENT MEETS THE DEMANDING LOAD REQUIREMENTS THANKS TO THE TAILOR-MADE FIBER-LAYER CONSTRUCTION OF THE TEPEX INSERT AND ADDITIONAL LOCAL TAPE REINFORCEMENT.”**

**Dr. Klaus Vonberg**, an expert in lightweight design at HPM's Tepex Automotive Group.

brid molding in short cycle times suitable for large-scale production. The method integrates draping of the Tepex insert and the tapes in the subsequent injection molding process. The first stage of production involves aligning the tapes precisely using optical measuring systems and then positioning them on the Tepex insert so that they can be welded to it. This assembly is thermoformed and then back-molded with polyamide 66 by an injection molding process.

**High-strength structural components for electric vehicles**

New opportunities are opening up in the field of electric vehicles for thermoplastic composite structures with tailored fiber orientation. According to Vonberg, “Examples of applications for Tepex inserts in-

**“THIS TAILOR-MADE FIBER-LAYER STRUCTURE AND THE COMBINATION OF ORGANIC SHEETS AND TAPES HAVE MADE IT POSSIBLE TO REDUCE BRAKE PEDAL WEIGHT EVEN FURTHER WHILE SIMULTANEOUSLY ACHIEVING THE EXCEPTIONALLY HIGH LEVEL OF MECHANICAL CHARACTERISTICS THAT SUCH A SAFETY-CRITICAL COMPONENT NEEDS TO PROVIDE.”**  
 Dr. Daniel Häffelin from the Innovation Center at Boge Elastmetall.

clude front-end systems and bumper beams, brackets for electrical and electronic modules, trunks and spare wheel wells, battery housings and covers, structural components in the vehicle’s ‘greenhouse’ section and structural trims in the underbody area to protect the battery.”

The low carbon footprint relative to metal-based structures is another point in favor of the composite design with Tepex and tapes. Thermoplastic composites are not only

much lighter than such alternatives, but the hybrid molding method used means that they also enable functions such as guides, holders and fasteners to be integrated in a way that saves weight, energy and costs. With components of this type, there is no need for time-consuming further processing such as deburring or post-process tapping, as this is typical for metal parts. 

*Source: Lanxess*

**AUTOMOTIVE**

**Encouraging Innovation**

**A global tier one supplier has recently launched an Advanced Open Innovation & Ecosystem Acceleration Program.**

As a strategic response to the rapid transformation happening in the Automotive industry and to maintain competitive edge, Faurecia - India recently launched a comprehensive framework spanning Strategy, Ideation and imbibing Innovation Culture. This strategic Initiative is more important than ever while the industry is facing an existential crisis because of Covid-19 pandemic. This initiative is aptly named as NOVUS X.0 – An Advanced Open Innovation & Ecosystem Acceleration Program.

As part of the Phase 1 of this initiative, Faurecia intends to leverage the vast pool of students across finest Engineering / Technology Institutes and Universities across India and APAC. Faurecia has extended this opportunity to student community via an online Open Innovation challenge – Producation, launched on 18th February 2020 and is currently ongoing. It is also open for Faurecia’s internal employees parallelly across sites in India and APAC.

With Sustainable Mobility & Cockpit of the Future at the core of the company’s strategic transformation, NOVUS X.0 Producation, is designed to invoke new, disrupt-

ive and breakthrough ideas.

With the online challenge coinciding with the pandemic spread and subsequent unprecedented lockdown in the country, it’s been about new learnings and improvisation in reaching and engaging students as well as Faurecians, for their participation.

Thanks to technology, the company is actively connecting with the students and Faurecia professionals (including manufacturing personnel) across the country through webinars, social media, e-coffee meets, to introduce, explain and re-energize the community to unleash their creativity to best utilize the time and contribute towards the future of mobility to make it more futuristic, safe, affordable & sustainable.

Students and Faurecians can participate by submitting their ideas, related to the problem statements defined in nine domains, aligned with the megatrends disrupting the Automotive Industry, such as Safety, Personalization, Comfort, Health & Wellness, Connectivity and so on.

Faurecia is inviting all students to be part of NOVUS X.0 Producation.

## Big Boost

**The Electronics Manufacturing Clusters (EMC 2.0) Scheme will help offset the disability for domestic manufacturing of electronic components and semiconductors in order to strengthen the electronic manufacturing ecosystem in the country.**

The Union Cabinet chaired by Prime Minister Narendra Modi has approved to offer financial incentive of 25 percent of capital expenditure for the manufacturing of goods that constitute the supply chain of an electronic product under the Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS). The scheme will help offset the disability for domestic manufacturing of electronic components and semiconductors in order to strengthen the electronic manufacturing ecosystem in the country.

**Financial Implications:** The total cost of the scheme is approximately Rs.3,285 crore, which includes the incentive outlay of approximately Rs.3,252 crore and the administra-



tive expense to the tune of Rs.32 crore.

**Benefits:** The proposal when implemented will lead to the development of electronic components manufacturing ecosystem in the country. Following are the expected outputs/outcomes in terms of measurable indicators for the scheme:

Development of electronic components manufacturing ecosystem in the country and deepening of Electronics value chain.

New investments in Electron-

ics Sector to the tune of at least Rs. 20,000 crore.

Direct employment of approximately 1,50,000 is expected to be created in the manufacturing units supported under the scheme, including indirect employment of about three times of direct employment as per industry estimates. Thus, total employment potential of the scheme is approximately 6,00,000.

Reducing dependence on import of components by large scale domestic manufacturing that will also enhance the digital security of the nation.

**Background:** The vision of National Policy on Electronics 2019 (NPE 2019) notified on 25.02.2019 is to position India as a global hub for Electronics System Design and Manufacturing (ESDM) by encouraging and driving capabilities in the country for developing core components, including, chipsets, and creating an enabling environment for the industry to compete globally.

A vibrant electronic components manufacturing ecosystem is vital for the overall long-term and sustainable growth of electronics manufacturing in India and essential to achieve net positive Balance of Payments (BoP).

It is, therefore proposed to provide an incentive of 25 percent on capital expenditure on plant, machinery, equipment, associated utilities and technology, including for Research & Development to the industrial units making investment for manufacturing of electronic components, semiconductors, ATMP, specialized sub-assemblies and capital goods for these items, in the specified categories. This will cater to all segments of electronics manufacturing. 

### Green Signal for EMC 2.0

The Union Cabinet chaired by Prime Minister Narendra Modi has also approved financial assistance to the Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme for development of world class infrastructure along with common facilities and amenities through Electronics Manufacturing Clusters (EMCs). It is expected that these EMCs would aid the growth of the ESDM sector, help development of entrepreneurial ecosystem, drive innovation and catalyze the economic growth of the region by attracting investments in the sector, increasing employment opportunities and tax revenues.

The EMC 2.0 Scheme would support setting up of both Electronics Manufacturing Clusters (EMCs) and Common Facility Centers (CFCs). For the purpose of this Scheme, an EMC would be set up in geographical areas of certain minimum extent, preferably contiguous, where the focus is on development of basic infrastructure, amenities and other common facilities for the ESDM units. For a CFC, there should be a significant number of existing ESDM units located in the area and the focus is on upgrading common technical infrastructure and providing common facilities for the ESDM units in such EMCs, Industrial Areas/Parks/Industrial corridors.

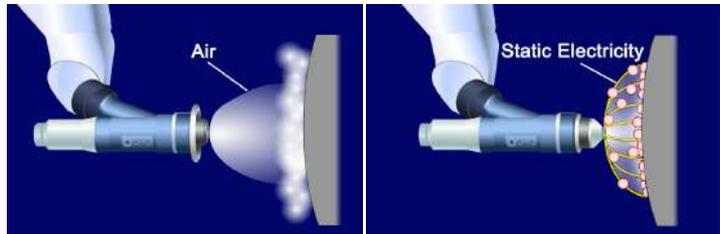
# More efficient and effective

Japanese automotive major Toyota has developed a new paint atomizer – which it claims – has over 95 percent coating efficiency.

Toyota Motor Corporation (Toyota) has developed a new type of paint atomizer (airless paint atomizer) that uses static electricity instead of air, to replace the conventional air paint atomizers used in the vehicle body painting process. The newly developed airless painter, the first of its kind in the world\*, achieves over 95 percent coating efficiency (the amount of paint sprayed versus the amount that actually adheres onto the vehicle body), the highest in the world\*, from conventional efficiency of approximately 60 to 70 percent.

By deploying the airless paint atomizer in Toyota Group's painting process, it is expected that the Group can reduce its CO2 emissions by about seven percent. In addition, the collection device situated at the bottom of the paint booth (the area where paint is sprayed) can be made more compact. Therefore, it is able to make painting production lines more compact for the future.

Toyota is advancing initiatives to achieve its Plant Zero CO2 Emissions Challenge, one of the targets included in the Toyota Environmental Challenge 2050 announced in 2015. As part of this effort, it developed the airless paint atomizer and deployed it at both Takaoka and Tsutsumi Plants. Gradual deployment at other plants is planned as well as consideration of deployment among other Toyota Group companies and licensing the technology to other companies.



Conventional Air Paint Atomizer

New Airless Paint Atomizer

## Features of airless paint atomizer

Conventional air paint atomizer sprayed paint primarily using aerodynamic force, then paint the vehicle body with the atomized particles using an air paint atomizer. For this reason, paint particles are scattered by the air ricocheting off the vehicle body, resulting in a coating efficiency of approximately 60 to 70 percent. By comparison, the new airless paint atomizer uses electricity to spray the paint (electrostatic atomization), and the statically charged particles coat in such a way that they gravitate toward the vehicle body (electrostatic painting). Electrostatic atomization and electrostatic painting technologies greatly reduce the number of atomized particles that scatter, thereby achieving a higher coating efficiency.

## New technologies that achieve high coating efficiency

1. The tip of the airless paint atomizer features a rotating cylindrical head that optimizes the amount of paint sprayed: Electrostatic atomization technology is used in beauty treatment devices and

other instruments that spray fine amounts of liquid; here, we applied it to vehicle body painting. Specifically, the tip of the paint sprayer is cylindrical. Approximately 600 special grooves are inserted into the tip, which is rotated to create a centrifugal force, inducing the paint to flow into the grooves and atomize through static electricity. In this way, we developed the world's first technology that paints vehicle bodies with atomized paint particles using static electricity.

2. Highly accurate current control that makes close-range painting possible: The unevenness of the vehicle body causes the distance between the cylindrical head and the vehicle body to fluctuate, making the electrical current unstable. However, the airless paint atomizer constantly monitors the variations in current and automatically controls the voltage, maintaining a distance of approximately 10 centimeters between the cylindrical head and the vehicle body. Hence, electrostatic atomization and electrostatic painting under a fixed current is rendered possible, in turn preventing variation in the size of the paint particles—the result is high-quality painting. 

Source: Toyota

\*As of March 2020, according to Toyota Motor Corporation.

“BY DEPLOYING THE AIRLESS PAINT ATOMIZER IN TOYOTA GROUP’S PAINTING PROCESS, IT IS EXPECTED THAT THE GROUP CAN REDUCE ITS CO2 EMISSIONS BY ABOUT SEVEN PERCENT.”

## Over the top innovation

Two companies have signed an agreement to jointly scale the commercialization of a unique solar-powered roof for the electric vehicle market.

Lightyear and Royal DSM have signed an agreement to jointly scale the commercialization of Lightyear's unique solar-powered roof for the electric vehicle market. With this solution, both companies aim to accelerate the global adoption of a broad range of Electric Vehicles (EVs).

Specifically, the partnership aims to integrate solar-powered roofs in a variety of electric vehicles, including cars, vans and buses - thus enabling users to charge their vehicle directly with clean energy. The companies are teaming up to assess the market, starting with pilot projects for customers from the automotive and public transport sector, where the integration of a solar roof could represent a smart investment.

Today, the global EV market has enormous growth potential. It was valued at \$160-plus billion in 2019; and is projected to reach \$800-plus billion by 2027 according to international market assessments from Bloomberg, IDTechEx and TIME. To accelerate this growth, the EV industry now needs to overcome the twin hurdles of limited range and grid-dependency.

The alliance between Lightyear and DSM addresses this need by enabling various EVs to increase their range through energy harvested directly from the sun. The integration of a solar roof is expected to be a good investment in multiple EV market segments.

### Technology developed for Lightyear One

This technology was initially developed by Lightyear for the solar panels of Lightyear



| DSM and Lightyear join forces to scale the commercialization of integrated solar roofs for the electric vehicle market. Photo: Lightyear

One. Lightyear One is set to be the world's most efficient long-range solar car when it launches in 2021 - with a WLTP range of 725km. Featuring five square meters of integrated solar cells protected by double-curved and super-strong safety glass, the solar roof captures sunlight continually whether the car is moving or stationary. The result is that in optimized vehicles like Lightyear One, the solar roof can deliver enough energy to cover an average of 70 percent to 90 percent of the yearly mileage.

DSM's Conductive backsheet is an integral element of the solar roof - enabling all the connections of the solar cells to be put on the back of the solar panel - thus making every available centimeter on the front of the module available for capturing sunlight. The reduction in electri-



| Left: Martijn Lammers - Chief Strategy Officer Lightyear, and Right: Pascal de Sain - Vice President DSM Advanced Solar. Photo: Lightyear.

**“THE COMPANIES ARE TEAMING UP TO ASSESS THE MARKET, STARTING WITH PILOT PROJECTS FOR CUSTOMERS FROM THE AUTOMOTIVE AND PUBLIC TRANSPORT SECTOR, WHERE THE INTEGRATION OF A SOLAR ROOF COULD REPRESENT A SMART INVESTMENT.”**

cal (cell-to-module) losses not only delivers a three percent increase in power output; it has the added advantage of contributing to a more stylish sunroof with aesthetic appeal.

Pascal de Sain, Vice President DSM Advanced Solar: “By stepping up our collaboration with Lightyear we are creating an entirely new market for ‘lossless’ high power back-contact technology - with the potential to change the face of clean mobility and make a big impact on climate change. We look forward to bringing more than a decade of market and scientific leadership in solar to this collaboration. Our goal is simple; to make clean, solar energy a reality for all.”

Martijn Lammers, Lightyear's Chief of Strategy and Co-Founder: “We want to revolutionise the way that people travel. By scaling up the accessibility of our solar technology through our partnership with DSM, we can accelerate the mass adoption of electric vehicles by making them sun-powered.”

## Launch pad for 3D printing

**A company has specifically founded a 3D printing center – the Additive Innovation Center – and has presented a route map.**

**A**t Optima in Schwaebisch Hall, 3D printing is now part of the company's range of machines. For this future-oriented technology, the company has specifically founded a 3D printing center – the Additive Innovation Center – and has presented a route map. 3D printing will massively change special purpose machine manufacturing.

“Machine parts that previously took a week to manufacture can now be printed in a significantly shorter time”, says Optima Vice President Manufacturing Volker Freisinger. At its Schwaebisch Hall site, Optima has invested around half a million euros in the new 3D printing center, known as the Additive Innovation Center. The Additive Innovation Center has been in operation since July 2019 and, after a test phase and staff training, went into production at the end of 2019. It features a 3D printing lab and a training and design area, known as the Innovation Space. Since December 2019, employees with key roles are being trained there in 3D-compatible design.

### **The 3D printing process enhances customer flexibility**

The consumer demand for specific products is changing at an ever increasing pace. Social media and



**Optima has invested in the advanced multi-jet fusion technology which enables parts to be produced faster than with the SLS process.** (Source: Optima)

e-commerce are accelerating this growth. This affects all the market segments for that Optima develops machines for, which include pharmaceuticals, paper hygiene, consumer goods and healthcare products. New agile and flexible processes and technology are needed to counter this trend. “That’s why we are providing our customers with support in terms of flexibility with additive manufacturing technology”, says Michael Weber, Director Service at OPTIMA consumer GmbH. Machine, format and replacement parts can be produced in a significantly shorter amount of time. In addition, a better price/performance ratio can also be achieved over the entire manufacturing process, especially for complex components. Therefore, de-

sign solutions that could not be implemented before are now possible. Inspired by nature, existing parts can be made lighter, stronger and with less material than before, for example, by using honeycomb structures. This is also a positive development in terms of sustainability – after all, no shavings or waste are generated during production.

### **All current printing methods are possible**

In the Additive Innovation Center, all the standard 3D printing methods are used. To produce prototypes quickly, Optima uses the fused deposition modeling (FDM) process, which has been successfully used in the automotive industry for many years, and the selective laser sintering (SLS) process. The SLS process opens up a broad range of materials, colors and subsequent treatments. A partner company contributes to the team advanced SLS processes with a wide variety of post-processing options. These include, tinting and smoothing the components. 

Source: OPTIMA packaging group GmbH

**IN THE ADDITIVE INNOVATION CENTER'S INNOVATION SPACE, OPTIMA'S ENGINEERING DEPARTMENT IS LEARNING HOW TO USE THE NEW TECHNOLOGIES. NEW PARTS ARE BEING CREATED USING COMPLETELY NEW METHODS, AND EXISTING PARTS CAN BE DESIGNED TO BE LIGHTER AND MORE STABLE THAN BEFORE AND WITH LESS MATERIAL.**

## Pursuit of excellence

The largest drinks company in Argentina has reached high levels of efficiency, of up to 100 percent, on its most recent complete hot-fill line. Here's how.

In collaboration with Sidel, Cervecería y Maltería Quilmes – the largest drinks company in Argentina – has reached high levels of efficiency, of up to 100 percent, on their most recent complete hot-fill line. This complete, high-speed bottling solution produces, among other things, the Gatorade brand of isotonic beverages in PET containers, in compliance with PepsiCo's quality standards. The new line offers advantages in terms of production flexibility and protection of the environment, particularly due to energy savings.

Quilmes has been operating in Argentina for over 130 years. The company started out in the beer business by opening their first brewery in the city of Quilmes, about 20 kilometers southeast of the capital, Buenos Aires. "Over the years, Quilmes has expanded across beverage categories by acquiring a carbonated soft drink business. This happened about 20 years ago, with PepsiCo's exclusive franchise for production, distribution and marketing of the brand's full line of beverages in Argentina," explained Juan José Ferrer, Plant Manager at Quilmes. The company also participate in the water business through Eco de los Andes SA, the



result of a joint venture with Nestlé Waters. "The company's objective is to provide consumers with quality beverages and to take care of the environment. The investment in Sidel's bottling line is perfectly aligned with this aim," he adds.

### Doubling PET production capacity with an integrated bottling solution

Investing in a new hot-fill production line at the Southern plant in the city of Buenos Aires was necessary because it is the only facility which supplies the entire national market and also exports to Uruguay. "Both PET container lines were at the top end of their capacity, so we needed a bigger line to increase our market share in Argentina. The second objective was to have a more modern line with lower energy consumption and better efficiency," says Juan José

Ferrer. With this new investment in Sidel's line, Quilmes have more than doubled their capacity to produce beverages in PET containers, going from 22,000 to 45,000 bottles per hour (bph).

The company had different alternatives of who their bottling line supplier was going to be.

"We were convinced by the good experience we had with a variety of Sidel equipment and decided to continue with them. Currently, we are very satisfied with the performance of the line, two years after its installation. Another factor in choosing Sidel for this investment was that Quilmes was looking for a complete solution to satisfy our needs. We took into account not just the bottling line, but also product processing via pasteurisation (Tetra Pak Processing Systems), in order to maximise the potential synergies. Sidel showed the necessary flexibility for this and were able to provide a solution, creating a better model of efficiency and production quality for us," he continues.

Quilmes was also quite satisfied with the positive collaboration of Sidel's team of experts throughout the project stage prior to the line installation, as well as during the installation itself and for the aftersales service. He goes on, "Obviously we started by looking for the best options for Quilmes with the line design team. Afterwards, the start-up phase was the most intense, when we required assistance from Sidel. The machines were installed in a new zone of the factory floor, and we underwent the typical difficulties related to our utilities; but in all truth,

**"BOTH PET CONTAINER LINES WERE AT THE TOP END OF THEIR CAPACITY, SO WE NEEDED A BIGGER LINE TO INCREASE OUR MARKET SHARE IN ARGENTINA. THE SECOND OBJECTIVE WAS TO HAVE A MORE MODERN LINE WITH LOWER ENERGY CONSUMPTION AND BETTER EFFICIENCY."**

**Juan José Ferrer, Plant Manager at Quilmes.**

we were able to solve the problems as they arose quickly and safely with Sidel's assistance." Another advantage of working with Sidel that Quilmes recognised early on was the technical support service, both from Field Service Engineers (FSE) and from remote. In case of any need or emergency, this service provides assistance from a FSE 24 hours a day. Alternatively, support personnel can remotely connect to the machine and recommend the best solution. "We used it several times, and it helped us to keep production running successfully."

**Production reliability and flexibility**

The hot-fill bottling line is characterised by its excellent production flexibility. "It has the capability of hot-filling isotonic drinks, juices and products with or without pulp. Additionally, this line is also able to cold-fill, in order to offer consumers a wider variety of products," he says. Today, Gatorade is produced in a number of flavours and sizes: 500 ml, 750 ml, 1200 ml and, more recently, 300 ml, with either flat or sports caps. As for labelling, the new solution enables the placement of partial sleeves on just one part of the bottle or full-body sleeves on the whole bottle, providing several marketing opportunities to stand out on supermarket shelves.

"As for the flexibility provided by our production line, we also have the possibility of handling several pack options, such as 6-packs, 12-packs or 24-packs." When it comes to the palletising of hot-fill products in PET containers, quality is a very important matter and must be guaranteed. "To face the long transport distances on often challenging roads, palletising must be precise, reliable and very stable. We are very happy with Sidel's



palletising solutions, since they guarantee the integrity of our products, so that they reach consumers intact," he highlights.

Quilmes operates as a PepsiCo bottler and, therefore, a new line validation must involve a specific approval protocol. Prior to the launch of the industrial production on the line, there was a validation stage for all the different containers in Sidel's packaging labs in France. According to the Plant Manager, "the individual validation of each of our Gatorade bottles was executed according to PepsiCo's specifications, which enabled production of the moulds. Due to PepsiCo's requirements, during the first packaging runs, we complied with a quality protocol regarding line efficiency and the number of marketable bottles during the process. Every step was carried out successfully."

**Respect for the environment and 100 percent efficiency**

After defining the purchasing specifications for the line, Quilmes worked with Sidel's technical and project teams to find an ideal layout and location for the machines, which optimised staff ergonomics and the travel time between the different control stations, as well as the supply of consumables. All details for line start-up were reviewed, again in collaboration with the Sidel team, to achieve the best results for this pro-

ject. "Today, we are very satisfied with the location of the machines in each of the areas, with the general positioning of operators, handling of supplies and access to places where spare parts are stored." Quilmes' teams were pleasantly surprised by the efficiency levels reached by the line. "We are working at an average of 95 percent

efficiency and, sometimes, the line even runs for many hours at 100 percent. Because of the way the line was designed, it is perfectly balanced to ensure reliability. It is also very important to mention that, despite the difficulties, this efficiency was reached very quickly during start-up. At present, with the 500 ml container, we are working at 45,000 bph with 95 percent efficiency," Juan José Ferrer summarises.

This line includes the plant's first Sidel Combi blow-filler, which provides many advantages in line with Quilmes' commitment to the protection of the environment. The Combi consumes less energy than the blower they used to have, thus eliminating, for example, the air transfer of bottles. In addition, it prevents the exposure of containers to the elements during air transfer, which improves product quality. Fewer people are needed to man the machines during day-to-day operations. This leads to more effective use of operators and enables them to focus on other maintenance and quality tasks. This is why Quilmes selected the Combi.

Additionally, environmental protection is a very important topic for Quilmes. "In terms of energy, the line offers a thermal equilibrium system enabling us to reuse the heat provided by the hot bottle in the cooler for the first heating stage of the liquid before the pasteuriser." 

Source: Sidel

## Materials Sciences Innovation

### New High-Performance Thermal Analysis, Rheology and Microcalorimetry Tools Help Accelerate the Pace of Materials Research

Waters Corporation has introduced new products that bring greater productivity and efficiency to materials science research. The new Discovery™ X3 Differential Scanning Calorimeter, Discovery Hybrid Rheometers and TAM IV Micro XL isothermal microcalorimeter support the development of next-generation, high performance materials and products.

“These new products emphasize our commitment to materials sciences,” said Jonathan Pratt, Senior Vice President of Waters Corporation and President, TA Instruments. “For scientists exploring the relationship between the structure and property of materials, these technologies enable efficiencies in both streamlining laboratory operations and accelerating new product innovation.”

#### Three Times Greater Throughput

Uniquely engineered to eliminate multiple testing steps, the new Discovery X3 Differential Scanning Calorimeter (DSC) generates three times the amount of experimental data as a standard DSC, effectively consolidating three instruments into one. The data quality and sensitivity of the instrument allows researchers to compare various formulations or competitive materials side-by-side under the exact same test conditions. It is the most versatile, highest-throughput DSC available to scientists.

#### Enhanced Measurement Sensitivity

This new trio of high-performance



| The Discovery X3 Differential Scanning Calorimeter (DSC) generates three times the amount of experimental data as a standard DSC and is the most versatile, highest-throughput DSC available to scientists. (Photo: Business Wire)

characterization of solid samples in dynamic tension, bending, or compression mode. Researchers can get both dynamic mechanical and rheological measurements from a single instrument and thereby obtain more information more efficiently.

#### TAM IV Micro XL Microcalorimeter for Next-Generation Battery Development

Light, compact batteries power much of today's world and they hold the key to the transition away from fossil fuel dependence. Cost and performance improvements in battery technology continue to drive the need for better,

**“FOR SCIENTISTS EXPLORING THE RELATIONSHIP BETWEEN THE STRUCTURE AND PROPERTY OF MATERIALS, THESE TECHNOLOGIES ENABLE EFFICIENCIES IN BOTH STREAMLINING LABORATORY OPERATIONS AND ACCELERATING NEW PRODUCT INNOVATION.”**

**Jonathan Pratt, Senior Vice President of Waters Corporation and President, TA Instruments**

rheometers are five times more sensitive than previous versions and offer class-leading versatility in a platform that makes it easier for users of all experience levels to obtain accurate rheological data. Scientists are now empowered to measure weak intermolecular structures, lower viscosities, and obtain results on smaller volumes of low viscosity or weakly structured fluids than previously possible - a critical consideration when working with scarce or novel materials. The unique dynamic mechanical analysis feature enables the

more sensitive measurements.

The new TAM IV Micro XL is a powerful isothermal microcalorimeter (IMC) specifically designed to give researchers a better understanding of battery discharging and charging dynamics, including the precise mechanisms of “parasitic reactions” that shorten battery life.

It is the only sub-microwatt calorimeter capable of addressing a wide range of battery types for use in medical devices, consumer electronics, automobiles and aircraft/spacecraft. Researchers will now be able to access critical information for an array of applications, and develop safer, more powerful and longer-lasting batteries.

For more information, contact Dayamani Santosh, Sr Admin Officer, Customer Experience Marketing, Email: [dayamani\\_santosh@waters.com](mailto:dayamani_santosh@waters.com) or visit [www.waters.com](http://www.waters.com)

**THE NEW DISCOVERY™ X3 DIFFERENTIAL SCANNING CALORIMETER, DISCOVERY HYBRID RHEOMETERS AND TAM IV MICRO XL ISOTHERMAL MICROCALORIMETER SUPPORT THE DEVELOPMENT OF NEXT-GENERATION, HIGH PERFORMANCE MATERIALS AND PRODUCTS.**

## Injection moulding with 3D printing

**igus expands its 3D printing service for injection moulding with printed tools for fast production of maintenance-free special parts**

**W**ear-resistant parts are used wherever there is friction between two surfaces. For this reason, designers in many industrial sectors rely on 55 long-lasting, lubrication-free, high-performance polymers from igus. To help users quickly get their special solution made of a suitable material, igus has now integrated the Print2Mould process in its online 3D printing service. With a printed tool, the component is manufactured by injection moulding. To do this, the user simply uploads the STEP file of the wear-resistant part into the 3D printing service, selects the material and requests a quotation. Specifications on the material properties as well as the precision, flexural strength and the price help with the choice.

**55 iglidur high-performance polymers:** If customers are looking for a wear-resistant plain bearing, they can choose from a large selection of igus materials. However, if customised wear-resistant parts are required - from gears up to special bushings - in any special shape, the user can either machine the component from a suitable iglidur bar stock or use igus' 3D printing for more complex geometries. For the individual component to be made from the ideal iglidur material for the respective application, igus offers the Print2Mould process. In this process an injection moulding tool is printed for the special solution and is then used in the injection moulding machine.



igus expands its 3D printing service with the Print2Mould process using printed injection moulding tools. The user can now order their wear-resistant special part online in the appropriate lubrication-free and maintenance-free iglidur material. (Source: igus GmbH)

small batches. This gives the customer the opportunity to obtain identical components in batches at an early stage of development.

### **Wear-resistant components requested online**

The way to a lubrication-free and maintenance-free special solution is very simple: call up the 3D printing service at [www.igus.in/iglidur-designer](http://www.igus.in/iglidur-designer), upload the STEP file of the component and select the appropriate material. In

**THE PRODUCTION OF SPECIAL PARTS BY THIS PROCESS IS CHARACTERISED ABOVE ALL AS A TIME-SAVING SOLUTION FOR PROTOTYPE DEVELOPMENT AND FOR SMALL BATCHES. THIS GIVES THE CUSTOMER THE OPPORTUNITY TO OBTAIN IDENTICAL COMPONENTS IN BATCHES AT AN EARLY STAGE OF DEVELOPMENT.**

The main advantage: the user can freely use the iglidur material range with its 55 lubrication-free, high-performance polymers. These include, the FDA-compliant materials iglidur A350 and A181 for use in the food industry, iglidur L500 for the automotive sector, and iglidur X for high-temperature applications. igus has now integrated the Print2Mould process in online 3D printing service. The production of special parts by this process is characterised above all as a time-saving solution for prototype development and for

addition to the 55 iglidur materials used in the Print2Mould process, the customer also has the opportunity to get their special solution printed cost-effectively in the SLS process with the wear-resistant materials iglidur I3 or iglidur I6 or even in the FDM process with iglidur filaments. The price for production, including the costs for the injection moulding tool as well as information about the material, precision and flexural strength are shown online. After selecting the appropriate high-performance polymer, the user can enter the quantity and directly request a quotation from igus. The injection-moulded special solutions are delivered after 10 working days.

**IF CUSTOMISED WEAR-RESISTANT PARTS ARE REQUIRED - FROM GEARS UP TO SPECIAL BUSHINGS - IN ANY SPECIAL SHAPE, THE USER CAN EITHER MACHINE THE COMPONENT FROM A SUITABLE IGLIDUR BAR STOCK OR USE IGUS' 3D PRINTING FOR MORE COMPLEX GEOMETRIES.**

For more information, contact:  
Nitin Prakash, Product Manager, iglidur®,  
igus (India) Private Limited;  
Email: [nitin@igus.in](mailto:nitin@igus.in), or visit [www.igus.in](http://www.igus.in)

FIFTH EDITION

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**POLYMERS**

**Global  
Conference on  
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RE-IMAGINING MOBILITY



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