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THE ECONOMIC TIMES

POLYMERS

Vol. 21, Issue 2 ● June-July 2020 ● Rs 75

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WHAT CEOS HAVE LEARNT FROM COVID-19

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THE NEW CLEAN

Mould Making
SIGNIFICANCE OF STANDARDISATION

BLISTER BOOM

Chakravarthi AVPS explains how Ecobliss India is taking blister packaging to the next level

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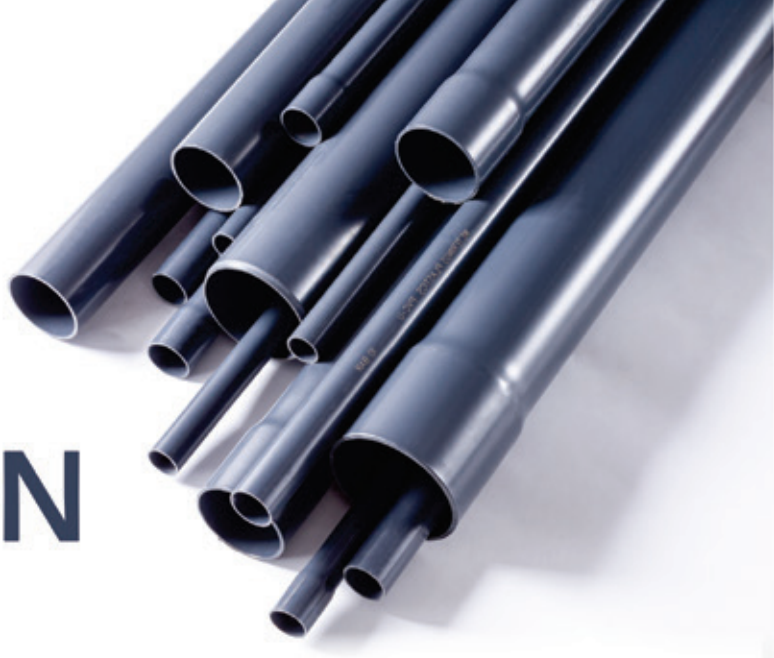

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Mr. Pankaj Kumar Jha - Mobile 9717744260 Email: jha.pankaj@ma.mc-india.co.in
Mr. Basheer Ahmed - Mobile 8291 854027 Email: ahmed.basheer@ma.mc-india.co.in
Mr. Sachin Phadke - Mobile 8291 854026 Email: phadke.sachin@ma.mc-india.co.in
Ms. Winita Dsouza - Mobile 8291 854028 Email: dsouza.winita@ma.mc-india.co.in

2M Business Solutions
Consultant - YUPO Business
Mr. Prashant Mandewal
Mobile: 9987183330
Email: mm.y@2m2.net.in
prashant_mandewal@yahoo.com

EDITOR'S NOTE

THE ECONOMIC TIMES
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C for Covid-19 & C for Circular Economy

The Covid-19 pandemic has once again proved it that the material plastic is indispensable to us, especially when it comes to protecting our health. Look at humanity's ongoing war against the virus; there has been a spike in demand for PPEs and other equipment that use plastic extensively. But let us be honest that this is also going to add to the already existing problem of plastic waste. It's true that the world seems to be overlooking the problem of plastic waste (and many others) in the wake of this unprecedented predicament. However, we cannot shy away from the fact that with more plastic being used, we are going to have more plastic waste or more plastic pollution at our hand. In 2018, plastic pollution was declared as a global crisis by the United Nations. Things have become worse in the following two years. And while the Covid-19 pandemic may have put the plastic waste issue on the back burner, this is the right time to go back to those debates about plastic waste management. Let us be honest and recognise that the world today requires more robust and complex recycling practices and policies to fight the war against plastic pollution. But all this will also require stronger collaborations in the new normal. And this will be possible only through the implementation of circular economy across every segment. They say, charity begins at home. I say, circular economy too begins at home. Therefore, I urge the industry to step forward to cooperate and collaborate. Plastic is surely a formidable weapon against Covid-19. Let's also remember that in the fight against plastic pollution, circular economy is the only weapon.

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Editor & Chief Community Officer

THE ECONOMIC TIMES

BEST PLASTICS & POLYMERS BRANDS 2020

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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.

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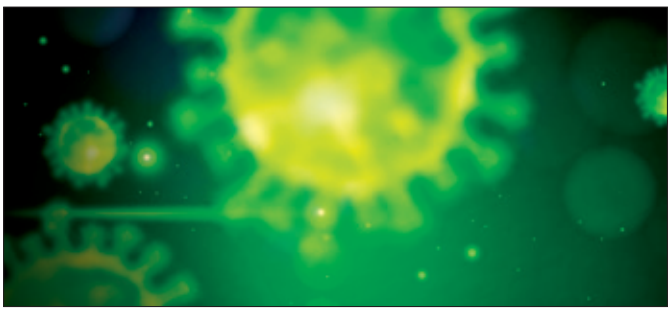

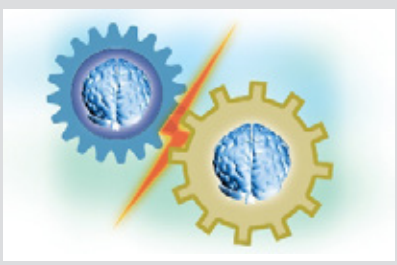

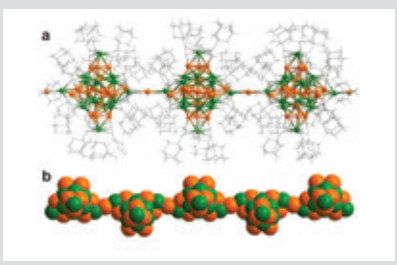

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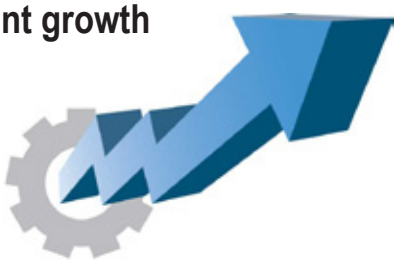
Clariant Chemicals reports 5.4 percent growth



Clariant Chemicals (India) Limited has announced its financial results for the year ended March 31, 2020. The company reported sales from continuing operations of Rs. 757 crore for the year ended March 31, 2020, as compared to sales of Rs. 719 crore in the corresponding previous year period, signifying a growth of 5.4 percent. The net profit stood at Rs. 71 crore as against Rs. 30 crore in the corresponding previous year. The Board has recommended a Final Dividend of Rs. 11 /- per share (110 percent). For the quarter ended March 2020, the profit before tax grew 158percent to Rs. 28 crore as against Rs. 11 crore in the corresponding previous year period. Sales from continuing business contracted by 8.4percent to Rs. 169 crore for the quarter ended March 2020, as against Rs. 185 crore for the corresponding quarter in the previous year. Manufacturing and trading activity were shut down in the last week of March 2020 in keeping with the lockdown announced by the government across the country. "The prevailing situation with the COVID-19 pandemic has impacted our sales growth this quarter, and we will continue to look at ways to adjust to the new normal," said Adnan Ahmad, Vice Chairman & MD, Clariant Chemicals (India) Limited.

Manjushree Technopack inaugurates recycling plant

Manjushree Technopack Limited (MTL) has launched its new initiative "Born Again" to deliver recycled packaging material to the FMCG Industry and support brands in their journey of creating a greener world. Born Again, (a venture under MTL New Initiatives Ltd), is MTL's first step towards building an ecosystem of circular consumption. It is vertically integrated with the plastic waste collection ecosystem, with an objective to reduce the amount of plastic waste going to landfills and to deliver virgin-like quality PCR (Post Consumer Recycled) resin (PP and HDPE) to FMCG customers. MTL already has in-principle arrangement with several Global and domestic FMCG brands for their PCR requirements. In the first phase, MTL will use PCR resins to produce non-food packaging (personal care, home care, lubricants, paints etc.) and secondary packaging for food products. The plant has the capacity to process more than 6,000 Metric Tonnes (MT) of rigid plastic virgin-like quality PCR resin per annum. The company intends to set up multiple recycling plants across India over the next 2 years with a total capacity of close to 20,000 MT. Sanjay Kapote, CEO, MTL commented "MTL's recycling plant in Bangalore and our collaboration with SZW is our first step towards bringing more structure to the highly unorganised collection of plastic waste."

Nippon Paint forays into health and wellness segment

Nippon Paint (India) Private Limited (Decorative Division) has forayed into the health and wellness segment with the launch of 'MEDIFRESH'. The company launched the segment with a range of PPE (Personal Protective Equipments) products including Hand Sanitizer, Facial Masks, and Hand Gloves. Post Covid-19, there is a boost in personal and domestic hygiene measures being taken by consumers, with many individuals ensuring complete sanitisation of their personal spaces. In order to cater to this segment, Nippon Paint has forayed into the health and wellness segment and hopes to continue exploring newer ventures in the health and hygiene sector in the country. The company will initially leverage its distribution channels including Paint shops, Hardware shops etc., and slowly expand into other outlets. Plans are well underway to expand this range of products and introduce Surface Disinfectants, Aerosols, Full Cover Gear and Face Shields as well.

BP to set up global business services centre in Pune

Petroleum major BP has announced plans to set up a major new centre for its global business services operations in Pune, India. New centre will employ around 2000 people and will support digital innovation across BP globally. The centre is expected to begin operations by January 2021 and will provide business processing and advanced analytics capabilities in support of BP businesses worldwide. The new centre in India will assume operational ownership of third-party business processes and seek to further extend its work with analytics and data science capabilities to pursue better business outcomes. The new centre in India will allow BP to tap into this pool and will lead BP's development and application of cutting-edge digital solutions.

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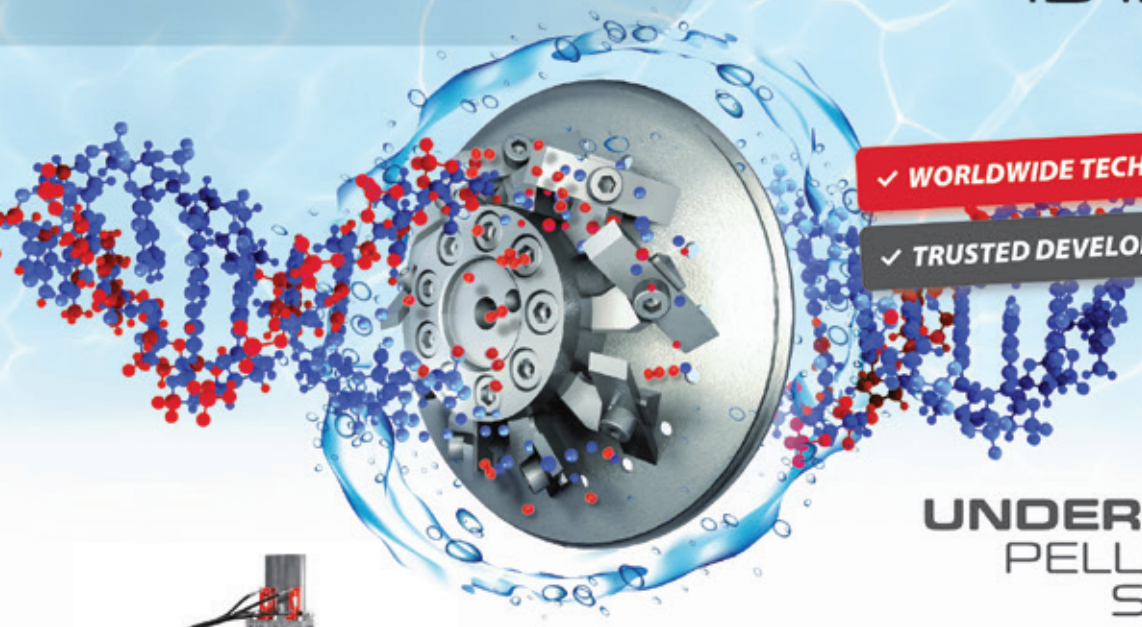

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DEP develops UAVs for protection of aerial assets

Unmanned Aerial Vehicles (UAVs) are turning out to be game changers in multiple sectors. One interesting application involving drones or UAVs is to prevent birds from causing damage to assets present in the aerial territory. To avoid the risk of collision with birds, deterrence methods have concentrated on various methods to scare birds from active airspace. DEP has developed a solution called Garuda. The approach consisted of designing the airframe, deterrence method, radio control & autopilot, camera, power, ground control, drive train, and pre-flight systems. For the airframe, Garuda incorporates the conventional twin propeller airplane layout rather than flying wing type, which was initially proposed. DEP also provides a comprehensive list of pre-flight system checks and failure management tips. Karthik Shankaran, Chief Innovation Officer, Detroit Engineered Products said, "Since we have technologies to protect and benefit the lives, manufacturers and product designers should aim to build on existing technologies. We have been working to design drones that are operative even for the most complex situations with better productivity, cost efficiency and flexibility."

155 Indian firms account for $22 billion investments in US

One hundred and fifty-five companies with origins in India are responsible for generating over $22 billion in investments and nearly 125,000 jobs across the United States, according to a new survey report released by the Confederation of Indian Industry (CII). The report, "Indian Roots, American Soil 2020," is a state-by-state breakdown of tangible investments made and jobs created by 155 surveyed Indian companies doing business in all 50 states, as well as Washington, D.C., and Puerto Rico. Texas, California, New Jersey, New York, and Florida are home to the greatest number of workers in the U.S. directly employed by the reporting Indian companies. The surveyed companies disclosed the highest amounts of foreign direct investment (FDI) in Texas, New Jersey, New York, Florida, and Massachusetts. The states with the top concentrations of Indian companies reporting were New Jersey, Texas, California, New York, Illinois and Georgia.

Indigenous ARPIT inducted into Indian Air Force

The Indian Air Force has designed, developed and inducted an Airborne Rescue Pod for Isolated Transportation (ARPIT). This pod will be utilised for evacuation of critical patients with infectious diseases including COVID-19 from high altitude area, isolated and remote places. Requirement of an air evacuation system with facility to prevent spread of infectious aerosol from a COVID-19 patient during air travel was felt by IAF when COVID-19 was declared as a pandemic. The first prototype was developed at 3 BRD AF and has undergone various modifications. The system has been developed as a lightweight isolation system made from aviation certified material. It has a transparent and durable cast Perspex for enhanced patient visibility which is larger, higher and wider than the existing models. The isolation system caters for suitable number of air exchanges, integration of medical monitoring instruments, and ventilation to an intubated patient. In addition, it generates high constant negative pressure in the isolation chamber for prevention of infection risk to aircrew, ground crew and health care workers involved in air transportation.

New classification of MSMEs W.E.F July 1, 2020

Union Ministry of Micro, Small and Medium Enterprises (M/o MSMEs) has issued Gazette notification to pave way for implementation of the upward revision in the definition and criteria of MSMEs in the country. The new definition and criterion will come into effect from 1st July, 2020. Since the MSME Development Act came into existence in 2006, a revision in MSME definition was announced in the Atmnirbhar Bharat package. The definition of Micro manufacturing and services units was increased to Rs. 1 Crore of investment and Rs. 5 Crore of turnover. The limit of small unit was increased to Rs. 10 Crore of investment and Rs 50 Crore of turnover. Similarly, the limit of medium unit was increased to Rs. 20 Crore of investment and Rs. 100 Crore of turnover. The Government of India on 01.06.2020 decided for further upward revision of the MSME Definition. For medium Enterprises, now it will be Rs. 50 Crore of investment and Rs. 250 Crore of turnover.

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BASF and Red Avenue join hands

BASF and Red Avenue New Materials Group have signed a joint agreement that grants Red Avenue New Materials Group the license to produce and sell certified compostable aliphatic-aromatic co-polyester (PBAT) according to high BASF quality standards. Red Avenue New Materials Group will build a 60,000 metric tons PBAT plant in Shanghai, using BASF`s process technology in exchange for the access to raw material from this plant which BASF will sell as ecoflex. Production at the new plant will start in 2022 and supply the market of biopolymers. The global market for certified compostable and bio-based plastics is expected to grow by around 15 percent per year. With upcoming new laws and regulations in a lot of countries enforcing the use of compostable materials in packaging, agricultural mulch films and bag applications, the positive market development is expected to continue. "Our successful bio-polyester ecoflex and the innovative ecovio are already giving us significant participation in this growing market. The additional available PBAT capacities will substantially strengthen our position," said Olivier Ubrich, head of BASF's global business unit Specialty Polymers. "Due to Red Avenue's commitment and network to develop the Chinese market, their strategically interesting location and their long-lasting good relationship with BASF, we have identified Red Avenue as our preferred partner."

Whirlpool Corporation, Dow, and Reynolds collaborate

Whirlpool Corporation, Dow and Reynolds Consumer Products are collaborating to provide much-needed respirators to the heroic men and women in healthcare who are working on the frontlines to combat the spread of COVID-19. The joint project is a protective piece of headgear and respirator system that will be manufactured and sold through WIN Health Labs, LLC, in addition to an initial donation to hospitals. The personal protective equipment (PPE) created by the joint team is a powered, air-purifying respirator, or PAPR, which takes the place of a traditional medical mask and visor and features a replaceable polyethylene hood. Each of the companies was looking for ways to help, and through those efforts this unique collaboration was born. "Volunteers within each of the companies began reaching out to local healthcare providers to inquire how they could be helpful," said Christian Gianni, President of WIN Health Labs and VP of Technology for Whirlpool Corporation. "In order to accelerate the design process, we created a virtual, agile team that was able to go from paper to approved product in just seven weeks. Through this unique relationship and a huge amount of effort by a very talented group of people, we are now manufacturing respirators and are in a position to help our frontline healthcare providers."

Partnership between Merck & Guardian Glass

Merck has announced a strategic partnership with Guardian Glass to commission sales of eyrise dynamic liquid crystal windows. With this partnership, Merck aims to expand the customer base of its Liquid Crystal Windows business by leveraging additional distribution channels. "This partnership will allow us to offer a complete range of solutions for structural facades," says Guus Boekhoudt, VP & GM, Guardian Glass for Europe, Russia & APAC.

The Alliance to End Plastic Waste and USAID partner

The Alliance to End Plastic Waste (the Alliance) has announced a new partnership with the United States Agency for International Development (USAID) to address global ocean plastic pollution by implementing local solutions across rapidly urbanizing cities in Asia. The agreement will bring together the Alliance's more than 40 leading global member companies and the strengths of USAID's new flagship program for ocean plastics pollution, "Clean Cities, Blue Ocean." "The work we will undertake with USAID advances the Alliance's commitment to work through partnerships to develop, incubate and deploy projects in local cities and communities that support the goal to end plastic waste in the environment," said Jacob Duer, President and CEO, Alliance to End Plastic Waste. "Partnerships, such as this one, allow us to prove and accelerate solutions that will unlock capital investments, which are necessary to tackle the plastic waste challenge." To stem the tide of the more than eight million metric tons of plastic that enter the ocean each year, local solutions are imperative. The Alliance will work through USAID's 'Clean Cities, Blue Ocean' program to identify and collaboratively implement local solutions to reduce and prevent land-based plastic waste from entering waterways and the ocean, with a focus on urbanizing cities in Asia.

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Milliken helps to produce plastics with clarity for PPEs

Milliken & Company is helping to produce needed medical personal protective equipment (PPE) amid the COVID-19 pandemic. The current shortage in plastic materials used for protective face shields is leading manufacturers to offer the readily available polypropylene plastic. The material, however, is naturally hazy, so plastic manufacturers are turning to Milliken and the company's NX UltraClear polypropylene concentrate to produce plastics with clarity levels suitable for healthcare industry face shields. "In this global pandemic, the need for medical PPE

continues to rise," says Halsey M. Cook, president and CEO of Milliken & Company. "We are committed to finding solutions that assist our customers and allow us to join in the fight against COVID-19 wherever we can make a difference." Milliken has collaborated with a number of plastic manufacturers, from global players to regionally based companies, to evaluate NX UltraClear in this new product application. Impact Plastics is among the U.S. companies using NX UltraClear concentrates to make polypropylene clear for use in face shields. Plascony in Brazil and Mezger in Germany are also employing NX UltraClear concentrates to produce polypropylene sheet suitable for use in face shields.

Medicom announces second mask facility in France

The Medicom Group has announced plans to open a second mask production facility in France. The plant will be established as Medicom Kolmi-Hopen Engineering and will help the company serve incremental demand across Europe as Medicom continues to invest around the globe to ensure proximity of mask production to end markets. Kolmi-Hopen is the European arm of the Medicom Group and France's leading producer of surgical and respiratory masks. Medicom acquired the current production facility in Saint-Barthelemy-d'Anjou near Angers in 2011 as part of a strategic initiative to diversify mask production around the world. At the beginning of the year, French President Emmanuel Macron visited the Kolmi-Hopen plant and took the opportunity to confirm his willingness to protect French industry and the independence of the personal protective equipment supply chain. With 11 new lines and an optimized production schedule, mask production at the two sites in Angers will have tripled in five months. Following the lifting of trade barriers at the end of May, Kolmi-Hopen can resume supplying customers in 26 European countries, as well as in Canada and Hong Kong.

Clariant brings satin effect for personal care packaging

Clariant color specialists have combined three colors from the ColorForward 2021 trend palette with a satin brushed-glass special effect in order to appeal to consumers in the booming Asian personal care market. The resulting look helps PET packaging give the impression of luxury and prestige otherwise associated with the brushed glass used for high-end branded products. The technology behind the satin effect, itself, is not new. In fact, Clariant was one of the first companies to bring it to the market almost 15 years ago. "What is new," explains Vick Cai, Designer at Clariant ColorWorks™ Asia-Pacific, "is the fact that we are using it in combination with ColorForward trend colors intentionally to target a very specific audience. In this project, we focused on colors for the Asian personal care market, but we could do the same thing for any category in any region. It's the kind of thing we do every day at Clariant ColorWorks." While the satin effect can be used with any color – or no color at all – the team at Clariant ColorWorks design and technology centers in Italy and Singapore decided to focus on colors that are most likely to appeal to their target audience. They settled on three colors introduced in ColorForward 2021, the 16th edition of Clariant's annual color forecasting guide for the plastics industry.

Mondi to produce melt blown nonwoven fabric

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. The production lines will produce melt blown nonwoven fabric and surgical masks.

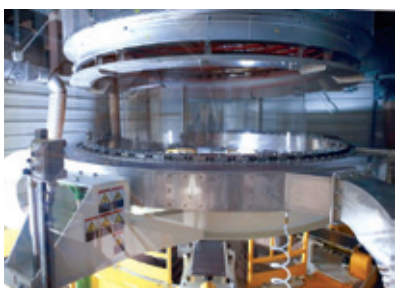
Innovators develop new way for polymer manufacturing

Purdue University innovators have come up with a new technique for polymer manufacturing with reduced solvents aimed at vehicle, packaging production nanomaterials-vehicles. These innovators are hoping that the new technology provides a more business-friendly option to utilise sustainable cellulose nanomaterials for use in vehicles, food packaging and other manufactured items. The Purdue team has developed a new way for manufacturers to use nanocellulose – a green nanomaterial derived from natural sources such as plant matter.

| Purdue University innovators hope new technology provides a more business-friendly option to utilise sustainable cellulose nanomaterials for use in vehicles, food packaging and other manufactured items. *(Stock image courtesy of Purdue)*

Normally to process nanocellulose, solvents or other dispersants are usually added to the mixture to improve the material's dispersion in polymers. The Purdue innovators created a method that involves mixing the nanocellulose in additives for the polymer material, such as plasticizer, and then compounding that mixture into the polymer instead of directly mixing them. This technique could be applicable to a wide variety of polymers, including nylons used in the automotive industry and polylactic acid and ethylene vinyl alcohol copolymer used in food packaging.

DOMO to stop & close BOPA production at Leuna plant



DOMO Chemicals has announced plans to stop and close its third line of Biaxally Oriented PA films (BOPA) from DOMO in Leuna (Germany), effective from August 2020. Affected employees have been informed and other operations at the Leuna plant will not be impacted by the move. The difficult decision was reached as a result of global overcapacity for nylon films. Attilio Annoni, Managing Director at DFS states: "In these extraordinary circumstances of high business volatility, we have opted to continue to focus on quality and flexibility through cautious and smart asset management, rather than reacting with short-term volume strategies." With the acquisition of Solvay's European PA66 business at the beginning of this year, DOMO Chemicals has become a leading integrated Nylon 6 and 66 player worldwide. Despite the current market slowdown, which is affecting the automotive and other industrial segments served by DOMO's "Polymers & Intermediates" and "Engineering Materials" units, the company remains on course to achieve its global growth objectives. These include, among others, the continued development of sustainable solutions for customers, in accordance with the highest corporate, social and environmental responsibility standards.

Continental and Pioneer sign strategic partnership

Continental and the Pioneer Corporation have signed a strategic cooperation agreement. Their integrated infotainment solution means both partners create a holistic user experience that is specially aimed at the Asian market. Continental integrates Pioneer's entire infotainment subdomain into its high-performance computer for vehicle cockpits as part of the agreement. Such flexible solutions are crucial for future developments in order to meet both the trend toward centralized vehicle architecture as well as increasing software complexity along with the rapidly growing range of functions in the cockpit. This will require increasing strategic collaboration between several specialist partners in the future.

Orion Engineered Carbons to build new logistics center

Orion Engineered Carbons S.A. is building a new logistics center at its largest manufacturing plant in Cologne, Germany. Upon completion, the central warehouse will be 8,850 sq m, equaling a capacity of approximately 12,400 pallets. "We produce 160,000 metric tons and more than 100 differentiated grades of carbon black at this facility each year which must be treated and handled very carefully. The new, modern distribution center will enable us to further grow our business in a location where we have deep roots," said Dr. Sandra Niewiem, Senior Vice President Specialty Carbon Black and EMEA Region. The new building, a turnkey project of Goldbeck construction company, will have eight truck docks. It will equalize plant traffic – with about one hundred trucks passing through the plant gate every day. In addition, the new warehouse will eliminate internal logistics, with consolidation into one location. Orion will lease the warehouse from Grieshaber. "With a space-optimized shuttle warehouse system and the connection to the warehouse via an automated material conveyor system, we will be able to guarantee a smooth and even more efficient flow of goods," said Grieshaber MD Gregor Schnell.

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Hellweg expands production capacity

The cutting mill specialist Hellweg Maschinenbau GmbH & Co. KG is building a new production hall at its headquarters in Roetgen in the Eifel. With the investment, the company will create around 500 sq m of additional space for production by August 2020. Around 11 m high provide the necessary space to assemble even large systems. In addition to production, Hellweg also plans to significantly expand the administration area in the coming months. Managing Director Mark Hellweg: "We urgently need the additional space in order to process our orders, which have been in large numbers since K2019, promptly. Our intelligent machine control Smart Control has met with huge interest there. We also see a trend towards large and complex machines. We will be able to set up and test these in our own premises in the future to ensure a smooth start-up for the customer. " The economic situation of the machine builder is promising despite the Corona crisis. "In 2019, we were able to generate the highest turnover in the company's history," says Hellweg. "The expansion was therefore planned for a long time. Of course, the momentum slowed due to the lockdown, but if things continue at the current level, we can celebrate a new record result at the end of the year."

| The new hall increases production capacity and creates space for the construction of large machines that are completely assembled and tested in Roetgen. © *Hellweg Maschinenbau GmbH & Co. KG, Roetgen*

Hyundai invests in Hydrogenious LOHC Technologies

Hyundai Motor Company's investment in Hydrogenious LOHC Technologies GmbH in May 2020 is the beginning of a comprehensive cooperation between the two companies. The investment is connected with a joint technology and business development agreement for stationary and on-board LOHC-systems. With the participation in Hydrogenious LOHC Technologies, Hyundai Motor Company plans to deploy and market Liquid Organic Hydrogen Carrier (LOHC) technology. The joint marketing and business development activities will initially focus on South Korea. "We are committed to demonstrating the benefits of LOHC technology to both government and end users. Our goal is to establish LOHC as hydrogen vector within the broader South Korean ambitions of building a national hydrogen infrastructure," explained Yunseong Hwang, VP of Open Innovation Investment Group at Hyundai Motor Company. After an initial phase, both parties plan to extend the cooperation and to merge with Hyundai's hydrogen activities in Europe. Hyundai is a driving force for the build-up of hydrogen refueling infrastructure in both Asia and Europe.

Clariant to increase mild surfactants capacity in Europe and USA

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," comments Christian Vang, Global Head of Business Unit Industrial & Consumer Specialties. As a global expansion, the investment targets capacity increase and general modernization of current facilities at the Mount Holly (USA) and Tarragona (Spain) manufacturing sites. The general asset modernization will optimize energy consumption.

Songwon enters a new distribution agreement

Songwon 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. It focuses especially on plastics, rubber and specialty chemicals. "This is a significant step toward achieving our aim of delivering solutions that exceed the expectations of our French customers," said Albert Dantuma, Leader Sales Polymer Stabilizers Greater Europe.

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JAN GLASS IS OPTIMA'S NEW CFO

Jan Glass has succeeded Dr. Juergen Kuske as Chief Financial Officer of the Optima Group on May 1, 2020. As a result, in collaboration with Hans Buehler, the Managing Director, he is taking over the management of the central departments.

The industrial engineer has worked for Optima in a variety of management positions since 2016. Since he joined Optima in 2016, his work at the company has given him a deep insight into the entire Optima Group. "We are very pleased that with Jan Glass, we have been able to find a suitable successor for Dr. Juergen Kuske," says Hans Buehler. Most recently, he has been in charge of OPTIMA life science GmbH. After completing an apprenticeship as a telecommunications technician, the now 58-year-old father of two children studied mechanical engineering alongside production and industrial engineering at Heilbronn University. After graduating, he quickly took on management responsibilities, including as a project engineer in optimizing production and company processes. In addition, he has served as a Chief Financial Officer for over 15 years. He was able to apply his expertise in the manufacturing industry, for instance in a bottling plant for cosmetic products. "I am looking forward to participating in the ongoing positive growth of the Optima Group," says Jan Glass of his new challenge.

PK GOSWAMI TAKES OVER AS DIRECTOR (OPERATIONS), OIL

Pankaj Kumar Goswami has taken over as Director (Operations) of Oil India Limited (OIL) on 1st June 2020. Prior to taking over as Director (Operations), Goswami was in the Projects Department at OIL's Field Head Quarter, Duliajan as Chief General Manager (Projects), where he looked after implementation of a large number of complex and high-value projects related to production of Oil & Gas of the Company. Pankaj Goswami is leading a team for development of gas field in Upper Assam. By virtue of his rich experience of working in production of oil & gas from India's oldest and matured oilfield of Naharkatiya in Northeast India, he carries the distinction of being a hard-core oilman with deep learning on geology, drilling and the social fabric of a difficult exploration terrain of the states of Assam and Arunachal Pradesh. With over 31 years of experience in oil & gas production activities at Assam-Arakan basin in Northeast India, Goswami has conceptualized many out-of-box ideas. He has headed various high-level committees and task forces to oversee critical projects and activities related to oil and gas production, infrastructure facility implementation, operational issues and technology initiatives. A thorough technocrat, Goswami has presented number of scientific papers relevant to the oil and gas industry both at national and international level. Goswami joined OIL in the year 1988. Pankaj Kumar Goswami comes from the oil town of Digboi in Assam.

GWM APPOINTS PRESIDENT & MD FOR INDIA

GWM has announced the appointment of James Yang as President for the Indian subsidiary of GWM. The company has also appointed Parker Shi as Managing Director for the Indian subsidiary of GWM. James Yang brings in rich experience in the areas of R&D, project and marketing management and will be leading the entire GWM India project with major focus on R&D, Plant & Industrial operations in India.

James Yang said, "I am happy that I have been given the chance to lead the operations at such a crucial juncture and hope that we can work towards providing the best quality products and at the same time generate more employment, business and economic viability." He also said, "India holds great importance for GWM and is an important partner in the overall scheme of things in the ASEAN region. Our commitment towards the Indian market has been showcased with the investments in the Talegaon plant and R&D facility."

Parker Shi will be responsible for Commercial Operations for GWM in India. He said, "I am happy to be a part of a team that is looking at making a foray in a highly competitive and soon to be the fourth largest market in the world. We at GWM are highly optimistic about the India market and we foresee recovery of the market in near future."

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KURT BOCK TO SUCCEED JÜRGEN HAMBRECHT AT BASF SE

The Supervisory Board of BASF SE has elected Dr. Kurt Bock as the new chairman of the Supervisory Board of BASF SE. Bock had previously been elected to the Supervisory Board of BASF SE by the Annual Shareholders' Meeting as a shareholder representative. The term runs until the end of the Annual Shareholders' Meeting in 2024. Bock succeeds Dr. Jürgen Hambrecht, who, as announced by him before his election to the Supervisory Board by the Annual Shareholders' Meeting on May 3, 2019, resigned from the Supervisory Board at the end of the Annual Shareholders' Meeting 2020 and thus left the Supervisory Board.

NEWS SALES & MARKETING HEAD AT MERCEDES-BENZ VANS

Klaus Rehkugler (52) will take over as Head of Sales & Marketing at Mercedes-Benz Vans on 01 August 2020 and will report directly to the Head of Mercedes-Benz Vans, Marcus Breitschwerdt. At present Rehkugler is Head of Sales Operations and Marketing for the Region Europe at Mercedes-Benz Cars. He will take over from Klaus Maier (58), who will leave the company at the end of June at his own request.

"We are pleased to be gaining Klaus Rehkugler, an internationally very experienced sales colleague, for Mercedes-Benz Vans," said Marcus Breitschwerdt, Head of Mercedes-Benz Vans. "I am very much looking forward to working with him. Thanks to his comprehensive experience in sales, with responsible stations in product management and fleet customer business operations, as head of a retail branch and in the marketing and sales management in important international markets, I am sure that he will quickly create impetus within the Vans division." Rehkugler studied European Business Studies in Reutlingen and joined afterwards the former Mercedes-Benz AG via the International Trainee Program in 1994. After more than 30 years in many specialist and managerial positions within the Daimler Group, Klaus Maier (58), Head of Sales & Marketing Mercedes-Benz Vans, is leaving the company at his own request. Maier took over his present position in 2013.

VOLVO PENTA APPOINTS HELÉNE MELLQUIST AS PRESIDENT

Heléne Mellquist has been appointed as President Volvo Penta and new member of Volvo Group Management. She will replace Björn Ingemanson, who after a long and successful career will retire. Heléne Mellquist, born in 1964, currently holds the position as President for the European Division at Volvo Trucks. Her career at the Volvo Group began in 1988 and she has held many senior positions at the company. She has also held the position as CEO at TransAtlantic 2012-2015. Heléne Mellquist will join Volvo Penta on July 1st, 2020 and take up her new position on September 1, 2020.

3D PRINTING VETERAN PRADEEP NAIR JOINS INTECH

Intech Additive Solutions Pvt. Ltd. has announced the appointment of 3D Printing veteran Pradeep Nair as Vice President-Hardware Sales (APAC & ME Asia). Pradeep Nair will be primarily responsible for the business development and sales of the company's recently launched iFusion series of Metal 3D Printers along with its marketing and support functions. He will also play an advisory role in the development of Intech's 3D printing technology roadmap. Pradeep Nair is a veteran in the field of Additive Manufacturing (AM) having introduced the technology into the Indian and ASEAN markets back in 1996. Pradeep joined as Regional Director at Stratasys to set up its operations in India and the ASEAN markets. After 19 long and fruitful years with them, he then moved to SLM Solutions GmbH as Director-India to start their operations in India, selling and servicing Metal 3D Printers. "Pradeep Nair is a visionary and among the early prime movers to introduce additive manufacturing to India. His tireless work to build and promote a strong AM community network is evident and much appreciated" said Sridhar Balaram, MD & CEO of Intech Additive Solutions. "His appointment will give a big boost to our plans to revolutionise Additive Manufacturing in India especially with our 'Made in India' iFusion series of Metal 3D Printers."

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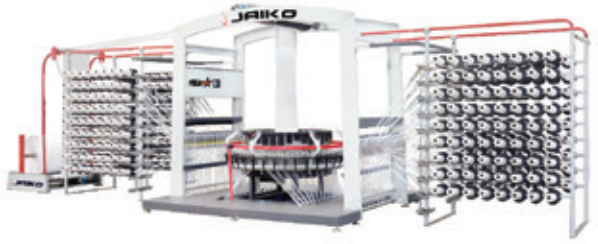

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Learning from Covid19

The Covid19 outbreak has disrupted life and business in a way never known before. It is also teaching us invaluable lessons. Industry leaders speak with The ET Polymers to tell us about the most important lessons they have learnt from this pandemic.

By Niranjan Mudholkar

Going forward, it's going to be "The Survival of the Adaptable" - if you don't change, you are left way behind! We have to use this time in redefining life beyond COVID19 just like that fishermen who repair his nets when he cannot go to the sea due to rough weather!"

Deepak Chhabra, Managing Director, Tupperware India

"Identifying new ways of working & connecting and challenging the status quo is one of the lessons learnt. I think next level of adaptability is the most important lesson that these unprecedented times have taught me."

Harshad Naik, Managing Director - India Subcontinent, Huntsman International India Pvt Ltd.

"The interdependence of people and services on each other at every level. More focused crisis preparedness will become the new norm with interdependency playing the most important role in the planning of businesses."

Anand Srinivasan, Managing Directcor, Covestro India

"Lots of lessons from this outbreak but most importantly I have learned that we need to be digitally very good and fast at any given point of time we should be prepared."

Rahul V Podaar, Managing Director, The Shakti Plastic Industries

"More stronger contingency planning is needed for the company, and learned that life is very fluid and uncertain."

Kailesh Shah, Managing Director, All Time Plastics Pvt Ltd

"Take life easy, live every moment and cherish the small things in life."

Biranchi Mohapatra, Managing Director, Plastic Omnium Auto Exteriors

"Unpredictability of life and death! Smallest thing matters."

Satish Godase, Director, Nu-Vu Conair Pvt. Ltd.

"Life is simple; we have made it very complicated. You never know what will happen next; be prepared for any situation."

Anand Panchal, Marketing Director, N.A. Roto Machines & Moulds India

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LEADERSHIP LESSONS

"A labour oriented business cannot survive and the dependency of working from office needs to reduce. Also, this is the right time to optimise things at work to the maximum efficiency."

Inder Jain, **Chairman & Managing Director, APPL** Industries Limited

"It has taught us the importance of having flexibility and accepting the corresponding changes into professional and personal life."

Rajnikant Patel, Director India, HASCO India Pvt. Ltd.

"Time flies fast even in a lockdown. Make the best of every moment."

Amit Kavrie, Managing Director, Supreme Group

"Sticking to our core value has never mattered more than during this crisis."

Amit Puri, Director Marketing, Alok Masterbatches

"People, Places, Business, Lives are a very intricate but taken for granted ecosystem. It can easily disrupt suddenly without warning."

Atanu Maity, Chief Executive Officer, Steer Engineering

"There is life beyond office. Hygiene is the top priority. Always save for the rainy day."

Rajen Shah, Managing Director, Arihant industrial Corporation Limited

"Realisation of the fragility of life. Life can change in an instant. We should thank God Almighty for what we have and make each day a memorable one."

Shujaul Rehman, Chief Executive Officer, Garware Technical Fibres Limited.

"These strange months may be the first of an era defined by hyper-awareness of the threat posed by pandemics. It is too soon to say what that will look like. Each day brings shocks and possibilities, illuminates a little more of our new reality."

Haren Sanghavi, Director, GMS Plastic Machinery Pvt. Ltd.

"Uncertainty is the certainty of life!"

Aditya Borkar, CEO, Borkar Polymers

"During this time many people learned that their jobs were possible to do from home. Without the virus in place, there should still be some system in place that will promote work-life balance."

M Prashant, Business consultant, Mitsubishi Chemical India Pvt Ltd for Yupo Products

"The warmth and positivity in reaching out to old friends and customers has actually made us realise that such a pandemic was needed to elevate our spirit and to bring in warmth and kindness to help mankind."

Sunildutt Chaudhari, Director, Haitian Huayuan Machinery India (Pvt) Ltd

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Dahej (Gujarat) & Varanasi (UP)

GWM to invest to US$ One Billion in Maharashtra

GWM has signed an MOU with the Maharashtra government in presence of the Chief Minister of Maharashtra Uddhav Thackeray and Sun Weidong, Chinese Ambassador to India. The MoU officially announced the investment in the state-of-the-art automotive manufacturing facility in Talegaon, Maharashtra. The plant will be equipped with latest world-class technology and along with the R&D centre in Bengaluru will generate employment for over 3000 people in phased manner. Commenting on this commemorative feat, Shi, said, "We would like to thank the Maharashtra government for extending full support and helping us foster a long and mutually beneficial cooperation that hopefully will turn out to be a great business proposition for both. This would be a highly automated plant in Talegaon with advanced robotics technology integrated in many of the production processes.

File image of GWM official

Overall we are committed to US$ one billion investment in India in a phased manner." Strategically located in Talegaon Industrial Park, Maharashtra, it covers an area of around 300 acres and is close to the expressway. Recently in January this year, GWM had signed an agreement to acquire this plant from GM.

Ashok Leyland launches modular truck range

Ashok Leyland has launched its range of Modular Trucks, AVTR, with i-Gen6 BS-VI technology. The modular platform is a first of its kind in the Indian CV industry with multiple options of axle configurations, loading spans, cabins, suspensions, and drivetrains on a single platform for the entire range of Rigid trucks, Tippers and Tractors in the 18.5T to 55T category. Dheeraj Hinduja, Chairman, Ashok Leyland, said, "This unique modular platform puts us on the global map of CV manufacturers and will help us in our journey of realising our vision." Vipin Sondhi, MD & CEO, Ashok Leyland, said, "This new platform has been extensively tested in different terrains and done over six million kilometres of field running. It truly stands for quality, reliability and backed with the extensive service network, it is going to give our customers a huge advantage and in turn catapult us ahead of competition." Anuj Kathuria, COO, Ashok Leyland, said, "We have been seeding some of the vehicles from the AVTR range, with our select customers and the feedback has been very encouraging."

Mercedes-Benz India launches the new GLS

Mercedes-Benz has launched the newest generation of the GLS – popularly referred to as the S-Class of SUVs. Martin Schwenk, Managing Director and CEO, Mercedes-Benz India digitally launched the GLS at the company's Centre of Excellence in Chakan, Pune. He said: "Combining luxury, comfort, and technology, the Mercedes-Benz GLS is the finest luxury SUV available in the market today. As a full-size seven-seater SUV, the new GLS offers significantly more space and an added legroom for passengers, especially for those in the second row. The GLS is also equipped with the latest generation of the MBUX infotainment system and fully connected via our Mercedes me Connect Services, making it a tech-savvy SUV. The interior of the GLS is a synthesis of modern, luxurious aesthetics, hallmark SUV practicality. In our view, the new GLS is an ideal blend of modern luxury with the characteristics of an off-roader."

Ampere Electric launches new electric scooter

Ampere Vehicles Pvt. Ltd., a wholly-owned subsidiary of Greaves Cotton Ltd., has launched a new electric scooter Magnus Pro, targeted at commuters in urban and semi-urban regions. Nagesh Basavanhalli, MD and CEO, Greaves Cotton Limited, said "With the increased shift towards personal mobility vehicles post COVID, launch of this new Magnus e-scooter is an important milestone in our journey to strengthen Ampere's position in the last mile mobility segment.

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** The Machinist Super Shopfloor Award 2020 for Covid-19 Innovation is an intellectual property that belongs to the Worldwide Media Pvt Ltd (WWM). It is part of 'The Machinist Super Shopfloor Awards' platform.*

Blister Boom

Chakravarthi AVPS, MD & CEO, Ecobliss India Pvt. Ltd. explains why new product owners are choosing blister packaging and how his organisation is taking the concept to the next level

By Niranjan Mudholkar

You started your entrepreneurial journey about 13 years ago in 2007. What was the motivation behind turning an entrepreneur and how has been the journey so far?

I always feel proud to be a packaging professional, since I passionately believe packaging is the most contributing sector to the society. I started my career in 1984 in one of the country's largest Papermills. For almost a decade I was in paper and paper board (BILT) industry. The real packaging saga started in 1994, when I was invited by Ballarpur Paper boards to Akerlaund & Rausing packaging, a Swedish global packaging firm, the innovator of expresso and liner cartons. Since then, I have been associated with packaging industry. Well, the technologies were old those days, but enthusiasm and spirit were always futuristic. We were making quality lined cartons for brands like AMUL, Brooke Bond Lipton Tea, Tata Tea, Heinz, Rasna, MDH masala etc. and exclusive expresso cartons to Reckitts & Benckiser. Memories are still fresh, of working with likes of Nick Hammer from Unilever on migration free packs for Wall's international ice cream. Well, we have come a long way since then. Meeting the man of 'White Revolution' Dr. Kurien was a great experience.

A packaging convertor's satisfaction cannot be measured in terms of turnovers and profits he achieves. I believe it comes out every time he lives up to his customers' expectations, when he becomes part of a product innovation or a successful launch of a product with a great packaging in terms of aesthetics, design, and performance. Luckily, such instances are abundant throughout my career. Credit goes to my wonderful team members for all those achievements. Recognitions from likes of Mahashay Ji of MDH a quarter century ago to CEOs of many pharma and FMCG companies of today's industry are unforgettable forever. Technically, I became an entrepreneur in 2007 after establishing Ecobliss India, an Indo Dutch joint venture. The decade and half long assignments before were also of independent nature. It's the collective effort of my colleagues (many of them have been with me for two dec-

"PRODUCT PACKAGING IS CONSIDERED AS THE SILENT SALESMAN. AN INNOVATIVE PACKAGE HAS AN ABILITY TO ATTRACT THE ATTENTION OF A CUSTOMER AND BOOST PRODUCT SALES. THROUGHOUT MY JOURNEY, MY QUEST HAS BEEN TO THINK OUT OF BOX, ALONG WITH SATISFYING THE BASIC NEEDS PACKAGING I.E., PROTECT, PRESERVE, AND PROMOTE."

ades or more) and the inspiration from Mr. Ron Linssen of Ecobliss International helped in setting up the organisation.

How important have been innovation and technical know-how in this journey?

Product packaging is considered as the silent salesman. An innovative package has an ability to attract the attention of a customer and boost product sales. Throughout my journey, my quest has been to think out of box, along with satisfying the basic needs packaging i.e., protect, preserve, and promote.

I could recall one such instance where we made some nice 'transparent blister' packs for tomato seeds, cotton & watermelon seeds. The combination of paperboard, plastic and aesthetically designed graphics aided the sales message silently yet very effectively. With this, customers could see the product before buying. I was fortunate to receive personal appreciation from Mr. Vindi Banga, the then president of Hindustan Lever Limited and his agribusiness head Mr. Venugopala Rao. I could recall Mr. Banga saying and I quote "Well done! जो दिखता है - वो बिकता है!" (That sells, which is seen).

Packaging is the first selling point of any product. Since Ecobliss specialises in pharmaceutical and healthcare packaging, what role do you think packaging plays for the products of these sectors?

"ANOTHER MAJOR DEVELOPMENT IN INDIAN MARKET IS TRAY PACKS FOR FRESH/PROCESSED FOODS. AND THESE COME WITH OPAQUE/SEMI-TRANSPARENT LID LABELS AS PER THE PRODUCT NEED."

Pharmaceutical industry approach today is more user-centric and has personalised focus evolving from traditional methods. Sensitive and potent drugs are on the rise! The designing of packaging and its labelling are being decided right at the product development keeping in view many factors like convenience, safety, patient adherence etc.

And those days the pharmaceutical packaging was limited to simple blisters and mono-cartons. With increasing demand of patient convenience, patient drug adherence, and new regulations, we specialise in the pharmaceutical wallet packs, physician samples etc., using a simple cold seal technology which was developed in Netherlands by my friend Ron Linnsen. Ecobliss wallet pack has a unique advantage i.e., as long as the last tablet, capsule or drug is consumed, the entire packaging is with the patient itself. This is not the case in regular monocarton. It acts in its own way as a tamper evidence and aids the patient in drug adherence. For brand owners, it is a silent salesman.

One of the latest packaging which we have introduced lately is called Locked4kids where the packaging is designed to prevent children to access dangerous drugs yet adults can easily access. This concept won several international awards including CPHI pharma awards, Worldstar President award, Ameristar best of show award etc.,

What is your analysis of the blister and high-visibility packaging sector in India?

During 80s and 90s, we could hardly find any blister packaging in shop shelves or in stores of supermarkets. Today, we can find several supermarkets for every street and a shopping mall with in 3kms in cities. This means that consumers walk into these shops having plenty of options and brands to buy. Well, it is the ability of packaging and branding to attract the consumer within fraction of seconds. And what better way to promote your brand rather than showing the actual product itself. And this done with the help of blister packaging. New product owners are choosing blister packaging for its ability to show their product and as well as to print their well-designed

graphics and sales message. Another major development in Indian market is tray packs for fresh/processed foods. And these come with opaque/ semi-transparent lid labels as per the product need.

Besides pharma and healthcare, which are the other sectors that Ecobliss is catering to?

In case of high visible blister packaging, the usage of plastic is always more than 90 percent. With increasing demand to attract customers at the shelf, the importance of suitable graphics and product presentation is on rise, the use of paperboard has also increased – be it a face seal blister card or a fold-over blister card pack and resulting this combination as a chosen option for many product developers. Cold seal blister products are used in segments like pharmaceutical, electrical electronics, automobile, FMCG, food and agriculture, textiles and apparels, cosmetics and healthcare and so on.

Ecobliss, the blister pack manufacturing company, has expanded the product range of blister types like heat seal blister products, Ecostrong tamper proof blister products and other high visibility packaging.

Tell us something about manufacturing capacities and capabilities of Ecobliss.

"THE DESIGNING OF PACKAGING AND ITS LABELLING ARE BEING DECIDED RIGHT AT THE PRODUCT DEVELOPMENT KEEPING IN VIEW MANY FACTORS LIKE CONVENIENCE, SAFETY, PATIENT ADHERENCE ETC."

At this moment, we are having the ability to produce 20 million packs per month. This is aided by a host of high-speed printing machines, screen printing machines, post press equipment and high-speed automatic thermoforming machines from Germany. And in coming days, we are hoping to expand further in our manufacturing capabilities keeping our traditional principles of business intact i.e., product packaging innovation.

Industry 4.0 is acquiring a lot of significance across industry sectors. How is the packaging industry responding to it? And what is Ecobliss doing in this context?

Well, Industry 4.0 is not just a buzzword but it's a reality today. If someone says I am not aware, he does not belong to this generation. Certainly, there has been a radical change in factories and businesses operations since the term 'Industry 4.0' became omnipresent. We witness trends moving towards total customisation, optimising the processes etc. Well, adopting Industry 4.0 straight into a packaging line may bring in lot of advantages like better data management and improved efficiency. However, replacing a complete production line may not be a viable option for packaging companies which are already operating on slim margins. Having a total introspective into the current process, making small changes to current facilities can also result in efficiencies getting boosted significantly. Ecobliss has been focusing on innovative value-added operations which help to improve efficiency in manufacturing processes.

Recently Ecobliss delivered a new Starview BSC12-1818 blister packaging machine to OSRAM in Europe. Fully automatic, including feeding of all cards and blister cups, with an output of 90 completed packs per minute. Due to COVID-19, it was installed and put into operation by the technical crew of Osram themselves, without any problems! This proves the robustness and the ease of use of machinery provided by us.

For many years now, the plastics industry has been in the focus for all the wrong reasons due to the negative impact of plastics waste

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For partnership opportunities:

West & North	*South*	
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on the environment. What role are you playing in this scenario given your personal and corporate focus on sustainability?

Although several efforts of blaming plastic industry for its negativity in generating plastic waste, I personally believe that plastic is a boon and we cannot imagine the life without it. For example, the thought of banning plastic must be removed from individuals mind as we cannot imagine how difficult it would have been during this pandemic time without PPE equipment or PPE kits which is made by plastic. Our efforts should be focussed towards recycling more and dispose waste materials responsibly. One such way is separating plastic waste from bio waste right from each household to large dump stations. Given the current scenario, although a part of our effort is made identifying bio based plastic material; one's focus should be more on effective ways to recycling the plastic.

In fact, if we notice during the decade or a little more, packaging industry is reinventing itself. There have been remarkable improvements in material, processes and in energy efficiency influencing the total environmental footprint. A lot of emphasis has been put on the packaging waste issue. In the developed countries a determined direction has been set to circular economy in which waste becomes new raw material.

And at Ecobliss, most of the packaging is made from sustainable sources of paperboard and rest of the plastic material is recyclable, in principle we encourage and promote recyclability.

"INDIA'S POSITION AS THE PHARMACY OF THE WORLD BY SUPPLYING 18 PERCENT OF GLOBAL GENERIC MEDICINES (EXPORTING TO AROUND 210 COUNTRIES), APART FROM THE DOMESTIC MARKET DEMANDS NOT REALLY COMING DOWN AT LEAST IN FEW SEGMENTS, REMAINS UNABATED EVEN UNDER THIS PANDEMIC SITUATION."

Getting appointed as Global Ambassador of World Packaging Organization (WPO) must be a proud feeling. What have been the highlights of this role for you since your appointment in 2017?

Indeed, this is a great honour to me and I personally believe this is the result of the knowledge impeded from various seniors from the industries that I worked with and the well wishes of thousands of packaging lovers across the globe. And my heartfelt thanks to all the executive board members of World Packaging Organisation for bestowing trust upon me.

Our motto of WPO is: "Better Quality of Life, Through Better Packaging, For More People".

For several years, packaging profession has not been provided sufficient recognition in the industry. This has been changing in recent years and thanks to our efforts at WPO to promote the packaging science and technology globally. Further, encouraging young generation students to pursue the field of packaging science and stimulate the development of packaging technology's skills is very important. And to enkindle this, we also conduct a special category awards for students at WPO Worldstar packaging awards.

Well, I have had several opportunities to interact with packaging industry and academia across the globe which provided a great source of knowledge.

From the experience of some of my recent visits especially the Middle East & South East countries, I feel industry is undergoing major change and seeing the upgrade in terms of quality and offering convenience to customers. And I feel there is still great void in packaging education and awareness in the society in many countries and this is where WPO does its bit by meaningful contributions.

Apart from promoting WPO activities and involving actively in packaging & related industry activities around the world, improving the membership is one of the key responsibilities. There are still considerable number of countries who will join the WPO board in the coming days. WPO has already approved individual firms as its corporate partner members with my initiation. This will help the organisation to work better in achieving its objectives with the addition of more like

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Niranjan Mudholkar | +91 9819531819 | niranjan.mudholkar@wwm.co.in

For delegate opportunities
Fiona Fernandes | +91 9930723498 | fiona.fernandes@wwm.co.in

For partnership opportunities

West & North

Ranjan Haldar
+91 9167267474
ranjan.haldar@wwm.co.in

South

Mahadev B
+91 9448483475
mahadev.b@wwm.co.in

Prabhugoud Patil
+91 9980432663
prabhugoud.patil@wwm.co.in

minded people from various fields who join WPO for working actively with us.

I also believe there is no culture on earth that can do without packaging and I am pained that it is viewed by many as a problem and an unavoidable burden. Frankly speaking, the world cannot do without packaging but we must learn to make packaging more effective than ever before and we must educate people everywhere to respect the purpose of packaging.

I strongly feel packaging should also be considered as an industry segment like any other major segments like steel, cement, textile, IT and so on and every measure be taken for the upliftment of the industry and there by contribute to the development of international trade. I always take pride in campaigning for the cause of packaging in umpteen platforms, worldwide.

The Covid10 pandemic has disrupted lives and businesses across the globe in an unprecedented manner. How has it affected Ecobliss and how are you dealing with it?

We never predicted the outbreak of this pandemic Covid19. Today, the industry is witnessing a wave of disruption. The world is literally upside down and it has changed forever. This pandemic can probably be called the mother of all disruptions, at least for our generation. Life will never be the same even after it gets settled down.

It is very unfortunate that we had to face such a bitter pandemic with many businesses affected. Having said that, one must be optimistic for future and look for new opportunities once this pandemic ends. Overall, it is true that there has been severe effect on supply chain and shortage in labour across the industry.

From the very beginning of pandemic during the months of January we have been closely monitoring the situation. Educating and awareness is the only way to effectively prevent Covid or matter of fact any pandemic. The work structure and ethics of employees and sourcing of raw materials have been addressed to adjust to the current situation.

At the same time, Covid19 has been making a huge impact on the healthcare sector, as an industry expert, how do you analyse this impact?

The current pandemic situation has changed the consumer behaviour in every aspect. There is a rapid decline in the physical interaction between patients and doctors. With advanced digital communication being available every corner, the consultations happen remotely. There is an unparalleled demand for personal protective equipment (PPE), diagnostic kits, medical ventilators and so on. This is in conjunction with the spur in demand of critical medicines and also the huge demands of hygiene products like sanitizers and hand rubs. The research efforts to find the effective medicine (vaccines) to combat the novel corona virus Covid 19 is picking up pace all over the world. Packaging plays a vital role in ensuring the safety and security of all the above items until they reach the hands of people who need them the most.

India's position as the pharmacy of the world by supplying 18 percent of global generic medicines (exporting to around 210 countries), apart from the domestic market demands not really coming down at least in few segments, remains unabated even under this pandemic situation. The packaging industry is expected to cope with these requirements too, along with experiencing new set of challenges. We have witnessed an accelerated demand for healthcare based packaging as a result of impulse buying in hygiene, healthcare and critical medicines. In packaging, top of the table were, the rigid plastics, blister foils, paper and paper board packaging that comprise the necessary labels, cartons and shippers.

The pharma and packaging industries have great concurrence and consociational relationship. The innovation in each industry inspire the other to standout. Today, the demand to optimise the drug delivery for healthcare professionals and patients is much larger than ever before. And so packaging needs to constantly innovate with accelerated R&D efforts to keep up the technological advances, at the same time remain competitive and do not exceed the regulatory framework.

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

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The New Clean!

The need for a solution that further 'redefines clean' shall be irrefutable, says Vikram Bhadauria, Managing Director, Alok Masterbatches

By Niranjan Mudholkar

Alok has recently partnered with Microban, the global leader in antimicrobial technology, to develop solutions for the Indian plastics industry. How do you view this partnership with the COVID-19 outbreak wreaking havoc around the world?

We are part of a time when a global pandemic has revolutionised our approach to health and sanitation. It has become an imperative to survive. Through this exclusive partnership for the Indian markets, Alok's antimicrobial masterbatches powered by Microban's technology will transform the approach to cleanliness and hygiene. This technology is proven to inhibit the proliferation of microbes on a treated surface by up to 99.99 percent. As plastics continue to be a core solution across most applications at home and at public places, the need for a solution that further 'redefines clean' shall be irrefutable.

Which are the key sectors where this partnership will provide its solutions?

Alok's antimicrobial masterbatches offer microbial protection for a wide range of applications in packaging, healthcare, and industrial sectors. This includes hospital beds, linen and furniture, toilet seats and public sanitation facilities, door handles and handlebars, plastic bathroom wares, school, children's toys, escalator handrails, electrical and electronics.

The COVID-19 virus outbreak has changed the way people perceive and use consumer products. Do you think less contact packaging is going to be a new trend? Based on Alok's engagement with the packaging industry, do you expect new formats emerging for the packaging sector?

While less-to-no contact packaging will gain momentum across the country, the most important development in the sector is at the level of end-product manufacturers or OEMs. The focus will exceedingly be on further testing at both product and systemic levels. New norms will now be indisputable as they gain impetus across the packaging value chain.

"THE FOCUS WILL EXCEEDINGLY BE ON FURTHER TESTING AT BOTH PRODUCT AND SYSTEMIC LEVELS."

How has the COVID-19 pandemic affected Alok's operations?

The cumulative period of this lockdown has let to various operational and business challenges for businesses, including Alok. Although Alok falls under the category of essentials, our operations onsite were delayed due to the lockdown restrictions across the entire manufacturing domain. Capital intensive sectors that we service have suffered, as consumer demand is limited to only a certain set of products/solutions. Most importantly, one of the key challenges has been the lack of sufficient blue-collar personnel. However, over a period of time, with adequate sanitation and precautionary measures, we have been able to resume operations across the country. On one hand, we as a company have strongly been supporting the norms of social distancing; on the other, we have grown to use digital platforms to their absolute potential.

What do you think is the biggest lesson learnt due to this unprecedented outbreak?

The learning for us as a business through this period has been three-pronged. Firstly, the importance of digital or virtual engagements have reinstated that not everyone needs to present on-ground to get work done. Secondly, while manual labour was always considered an asset and a dependency, their unavailability at our level, the supplier's level and even at the client's level has led to a shift in efficiencies. Lastly, more from a future perspective, is the realisation to invest in automated systems has been further reinforced.

Plastic has played a significant role in the fight against COVID-19. Do you think this crisis has turned out into an opportunity for the industry to transform its image positively?

Plastic has always a widely used solution, across sectors. While a few industries like automotive and infrastructure have suffered a setback, demand for single use plastic (consumer goods) have witnessed a significant rise due to easy disposal mechanisms.

Significance of standardisation

Acceptance of the available standard solutions was the key challenge during the last several years and the company has overcome this by educating the users, says Rajnikant Patel, Director, HASCO India Pvt. Ltd.

By Niranjan Mudholkar

Give us an overview of HASCO India Pvt. Ltd. with regards to its business activities.

HASCO India Pvt Ltd, 100 percent subsidiary of HASCO Hasenclever GmbH + Co. KG, Germany has been active in India since 1998 and we support tool makers, injection molders, OEMs from India, Sri Lanka and UAE after supplying standard mould-bases, mould parts and hot runner systems.

How's been the last one year?

HASCO India Pvt Ltd has performed well and received good growth of 36 percent during last year since we are known for innovation, quality and service into mould making industry.

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

Acceptance of the available standard solutions in order to increase the speed of tool manufacturing was the key challenge during the last several years and we have overcome this by educating the users after highlighting the benefits of using standard mold-bases, standard mould components and standard hot runner system.

Which are the key industry sectors that you cater to?

In general, we have wide customer database from all industry sectors that are in the field of plastic mould making. However, we have good standard solutions available for medical, packaging, electrical & electronics, automotive, consumer goods and agriculture sectors.

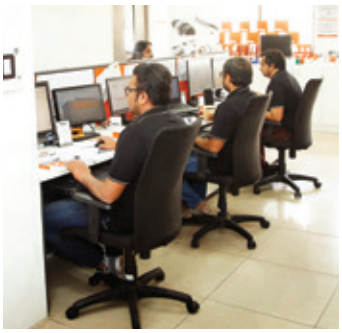
Have you launched any new products in the recent times?

To allow defined fast movement and latching of the moving plates into injection molds, HASCO has developed latch lock Z1780/... and Z1782/... which has multi-point locking around the circumference and thus it allows an optimum force flux within injection mold. Moreover, this latch lock offers different mounting possibilities within mold and it has integrated collision protection in order to have more safety and reliability within tool.

"WE ARE OPTIMISTIC TO REACH TO THE SAME LEVEL OF BUSINESS LIKE LAST FINANCIAL YEAR DURING 2020-21."

How can designers and mould-makers benefit from HASCO?

HASCO offers native CAD product data library of more than 1,00,000 products individually made for different design systems like Siemens Nx, Catia, Solid works etc which enables designers to save significant time for mold design and thus enables the mould makers also to reduce significant mould manufacturing time after implementing and ordering HASCO standard products within their mould. In addition to that, we also advise mould designers for highly technical products after close collaboration in order to become successful partner for their projects.



What kind of online support does HASCO offer to its customers?

HASCO has developed online platform for the customers wherein they can access our product CAD information's, their prices, stock availability of the product, history of their quotes, Orders etc. Moreover, this online portal also helps non-technical person on how to design, build mould with few online clicks at web browser (through online feature called mould base assistant) and get the complete design and price of the standard mould base, components within online shop.

How has the corona virus outbreak impacted your business?

Like everyone, our business also has been impacted due to the Covid-19 outbreak but the effect is bit lower since our customer presence is widely spread across many industrial sectors.

What is your outlook for the year 2020-21?

There is always a light at the end of the tunnel and hence, we are optimistic to reach to the same level of business like last financial year during 2020-21.

Key learnings from COVID-19

It is vital for logistics as a sector to adapt to the challenges and develop as an indomitable pillar of the economy.

By Aditya Vazirani

Even as the world gears up for resuming a 'new normal' way of life and work after the lockdown, several industries and businesses will be looking to implement the learnings from the COVID-19 pandemic. The logistics and the supply chain sector, although active through-out the national lockdown has suffered a series of challenges and has learnt its own set of lessons. From labour issues to mobility, technology and access to remote warehouses, lack of international trade and tackling food wastage, the Indian logistics and supply chain industry has faced many such challenges during the lockdown. Listed here a few learnings that one needs to implement, to ensure a more prepared and advanced network of logistics and supply chain service providers:

1. Local labour: During COVID, access to labour was extremely difficult, because many of them were migrant and returned home with no surety of their future in the place of work. Those who commuted via public transport were also deemed redundant without access. Sourcing people locally will alleviate the migrant crisis or long distance travellers, this also creates employment in the area but also there is better control on their whereabouts and communicating with them.

2. Relay Drivers: With transportation being affected with the closure of borders and restricted movement led to a large number of drivers abandoning their vehicles and finding the easiest way back home. Setting up relay systems for drivers to be contained to a state would increase efficiencies but also keep the drivers closer to home.

3. Dual/ Multiple Sourcing: Due to the lack of labour and transport, there was a scarcity in essentials as well a lot of wastage due to the lack of adequate storage facilities. Even though GST has been a major driver for consolidation of warehouses, the flip side has become dependency of distribution from a single location. Companies across several sectors have not been able to provide products in different parts of the country and continue revenue generation. Agile supply chains with options for dual or multiple sourcing can help not only in the face of crisis but also in the long run, with enhanced speed, reduced costing, and a well distributed, diversified network.

4. Remote working/Work From Home: Even as the world learnt to cope with, adjust and appreciate the new 'work from home' format, the 'new normal' for the corporate world is set to be remote workplaces. Similar to IT and other industries, Logistics and Supply chain networks are also considering work from home options for their administrative staff if they have managed to migrate to cloud computing software. Apart from creating a cost effective work model, that allows them to cut office rentals, the process will also help provide a leaner organisational structure that is more productive and well connected.

5. Data driven operations: One of the key learning of the lockdown for most businesses has undisputable role of technology in surviving and functioning during the lockdown. This realisation is set to drive accelerated adoption of digital practices and setting up of data driven, automated and cloud based operations, that can provide a secure IT infrastructure to the organisation, especially supporting the new 'Work from Home' mandate. The use of technology enabled systems has also brought forth the dangers of the 'World Wide Web', making cyber security another major area of concern and development.

Given the thrust on developing India as the next global manufacturing hub for the world, Logistics and Supply Chain Networks are going to play a key role in driving the growth and development of the country's economy. Resuming International trade, manufacturing, and other industrial activities, it is vital for logistics as a sector to adapt to the challenges and develop as an indomitable pillar of the economy, ready to face any crisis in the future.

The author is CEO- Robinsons Global Logistics Solutions

All winners of the Archer Trophy

Excellence in Plastics

The presentation ceremony of The Economic Times Polymers Awards 2020 was successfully held in Mumbai sometime back giving a positive reason for the industry to smile in these difficult times.

Since 2017, The Economic Times Polymers (ET Polymers) has been celebrating 'Excellence in Plastics' by recognising achievements of the industry across different categories. It has also been recognising illustrious individuals for their remarkable contribution to the industry. Every winner takes home the beautiful 'Archer Trophy' that acquired immense charm as well as value in the plastics industry. Continuing with this industry oriented tradition, The ET Polymers organised the fourth edition of its dazzling awards ceremony in Mumbai on February 26, 2020. Right from the beginning, this awards platform has earned the reputation of being both credible as well as coveted. The entire plastics fraternity in the country considers this awards platform as a respected forum that inspires and energises the industry.

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AIPMA

Nominations are invited well in advance and the short listed entries are presented to the Esteemed Jury Team, which also includes Niranjan Mudholkar, Editor of The ET Polymers. The platform has set very high standards right from its inception and every year this is reflected in the winners list that proudly presents the best of the Indian plastics industry. This year too, although the number of nominations broke the previous year's record, only the best of the entries made it to the final list. Companies are recognised for their excellent work with plastic as a material across different relevant categories including packaging, automotive, agriculture, kitchenware, play equipment and so on. A special emphasis has been put on the segment of recycling from the first edition itself.

Sometimes, to recognise truly extraordinary accomplishments, special categories are created. For example, while the extremely popular category of automotive received overwhelming response this year

The Economic Times Polymers – Lifetime Achievement Award for 2020 was conferred upon Dilip G. Piramal, Chairman & Managing Director, VIP Industries Ltd.

Aditya Borkar, CEO, Borkar Polymers emerged as The Economic Times Polymers – Entrepreneur of the Year 2020

Rahul V Podaar, Director, The Shakti Plastic Industries was recognised as The Economic Times Polymers – Next Generation Leader for 2020

List of 2020 Company Winners

Agriculture	SME	Automat Irrigation Private Limited	Plastic Saddle with Stabilizer
Automotive (OEM)	Large	Tata Motors Limited	Front Bumper and Upper Grill
Automotive (Tier 1)	SME - MNC	Yanfeng India Automotive Interior Systems Pvt. Ltd.	Door Panel
Automotive (Tier 1)	SME - MNC	Faurecia Automotive Seatings India Pvt Limited	Cover Carving Technology (CCT)
Bio-Plastics	SME	Plasto Manufacturing Company, Bangalore	Certified Compostable and Bio-Degradable Bags
Furniture	SME	Maitri Plastic Industries	Cushion Chair
Green Automotive Solution of the Year	Large	Tata Motors Limited	A colourful world without paint
Healthcare	SME	Mitsu Chem Plast Ltd	Mitu Spine Board Stretcher
Houseware (Storage)	SME	Jyoti Plastic Works Private Limited	Solo Uno - Round & Rectangle Containers
Infrastructure	SME	Borkar Polymers	Boroplast Plug & Play ATM
Kitchenware	SME - Indian	All Time Plastics Private Limited	Preppers set of 17
Kitchenware	SME MNC	Tupperware India Pvt. Ltd.	Click to Go Beverage Dispenser 3.1 L
Marine Applications	Large	Garware Technical Fibres Ltd.	X12 Lice Skirt
Packaging (Food Products)	Large	Huhtamaki PPL Ltd	Recyclable Pillow pack with window
Packaging (Healthcare)	Large	Uflex Limited	Nine PE/PE mono-polymer Laminate Pouch
Packaging with IML	Large	Cargill India Pvt. Ltd.	Gemini Rice Bran Oil 1 ltr PET Bottle with In Mould Label on 2 sides of Bottle
Pipes & Fittings	Large	Astral Poly Technik Limited	Astral Silencio Pipes and Fittings
Play Equipment (Garden)	SME	ArihantPLAY	Enabling Maze - a product for all kids
Play Equipment (Waterpark)	SME	Arihant Waterpark Equipment	Cobra Slides
Recycling	SME	The Shakti Plastic Industries	Products manufactured out of plastic waste

Rajubhai Desai of Jyoti Plastic and AIPMA was recognised for his 'Outstanding Contribution to the Industry'.

Arvindbhai Mehta, Chairman, AIPMA Governing Council, sharing his thoughts after 'The All India Plastics Manufacturers' Association – popularly known as AIPMA' won 'The ET Polymers Excellence Award for 2020'

and the jury identified three deserving winners, the jury was swayed by the outstanding feat achieved by Tata Motors in creating colourful products without using the conventional painting technology that has adverse effects on the environment. This innovation was awarded the Archer Trophy for the 'Green Automotive Solution of the Year 2020'. Similarly, The ET Polymers also recognised the efforts of the All India Plastics Manufacturers' Association (popularly known as AIPMA) in galvanising the plastics industry through its brilliantly organised international trade fair – Plastivision 2020 or PVI 2020. PVI 2020 has certainly raised the bar a notch higher for all trade exhibitions in the country by setting new records in terms of excellence.

Thus, The ET Polymers Awards platform continues to set a new benchmark with every edition and holding the flag of excellence high and strong.

Key to restart

A new report states that MSMEs can play a significant role in achieving the vision of Atmanirbhar Bharat - A Self-Reliant India. However, a lot more needs to be done for MSMEs to become a growth driver for India.

The outbreak of COVID-19 pandemic has drastically changed the global economic landscape. World Trade Organisation estimates that global merchandise trade will reduce by 13 percent to 32 percent in 2020 due to COVID-19 pandemic. This global phenomenon is going to make countries think about strengthening their local supply chains.

With this backdrop, India has already announced its vision of 'Atmanirbhar Bharat' - A Self-Reliant India which will push for strengthening local industries and give them a boost to compete at a global stage.

The latest report by Nomura Research Institute (NRI) Consulting & Solutions India endorses this view by stating that MSMEs can play a significant role in achieving this vision, however, a lot more needs to be done for MSMEs to become a growth driver for India. Three key parameters for the success of MSMEs are Financial Stability, Availability of Skilled Labour in MSME clusters, and Market Competitiveness of their products to both achieve import substitution as well as exports.

The report identifies some of the key areas that need to be focused:

1) Capability of Supply

It is essential to improve the capability of Indian MSMEs to supply quality products especially with new norms of operations being introduced due to COVID 19. Maintaining social distancing, running on reduced capacity, etc. would further aggravate the situation for the cash stripped MSMEs. Hence, it is imperative to provide immediate support for ensuring they keep up their capability of supply.

2) Capability of demand

Indian MSMEs need to be adaptable with changing market trends. Recent global developments have also reduced the planning horizons in global supply chains making it crucial for the sector to be able to adapt to a variable demand scenario.

3) Capacity

Ensuring capacity and availability of raw materials is also crucial. The disruption in global logistics has broken the chain for some key raw materials.

4) Cost competitiveness

The impact of COVID 19 on business operations will require innovative methods to reduce cost. MSMEs could be introduced to low-cost automation techniques which work in tandem with the human workforce while implementing distancing and also for quality control.

5) Customer perception

Branding and advocacy will also be needed to leverage the positive connotations associated with certain Indian products and assess negative connotations that can be removed.

Ashim Sharma, Principal & Division Head – Business Performance Improvement (Auto, Engineering & Logistics), NRI (Nomura Research Institute) Consulting & Solutions, said, "The Indian MSMEs have traditionally been catering to the domestic market either through directly selling to the consumers (B2C) or are a part of the value chain driven by large organised private players (B2B). Factors like evolving consumption and increasing competition have led to the increasing relevance of integrating customers' voice in product design for MSMEs to stay relevant. Therefore, it becomes extremely important for the MSMEs to design, manufacture and sell products which the customers need. They need to be connected to a demand led environment, where their business strategy and processes are aligned to the changing market dynamics through a market-oriented strategy."

The report also highlighted

"THREE KEY PARAMETERS FOR THE SUCCESS OF MSMES ARE FINANCIAL STABILITY, AVAILABILITY OF SKILLED LABOUR IN MSME CLUSTERS, AND MARKET COMPETITIVENESS OF THEIR PRODUCTS TO BOTH ACHIEVE IMPORT SUBSTITUTION AS WELL AS EXPORTS."

multiple manufacturing clusters across India to help create a conducive environment for development of small and medium enterprises, as identified by the United Nations Industrial Development Organisation (UNIDO). Clusters across India hold the key for developing a self-reliant ecosystem based on local skills and expertise. The cluster approach becomes all the more important with the localised nature of lockdown opening policies. Measures for development of MSME clusters can be aligned with the strategy to fight the impact of COVID 19. "For example, the state of Punjab has multiple MSME clusters with majority of them located around Jalandhar and Ludhiana. These MSME clusters provide an opportunity to significantly upgrade the overall manufacturing economy of the state. Jalandhar for example has clusters for sports good, agricultural implements, hand tools, leather works, etc. Similarly, Ludhiana has clusters for bicycle parts, hosiery, forging, hand and machine tools, etc. All these MSMEs, if developed in a collaborative approach while keeping a market oriented strategy, can provide significant boost to the economy as well as employment in the state of Punjab," added Sharma.

"MSMES NEED TO BE CONNECTED TO A DEMAND LED ENVIRONMENT, WHERE THEIR BUSINESS STRATEGY AND PROCESSES ARE ALIGNED TO THE CHANGING MARKET DYNAMICS THROUGH A MARKET-ORIENTED STRATEGY."
Ashim Sharma, Principal & Division Head – Business Performance Improvement (Auto, Engineering & Logistics), NRI (Nomura Research Institute) Consulting & Solutions

The report further emphasises on the fact that clusters can also be used for identifying synergies between various stressed MSMEs which can then be used to create collaborating firms. MSMEs that cannot stand alone might be able to succeed as combined firms by utilising various synergies. These synergies can be across various areas such as demand synergies, geographic synergies, logistics synergies, etc.

"Using a cluster approach will help in upgrading the MSMEs to suit the changing global landscape. Financially it might not be feasible for an individual MSME to develop all the capabilities but at the cluster level it can be achieved by sharing resources and realising cluster level synergies," Sharma concluded.

Recommendations
With the manufacturing ecosystem is constantly evolving under the influence of several trends around changing consumer behaviour and technological shifts happening across the globe, NRI Consulting & Solutions has put forward a set of recommendations. They are:

Demand led manufacturing	Indian MSMEs will be able to provide more acceptable products with superior quality in comparison to foreign substitutes by following a structured approach as per the consumer needs and an analysis of competitor products. This will lead to superior product specifications which in turn should be translated into optimum process parameter and effective quality control methods.
Advocacy for MSME products	It is important to focus on improving the customer perception around the products being manufactured by the MSMEs. It is imperative for the MSMEs to develop unique value proposition which leverage on their strength to carve out a niche in the market. This can be addressed through dedicated advocacy campaigns.
Digital interventions for MSMEs	MSMEs can reap tremendous benefits from digital technologies in terms of improved customer reach and connect in the rapidly digitalising world, better alignment with internet based new business models, and catching up with the big companies to which they supply and stay relevant in their global supply chains.
Continued support for MSMEs during Covid-19	The public sector approach to develop the MSMEs which has largely focussed on improving efficiency through measures in the form of subsidies in capital expenditure, access to finance and skill building & automation support among other needs to continue in addition to some immediate measures to help them re-start their operations within the new guidelines during Covid-19.

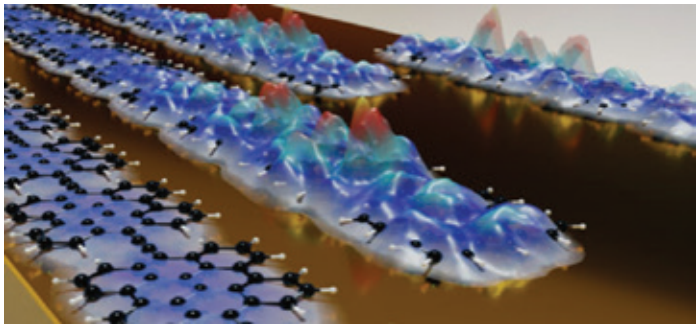
Towards metallic polymers

Organic (synthetic) metals attracted huge attention in the final decades of the last century due to their envisioned futuristic applications at affordable costs. This field was boosted by the early advances in polyacetylene polymers

Researchers at IMDEA Nanociencia, Universidad Autónoma de Madrid and Universidad Complutense de Madrid present a new strategy to fabricate quasi-metallic 1D polymers with atomic precision, in collaboration with The Czech Academy of Science, EMPA (Zürich, Switzerland) and RCATM (Olomouc, Czech Republic). This investigation within the framework of the 'ERC Consolidator Grant ELECNANO' and the 'Comunidad de Madrid QUIMTRONIC project' advances the possibility to design stable organic polymers with vanishing electronic bandgaps, whose applications range from molecular optoelectronics to quantum information technology.

Organic (synthetic) metals attracted huge attention in the final decades of the last century due to their envisioned futuristic applications at affordable costs. This field was boosted by the early advances in polyacetylene polymers, which exhibited high conductivity upon doping and opened a new route towards organic electronics and the Nobel Prize to their discoveries. However, scientists found that dopants compromised the stability of the polymers, thus reducing their applications as synthetic metals in real devices.

From a theoretical point of view, early efforts to understand the fundamental processes in the model trans-polyacetyene system resulted in the Su-Shrieffer-Heeger (SSH) model. Such a simple, but ingenious theory, revealed that the resonant form adopted by the polymer, which emanates from the conjugation of pi-electrons (pi-conjugation), can alter the electronic class of the material in an unexpected way. Here, it is worth to point out that topological band theory classify gapped materials by studying mathematically their band structure into trivial (insulators) and non-trivial materials (topological non-trivial insulator). In the SSH model, one resonant form behaves as a normal insulator, whereas the other resonant form one is a topological non-trivial 1D insulator, i.e. a gapped material featuring in-gap edge states. Thus, a crossover of resonant form can change the topological class of a polymer. But polyacetylene, in any of its resonant forms, is a gapped material. As a result, this polymer can only increase its conductivity by being chemically or electrochemically doped.



Artistic representation of non-trivial topological polymers exhibiting the characteristic end-state.
Image: M. Pykal.

Thus, the question arising is: Can we engineer 1D organic intrinsic metals? To answer this query, we need to come back to the roots of topological band theory. Such a theory states that the transition between two gapped materials must proceed through closure of the bandgap, i.e. through a metallic state. Thus, if we could engineer a family of chemical materials in which to tailor the topology of its bands by tuning the chemical structure, it could become feasible to approximate or even locate the material at the topological transition point.

Scientists of the above mentioned institutions report in the prestigious journal of Nature Nanotechnology a combined experimental-theoretical investigation bridging the fields of topological band theory (solid state physics) and pi-electron conjugation (organic chemistry) in order to give rise to quasi-metallic organic polymers.

"For the first time we can observe with scanning probe microscopy the connection between the topological class and the resonant form of a polymer, paving avenues to engineer novel electronic classes of materials, including intrinsic organic metals and one-dimensional topological non-trivial insulators," Prof. David Écija says. "To illustrate such concepts we relied on the power of organic synthesis to prepare suitable molecular precursors and we trusted in on-surface chemistry to drive, through an unprecedented reaction, the engineering of the polymers," Prof. Nazario Martín remarks. First, a new family of acene polymers, classified by the number of benzenes

units in their backbone (n=1, 2, 3…), is identified to undergo a discrete topological transition. For small n (n<5), polymers are in the trivial phase, while for large n (n>5) are non-trivial, identifying the boundary close to n=5 (pentacene polymer).

The different polymers are fabricated with atomic precision on top of gold substrates implementing ultimate on-surface synthesis approaches, tuning at will the topology and the electronic properties of the resulting polymers. "According to our theoretical prediction the pentacene polymer is located in non-trivial topological phase very close to the topological boundary with very small gap" says Jelinek. Indeed, experimental measurements revealed their quasi-metallic behaviour with 0.35 eV experimental band gap and the presence of in-gap topological edge states.

Authors generalize the concept by extending it to the polymer family of periacenes, achieving band gaps as low as 0.3 eV for bisanthene polymers, which are located close to the topological transition. Additionally, the different resonant forms of the pi-system can be identified, demonstrating an ethynylene-bridged aromatic nature for the trivial polymers, whereas locating a cumulene-linked p-quinoid resonant form for the non-trivial wires. Thus, there is a crossover between the resonant forms, which corresponds to the topological band transition.

In summary, this work serves both as a proof of the intimate relation between resonant form and topological class, while offering a new tool to produce stable organic intrinsic metals by designing polymers at the exact topological boundary.

This publication is the result of a collaborative research between IMDEA Nanociencia, Complutense University of Madrid, Palacký University Olomouc and Empa (Swiss Federal Laboratories for Materials Science and Technology) researchers. It is partially funded by the Severo Ochoa Programme for Centres of Excellence in R&D, and developed within the frame of the research projects ELECNANO (ERC) and QUIMTRONIC (Comunidad de Madrid).

Source: IMDEA Nanociencia

AEROSPACE

Aircraft with thermoplastic components

Bell V-280 Valor tiltrotor is one of the first military aircraft flying with thermoplastic technology on board

GKN Aerospace has delivered a pair of thermoplastic composite, induction-welded Ruddervators and two compression-moulded Access Panels manufactured from reused thermoplastic waste material to Bell in June 2019. The newly installed components have now flown more than 12 hours on V-280 test flights, including during the recently completed autonomous flight testing.

The Bell test pilots were happy with the seamless integration of the newly installed parts, noting that the V-280 continued to exhibit excellent responsiveness through test manoeuvers. This has made the V-280, which recently celebrated completion of its second full year of flight tests, one of the first military aircraft flying successfully with thermoplastic components.

Ruddervators are the control surfaces for an aircraft with a V-tail configuration. As a partner in Bell's Team Valor, GKN Aerospace has designed and manufactured the complete thermoset composite V-Tail for the aircraft. The Bell V-280 Valor is competing for selection as the U.S. Army's Future Long Range Assault Aircraft (FLRAA). The advanced thermoplastic Ruddervators significantly reduce weight, cost and parts count.

"We are always looking across Team Valor for new opportunities to incorporate advanced technology to add value for our customer. GKN Aerospace's thermoplastic ruddervators are a great example where we were able to add value and reduce risk for future programs," said Ryan Ehinger, Vice President and Program Director for FLRAA at Bell.

In parallel to the demonstrator program, the GKN Aerospace global design team continues to work with Bell to optimize the V-Tail design to meet customer requirements for the FLRAA program. The two compression-moulded Access Panels have been manufactured from recycled thermoplastic waste material from the two Ruddervators and have been developed in a Dutch TPC-Cycle research program led by Saxion. GKN Aerospace is a partner in the research program.

Why the time for 'Green Reset' is now!

It is time to go beyond our current lifestyles and focus on the things that really matter to us for the benefit of the upcoming generation.

By Kishan Jain

The COVID-19 pandemic has had a serious impact on the lives of every individual and organization across the globe. With businesses and factories shut, a large proportion of the workforce has had to work from home due to the Governments having to impose strict lockdowns to control the spread off the disease. Also, several people have been rendered jobless due to the hard hitting effects on the economy. However, in all this tragedy, if you look at it from another perspective – Mother Nature has gained a chance to recuperate. We have seen animals roam freely on city streets along with cleaner rivers, seas and oceans. This shows us that nature can heal itself, however it took a global pandemic to make us realise the negative impact we have been causing on the environment!

When coronavirus sent cities and countries into lockdowns, the unforeseen transition gave our planet a joyride and a chance to breathe -- the Himalayas became visible from the plains of Punjab, blue skies emerged out of New Delhi's smog and the Ganga River sparkled once again. There has been a drastic reduction in air, water and noise pollution since manufacturing units and offices are shut, travel for leisure

and business halted and individuals being stranded at home! A cleaner environment has perhaps been the only source of positive ray during the otherwise gloomy shutdowns. However, let us think about the environment and nature in general.

Human exploitation has caused this crisis

Human actions have hugely altered the natural greenhouse. Today, people characterise their social position and self-esteem depending on the number of vehicles, smartphones and gadgets they use and own. Even large industries expend monstrous amount of energy and emit high level of greenhouse gases. All these things have had an immense effect on the environment and ultimately on the earth at large. We have been uncompromisingly enjoying the fruits of the nature, by exploiting these resources.

The opportunity, even though in the form of a pandemic has now come for us to find a way to stop this before it is too late. The current lockdown has taught us that we can do without going out every now and then and save the natural resources for the future generations. It is time to go beyond our current lifestyles and focus on the things that really matter to us for the benefit of the upcoming generation.

Lessening of carbon footprint via adopting energy efficient solutions

We can start by doing some simple yet important things to help conserve earth and its resources by turning off electrical and electronic machines, lights and fans, when not being used. Moreover, a notable step that we can take as citizens is by adopting more energy-efficient sources of living, such as using LED lights which consume 70 percent to 80 percent less power than CFLs. The use of LED technologies has the potential of lowering the carbon footprint by half and significantly reducing electrical waste. LED lights are one of the most promising and affordable technologies readily available today. These bulbs help to reduce air pollution, making the air healthier to breathe. For us to build a sustainable future, it is necessary to follow energy-efficient option and advancements that consume low energy as well as have net zero effect on the environment. It is imperative to use technologies that will help save energy, reduce the carbon footprint to reverse the negative effects that human activities are caus-

"WE CAN START BY DOING SOME SIMPLE YET IMPORTANT THINGS TO HELP CONSERVE EARTH AND ITS RESOURCES BY TURNING OFF ELECTRICAL AND ELECTRONIC MACHINES, LIGHTS AND FANS, WHEN NOT BEING USED. MOREOVER, A NOTABLE STEP THAT WE CAN TAKE AS CITIZENS IS BY ADOPTING MORE ENERGY-EFFICIENT SOURCES OF LIVING."

ing on the climate.

Shifting to energy-efficient lighting will offer big benefits for the planet and its citizens. Lighting systems are getting smarter as autonomous, self-commissioning illumination systems are emerging. The industry has switched from analogue to digital systems as LED lighting allows users to control, monitor and measure lighting output. This change is taking place across public, home and professional lighting, and these smart connected LED lights will arise as the widely adopted IoT devices within the next couple of years. Moreover, the origination of innovative lighting products by manufacturers have brought a massive reduction in costs of these products.

Utility of smart devices

According to a report by Statista, there will be 31 billion devices connected to the internet by this year end, and that number is supposed to grow to 75.4 billion by 2025. Another smart innovation through which energy depletion can be limited is through Internet of Things (IoT) and associated gadgets. Smart devices that network with one another and share information utilising IoT can altogether reduce energy wastage and lessen costs. Some of these incorporate voice controlled smart home devices that are Wi-Fi enabled, for example, smart switches, doorbells and sensors, cameras, lights, smart fans and others.

"APART FROM SHIFTING TOWARDS SUSTAINABLE TECHNOLOGIES, AS INDIVIDUALS, WE MUST NOT WASTE WATER, OPT FOR PLANTING TREES, TEACH THE KIDS ABOUT THE IMPORTANCE OF SUSTAINABLE LIVING AND BE CONSCIOUS ABOUT USING THE RESOURCES THAT ARE READILY AVAILABLE TO US."

Apart from shifting towards sustainable technologies, as individuals, we must not waste water, opt for planting trees, teach the kids about the importance of sustainable living and be conscious about using the resources that are readily available to us.

In conclusion, let all of us pledge to take a step towards building a sustainable environment for our future generations. Every bit of initiative we take will go a long way in guaranteeing a greener and a safer planet!

The author is Director at Goldmedal Electricals

GREEN MANUFACTURING

Maruti Suzuki commissions 5 MW solar power plant

With an investment of more than Rs 200 million, solar power project will offset 5,390 tonnes of CO2 emissions annually

Maruti Suzuki India Limited has commissioned a 5 MW carport style photovoltaic solar power plant in Gurugram. With an investment of more than Rs 200 million, solar power project will offset 5,390 tonnes of CO2 emissions annually, for the next 25 years. Additionally, it will give an output of 7,010 MWH of power annually. Harnessing solar power has been a constant endeavour for Maruti Suzuki. The Company had set up its first solar power plant of 1 MW at the Manesar facility in 2014, which was further upgraded to 1.3 MW in 2018. With the latest project, Maruti Suzuki's total solar power capacity has increased to 6.3 MW. Talking about Company's green initiatives, Kenichi Ayukawa, Managing Director & CEO, Maruti Suzuki India Limited, said, "We are committed for enhancing sustainable manufacturing and to achieve self-sufficiency in many of our functions. The new solar power plant will complement our efforts to adopt environment-friendly technologies and lower the carbon footprint. We are consistently exploring new ways to harness the abundantly available clean resources and implement them in our business operations."

WITH THE LATEST PROJECT, MARUTI SUZUKI'S TOTAL SOLAR POWER CAPACITY HAS INCREASED TO 6.3 MW.

The 5 MW solar power plant will cater to the internal energy requirements of the Gurugram facility by synchronizing with the captive power plant. As a unique feature of this state-of-the-art plant, photovoltaic solar panels of the power plant will also work as a roof for the newly constructed car parking area. So while generating clean energy, it will also enhance the safety of the new cars parked underneath, from harsh climatic conditions.

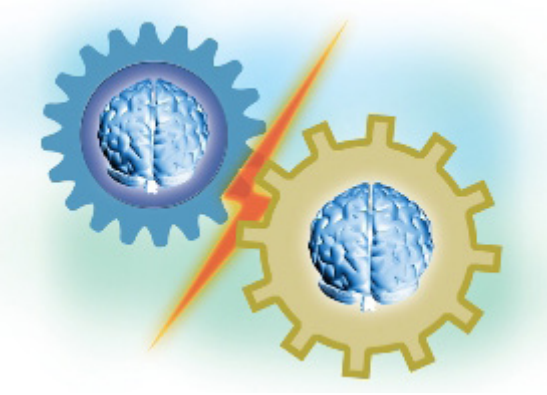
Dealing with the New Normal

Manufacturing would commence but with a new normal. Demand would manifest itself in a different avatar which would change entire manufacturing practices in industry.

By Ravindra Ojha

Prior to COVID-19, leaders in the industry were evolving strategies to take the industrial business to next orbit through Industry 4.0. No one dreamt of the havoc the virus could bring to humanity and business at large, in such a short span. The supply chain experienced a level of disruption never experienced before. Production of goods and services, the sign of prosperity, came to a grinding halt to level-zero. The focus swiftly moved to the survival mode of here and now. Life-protection, health-care, hygiene, food-supplies and basic need fulfilment became the only priority. However, the success of lockdown and social-distancing paved the path to hope. But, what after lockdown? Humanity would continue needing goods and services. Manufacturing would commence but with a new normal. Demand would manifest itself in a different avatar which would change entire manufacturing practices in industry.

The five key challenges and associated recommendations envisaged are:



Informal migrant labour chaos

Informal migrant labour returning back to the industry for work is likely to take a hit. Their fear psyche will dominate their decisions and would wait and watch for a reasonable period of time. Local labour is not likely to be an equivalent early replacement to production to the migrant in terms of skill, productivity and quality. Warehousing and other supply chain related activities are likely to be affected the most especially when the pent-up demand rises in the post-COVID-19 days. A lot would also depend on the responsiveness of MSME which have a large number of informal labours. This is the apt time for modifying the archaic labour laws with special focus on the informal lot.

"A LOT WOULD ALSO DEPEND ON THE RESPONSIVENESS OF MSME WHICH HAVE A LARGE NUMBER OF INFORMAL LABOURS. THIS IS THE APT TIME FOR MODIFYING THE ARCHAIC LABOUR LAWS WITH SPECIAL FOCUS ON THE INFORMAL LOT."

Supply chain infrastructure

China, known as the factory of the world, is likely to witness an upheaval. COVID-19 has added fuel to fire in the already strained US-China trade relationship. The deteriorating trade relations of multiple nations with China would accelerate the shifting of factories to other Asian countries like India, Vietnam, Thailand and many others. It would an excellent opportunity for Indian manufacturing sector. The Challenge of supply-chain infrastructure in India will have to swiftly respond to the changing needs, especially in the areas of ports, customs-clearance speed, road quality etc. Indian policy on ease-of-doing-business may have to be revisited quickly for speedy and easy entry to new and meaningful manufacturing set-up.

Agile operations

Engineering industries are likely to be the worst hit in financial terms because of their high capital investments. New customer demands, based on new behaviours / fear of future / risk aversion / purchasing capacity are anticipated to bring in more severity to production process in terms of volatility, uncertainty, complexity and ambiguity. Shorter lead times, shorter time to market, shorter lot-size, waste-free manufacturing systems, stretching to improve utilisation (OEE) of plants, increased total cost of ownership and

more agility to respond to the needs would provide relief and subsequently be the new normal.

Prioritising hygiene

Entry-exit health check-ups of employees, Social distancing, hand hygiene (washing), appropriate masking, towards contact-less (gloves/ no-touch) Gemba operation, sanitisation of relevant areas, rules in the canteen, veggie canteens and many newer practices would get implemented. This would result in layout changes (spacious), more washing areas (contactless tap operation), increased water consumption, availability of disposable low-cost masks / gloves, emergency health rooms, homing facility for worker, rules during taking meal and other eatable etc. This is bound to make manufacturing units a better place to work in terms of health and hygiene, however, there will be a cost to it.

"THE TRANSITION TO NORMALCY AND THEN TO GROWTH IN THE POST COVID-19 PERIOD WILL BE CHALLENGING BUT WOULD SERVE AS AN OPPORTUNITY FOR THE INDIA MANUFACTURING SECTOR."

Expanding horizons

The post Covid-19 struggle of manufacturing plants to transition from Survival stage to Recovery stage is going to be challenging and painful. This will drive low-cost automation in operations, application of robotics for non-value adding labour content of manufacturing, use of 3D printing for critical parts, accelerate the application of drones and AGV, Artificial Intelligence would play a major role in consistent assessing and re-planning due changing situations and increasing uncertainty. However, these are likely to happen at a gradual pace. Physical and seamless supply-chain will become critical using technology (RFID). Innovation and New-product development shall see a leap in Indian manufacturing arena.

In summary, the transition to normalcy and then to growth in the post COVID-19 period will be challenging but would serve as an opportunity for the India manufacturing sector which has the capability in terms of Scalability, Speed and Skill.

The author is Professor, Operations, Great Lakes Institute of Management, Gurgaon

UPDATE

German subsidiary of Minda files for insolvency

Minda Corporation Limited's Board of Directors held a meeting on 9th June 2020 to review the request for further financial support to its German subsidiary Minda KTSN Plastic Solutions GmbH & Co. KG (MKTSN). After extensive deliberations and considerations on the current and future cash flow requirements of MKTSN clubbed with COVID 19 Pandemic impact, the Board of Directors decided not to undertake further financial exposure in MKTSN and advised that the capital be allocated for growth and profitable business opportunities. Thereafter, Minda KTSN Plastic Solutions GmbH & Co. KG (MKTSN) has recently filed for insolvency in Germany. MKTSN, a manufacturer of kinematic and non-kinematic plastic components for the automotive industry was acquired by Minda Corporation in 2007. It has since infused more than Euro 35 million in MKTSN. The company is headquartered in Germany and has production sites in Pirna (Germany) and through its subsidiaries in Poland, Czech Republic and Mexico. Ashok Minda, Chairman and Group CEO of Minda Corporation said "We expect a positive outcome for all our stakeholders in the long run despite the insolvency filing. We are focusing on channelizing our precious capital towards tremendous business opportunities of profitable growth, with the view of enhancing EBITDA Margin and ROCE. This move is expected to enhance Minda Corp's EBIDTA by two percent and ROCE by five percent." He further added, "Importantly, over the years, the Group in India has gained expertise in plastic technology to build kinematic and non-kinematic plastic parts and set up business in India for light weighting and value added interior kinematics parts which is expected to grow to around Rs.200 crore in five years with a double digit profitability." "Minda Corporation is future ready and well positioned to address the technological shift due to change in customer requirements, new trends and government regulation. We are investing in R&D and new technologies such as light weighting, electronics and EV related products."

"WE EXPECT A POSITIVE OUTCOME FOR ALL OUR STAKEHOLDERS IN THE LONG RUN DESPITE THE INSOLVENCY FILING."
Ashok Minda, Chairman & Group CEO of Minda Corporation.

Celebrating Brand Excellence

The third edition of the Economic Times Best Brands in Plastics & Polymers was held at a glittering ceremony on February 26, 2020 in Mumbai. The ET Polymers presents glimpses from the show

The Economic Times Best Brands in Plastics & Polymers 2020 felicitation ceremony can definitely counted as one of the most positive and memorable events of the calendar year 2020. This felicitation ceremony came as a breeze of fresh air for the industry. The Economic Times Polymers team has been spearheading this initiative of recognising and felicitating the Best Brands in the plastics and polymers industry under the banner of ET Best Brands (an ET Edge initiative) since 2018 with the help of a Knowledge Partner. This year BMGI India has played the important role of Knowledge Partner in making the Best Brands initiative possible.

Representatives of the ET Best Brands in Plastics & Polymers 2020

Featured Best Brands

The felicitation of the featured Best Brands happened in the alphabetical order of the names of the Brands.

Alok Masterbatches: Alok is India's leading masterbatch producer, co-creating innovative, reliable and high-quality solutions for the plastic industry to cater to the current and future needs of its customers. Over the last several years, Alok has continued re-inventing itself by putting innovation and sustainability at the core of its business. It is committed to continue 'Adding Good' to make better plastics that are sustainable, safer and affordable.

Blend Colours: Blend Colours Pvt. Ltd. is an ISO 9001:2008 certified manufacturer, exporter and supplier of different types of Masterbatches. Technology has always been a key differentiator for the company, which has notably benefited its customers and has in fact set a new standard in industry. A well-equipped R&D, technically advanced production and testing facilities, qualified human capital ensure that customers get a product that they are confident.

Econ Machinery Pvt. Ltd.: Econ is a worldwide technological leader in the pelletizing field. It has been the underwater pelletizing specialist for over 20 years. Constant technical development processes have made Econ an innovation leader in pelletizing systems. Since its inception in India in 2013, Econ Machinery Pvt. Ltd. has put in great efforts in after sales support to its customers.

Electronica Plastic Machines Limited.: Also known as EPML in the industry, the company's sophisticated technology has ensured high scalability and accurate products. EPML has a pan India presence at strategic locations to ensure swift and efficient customer correspondence for all its plastic injection moulding machines. It recently launched its advance two-platen injection molding machine.

GAIL (India) Limited.: GAIL is committed towards producing a quality product with creating, maintaining and ensuring a safe and clean environment. Its polymer products are environment-friendly and fully recyclable. GAIL provides a wide choice of grades with consistent and reliable quality to its customers.

GMS Plastics Machinery.: GMS Plastic Machinery Pvt. Ltd. is synonymous with quality and excellence in the recycling industry. In a period when 'Plastics' is touted as a pollutant and several organisations are

targeting a 'BAN' on plastics, GMS strives to encourage proper disposal of plastics and systematic recycling of the same.

Haitian Huayuan Machinery India Private Limited.: Haitian International, having headquarters at Ningbo, Republic of China is one of the world's largest Plastic Injection Moulding manufacturing organisation. It forayed in India in India in 2001 and also has a manufacturing facility in the country.

The Chief Guest of the evening, Lulu Raghavan, Managing Director of Landor Mumbai, talking about the importance of Branding in B2B

HASCO India Pvt. Ltd.: Hasco enables its customers to build moulds in the easiest way possible. With the invention of the modular standard component system, HASCO has defined international standards and revolutionised mouldmaking. Designers and mouldmakers benefit from a complete range of ready-to-install, high-precision system components and intensive specialist advice that Hasco provides.

igus India Private Limited: igus, the motion plastics specialist, undertakes turnkey projects in moving cable management system in numerous industries including material handling, power plants, defence, automation, etc. It has also contributed towards prestigious projects of ISRO.

JJ Plastalloy Pvt. Ltd.: JJ Plastalloy specialises in manufacture of various thermoplastic compounds and masterbatches. What sets it apart is its tremendous focus on research & development. Along with the domestic market, the company exports to 30 countries.

Kandui Industries Pvt. Ltd.: Kandui Industries Pvt. Ltd. (KIPL) is a globally trusted and leading manufacturer of masterbatches with an extensive reach across the globe. Established in 2006, it offers world-class quality products and services thus making it one of the most preferred names in masterbatches manufacturing. KIPL manufactures a vast range of products that cater to the plastics and textile industries.

Kuraray India Private Limited: Kuraray India is a local subsidiary established in September 2008. Globally, the company has been manufacturing and marketing ethylene vinyl-alcohol copolymers (EVOH) under the name EVAL since 1972, and remains the world

Unveiling of the cover of the coffee table book of The Economic Times Best Brands in Plastics & Polymers 2020.

100 Best Brands in Plastics & Polymers Industry 2020

Ace Designers Limited
Alok Masterbatches Pvt Ltd
Apar Ind Ltd
APPL Industries Limited
ASB International Pvt Ltd
Ashish Exports
Birla Carbon
Blend Colours Pvt. Ltd.
Borouge (India) Pvt Ltd
Brahmaputra Cracker and Polymer Limited
Brakes India Pvt Ltd
Branson Ultrasonics
Bry-Air (Asia) Pvt. Ltd.
BulBul Masterbatches Pvt Ltd
Chilton Refrigeration Pvt Ltd
Clariant Chemicals India
Covestro (India) Pvt Ltd
D & M Enterprises
Devu Tools Pvt Ltd
Dollplast Machinery Inc
Dow Packaging Specialty Plastics
DSM India Pvt Ltd.
E.I.DuPont India Private Limited
Econ Machinery Pvt Ltd
Electronica Plastic Machines Ltd.
Ester Industries Ltd.
Evonik India Pvt Ltd
Extrusiontech
Fine Organics
Flamingo Additives & Colourants Pvt. Ltd
GAIL (India) Limited
Gem Orion Machinery Pvt Ltd
Genn Controls India Pvt Ltd
Global Pet Industries Pvt Ltd
GMS Plastic Machinery Pvt Ltd
Gurucharan Industries
H. K. Industries
Haitian Huayuan Machinery (India) Pvt. Ltd.
HASCO India Pvt. Ltd.
Hindustan Plastic & Machines Corporation
HPL Additives Ltd
HRSflow India Pvt. Ltd
Husky Injection Molding Systems
igus (India) Private Limited
Illig India Pvt. Ltd.
Indian Oil Corporation Ltd
Indo air Compressors Pvt Ltd
J P Extrusiontech Limited
Jagmohan Pla-Mach Pvt Ltd
JJ Plastalloy Pvt. Ltd.

...continued

Kabra Extrusiontechnik Limited
Kandui Industries Pvt. Ltd.
KBM Extrusions Machines Pvt Ltd
KK Compounding Tech Giant limited
Konkan Speciality Polyproducts Pvt. Ltd.
Kuraray India Private Limited (EVAL)
Lanxess India Private Limited
Leister Technologies India Pvt. Ltd.
Lohia Corp Limited
Luk Plastcon Limited
Mahalaxmi Pet Machines
Mamata Machinery Pvt. Ltd.
Matsui Technologies India Limited
Meusburger India Pvt. Ltd.
Milacron India Pvt. Ltd.
Moldwell Products India Pvt. Ltd.
Motan-Colortronic Plastics Machinery (India) Private Limited
N. A. Roto Machines & Moulds India
Nexthermal Mfg. India. Pvt. Ltd.
Nishant Mouldings Pvt Ltd
ONGC Petro additions Limited
Piovan India Pvt Ltd
Plastiblends India Limited
R R Plast Extrusions Pvt Ltd
Rajhans Plastic Machinery Pvt Ltd
Rajoo Engineers Ltd.
Ravago Shah Polymers Pvt Ltd.
Reliance Industries Ltd
Rollepal Engineering India Pvt Ltd
S&T Engineers Pvt. Ltd.
SABIC India Pvt. Ltd.
Sankhla industries
SBM Extrusion India
SCJ Masterbatches Group
Shibaura Machine India Private Limited
Shree RadheKrishna Extrusions Pvt Ltd
Shyam Plastics Industries
Soltex Petroproducts Limited
Solvay India
Spectalite Sustainable Materials Private limited
Steer Engineering Private Limited
Team Thermoformings & Allieds
Theysohn Extrusionstechnik India Pvt Ltd
Vasantha Tool Crafts Pvt. Ltd.
Welset Plast Extrusions Pvt. Ltd.
Windsor Machines Limited
Wittmann Battenfeld India Pvt. Ltd.
Yudo Hot Runner India Private Limited
Yuken India Limited
Yupo Corporation

Naresh T Raisinghani, CEO and Executive Director, HBS, Breakthrough Management Group International (BMGI) India explaining the process of assessment

leader in EVOH production and market development.

Lohia Corp Limited: Lohia Corp Limited is the flagship company of the Lohia Group and a global supplier of machinery for end-to-end solutions for plastic woven fabric industry used for packaging systems for solid bulk materials and infrastructure applications.

Mahalaxmi PET Machines: Established in the year 2008, Mahalaxmi Pet Machines has been in business of manufacturing Pet Stretch Blow Moulding Machines for the past 10 years. The range includes of machines includes Fully Automatic Pet Blow Molding Machines & Semi-automatic Pet Blow Molding Machines.

Mamata Machinery Private Limited: Today, with installed base of nearly 4800 Machines in more than 78 countries, Mamata is one of leading manufacturers and Exporters of Plastic bag / Pouch Making Machines globally. Mamata also offers packaging lines for the end user flexible packaging market in form of Automatic Form Fill and Seal Pouching machines.

Meusburger India Pvt. Ltd.: Meusburger is the market leader in the field of high-precision standard parts. With over 50 years of experience in working with steel, Meusburger is the reliable global partner for making moulds, dies, jigs and fixtures. Locally based and present worldwide, it believes in catering to the individual needs of its customers.

Soltex Petroproducts Limited: Soltex is driven by constant innovation and research to meet the demands of its customers to provide the best balance between quality and cost effectiveness. Its masterbatch manufacturing facilities at Mumbai, Daman, Silvassa, Kolkata and Uttaranchal are equipped with the latest machinery and research centers to provide unmatched quality products and makes us India's leading masterbatch manufacturers.

Steer Engineering Pvt. Ltd.: Founded in 1993 by Dr. Babu Padmanabhan, Steer Engineering Pvt. Ltd, is committed to the design, creation and implementation of advanced materials platform technology that effectively transforms and functionalises materials in the field of pharmaceuticals, plastics, food & nutraceuticals, biomaterials and biorefining.

Yudo Hot Runner India Private Limited: Since its foundation in 1980, YUDO has strived to develop and produce Quality hot runner system. The company is also a leading solution provider for automated takeout robot and factory automation, injection auxiliary equipment, machine tool automation system, Packaging and PET Preform solutions.

- *Company names arranged in alphabetical order.*
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Virtual machine commissioning

With the help of smart, digital technologies KHS is networking and automating production processes step by step so that machines, products and complete lines can efficiently communicate and work with one another.

In the future the digital twin will become a key component of industrial production. KHS already uses models to virtually map the machine and conveyor system commissioning process.

With the help of smart, digital technologies KHS is networking and automating production processes step by step so that machines, products and complete lines can efficiently communicate and work with one another. "In particular what's known as the digital twin enables procedures to be transferred to a virtual environment by tracking and imaging all phases in a machine's life cycle. All production processes and products can then be simulated virtually," says Stefan Diesner, Head of the Palletizing Product Center. Alternative, optimized production processes are displayed on the computer.

With the digital twin the mechanical components, electrical equipment and software programming must be able to access the exact same data.

Consistency and interface

One of the major prerequisites for this is that engineering is consistent throughout the entire value chain in order to prevent what is known as data discontinuity at the interfaces between the various engineering disciplines, namely mechanical components, electrical equipment and software. Unlike the way a lot of work is done today, projects are not processed sequentially, i.e. separately and consecutively. Instead, in an ideal scenario all departments work in parallel across their respective disciplines on the implementation of a project and share a common data model – the basis for the digital twin that depicts every last detail of a system virtually and permits precise simulation.

The shared data challenge

For an engineering company like KHS, which not only manufactures a huge number of different machines but whose research and development departments also have a colossal geographical spread, this is a major challenge. The KHS engineers at the Palletizing Product Center in Worms have been working on the virtual depiction and simulation of machines and system parts for 13 years now. Simulation or virtual commissioning especially lend themselves to use with logistics systems such as palletizers or conveyors.

"Our aim is to continue to shorten lead times and lower fault-related costs by expanding our virtual commissioning setup," explains Diesner. In order to estimate just how high these savings can be, it helps to take a look at the rule of ten. This states that the cost of fault correction increases by a factor of ten the later in the process an error is discovered. If a fault is only found and eliminated during factory commissioning, for example, the financial burden is ten times higher than if the correction had already been made to the software engineering during virtual commissioning.

Reduced time and effort

A further objective of the current

"IN PARTICULAR WHAT'S KNOWN AS THE DIGITAL TWIN ENABLES PROCEDURES TO BE TRANSFERRED TO A VIRTUAL ENVIRONMENT BY TRACKING AND IMAGING ALL PHASES IN A MACHINE'S LIFE CYCLE. ALL PRODUCTION PROCESSES AND PRODUCTS CAN THEN BE SIMULATED VIRTUALLY."
Stefan Diesner, Head of the Palletizing Product Center.

project is to reduce the amount of time and effort required for virtual commissioning. One basic condition here is that the data is consistent. "With virtual commissioning we have control over data consistency," Diesner explains. "All data is generated and stored at our production site, albeit still in a number of different systems. Further steps must be taken here before efficient and bidirectional access to this data is provided by a virtual engineering tool that includes simulation. Once this has been done, we can configure the system according to customer specifications or quickly and efficiently commission adapted machine designs on screen."

When all data is provided through a shared interface, machines can be quickly and efficiently commissioned on screen.

In the meantime Worms is looking ahead: virtual commissioning is the first step towards digitalized systems for the beverage industry and the real digital twin. This will be able to do much more in the future, To this end, the digital twin has to be plied with more information, however, such as data on conversions for KHS customers or operational data from production – a challenging undertaking indeed.

"ALL DATA IS GENERATED AND STORED AT OUR PRODUCTION SITE, ALBEIT STILL IN A NUMBER OF DIFFERENT SYSTEMS. FURTHER STEPS MUST BE TAKEN HERE BEFORE EFFICIENT AND BIDIRECTIONAL ACCESS TO THIS DATA IS PROVIDED BY A VIRTUAL ENGINEERING TOOL THAT INCLUDES SIMULATION."

Source: KHS Group

LABELLING

Cloud-based business model for channel

NiceLabel, a leading global developer of label design software and label management systems, is introducing a new cloud-based business model that will enable its partners to deliver labelling solutions-as-a-service securely and remotely in the pandemic and beyond. The new NiceLabel channel offering is based around Label Cloud, the world's first multi-tenant labelling software-as-a-service. The cloud-based labelling solution acts as a virtual collaboration tool for labelling, enabling NiceLabel's reseller partners to demonstrate, sell and configure labelling solutions for customers, remotely from their home. Resellers can manage the whole process remotely and securely for customers from running live demos through to designing and test printing label templates, deploying solutions, printing labels, and managing supplies inventory. This new approach to selling and supporting labelling turns remote working from a barrier to a competitive advantage for customers. Paul Vogt, channel marketing director: "Before the pandemic, most resellers in the labelling space primarily used a face-to-face business model to sell and support their labelling solutions. Today, that's all changed. Resellers have to connect virtually from their home with customers in their home. They will need to collaborate, interact and discuss with their customers without being on site. That's why we have introduced this new channel offering."

"It represents a step change for resellers and customers because for many of them, it represents a whole new way of working," added Vogt. "Yet, it is one that is both necessary in the current lockdown and beneficial to resellers who can continue to engage and sell efficiently and quickly to customers all through the crisis and beyond."

Wet chemistry

Research has found a new way to make functional materials based on polymers of metal clusters

Researchers at the universities of Jyvaskyla (Finland) and Xiamen (China) have discovered a novel way to make functional macroscopic crystalline materials out of nanometer-size 34-atom silver-gold intermetallic clusters. The cluster material has a highly anisotropic electrical conductivity, being a semiconductor in one direction and an electrical insulator in other directions. Synthesis of the material and its electrical properties were investigated in Xiamen and the theoretical characterization of the material was carried out in Jyvaskyla.

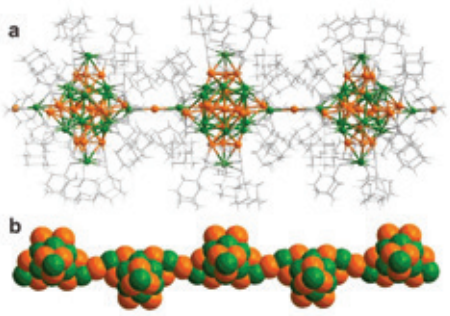


Figure a: Visualization of a linear polymer of the 34-atom silver-gold clusters with the inter-cluster metal-metal bonding in the horizontal direction (gold: orange, silver: green, ligand molecules (ethynyladamantane) are shown by grey sticks). Figure b: Shows the packing of metal atoms in the cluster polymer in a view rotated 90 degrees about the horizontal axis.
Credit: Peng Yuan/Xiamen University

The metal clusters were synthesized by means of wet chemistry adding gold and silver salts and ethynyladamantane molecules in a mixture of methanol and either chloroform or dichloromethane. All syntheses produced the same 34-atom silver-gold clusters with an identical atomic structure, but surprisingly, the use of dichloromethane/methanol solvent initiated a polymerization reaction after cluster formation in solution and growth of human-hair-thick single crystals consisting of aligned polymeric chains of the clusters.

The crystals behaved as a semiconducting material in the direction of the polymer and as an electrical insulator in the cross directions. This behaviour arises from metal-metal atomic bonding in the polymer direction while in the cross directions the metal clusters are isolated from each other by a layer of the ethynyladamantane.

Theoretical modelling of the cluster material by computer-intensive simulations using the density functional theory predicted that the material has an energy gap of 1.3 eV for electronic excitations. This was confirmed by measurements of optical absorption and electrical conductivity in a layout where single crystals we mounted as part of a field-effect transistor, which showed a p-type semiconductor property of the material. Electrical conductivity along the polymer direction was about 1800-fold as compared to the cross directions.

"We were quite surprised by the observation that the polymer formation can be controlled by simple means of changing the solvent molecules. We discovered this probably by good luck, but we hope that this result can be applied in future to design hierarchical nanostructured materials with desired functionality," says Professor Nanfeng Zheng from Xiamen University, who led the experimental work.

"This work shows an interesting example on how macroscopic material properties can be designed in the bottom-up synthesis of nanomaterials. Theoretical modeling of this material was quite challenging due to a large-scale model we had to build to account for the correct periodicity of the polymer crystal. To this end, we benefited very much of having access to some of the largest supercomputers in Europe," says Academy Professor Hannu Hakkinen from the University of Jyvaskyla, who led the theoretical work.

"THIS WORK SHOWS AN INTERESTING EXAMPLE ON HOW MACROSCOPIC MATERIAL PROPERTIES CAN BE DESIGNED IN THE BOTTOM-UP SYNTHESIS OF NANOMATERIALS. THEORETICAL MODELING OF THIS MATERIAL WAS QUITE CHALLENGING DUE TO A LARGE-SCALE MODEL WE HAD TO BUILD TO ACCOUNT FOR THE CORRECT PERIODICITY OF THE POLYMER CRYSTAL."
Academy Professor Hannu Hakkinen from the University of Jyvaskyla, who led the theoretical work

The computer simulations were done in the Barcelona Supercomputing Center under a PRACE computing grant. The work by Hakkinen's group is supported by the Academy of Finland.

Source: University Of Jyväskylä - Jyväskylän Yliopisto

The Best in Black

The advanced material is attractive with a low coefficient of friction and a new black design

For the bearing of pivoting and rotary applications, igus introduces iglidur J3, a lubrication-free and long-lasting tribo-polymer. The endurance runner convinces, above all, with its proven, very low coefficient of friction. As the yellowish material did not always match the design concept of the user, igus has now further developed the tried-and-tested tribo-polymer into the black iglidur J3B. But igus always has the right material for other applications as well. The intuitively operated iglidur online expert system helps with the selection.

| With a new black design and the best coefficient of wear that can be calculated online. For other applications, the iglidur expert system from igus helps to select the right material.

High dirt resistance, low coefficient of friction and toughness to combat edge and impact loads; features that are in demand in many industries. To satisfy this demand, igus launched the high-performance polymer iglidur J3 for its plain bearing range in 2015. The tribo-polymer displays its advantages especially in pivoting and rotary movements. igus has now further developed the "endurance runner" into iglidur J3B (B for black). The new black high-performance polymer adapts to the design of furniture or even sports and leisure equipment. "Particularly the customers who use our flanged bearings wanted to use iglidur J3, but the slightly yellowish material often did not fit into the design of the application. Now we can deliver a long-lasting solution with proven properties," explains Stefan Loockmann-Rittich, Head of iglidur plain bearing technology Business Unit at igus GmbH. The iglidur J3B increases service life, especially for applications with low and medium loads, making it ideal for the bicycle industry, for example in pedals, brake levers or suspensions. The iglidur J3 is also used in the mountain bike pedals from Crankbrothers. For years, the American company has been promoting the premium components and is relying on the lubrication-free and dirt-resistant plain bearings made of high-performance polymers.

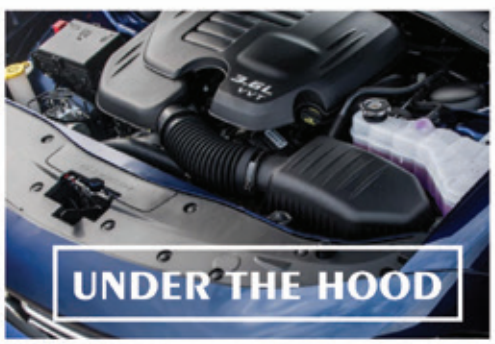
"THE USER ONLY HAS TO ENTER THE PARAMETERS OF THE APPLICATION FOR DESIGN, LOAD, MOVEMENT AND COUNTER PARTNER. THEN THE EXPECTED SERVICE LIFE OF ALL SUITABLE IGLIDUR MATERIALS IS DISPLAYED AND THE MATERIAL WITH THE BEST PRICE-PERFORMANCE RATIO FOR THE APPLICATION CAN BE SELECTED."

"PARTICULARLY THE CUSTOMERS WHO USE OUR FLANGED BEARINGS WANTED TO USE IGLIDUR J3, BUT THE SLIGHTLY YELLOWISH MATERIAL OFTEN DID NOT FIT INTO THE DESIGN OF THE APPLICATION. NOW WE CAN DELIVER A LONG-LASTING SOLUTION WITH PROVEN PROPERTIES."
Stefan Loockmann-Rittich, Head of iglidur plain bearing technology Business Unit at igus GmbH

Online expert for plain bearings helps in the selection

Users of the motion plastics specialist igus can choose from 57 different materials. From the visually appealing endurance runner iglidur J3B to the high-temperature specialist iglidur X. In the search for the right plain bearing, the iglidur online expert system accompanies the user to determine the appropriate tribo-polymer. The online configurator is very easy to use. The user only has to enter the parameters of the application for design, load, movement and counter partner. Then the expected service life of all suitable iglidur materials is displayed and the material with the best price-performance ratio for the application can be selected. All plain bearings are available directly from stock with no minimum order quantity.

For more info, contact, Nitin Prakash, Product Manager, iglidur®, igus (India) Private Limited, Email: nitin@igus.in, or visit www.igus.in



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