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Dear Friends,

In recent years, the Indian startup ecosystem has really taken off and come into its own—driven by factors such as massive funding, consolidation activities, evolving technology and an burgeoning domestic market.

The numbers are telling—from 3,100 startups in 2014 to a projection of more than 11,500 by 2020, this is certainly not a passing trend. It's a revolution. And it's going to change the way the markets are working today in India.



In this editorial, I'm going to highlight a unique Indian startup is trying build an unlikely supply chain that would connect some of India's poorest scavengers with the most high-tech design firms in the U.S. The Pune-based company, called Protoprint, makes multicolored spools of plastic filament used in 3-D printers. Long lines of plastic filaments that can melt and then solidify quickly are used as the raw materials—the toner so to speak—of some 3-D printers that are now being used to design and build everything from car parts, to bracelets to buildings.

What's unique about Protoprint's filament is that it is produced using recycled plastic that has been gathered and prepared by India's impoverished waste pickers. The scavengers scour the garbage dumps, dumpsters and garbage cans of India to pick out recyclable plastics. Choosing the right waste plastic—mostly shampoo and cleanser bottles—that can be used to make filament can be a labor-intensive process. Protoprint is now working with waste pickers of Pune to make eco-friendly 3-D printing filaments. The waste pickers are trained to collect and prepare high-density plastic from garbage dumps. They then use a low-cost machine designed by Protoprint to shred the plastic. They then use another Protoprint-developed machine that melts and mixes the plastic and extrudes it into filaments.

Protoprint then buys the filament for 230 rupees a kilo. That's nearly 13 times the regular rate for scrap plastic so Protoprint is labeling their filament as a fair trade product as it helps raise the living standards of the suppliers. While it is still only producing small amounts, Protoprint plans to ramp up its capacity and is already talking to global distributors about selling the filaments in the U.S. and U.K.

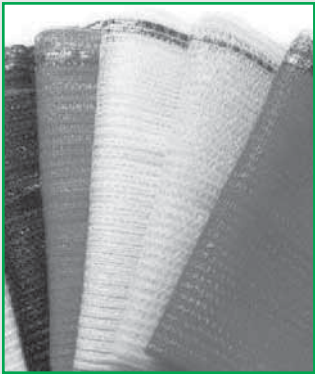
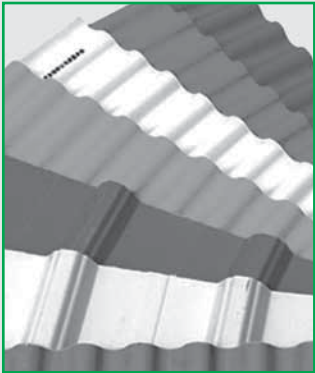
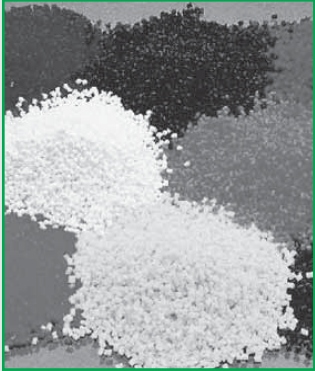
This is inspiring and this is what the future has in store! It's amazing how the young people of this country are taking initiatives which are actually making a difference. Kudos to them!

Happy Reading & a Great Festive Month Ahead

Warm Regards,

Manish Kr. Bhaia
Editor

INDEX



3 Editorial

5 Presidential Address

6 From The Desk of Hon'y. Secretary

7 News & Articles

15 Glimpses

21 Management Mantra

22 Indplas'15 Exhibitors

24 IPF Circular

PRESIDENTIAL ADDRESS

PRESIDENTIAL ADDRESS



Dear Friends,

As per Global Industry Analysts, Inc the global market for masterbatch is projected to reach US\$11 bln by 2020, driven by rising demand for colorful plastics from end-use markets such as packaging, and consumer goods, among others. Steady economic growth, rapid industrialization, increasing production of plastic products and components, and continuous penetration of masterbatch vis-a-vis competing coloring methods, remain key driving forces in the market. Product innovation and differentiation are among the key strategies adopted by masterbatch manufacturers to gain a competitive edge in the market. Key innovations which have benefited the market, over the past few years, include anti-shrinkage masterbatch, flame-retardant masterbatches for PP pipes and PC sheets, anti-fog masterbatches for food packaging, anti-microbial and odor managing masterbatches and masterbatches for biopolymer and biodegradable resins. Future growth in the market is forecast to come from emerging economies and the growing demand from end-use markets for sophisticated color formulations. China and India, especially, stand out as noteworthy markets, given the mass exodus of production activities to low-cost Asian countries. Increase in foreign investments and rise in the number of new manufacturing establishments are key factors encouraging Asian-Pacific rise to prominence in the masterbatch market. Technology advances that help impart desired color and property to plastics while simultaneously reducing cost, is also expected to turbocharge growth in the coming years, especially against the backdrop of evolving demand for high performance and functional products from various end-user markets. This demand for improved performance will continue to push manufacturers to invest in R&D in efforts to improve product capabilities. With manufacturers of consumer products seeking packaging materials that facilitate low cost production and ensure product protection during storage and transportation, demand is expected to rise for advanced masterbatches that offer functional performance as well as aesthetic appeal. The market is expected to gain strongly from automotive as well as consumer goods industries. Asia-Pacific is forecast to register the fastest CAGR of 5.7% over the review period led by increased plastic processing activity. Color Masterbatch which finds application in the production of plastics for appliances, food and beverage, automotive and pharmaceutical packaging, accounts for the largest share of the global market, in volume terms. Additive masterbatches are forecast to witness the fastest growth driven by increased demand in personalized plastic products.

The global masterbatch market is projected to register a CAGR of 7.1% between 2014 and 2019 to reach US\$12.1 bln, as per Research and Markets. The packaging segment that uses masterbatch, is witnessing a CAGR of 7.5% and constitutes a significant part of the overall masterbatch market. However, the automotive segment is projected to grow at a high CAGR of 8.5% by 2019. Major end-user industries for masterbatch include packaging, building & construction, automotive, consumer goods, textiles, agriculture and furniture. Steady economic growth, rapid pace of industrialization, increasing production of plastic products and components, packaging products and continuous penetration of masterbatch vis-a-vis competing coloring methods remain the key driving forces in the market. Region-wise, Asia-Pacific and South America are leading the global market. Growth in Asia-Pacific is led by rising demand for refined raw materials and products among the region's plastic processors. Due to the region's favorable prospects, several companies are expanding in Asian countries to benefit from the low-cost structures and growing local demand for plastics and packaging. Packaging represents the largest end-use market for masterbatch. Manufacturers of consumer products are increasingly seeking packaging materials that facilitate low cost production and ensure effective storage and transportation. Demand is therefore expected to grow for advanced masterbatch that offer both functional performance and aesthetic appeal.

Indplas' 15 exhibition is knocking at the door. This is an appropriate forum for masterbatch manufacturers to display their products. In our last exhibition masterbatch manufacturers got a good response. Since there will be a large number of foreign exhibitors we expect that this time they will get a even better response.

I wish Happy Durga Puja & Dusshera 2015 to you and your Family.

With best wishes,

A handwritten signature in black ink, appearing to read 'Pradip Nayyar'. The signature is stylized and fluid.

Pradip Nayyar
President

From the Desk of Hony. Secretary



Dear Members,

Normally this time of the every year, we are busy for the preparation of AGM and new team takes over. But due to our forthcoming big Indplas'15 event, our AGM is extended by 3 months. Necessary approval from ROC has been taken to hold the AGM within 31/12/2015. We shall inform members about the AGM dates soon.

Indplas'15 our prestigious event is knocking at the door. The countdown has begun. We have received good response from our sponsors and exhibitors. Its time to get visitors for our exhibitors. Our team is working hard to propagate Indplas'15 in each corner of Eastern Indian states, so that people are aware of our exhibition and can visit. Mass mailing for the visitor promotion has already started and we are getting online visitor registration daily in large numbers. We seek IPF members to forward our mailers to their contacts and encourage people to attend the exhibition. Please lend a helping hand in the success of Indplas'15. May be you are not directly contributing in organizing the show but you can be a part from your home too.

We request all members to kindly register themselves on-line as visitors to Indplas'15 through our website www.indplas.in. Members may note that there is no entry fee for those who register themselves on-line. This information may also be conveyed by them to their contacts who are eager to visit the exhibition so that they get the benefit of free and hassle free entry to the exhibition.

Indplas'15 is getting popular in Overseas too. We shall see around 500 sq mtr of stalls occupied by the foreigners. Visitors from Foreign are also not far behind. Large number of individuals have registered online to visit our show. We are happy to inform that Shenzhen Polymer Industry Association of China has confirmed to bring a 40 member Chinese delegation to visit Indplas'15. This is the first time in the history of Indplas that such a large foreign delegation will visit Indplas exhibition.

It's time for change of guard at Plastindia Foundation. IPF is one of the founder member and its IPF turn to nominate its candidate for the prestigious post of President of Plastindia Foundation. The Federation has officially nominated Shri K. K. Seksaria, as its nominee for the post of President for the term 2015-18. Our President Mr Pradip Nayyar will be our second nominee.

Indian Plastics Institute (Kolkata Chapter) has decided to hold their Governing Council meeting during Indplas exhibition. We have decided to extend full cooperation to the IPI delegation for a successful and memorable Indplas visit.

Members will be pleased to know that Indian Association Congress (IAC) organized by CIMGLOBAL, has awarded the Best Use of Social Media Award 2015 (Industry) and Best PR Campaign Award 2015 (Industry) to Indian Plastics Federation. As no one from IPF could join the function at Bangalore, the awards were personally handed over to us by Ms Anitha Niranjana, Executive Director of CIMGLOBAL.

In the last meeting of the Executive Committee 5 new members have been admitted to the IPF family. We wish them a happy association with IPF.

The Festival season is also at the door and I wish all members and their family a Very Happy Durga Puja

With best wishes



Ashok Jajodia
Hony. Secretary

HSIL LTD TO INVEST RS 217 CR TO SET UP PLASTIC PIPES & PACKAGING PRODUCTS PLANTS

Hindustan Sanitaryware & Industries Limited (HSIL Ltd), the Kolkata-based manufacturer known for its Hindware range of sanitaryware products, will invest Rs.217 crores for setting up two plants to produce plastic pipes & fitting (used in plumbing) and caps & closures (required for packaging), respectively.

HSIL Ltd will spend Rs.105 crores to build a plant for manufacturing of CPVC and UPVC pipes and fitting used in plumbing and sanitation. This product line is extension of building product portfolio. The company has entered into agreement with Japan's Sekisui Chemical Co Ltd (a \$ 9-billion turnover company) for supply of chlorinated polyvinyl chloride (CPVC) resin. Interestingly, Sekisui Chemical on July 15, 2015 had announced that it will use its recently constructed CPVC resin and compound plants at Map Ta Phut in Thailand to export CPVC compound in India & Middle East.

HSIL Ltd will set up the second plant, with an investment of Rs.112 crores, to manufacture security caps and closures required for protection of products from counterfeiting. This product will be a value addition to the existing portfolio of HSIL's

packaging products division. In this regards, the company has also filed for necessary product patents.

HSIL Limited constitutes two primary business divisions - building products and packaging products. Within the building products division, the product line includes sanitaryware, faucets, wellness and other allied products, kitchen appliances and vents. While HSIL's packaging products division is one of the leading glass bottle manufacturers, the division added PET bottles to its portfolio with the acquisition of Garden Polymers Private Limited (GPPL) in 2011.

Source: Business Standard

KHS CUTS PACKAGING WITH DIRECT PRINTING ON PET BOTTLES, ADHESIVE MULTI-PACKS

KHS GmbH has been pouring a lot of time into solving issues related to direct printing on PET bottles, and after eight years of work, everyone involved in the effort soon could be toasting to their success.

The German company with roots going back 145 years to filtration devices for bottled beer has a business unit called NMP Systems GmbH that has been working on go-to-market strategies for direct-print labels as well as a new adhesive system to bond multi-packs of containers.

Major strides have been made in both areas, Phil Johnson, managing director of NMP Systems, said at NPE 2015.

Most recently, an industrial prototype to replace roll-fed film and paper labeling machines with digital inkjet technology was installed at an unnamed facility a few weeks ago.

"We do have a first market application coming. It's PET, its beverage and it's in western Europe," Johnson said. "We'll be talking more about it in a few months."

Ink innovations

Looking back, he said a couple big hurdles were cleared to get to this point. Not only did KHS develop a machine for direct printing on bottles, the company had to come up with a low-migration ink for food safety. In addition, the ink couldn't bleed or discolor the PET during the recycling process, which would diminish its value.

"The challenge is that PET is porous and you have to be sure the ink will not migrate through the PET into the bottle," Johnson said. "That's a major part of the ink development."

How did KHS solve that?

"With a good partner," Johnson said. "Inside of these inks you have monomers that are photo activated in the curing process and our ink partner has specifically designed the monomers to polymerize. Polymerization is what keeps the monomer from coming through the

PET bottle. Our polymerization is about 99 percent compared to only 70 percent for the usual digital ink.”

The partner’s ink innovation also has met the certification requirement for bottle-to-bottle recycling in Europe because the hardened inks can be removed from PET flake.

“That’s the other critical element,” Johnson said. “The ink has been designed so it doesn’t impede the recycling process.”

The period of research and development was lengthy by some standards.

“We’ve been working on it for eight years to make sure it fits our market and our customers’ desires,” Johnson said.

But later this year, he expects the process of decorating bottles to take a big leap forward in terms of reduced time, design flexibility, color brilliance, individualizing small-batch runs, and marketing.

With offset printing on paper or film, label rolls are shipped to the bottler and stuck onto containers by a roller or glued with nozzles. KHS says a minimum purchase of 100,000 labels is typically required to make it economical and the time to market is 12-14 weeks.

However, with its inkjet process, KHS says images are transferred directly from a computer to a control unit that uses print heads to apply the label onto the bottle. Small runs won’t be cost prohibitive and in extreme cases the time to market can be cut back to a few hours.

Marketing agility

That means shortly after the clock buzzes to signal the end of a basketball game, PET bottles with a photo of the winning team and the score could be on their way to store shelves. A sponsor could congratulate a team through a bottle label. Charity campaigns could be promoted. Or, a company could personalize bottles with employee names for a corporate event.

“The magic of digital printing is being able to change decorations very, very quickly and having a wide variety of decorations,” Johnson said. “Today, if you look at people in the packaging business, generally they are preparing the Easter promotion at Christmas time. With digital, the Sweet 16 basketball bracket could close on a Sunday and within a short period of time, bottles could be printed, filled and into the market with the final teams within days. That’s the digital agility and that’s the leverage people are looking for – customer engagement.”

A growing part of the consumer market, particularly millennials and the young consumers behind them who still need a label – Generation Z, Gen Net and Digital Natives are in the running – seems to care more about how a product engages them than they do brand loyalty.

“They are looking for experience,” Johnson said.

The sustainability of less packaging also is important to them, businesses and environmentalists. Direct printing will replace untold

millions of shrink sleeves and label materials considering KHS’s machine developed for the process – called Innoprint – has an output of 36,000 PET bottles per hour.

Pack mentality

KHS also has been looking for a way to put together those bottles while eliminating more packaging. Their solution: a special adhesive that bonds bottle surfaces together and has the strength to form a pack. Called the Nature MultiPack, KHS says the adhesive system and its film handle is near-zero packaging weighing just 2 grams compared to 15 grams for shrink wrapping.

“The first system is installed in Germany and it hasn’t yet come into the market,” Johnson said. “Again, it’s a beverage in PET.”

Compared to packs of bottles wrapped in film, KHS says the Nature MultiPack requires up to 85 percent less packaging material and saves up to 67 percent energy during production.

“Our adhesive is the first one for PET that will be removable,” Johnson said. “They roll off the PET bottles similar to if you get a plastic bank card in the mail and there’s an adhesive on the back. We will also have that characteristic.”

Using the adhesives for multi-packs of cans is on the strategic horizon along with the possibility of new configurations.

“The functionality of the pack is quite interesting,” Johnson said. “Instead of being in a traditional 2-by-2 or 2-by-3 configuration,

you could have a 1-by-4 and other configurations.”

Could the adhesives, which are essentially highly refined glue dots, displace the plastic rings used to hold together multi-packs of beverages?

Johnson put it this way: “The advantage of our system is less material, less impact on the environment and different functionality. Our beverage customers and other packaging customers are looking at this as the future. Ultimately, the consumer will decide.”

KHS GmbH specializes in filling and packaging systems for products in plastic and glass bottles, cans and kegs. Based in Dortmund, Germany, the company’s full product includes machines that make plastic bottles, labelers, packers and palletizers. KHS has 4,400 employees and 11 production sites around the world, including Waukesha, Wis., and Sarasota, Fla.

KHS GmbH is a subsidiary of Salzgitter AG, which is a German steel and technology group that has 25,000 employees and 2014 sales of 9 billion euros (\$9.72 billion).

Source : Plastics News

MEDICAL PLASTICS: WELL AND GOOD

Plastics have been doing well, and doing good, in medical and healthcare markets for years. Major advances in many medical procedures often go hand-in-hand with developments in resins and compounds, thereby enabling the

design, engineering, and cost-efficient production of instruments, devices, and related components that facilitate short- and long-term treatments.

The benefits that developments in plastics provide in many areas are especially apparent where aging populations ratchet up demand for innovative treatment systems - and for devices that allow the elderly to meet their medical needs without undue and costly reliance on doctors and hospitals.

Ongoing advances in plastics address another demographic: developing countries where access to hospitals and medical services is limited - or unavailable - for many people, especially children and infants.

The growing range of medical resins and compounds also addresses enhancements to conventional device requirements such as clarity, chemical resistance, sterilization, and of course compliance to mandates from the US Food & Drug Administration (FDA), US Pharmacopeia (USP), the European Union’s REACH protocols, ISO standards, adherence to Good Manufacturing Practices (GMP), and other regulations.

These concerns influence the relentless intra-material competition that drives plastics use in medical devices. Below are representative examples of suppliers whose new and recent developments in materials enhance applications and make possible the devices and procedures that improve individual treatments, and

ultimately, the quality of life for people around the world.

High flow, with design flexibility

One area where compounds excel in properties and performance is devices and components that require metal-like stiffness along with high flow that facilitates molding. SABIC Innovative Plastics recently unveiled two compounds that combine high-modulus carbon fiber technology with high performance resins, for use in disposable or reusable (and sterilizable) parts.

The grades, LNP Lubricomp DCI06APW and LNP Thermocomp EC006AQW are alternatives to metal and fiber-reinforced polymers, said Cathie Hess, Director of Healthcare Marketing. Lubricomp is a 30% fiber-reinforced grade of polycarbonate (PC), and Thermocomp is a 30% reinforced grade of polyetherimide (PEI).

Ms. Hess describes Lubricomp as a “high-flow material for high-strength components where the use of metals or other fiber-filled thermoplastics with poor flow can create design and manufacturing challenges.”

The compound achieves a balance between design flexibility and ease of manufacturing that enables complex part design and part consolidation.

Target applications for Lubricomp include disposable surgical instruments, medical device housings, and drug-delivery components.

“Cost effectiveness continues to be a major driver of design decisions in the healthcare industry,” Ms. Hess affirms. “These reinforced materials can help optimize medical device system costs as well as improve processability.”

Tiny, precision parts for drug delivery

Drug-delivery devices are a major part of the healthcare market. These products allow users to accurately and safely self-medicate without the need for repeat visits to doctors or hospitals, and with little or no disruption to their daily routines.

One resin producer that specializes in the drug-delivery device market is DuPont Performance Polymers. William Hassink, Global Healthcare Segment Leader, said the global device segment of the market alone (excluding the value of delivery systems with medicine) is huge, accounting for an estimated US\$60-80 billion annually, and growing. When medicine is factored in, the value of these devices could be as much as US\$400 billion.

DuPont supplies semi-crystalline engineering thermoplastics for these devices, among them grades of polybutylene terephthalate (PBT), acetal, and polyamide (PA). A major challenge to the design and engineering of these systems is the ability to accurately mold tiny precision parts that comprise the inner workings of the devices - gears, plungers, and similar components.

“If you open a dry-powder inhaler,

you see a complex device for managing one month of doses,” Mr. Hassink said. Since the portability of these devices means they will get no bigger than they are now (typically pocket size), and likely will become more compact and lightweight, the precise and reliable operation of interior components, as well as their ability to assume multifunctional roles, are crucial to use and safety.

But that’s not all. Mr. Hassink noted that the ability to differentiate devices is often limited by patent protection. In other words, there’s only so much a designer can do with the look and basic operation of a drug-delivery device to set it apart from competitors or improve its manufacture.

One option could be different ways of constructing internal features using multi-functionality and other techniques to set the operation of a device apart from competitive products. Examples Mr. Hassink cites include:

- achieving a well-defined “click” from a dose indicator so users know their administration of medicine is accurate;
- internal energy storage for mechanical movements from the addition of a spring or other part; and
- the use of snap fits to improve both the positioning of internal components like pumps and the assembly of devices.

One resin DuPont recently added to address these needs is Delrin

SC699, an acetal homopolymer with inherent silicone lubrication. The lubrication ensures that internal parts molded with the grade generate uniform force in the hands of different users, thereby ensuring consistent dosages. The grade also eliminates the need for molders to undertake costly secondary operations to lubricate parts.

The lubricity of SC699 and a companion Delrin grade, PC699, suit them for applications where surfaces slide, roll, or rub against each other. Mr. Hassink said the grades additionally have high flow, optimum multi-cavity molding properties, creep resistance, and printability, among other properties. “They work, and they are cost effective.”

One OEM that specified SC699 is Ypsomed AG of Switzerland, which uses it for a dose dial sleeve in its UnoPen variable-dose injector pen for insulin and other medicines. The sleeve, positioned between the housing and piston rod, is used by patients to set required doses for injection. It interacts mechanically with the piston rod, which dispenses the medicine.

Enhancing wearable pumps

Closely related to portable, self-administered drug-delivery systems are wearable pumps that automatically inject insulin, painkillers, and other vital medicines to patients with chronic conditions. These devices, which are typically worn on a belt or under a shirt or blouse, use subcutaneous injection sites to administer

medicine, and have battery-powered pumps, timers, alarms, and display windows in compact, lightweight housings.

The resin requirements for these units are different than for self-administered delivery systems. For one thing, said Bruce Fine, North American Medical Segment Market Leader at Bayer MaterialScience, the housings need chemical resistance, especially to body oils, lotions, and creams, since they contact a wearer's skin, and to hospital disinfectants.

They must also be biocompatible. Relevant tests here include ISO-10993-5, for cytotoxicity, and ISO 10993-10, for skin irritation and sensitivity.

Resins must accommodate electrical components and power sources, which usually mean batteries. They don't need a UL-VO rating but should meet UL 94 horizontal burn requirements.

High-flow properties and thin walling are important, as is the ability to overmold features like display windows and tubing connections. Color options also figure in resin specification since OEMs want wearable pumps to be stylish and aesthetically pleasing to users.

Bayer officially launched a new grade in February for such applications. Makroblend M525 is a PC/polyester blend that meets all these requirements, and additionally provides toughness, moldability, and dimensional stability. Mr. Fine declined to reveal details about

the blend beyond saying that the polyester component provides good chemical resistance.

As with self-administered drug-delivery systems, Mr. Fine noted a trend in wearable pumps toward lighter weights, enhanced portability, and simplicity of operation for "getting as much healthcare as possible delivered outside healthcare settings."

High performance "Cyclic" elastomers

Clarity and molded-in detail are essential properties in a number of applications, notably flexible membranes, tubing, and other parts that are used in flow-control systems and microfluidic devices. One company with a high performance elastomer for these products is TOPAS Advanced Polymers Inc, the US business unit of parent TOPAS Advanced Polymers GmbH in Germany.

TOPAS supplies cyclic olefin copolymers (COC, which are transparent, amorphous resins copolymerized from norbornene and ethylene with a metallocene catalyst. The result is a material with inherent properties such as glass-like optics, heat resistance, and high dimensional stability.

Timothy Kneale, President of TOPAS, points to grade E-140, a COC elastomer that provides a "performance advantage" to applications requiring clarity and molded-in or extruded detail, along with high levels of barrier, purity (low leachables and extractables), and chemical resistance.

"This is not a commodity item," he noted. "It is specified when ordinary materials will not do the job."

Though Mr. Kneale declined to provide application details, citing non-disclosure agreements with end-users, he explained that the E-140 grade can be used in drug storage or delivery devices and as a flexible membrane in demanding diagnostic and flow-control applications. It can also replace specialty silicones such as polydimethylsiloxane (PDMS), which is inert, non-toxic, optically clear, and has good rheological properties. He adds that the E-140 elastomer also lends itself to faster production scale-up than most silicones.

Importantly, the elastomer is compatible in assemblies with a rigid COC, like grade 5013L-10. Among other advantages, this property facilitates multi-material molding and eliminates concerns about cracking and other structural deficiencies that may develop from incompatible materials. The resin, which is also touted for microfluidic applications, reportedly has exceptional clarity, high flow without loss of material strength or optical properties, and heat resistance to 127°C.

Mr. Kneale said the rigid grade can be molded with "sub-micron details" which is a plus for small parts. Customers, moreover, report achieving novel molding capabilities like zero draft angles on parts. Grade 5013L-10 also reportedly maintains dimensional tolerances of 0.01mm in molded parts.

TPEs for diverse needs

Elastomeric grades are essential for many applications, among them closures, gaskets, tubing, valves, infusion stoppers, and some forms of packaging. One supplier of medical elastomers, Kraiburg TPE, specializes in styrenic block copolymers, which it markets as Thermolast M. These provide important benefits such as translucence and transparency, low compression set, good adhesion to polypropylene (PP) and polyethylene (PE), and phthalate- and latex-free formulations, which avoid end-use concerns.

While Thermolast M grades have been commercial for some time, a recent formulation development allows for direct body and blood contact on a limited basis, generally one to 30 days, said Katherine Olano, Distribution and Marketing Specialist. The exact time depends on the application.

Kraiburg supplies four medical-grade TPEs. They include a translucent general-purpose elastomer for stand-alone parts that is not designed for adhesion to other materials. Another grade designed for adhesion bonds to PC, acrylonitrile butadiene styrene (ABS), PC/ABS, and polyethylene terephthalate-glycol (PETG) resins, and reportedly has no issues with stress cracking at the materials interface. A high-elasticity version has a low coefficient of friction for mechanical components and sealants. The fourth grade reportedly can replace costlier silicone as a

bottle seal. Here the material can be punctured with a needle to draw out fluid, after which it reseals itself when the needle is withdrawn.

Typical applications for Kraiburg TPEs include nebulizer masks (whose soft-touch properties improve comfort), syringe stoppers, bottle caps, tubing, and bags. Ms. Olano said the company is developing formulations that chemically bond to different resins, a property that will facilitate multi-material molding and applications that specify the elastomers as substrates.

Reinforced implants

Implants for fracture fixation are a growing and dynamic application for high performance resins and compounds, which enable devices with higher fatigue life, greater interoperative visibility, and flexible use. One company active in this sector is Victrex Plc, which supplies ketone-based materials through its medical-focused Invibio division for orthopedic trauma devices.

One material from Invibio is PEEK-Optima Ultra-Reinforced, which is used in plates fabricated from polyetheretherketone (PEEK) resin reinforced with continuous polyacrylonitrile (PAN)-based carbon fiber. When used to treat a fractured bone, the plate provides advantages over conventional metal versions (titanium and stainless steel) and has the potential to accelerate healing due to its decreased bending stiffness.

A PEEK-Optima plate reportedly has at least 50 times greater fatigue resistance than metal, can be fabricated with tailored levels of stiffness to meet individual needs, has a modulus of elasticity closer to that of cortical bone than metal, and weighs less than metal versions.

The formulation and fabrication technology that Invibio provides can also help OEMs bring PEEK-Optima Ultra-Reinforced plates to market faster than metal versions and thereby help them reduce costly R&D programs.

Looking Ahead

Resins and compounds will remain vital enabling materials for a growing range of medical and healthcare devices. Research underway, however, suggests that the properties of plastics will soon be applied to the use of microscopic materials such as bacteria and nanoparticles used to treat cell disorders and infirmities at the molecular level within the body. Coated tubing and other implantable devices could be the mechanism by which these treatments are delivered and controlled.

Source : China Plastic & Rubber

A MEGA PETROCHEMICALS COMPLEX WILL BE SET UP IN ANDHRA PRADESH

A mega petrochemicals complex will be set up in Andhra Pradesh, making it the energy and petrochemicals hub on India's

east coast, Union minister of state for petroleum and natural gas Dharmendra Pradhan said. Addressing media persons after conducting a review of various oil and gas sector projects in Vizag, Pradhan, who visited the facilities of Indian Strategic Petroleum Reserve Limited (ISPRL) and Oil and Natural Gas Corporation (ONGC) in the KG Basin said, "A detailed energy road map of future AP will be drawn up. We are already working on an ambitious road map and planning beyond the PCPIR (Petroleum, Chemical and Petrochemical Investment Region) for AP."

Stating that AP has immense potential in the hydrocarbon sector, he said, "ONGC will start gas production from the KG Basin from 2018 and oil production from 2019." Explaining that as compared to the west coast, deep sea exploration poses serious challenges on the east coast, he said, "Monetising the potential is a priority and ONGC is undertaking the project on a fast-track basis. I am fully satisfied with progress."

Source : Popular Plastics & Packaging

GLOBAL CONSTRUCTION BOOM SET TO BOOST DEMAND FOR PLASTIC PIPE

Booming construction activity in the US and China is expected to be a driving force behind plastic pipe growth in the next few years, according to a new report.

World demand for plastic pipe is projected to rise by 6.7% a year between now and the end of 2019, to 19.3 billion metres – enough to stretch between the Earth and the moon 50 times over.

In a new study US-based research group Freedonia said plastic pipe's performance attributes, cost and installation advantages would help it replace other materials such as concrete, copper and steel.

And while energy, agriculture and industrial sectors used plastic pipe less intensively than construction, "improvements in technology and plastic materials have helped plastic pipe increase its share in many of these markets", the report argued.

Freedonia said that construction spending in China would decelerate but plastic pipe demand would remain robust, rising more than 9% a year between now and 2019.

Despite a downturn following the recent recession, demand for plastic pipe in what Freedonia called "the more developed regions" of Western and Eastern Europe would start to accelerate as those countries' economies recovered.

Meanwhile demand for accessible potable water and sewerage systems in developing countries in Africa, Asia and South America would also boost plastic pipe's prospects.

Freedonia analyst Mariel Behnke said: "The market opportunity for water and sewer systems is large, as a considerable share of the population in these regions does not have reliable access to drinking water supply or improved sanitation."

Source : Plastics & Rubber Weekly

THE BPF AND AXION CONSULTING WIN ENVIRONMENTAL AWARD

The British Plastics Federation (BPF), together with project partner Axion Consulting, has won a leading award for a scheme to recycle certain types of PVC medical waste.

Recomed, a PVC 'take-back' scheme set up by the two organisations last year, won the Environment award handed out by Barema, the Association for Anaesthetic and Respiratory Device Suppliers, and the Association of Anaesthetists of Great Britain and Ireland (AAGBI).

The scheme provides recycling containers, communication materials and collections to NHS and private hospitals that register for the scheme.

The BPF said PVC items currently being collected included anaesthetic masks, oxygen masks and tubing.

In a statement the trade body said participating hospitals "saved money on waste disposal costs by recycling non-infectious PVC medical items instead of sending them to clinical or offensive waste streams which are currently either incinerated or sent to specialist landfill sites.

"Recomed provides an opportunity to give these easily recyclable and high-quality plastics a new lease of life."

The award will be officially presented to the Recomed team at the AAGBI's annual congress in Edinburgh on 25 September.

Source : Plastics & Rubber Weekly

RISING GOVERNMENT INVESTMENTS, GROWING DEMAND TO PROPEL SAUDI ARABIA'S MASTER BATCHES

The masterbatch market in Saudi Arabia is projected to surpass US\$167 mln by 2020 as per Research and Markets. Rising government investments in downstream sector coupled with growing demand from end user industries such as packaging, building & construction and consumer appliances is forecast to propel the country's master batch market through 2020.

Presently, the largest end user industry for masterbatch applications in Saudi Arabia is the packaging sector, and the segment is projected to dominate through 2020. Demand for master batches from plastic processing industries is predominantly being fueled by huge amount of money invested by the country's government in petrochemical and plastics sector.

Clariant accounts for the largest share in the country's masterbatch market, followed by Astra Polymer, Ingenia Polymers and Cabot. Easy availability of raw material, surging demand from end use industries and growing trend towards green building solutions and plastics is driving demand for masterbatches in Saudi Arabia. Masterbatches are being used in a wide range of applications in building and construction sector, production of household appliances and automotive sector. Over the last five years, the masterbatch market in Saudi Arabia has been

witnessing introduction of high-quality, standardized masterbatches for use in construction, plastic, fiber and agriculture industries.

Source : Plastics News

US SPECIALTY FILMS DEMAND TO REACH US\$8.4 BILLION BY 2019, SAYS FREEDONIA

The demand for specialty films in the US is forecast to rise 4.8% per year to US\$8.4 billion in 2019, according to Freedonia's new report.

Gains will be fueled by the rising need for high value, technologically advanced materials that provide characteristics such as barrier properties, controlled permeability, light control, and electrical conductivity or resistivity.

A healthy outlook for the packaging industry, where the majority of specialty films are used, will boost demand, as will a rebound in construction.

Barrier films accounted for 65% of specialty films demand in 2014. Through 2019, advances will be driven by growing barrier requirements in the packaging industry to better protect food, pharmaceuticals, and other products, according to Freedonia.

“The most rapid gains, however, will be found in biodegradable and water soluble films, as improved technology and consumer acceptance allow these films to penetrate new applications. Above average growth is also forecast for light control and safety

and security films, fueled by a strong improvement in building construction activity,” stated analyst Kent Furst.

Two-thirds of all specialty films are used in packaging, particularly in applications requiring barrier properties. The best opportunities for growth in this market include meat packaging, where technologies such as modified atmosphere packaging and vacuum skin packaging require the use of high-barrier films, and pharmaceutical and medical packaging, where protection from contamination is a critical factor.

The fastest gains are expected in the construction market, where specialty films will benefit from the construction industry rebound and the rising use of energy saving window films.

Additionally, advances will result from the development of new applications in degradable packaging and fuel cells, and robust growth in emerging markets such as advanced batteries.

Electronics will also be a strong growth market for films, particularly in the areas of advanced batteries and photovoltaic modules. Below average advances, however, are forecast for personal care products, as use of breathable films is highly mature in the slow-growing disposable hygiene products market.

Moreover, a sharp slowdown in motor vehicle production will restrain demand in transportation equipment applications.

Source : China Plastics & Rubbe

GLIMPSES

AWARD HAND OVER CEREMONY BY INDIAN ASSOCIATION CONGRESS (IAC) TO IPF

Indian Association Congress (IAC) awarded the winner of Best Use of Social Media Award 2015 (Industry) and Best PR Campaign Award 2015 (Industry) to Indian Plastics Federation.

The Indian Association Awards ceremony – 1st Association Excellence Award 2015 was the 5th edition of Indian Association Congress held on 21st August 2015 in Bangalore.

In this connection Ms Anitha Niranjana, Executive Director of CIMGLOBAL – event manager of the ceremony came to Kolkata on 10th September 2015 to personally hand over the award to IPF.

The award function was held in the Conference Room of the Federation. Mr Pradip Nayar, President, received the award on behalf of the Federation. Many Executive Committee members joined the programme. The programme was followed by Hi-Tea.



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PRICES FALL FOR MOST COMMODITY RESINS

The Summer of 2015 began to fade in August — and it took North American commodity resin prices down along with it.

Average per-pound selling prices for polyethylene, polypropylene, polystyrene, PVC and PET all fell in August. PE saw the largest August drop with 5 cents, while PET prices fell 4 cents. Next in line were PP and PS, each with a 2-cent drop, while PVC prices ticked down 1 cent.

“Whenever oil prices move down sharply, most commodity resins prices are bound to soon start moving downward, as well,” said Phil Karig, managing director with the Mathelin Bay Associates consulting firm in St. Louis. “In the case of ethylene-affected resins [like PE and PVC], the recent easing of ethylene supply issues is also contributing to downward pricing pressures.

“Add in weaker export markets, expectations for continued resin price declines ... and a growing unease over financial instability in China ... and we have all the ingredients for continued price declines in the months ahead,” he added.

Lower feedstock costs played a role in sending North American PE prices down. The decline effectively wipes out a 5-cent hike that the market had seen in May. Prior to that increase, regional PE prices fell

a total of 16 cents between October and April.

North American PE makers now have taken the almost unprecedented step of advising their customers that prices are expected to decline by 4 cents per pound in September. Market sources said this likely is an attempt to stop prices from falling even farther in light of recent stock market volatility, which has threatened to destabilize global economies.

Oil prices remain a global price-setter for PE, even though most PE made in North America is derived from natural gas. West Texas Intermediate oil prices were above \$45 per barrel on Aug. 1, but were near \$39 per barrel by the end of the month, for a drop of about 13 percent. Prices since then have rebounded to above \$46 in late trading Sept. 2.

Abundant supplies of PE also played a role in the 5-cent price drop, according to Mike Burns, a PE market analyst with Resin Technology Inc. in Fort Worth, Texas.

“There are no supply issues for polyethylene or ethylene,” Burns said in a phone interview. “You can almost say that globally.”

PE demand remains solid

PE demand growth in the U.S. and Canada remained solid through July, according to the American Chemistry Council in Washington. High density PE sales in the region were up almost 6 percent in that seven-month period, with domestic growth of 2 percent boosted by a

gain of almost 29 percent in export sales.

For low density PE, seven-month sales ticked up almost 2 percent, with 3.5 percent domestic growth hampered by a loss of more than 4 percent in export sales. The linear low density PE market fared better, with sales up almost 6 percent in that time frame. Domestic LLDPE growth of almost 7 percent was softened by growth of only 2 percent in the export market.

The August PP decline averaged 2 cents per pound, although that amount could vary, depending on how much of a decrease buyers saw in July. The two-month July-August dip totaled 3 cents per pound. Some saw that move in 1.5-cent increments, others saw 1 cent in July and 2 in August, or vice versa.

The August PP drop was the second straight month prices for the material have fallen and the third decline in four months. Regional PP prices now are down a net of 17 cents per pound so far in 2015.

At the same time, PP makers in the region have been able to increase their profit margins by about 10 cents per pound in 2015. They’ve done so by lowering prices by less than the amounts that propylene monomer feedstock prices have fallen. By comparison, producers only gained 1 cent in margin per year in 2013 and 2014.

Tight PP supplies

They’ve been able to take that step because of tight supplies of PP in the region, according to Scott

Newell, a PP market analyst with RTI. “Operating rates [for PP] are as high as we’ve seen in many years,” he said by phone. “They’re above 92 percent for the year and in these last couple of months have been close to 95 percent. Supply is tight, and when you add in some production issues and other dynamics, things can get pinched here and there.”

North American PP growth was solid in the first seven months of 2015, growing 5.3 percent. A 5.9 percent domestic growth rate was dampened by a 10 percent slide in export sales.

Regional PS prices tumbled an average of 2 cents per pound in August. Some buyers reported 3 cent drops, but 2 seemed to be the market average and is being shown on this week’s *Plastics News* resin pricing chart.

That drop came only a month after prices rose 6 cents, prompted by higher prices for benzene feedstock. Benzene prices for August, however, fell about 8 percent to \$2.80 per gallon, sending PS resin prices down as well. Regional PS prices now are down a net of 4 cents per pound in 2015.

Source : Plastics News

SINGLE POLYMER PILL TO DELIVER ENTIRE DRUG COURSE

Emily Hughes looks at how scientists in the US have designed a single pill made from a polymer

gel that could deliver an entire treatment in a single dose

The ring-shaped device prototype which can be folded into a swallowable capsule for easy and safe oral delivery

The breakthrough pill could help end problems of patients failing to finish a course of medication, which can exacerbate illnesses and has contributed to the rise of antibiotic resistance bacteria.

Robert Langer from the Massachusetts Institute of Technology (MIT), said: “Probably one of the biggest health problems in the world... [is] patient compliance – people forgetting to take their drugs.

“As a consequence, there are many deaths, enormous amounts of hospitalisations, hundreds of billions of dollars in healthcare costs.”

Langer and his colleagues’ pill had to tackle two key issues.

The device had to be able to survive the harsh environment of the stomach and slowly release its drug payload, but dissolve once it eventually passed through into the intestine.

It also needed to be flexible enough to swallow and then unfold in the stomach to prevent its expulsion into the intestines.

The team designed a supramolecular elastomer gel by combining poly (acryloyl 6-aminocaproic acid) and poly (methacrylic acid co-ethyl

acrylate), a pharmaceutical-grade polymer that resists digestion.

The gel can be cut to various sizes and recovers its shape quickly after being stretched to three times its original length.

As a proof-of-concept, Langer and his colleagues embedded polycaprolactone (PCL) beads, as an example of slow drug release agent, into a ring of the elastomer gel and inserted the device into a standard 18mm gelatin capsule.

When the capsule gets into the stomach the outer part dissolves and the elastomer opens up into a particular shape.

The pill was successfully tested on a pig and in this case, the gel opened up into a 3.2cm ring within the pig’s stomach.

The ring remains intact for up to seven days, before the gel component dissolves and the PCL beads can safely travel through the animal’s intestine.

Gregor Fuhrmann from Imperial College London, UK, said: “I very much like the simple idea of creating an elastic polymer that is gastro-resistant but dissolves at intestinal pH.

“The development of this elastic polymer may open the door for future developments in drug delivery.”

Langer said: “It has the potential to change the way we take drugs. It’ll, I hope, save many, many lives.”

Source : Medical Plastics News

Where is the Sun?

Dr. Devdutt Pattanaik

The first hymn of the Vedas is dedicated to Agni, the fire-god. The most number of Vedic hymns is dedicated to Indra, the rain-god. Yet, the most visible and most dominating god in the celestial sphere remains Surya, the sun-god, addressed by many names in the Vedas: Aditya, Savitur, Martanda, Bhaskara. Today, the old Vedic gods may have been overshadowed by Puranic gods like Shiva and Vishnu and Devi, but Surya continues to be worshipped in morning rituals. Surya was one of the few Vedic gods who had temples dedicated to him, but most of them are now in ruins, such as the sun temples of Konark in Odisha, Modhera in Gujarat, and Martand in Jammu & Kashmir. Still, as any student of astrology knows, Surya reigns supreme in the world of those who seek to know the future.

Stories of Surya are found in the Vedas and the Puranas. He is called the eye of the primal Purusha. He rides a chariot of seven horses and twelve wheels and his charioteer, Aruna, is genderless because he was born prematurely, owing to his mother's impatience. His wife, Saranya, ran away from him, unable to withstand his glare (virility?) and left Chaya, the shadow, in her place, until Surya voluntarily gave up a part of his glare and made peace with her. He is the father of Manu, the first human, and Yama, the god who presides over the dead. He became the teacher of Yagnavalkya, the rebel sage of the Upanishads, after the latter turned away from the traditional rote learning method proposed by his guru. He is the teacher of Hanuman, who flew before his chariot, withstanding his glare, eager to learn the Vedas. He is associated with horses, the embodiment of wisdom, in Hindu mythology. In folklore, the sunflower adores him and looks at him all day, even though he is indifferent, while night jasmine flower (raat ki rani, or parijata) refuses to bloom when he is the sky, as he rejected her love. It is to him that the yogis dedicated their surya-namaskar.

When we read the history of Surya, we realize how despite his magnificence, he has always been overshadowed by other gods. In the Vedic age, it was Indra. In the Puranic age, it was Vishnu. In astrology, Rahu eclipses him. In Western mythology, the rituals and celebrations associated with the sun are claimed by the God

of Christianity, which is why Sunday is the Christian Sabbath, and Christmas, the day when Jesus Christ was born, has been adjusted to align with the Winter solstice, an ancient sun-worshipping festival, and Easter, the day of the resurrection of Jesus Christ, has been adjusted to align with the Spring equinox, yet another pagan sun-festival.

In the Ramayana, Surya's son Sugriva, is kicked out of his kingdom by his brother Vali, following a misunderstanding. In the Mahabharata, Surya's son Karna finds that he is an outsider because his mother abandons him at birth and he is raised by charioteers, his talent in archery notwithstanding. In Ramayana, he is helped by Ram, but all glory goes to the humble Hanuman, son of Vayu. In the Mahabharata, Krishna sides with Arjuna, son of Indra, and the only support he gets is from the villains, the Kauravas.

In the corporate world, we find many Suryas: brilliant men and women whose brilliance is obscured, or eclipsed, by other forces. Either they are too ahead of the times, or the market is not ready for them, or the mediocre competition is so strong that they bulldoze over their ideas, or they are surrounded by jealous and mean people who work actively to

crush their work, and their self-confidence.

Many new entrepreneurs feel how old money, the old established corporate houses, or entrepreneurs who came up in the previous wave, treat them with disdain and in some cases actively work towards blocking their growth by blocking their investments. No one likes the new kid on the block. The nouveau riche is always looked down upon. Respectability is given only when the successful are able to sustain their wealth, power and status over 2-3 generations, or boom-bust cycles. By this time, they themselves become old money, corrupted, and so actively working against the next generation of entrepreneurs.

Yet, the world depends on Surya. His heat and light is what sustains life on earth. If there was no sun, there would be no existence. Likewise, in the world of business, there will always be rising suns: determined to dazzle the world with their brilliance, clouds and eclipses notwithstanding. Like Karna, they will not give up. They will die fighting, and ensure the bards sing of their songs to inspire future brilliance.



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MEMBERS ARE REQUESTED TO SEND THEIR GRIEVANCES / PROBLEMS FACED ON VAT / CST / ENTRY TAX ETC. IN DETAILS ALONGWITH SUPPORTING DOCUMENTS TO THE IPF SECRETARIAT SO THAT WE CAN PUT THE SAME TO THE CONCERNED AUTHORITY.

PLEASE SEND THE SAME TO THE HONY. SECRETARY, INDIAN PLASTICS FEDERATION
8B, ROYD STREET, 1ST FLOOR, KOLKATA – 700 016.

E-MAIL: office@ipfindia.org, FAX : 22176005

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IPF NEW MEMBERS & CIRCULAR

IPF WELCOMES TO NEW MEMBERS TO ITS FAMILY APPROVED IN THE EXECUTIVE COMMITTEE MEETING HELD ON 28/08/2015

Name of the Company	Class of Membership	Membership No.
1. BT Polymers Pvt. Ltd.	Dealer member	DLR – 094
2. Sanhit Polymers	Manufacturer member	M – 302
3. Shree Packaging	Manufacturer member	M – 303
4. Flexible Hose Industries	Manufacturer member	M – 304
5. A-One Polypipes & Fittings Pvt. Ltd.	Life Manufacturer member	LM - 361

Circular No.42/2015

20th September, 2015

Sub : Consumer Price Index Nos. for Industrial Workers for Kolkata for the Month of January to June 2015

Month	Consumer	Price	Index
	Base (1982=100)	Base (1960=100)	
January, 2015	1244	589/	
February, 2015	1239	58/3	
March, 2015	1239	58/3	
April, 2015	1260	59/2	
May, 2015	1265	5996	
June, 2015	1285	6091	



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MECHANICAL DATA

Overall Size of the Journal	:	28.5 cm X 22.0 cm
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Full Page [Print Area]	:	23.5 cm X 18.0 cm

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