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PLASTICS INDIA

A journal for the growth and development of plastics trade & industry

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Dear Members,

Patriotic Wishes for Independence Day with a hope that everybody must be safe and in good health.

As we all know that we are truly passing through the tough time as Covid19 has created a deep crisis on the individual as well as industrial front.

Administration is taking the best possible measures to contain the spread by creating more awareness and our Federation is extending all possible help to the government authorities in managing this crisis. Covid Vaccination Camp was organised at IPF Knowledge Center, Plastic & Food Park, Dhulagarh for the benefit of the member factories for vaccination of their workers. Vaccination camps were also organized at members' factories at different locations for the benefit of the members.

The other crisis front is the rise in prices of raw materials. End users of polymer products, especially the packaging industry, are paying more for their raw materials. The hike comes as an additional burden since the user industries have already been paying record high prices for polymers.

The plastic manufacturing industry, a major consumer of polymers, has been protesting against the increase in prices, saying it threatens "the survival of the processing industry". Polymer prices are high since imports are still a problem. Imports of polymers have been affected due to various problems, one being, shipping woes.

Polymer prices have gone up by 40 per cent to 100 per cent depending on the grades. The industry source said the periodicity of the price increase has come down from once or twice a month from nearly thrice earlier. The industry source said despite prices ruling at record high, demand for polymer remained intact.

The huge escalation in prices is affecting the small and medium enterprises. "The huge rise in prices has resulted in involvement of increased working capital costs. Polymer industry sources agree that working capital costs for the user industry could increase by 40 per cent.

Polymer users are irked over public sector companies joining private firms in raising the prices. They have sought the Government's intervention. Upset over the sharp hike in prices, industry associations has urged the Centre to set up a Petrochemical Regulatory Authority to supervise the polymer market.

On the environmental front, in June 2018, Hon'ble Prime Minister Mr. Narendra Modi had announced that India will eliminate all single use plastics(SUP) in the country by 2022.

Recently under notification dtd: 12.08.2021 Central Govt. has notified the Plastic Waste Management Amendment Rules, 2021, prohibiting manufacture, import, stocking, distribution, sale and use of identified single-use plastic (SUP) items, including candy sticks, plates, cups and cutlery, from July 1, 2022.

The thickness of plastic carry bags will be increased from 50 microns to 75 microns from September 30, 2021, and to 120 microns from December 31, 2022. This will also allow the plastic carry bags to be reused, it stated. Non-woven plastic carry bags should not be less than 60 gram per square metre (GSM) with effect from September 30, 2021, the notification said.

The manufacture, import, stocking, distribution, sale and use of following single-use plastic, including polystyrene and expanded polystyrene, commodities shall be prohibited with effect from July 1, 2022: ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene (thermocool) for decoration; plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays; wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers.

The provisions will not apply to commodities made of compostable plastic. In the fourth United Nations Environment Assembly held in 2019, India had piloted a resolution on addressing single-use plastic products pollution, recognising the urgent need for the global community to focus on this issue.

As per the Environment Ministry plastic packaging waste not covered under the phase-out of identified single-use plastic items should be collected and managed in an environmentally sustainable way through the Extended Producer Responsibility (EPR) of the producer, importer and brand owner (PIBO) as per Plastic Waste Management Rules, 2016. For effective implementation of the Extended Producer Responsibility, the guidelines being brought out have been given a legal force through the amended rules, it said.

Extended Producer Responsibility is a policy approach in which producers take responsibility for management of the disposal of products they produce once those products are designated as no longer useful by consumers. The Centre had earlier asked states and union territories to constitute a special task force under the chief secretary or the administrator for elimination of SUP and effective implementation of the Plastic Waste Management Rules, 2016. The state and the UT governments and the central ministries and departments concerned have also been asked to develop a comprehensive action plan for elimination of SUP and effective implementation of the rules in a time-bound manner.

I request with all the members to join hands with IPF to strengthen our efficacy to serve the industry.

Happy Reading,



Manish Singhania

Editor



Presidential Address

Dear IPFians,

It's always a pleasure talking to you. As I am communicating with you, our nation will be celebrating her 75th Independence Day this year. This will be a proud moment for all of us. We have been steadily progressing during all these years after getting independence and our country will be a five trillion economy by 2025. This is not a small feat. Our economy has been one of the fastest growing economy during earlier years. Due to global pandemic which has engulfed the entire globe, the progress of almost every country has slowed down. We are also not an exception. Despite the onslaught of First and Second Wave of Corona, we have put up a brave fight against this deadly disease and with the great initiative of our Central Government and various State Governments, we could contain the spread of this disease which had threatened to claim the lives of large population. Although, this disease has claimed many lives and we are sad to see all this, but seeing the very big population, the casualties could have been much more. The vaccination drive started by the Central and State Governments could avert the fear of death due to this disease. Our governments are sincerely trying to vaccinate as many people as it can everyday with a target of vaccinating the entire population in the shortest possible time. We all have to defeat this disease jointly and with great efforts. And, I am sure that we shall win against this disease.



The Central Government has notified the necessary changes in the Plastic Waste Management Rules, 2016 to phase out Single Use Plastics.

It's our duty to extend our fullest co-operation in this drive and phase out the use of SUPs which are creating menace to the environment.

We, as a responsible citizen of the country must spread the knowledge about proper use of plastics and its disposal and promote its recycle and reuse.

People need to be enlightened about this so that negativity about plastics due to ignorance is taken away.

Post Covid and relaxation in curbs due to its onslaught, our economy is gradually regaining its pace and we shall have to accelerate its growth. We shall have to reclaim our double digit GDP growth so that our economy achieves its goal of 5 trillion dollar economy.

The festive season is going to start soon and we all shall be in festive mood and spirit. But, caution must be exercised to avoid large gatherings as the threat of this disease is not over yet. We must observe and strictly follow the safety and social distancing norms.

My sincere and hearty greetings for Independence day and we must take a pledge on this auspicious day to make our country strong and world leader !

Jai Hind !

A handwritten signature in black ink, appearing to be 'Ramesh Kr. Rateria'. The signature is stylized and written in a cursive-like font.

Ramesh Kr. Rateria

President



Dear Members,

I hope this issue finds every member and their families in the best of health and sound spirits. Due to the restrictions imposed by the State government the office Secretariat had to be kept closed from 16th May to 30th June 2021. Therefore, the publication of this magazine had to be kept suspended for some time.

During the pandemic period and Yaas cyclone IPF had actively participated in various activities for the relief and benefit of the affected people of West Bengal. Many members contributed generously to the government to help the effected people. Oxygen cylinders and concentrators were provided to many organisations. Masks were also distributed free of cost. Empty plastic drums of 100 litre capacity were sent to Midnapore to save people from water crisis. We thank all our members who had come forward during this crisis period to provide relief and succor to the affected people.

The Federation had requested various authorities to grant permission to run the plastic units that fall under para 13 of the Chief Secretary's restriction order issued on 15th May 2021. At our request all DMs and GM DICs have given the permission to run all the plastic units related to medical supplies, covid protective supplies, health and hygiene care products, oxygen and oxygen cylinders, continuous process industries and production, packaging of essential food commodities and beverages including milk, poultry, fish and meat.

IPF in association with MSME & T Dept. GoWB organised a 10 days Covid vaccination camp (from 17.06.2021 to 28.06.2021) at its premises at IPF Knowledge Centre at Sankrail in Dist. Howrah to vaccinate those working in the Poly Park and Food Park at Sankrail, Dhulagorh, Howrah and the surrounding areas. More than 5585 vaccinations were performed including workplace vaccinations organized by some of our members. Smt. Mukta Arya, the District Magistrate of Howrah district paid a visit to the vaccination camp.

IPF has submitted its recommendation to Government of West Bengal regarding the Utilisation of our Infrastructure at IPF Knowledge Centre at Sudharos Food & Poly Park, Dhulagarh, Sankrail, Howrah for Skill Development. The State government has shown interest in helping organisations with funds and manpower to promote skill development programme that will provide employment to youths.

The government is trying to phase out single use plastics in a phased manner. A notification in this matter has already been issued. The Federation along with Department of MSME-DI, Govt. of India organised Webinars on "Awareness to MSMEs for transition from Single Use Plastic (SUP) to alternate materials" on 28/07/2021, 02/08/2021 & 03/08/2021. IPF actively participated in the Webinars.

IPF has made several representations to the West Bengal Pollution Control Board to discuss issues pertaining to plastics. IPF has been informed that a notification has been issued by the Central Pollution Control Board that the State Government and SPCBs are actively pursuing. As per the notification various plastic items will be phased out by 1st July 2022. Members are requested to follow rules issued by the Government and Pollution Control Board that is being implemented throughout the country.

We are planning to hold our next Annual General Meeting of the Federation in September 2021. Unlike last year when the AGM was held virtually, we are planning to hold this AGM physically at a suitable venue, unless our plans are frustrated by another wave of coronavirus. If held physically members will get an opportunity to meet each other after a long break.

With best wishes,

Sisir Jalan

Hony. Secretary

SETTING UP FREE OXYGEN - O₂ HUB TO SAVE LIVES

IPF in association with Lions Clubs International District 322B1 organised an Oxygen Hub on 22nd May 2021 at Shri Vishudanand Saraswati Vidyalaya, 160A, C.R. Avenue, Kolkata – 700007. It was inaugurated by Shri Vivek Gupta, MLA, Jorasako and other dignitaries. From IPF Mr. Sisir Jalan, Hony. Secretary, Mr. Amit Agarwal, Hony. Jt. Secretary and Mr. Pradip Nayyar, Past President of IPF were present. In second phase IPF organised a OXYGEN HUB at Dhapa, Nadia, Chakda block, Payradanga, Ranaghat, Fulia, Krishnanagore, Mayapur, Dhubulia, Bethuadhari, Panihati, Kaliganuj, Karimpur, Bijoygarh and more by donating more than 25 oxygen concentrators and 100 oxygen cylinders. Oxygen on wheels of 3 buses with oxygen cylinders was also made operational in Kolkata. Again on 30th May 2021 IPF set up an Oxygen Hub at Colin Street, Ward No. 52, Kolkata. It was inaugurated by Smt. Nayna Bandyopadhyay, MLA & Shri Swarna Kamal Saha, MLA.



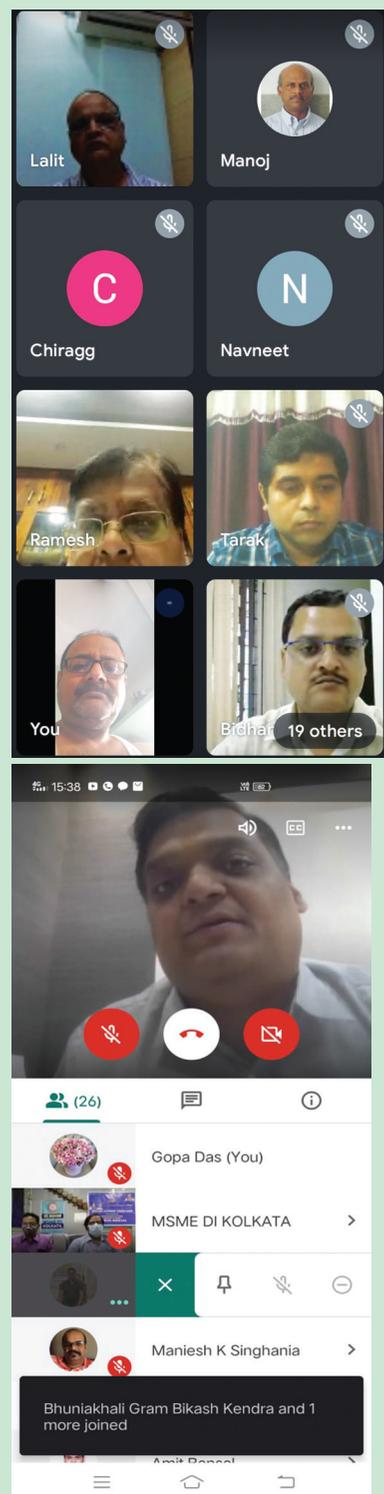
COVID - 19 VACCINATION CAMP BY IPF

IPF in association with MSME & T Dept. GoWB organised a 10 days Covid vaccination camp (from 17.06.2021 to 28.06.2021) at its premises at IPF Knowledge Centre at Sankrail in District, Howrah to vaccinate those working in the Poly Park and Food Park at Sankrail, Dhulagorh, Howrah and the surrounding areas. More than 5585 vaccinations were performed including workplace vaccinations organized by some of our members. Smt. MuktaArya, the District Magistrate of Howrah paid a visit to the vaccination camp. Many Members of IPF like Uma Plastics Limited, VintechPolmers, P B Holotech, Mittal Technopack, Ishaan Plastics, SMVD Poly Pack, Payel Dealers organised workplace Vaccination in association with MSME & T Dept, GoWB at their own premises for their workers and served people for this noble cause. IPF in association with MSME Dept. GoWB organised Covid vaccination camp on 19-06-2021 at 238 Friends Society, NewAlipore, Kolkata to vaccinate 220 workers in an Industrial Compound.



WEBINAR ON “AWARENESS TO MSMEs FOR TRANSITION FROM SINGLE USE PLASTIC (SUP) TO ALTERNATE MATERIALS WITH DEPARTMENT OF MSME-DI, GOVT. OF INDIA

Department of MSME-DI, Govt. of India, Durgapur Branch in association with Indian Plastics Federation organised a Webinar on “Awareness to MSMEs for transition from Single Use Plastic (SUP) to alternate materials” on Wednesday, 28/07/2021. Among the speakers were Mr. Debabrata De, DGM and Team Leader of Business Development Group, Haldia Petrochemicals Ltd who represented the Federation. Department of MSME-DI, Kolkata, Government of India in association with Indian Plastics Federation organised a Webinar on 2nd August & 3rd AUGUST 2021. On 2nd August the speakers were Shri K. D. Bhattacharya, Jt. Director, MSME-DI, Kolkata, Prof. Manoj Kumar Mondal, IIT Kharagpur, Mr. Bidhan Das, Dy. Director, Indian Institute of Packaging, Kolkata. Mr. Amit Kr. Agarwal, Hony. Jt. Secretary spoke on behalf of the Federation. On 3rd August 2021 the speakers were , Prof (Dr) Harish Hirani, CSIR-CMERI, Durgapur and Mr. Anindya Roy, Regional Manager, Kolkata, Reliance Industries Ltd.



MECHANICAL PROPERTIES OF CONCRETE CONTAINING-WASTE PET PARTICLES

The modern lifestyle along with the new technologies caused more waste materials generations for which the disposing problem exist. Most of the waste materials are non-disposable and remain for hundreds and thousands of years in the environment. These non-biodegradable waste materials along with population growth have caused the environmental crisis all around the world. Many of them are stuffed in the dump place or they are outpoured in the dustbins illegally. One of the new waste materials used in the concrete industry is recycled plastic. For solving the disposal of large amount of recycled plastic material, reuse of plastic in concrete industry is considered as a thermoset feasible application. Recycled plastic can be used as a coarse aggregate in concrete.

PET is a kind of polyesters made of the ethylene glycol and Terephthalic acid's composition and its chemical name is Polyethylene Terephthalate or "PET". PET is one of the most widely used plastics in the packaging industry because of high stability, high pressure tolerance, non-reactive with substances and good quality of gas trapping which can preserve the gas in the gaseous drinks. Polyethylene terephthalate (PET) is a kind of polymer which is used in manufacturing polyester fibers, bottle resin and engineering polyester in most of the countries around the world. Extensive application of this polymer in food packaging industries and long-term decomposition of this kind of waste materials in nature encouraged many researchers around the world to find new ways to recycle and reuse them.

There are different methods for disposing such materials: burial, incinerate and recycling. It is possible to benefit from the produced heat during incineration, but the combustion of some kinds of wastes like PET bottles may produce poisonous gases. Another problem arises from the fact that these materials slowly decompose, and they need hundreds of years to return to the cycle of nature. So, it seems that recycling is the best way because of environmental cleanliness and economic benefits.

Recycling PET waste bottles as PET fibers to make fiber reinforced concrete has been considered in many researches. The volume of fiber content with respect to fiber concrete is between 0.3% and 1.5% so, this procedure recycles small amount of PET wastes. The most economical way is using PET particles as a substitute of aggregates and mortar. As a result, using PET waste as an aggregate in concrete has some benefits such as decreasing the usage of natural resources, the waste consumption, preventing the environment pollution and economizing energy.

Adding PET to the concrete mixture leads to decrease in concrete rigidity, which is useful when flexibility of the material is needed.

According to non-destructive tests, adding PET particles to the concrete mixture results in reduction of slump, increase of water absorptions & also reduction in propagation rate of ultrasonic pulse. When different weight ratios of sand (5%, 10%, 15% and 20%) were replaced with the same weight of plastic PET and analyzed the fracture strength of these composites, the results show that weights of the samples which were containing polymeric materials were reduced. Their flexural behaviors were significantly improved, and the energy absorptions were increased. Furthermore, the results indicated that the probability of brittle failure mode of the samples was diminished. The samples are more flexible, so they can withstand the loads for some time after the failure without collapse. Replacing some percentage of sand with these plastic particles not only improves the flexural strength and the toughness factor, but also causes these composites to absorb more energy. Some concrete with more ductile behavior can be obtained using waste PET particles.

Despite the advantages of concrete with waste PET particles the specimens containing PET particles have smaller unit weights, splitting tensile strengths and elasticity modulus. As a matter of fact, the PET particles usage makes some deficiencies in the concrete inner structure that causes reduction of tensile strength and stiffness. Increasing PET up to 15% will decrease tensile strength by 15.9% and 18.06% for w/c ratios of 42% and 54%, respectively. Increasing PET up to 15% will decrease unit weight by 3.1% and 3.3% for w/c ratios of 42% and 54% respectively.

APPLICATION OF CONCRETE WITH WASTE PET PARTICLES AS AGGREGATES

- Used as a proper sound absorbent structural material.
- Used as a lightweight concrete.
- Used in civil engineering applications such as structures subjected to dynamic and impact loads.
- Non-bearing lightweight concrete, such as concrete panels used in facade.

FOLLOWING TEST CAN BE UNDERTAKEN TO KNOW THE MECHANICAL PROPERTIES OF THE PET WASTE USED IN CONCRETE:

- Slump Test
- Compressive Strength Test
- Split Tensile Strength Test
- Modulus of Elasticity
- Flexural Strength Test

- Fresh and Dry unit Test
- Ultrasonic Test

CONCLUSION

PET content can be used to replace some of the aggregates in a concrete mixture. This contributes to reducing the unit weight of the concrete. This is useful in application requiring non-bearing light weight concrete, such as concrete panels used in facades.

For a constant water to cement ratio, the workability of fresh concrete was decreased as the amount of PET content was increased. It is because the PET aggregates reduce the bond strength of concrete. Therefore, the failure of concrete occurs due to failure of bond between the cement paste and PET aggregates.

The concrete specimens containing various amount of PET particles contents exhibited different behaviors in compressive and flexural strength. So that 5% replacement of fine aggregates with PET particles yielded the optimum compressive strength. In fact, for 5% of PET content, 8.86% and 11.97% of increase in compressive strength were detected for w/c ratios of 42% and 54%, respectively. On the other hand, with further increase of PET contents, the compressive strengths were decreased.

The specimens containing PET particles have smaller unit weights, splitting tensile strengths and elasticity modulus. As a matter of fact, the PET particles usage makes some deficiencies in the concrete inner structure that causes reduction of tensile strength and stiffness.

Introduction of PET concrete tends to make concrete ductile, hence increasing the ability of concrete to significantly deformed before failure. This characteristic makes the concrete useful in situations where it will be subjected to harsh weather such as expansion and contraction or freeze and thaw.

Due to its low workability, the mixture containing PET particles would have more porous structure which causes reduction in ultrasonic pulse velocity. Thus, PET concrete can be used as a proper sound absorbent structural material.

Results demonstrated that concrete in which 10% of fine aggregates volume is replaced with PET particles has the same strength of the control specimens without PET particles and lower elastic modulus. This is a desirable result that some concrete with more ductile behavior can be obtained using waste PET particles.

Results of both compressive and flexural strength tests took similar trend patterns for w/c ratios of 42% and 54%. Thus, the obtained trend is independent of water to cement ratio.

*Source : Himadri Tanya Jena
B.Tech (Plastics Engineering)*

Manager Marketing - Creative Poly Packs Pvt. Ltd.

MSMES IN COVID-RELATED MEDICAL GOODS FIGHT OVERCAPACITY DESPITE SECOND WAVE AFTER EARLY RUSH LAST YEAR

Covid impact on MSMEs: While the government had approved the Production-Linked Incentive (PLI) scheme for 13 sectors including domestic manufacturing of medical devices in February this year, it didn't include Covid-related medical equipment.

Covid impact on MSMEs: Among a handful of sectors for which Covid-19 brought tailwinds last year was medical goods. The MSME-dominated sector, which is among the top 20 global markets for medical devices, saw a great rush in demand for Covid-related goods such as masks, personal protective equipment (PPE) kits, RT-PCR test kits, etc., last year when the pandemic struck. In fact, the government had last April, through a notification, urged MSMEs in manufacturing or supply of medical and related equipment to register as a supplier on the government's e-commerce portal GeM to bolster the supply of such products including ventilators, N95 masks, disposable thermometers, alcohol-based hand sanitizer, protective gowns, etc. However, this led to overcapacity in the market and a glut in production as supply outstripped demand and eventually impacting MSMEs despite the second wave of the pandemic.

"MSMEs witnessed huge demand for Covid-related medical products last year but the growth engines were rudely halted by the complete backlash of overcapacity and glut in production because of steep fall in domestic demand as Covid cases dropped compounded by a spike in zero duty cheap imports. Also, MSMEs faced a double whammy as export of such products was restricted. It took a lot of effort to get export restrictions lifted and custom duties increased back to pre-Covid levels. By then the damage was done. This setback grievously injured the nascent sunrise MSME sector which definitely lost a lot of money in recent investments," Rajiv Nath, Managing Director, Hindustan Syringes & Medical Device, and Forum Coordinator, Association of Indian Medical Device Industry (AIMED) told Financial Express Online.

Moreover, while the government had approved the Production-Linked Incentive (PLI) scheme for 13 sectors including domestic manufacturing of medical devices in February this year, it didn't include Covid-related products. The categories covered were cancer care/radiotherapy medical devices, radiology & imaging medical devices and nuclear imaging devices, anesthetics & cardio-respiratory medical devices, and all implants.

"The government surprisingly didn't cover Covid-related medical devices in PLI scheme. The government could have at least rewarded the efforts of MSMEs involved in Covid-related medical devices like masks, PPE coveralls, RT PCR test kits,

Ventilators, etc., and encouraged them for coming forward when the nation critically needed them. However, once shortages were over, they were ignored. Most of the factories that came up last year to make digital thermometers or oximeters are again shutting shop as they can't compete with cheap Chinese imports," added Nath.

The Chennai-based promoter of Lesure Industries, which makes Sanisfy Masks and infection control products, Sudhir Reddy said that the government should have created a separate platform to facilitate the export of Covid products to help MSMEs. "It was a challenge to establish a distribution network for a product line that is seen as seasonal or having temporary demand. So exports were more lucrative for us. I wanted the government to launch a platform for (export of) Covid-related products but that didn't happen," he told Financial Express Online. However, the Directorate General of Foreign Trade had issued a notification in July last year for lifting restrictions on the export of PPE kits, face shields, and masks including surgical, N-95, etc., with a monthly export quota.

"MSMEs had produced Covid goods in bulk amid the medical emergency last year. However, as cases started to decline post-mid-August or early September, the demand declined that led to piled up stocks and losses for MSMEs," a healthcare sector expert told Financial Express Online. For non-Covid product manufacturers, the market had started improving around November last year as an outpatient department (OPD) at hospitals, and elective surgeries were gradually resumed.

However, amid the second wave of the pandemic, as OPDs have been shutting again while elective surgeries are getting postponed, non-Covid medical devices are failing to find the market again. On the other hand, now again with the onset of the second wave "Covid-related goods manufacturers are confused because while they think there might be huge demand coming in with cases shooting up but they don't see much uptake as yet in their own

sales," said Nath.

MSMEs are wary to invest in raw materials inventory and hiring people having burnt fingers in the previous year. Meanwhile, there are MSMEs that have witnessed growth amid the pandemic. "Last one year we have grown our business 20-25 per cent," VikramSalunkhe, MD, Accurate Gauging & Instruments (manufacturing measuring instruments and gauges in India) told Financial Express Online. The MSME manufactures high-flow nasal oxygen equipment.

Source : Sandeep Soni

REPORT FORECASTS ROBUST GROWTH FOR PLASTICS INDUSTRY

The good news: Plastics manufacturing is now projected to increase by 5% this year, according to a new report from the Plastics Industry Association. The bad news: Resin prices will continue to rise.

The US plastics industry continues to grow. According to the Q2 Plastics Industry Outlook released by the Plastics Industry Association (PLASTICS), plastics manufacturing is now projected to increase by 5.0% this year. Plastics machinery and production molds are revised upward to increase by 12.6% and 4.6%, respectively, said the PLASTICS report. "This year's production of plastic materials and resins could decrease by 2.9% and increase by 8.2% next year," the report also noted.

Plastic materials and resins saw a 6% decrease in Q1. That is expected to improve, although output will be less than last year, PLASTICS projects. Production in Q2 and Q3, respectively, could be 1.1% and 0.6% lower than a year earlier. Production will likely be 3.6% lower in Q4 compared with last year's production ramp up of 13.5%. Holding back plastic production in 2021 are the broad-based supply-chain difficulties, which could

result in lower production by 2.9% in 2021. However, as the economy continues to recover in 2022, production could increase by 9.2%, starting with a 12.2% increase in Q1 and a 9.5% increase in Q2, projects the PLASTICS Q2 report.

Higher resin prices will remain throughout 2021.

Processors have been complaining about the increase in resin prices, which isn't making their customers happy, but they shouldn't hope for any relief. PLASTICS said that "higher prices due to plastic materials and resin scarcity along with strong demand are now projected to remain throughout 2021." Comparing this year's Q2 and Q3 with last year is enough to make processors choke on their coffee: In Q1 and Q2, prices were 14.1% and 25.9% higher than a year ago, respectively.

The only good news the PLASTICS report has to offer is that the rate of price increases will start to slow this year at 23.2% in Q3 and 17.0% in Q4, leaving resin prices 19.9% above last year on an annual basis. Some relief is expected to come in 2022, with resin prices projected to increase a modest 3.1% in Q1 and 2.5% in Q2.

Plastic products manufacturing rose by 12.5% in Q2 following a 0.1% decrease in Q1. Production is expected to increase by 5.0% in Q3 and by 3.2% in Q4, said the report. "That brings a production increase of 5.0% this year," said PLASTICS, "and it is expected that production will continue to increase by 3.3%. The moderate production forecast in 2022 is in sync with the overall economic growth that will most likely slow after this year's bounce back from the pandemic." The increase in production is also projected to bring an increase in employment in the sector, the report noted.

Plastics machinery production forecast to rise 12.6% this year.

As for plastics machinery, increased production should bode well for this sector. Plastics machinery production rose by 11.2% in Q1 and 21.7% in Q2, but these rates are "magnified in comparison to the

lows in Q1 and Q2 last year,” the report noted. “It is now projected that [machinery] production could increase by 10.2% and 8.2% in Q3 and Q4, respectively. Annually, a 12.6% increase in plastics machinery is expected this year but could slow to 0.4% in 2022.”

An increase in machinery production won't help much in the employment picture, however, as the industry “will continue to experience a tight labour supply this year,” said PLASTICS.

Although production of industrial moulds decreased 2.1% in Q1, Q2 production increased by 11.6%, and further increases are expected — 5.5% in Q3 and 4.2% in Q4. Employment in mould manufacturing is projected to have increased by 1.4% in Q2, after a slight decrease in Q1. “The producer price index for industrial moulds is now expected to increase this year by 0.5%,” said the report. “The next year's 0.7% increase forecast is unchanged. Quarterly price index changes are still expected to remain on the low side this year and next year. Following a 0.5% decrease in Q1 and no change in Q2, Q3 and Q4 could see 1.2% and 1.3% price increases respectively. The price index in 2022 is currently projected to increase 0.9% in Q1 and 0.8% in Q2.”

Source : Clare Goldsberry

MICROCAPSULES ENABLE SELF- LUBRICATING PLASTICS

An astonishing 23% of global energy consumption can be attributed to friction losses. Components with reduced friction, therefore, represent an important contribution to conserving resources and achieving climate protection targets.

In the case of plastics, reduced friction can also reduce the presence of microplastics in the environment. With the development of microcapsules filled with liquid lubricants for plastics, the Potsdam Fraunhofer Institute for Applied Polymer

Research IAP and the Plastics Center SKZ in Würzburg are supporting these goals. Their self-lubricating plastics achieve up to 85% less wear.

Whether it's sliding doors, plastic gears, or other moving components, a variety of applications subject materials to friction. Plastics manufacturers sometimes incorporate solid lubricants into plastics to reduce component wear. However, a relatively small number of solid lubricants are suitable for plastics processing. By contrast, there is a much wider range of liquid lubricants, some of which are more effective. In a cooperative effort, the two research institutes have succeeded in encapsulating liquid lubricants in such a way that they can be incorporated into polymers as functional substances and later develop all the advantages of a liquid lubricant in the component.

High-temperature mixing without damaging capsules was a challenge

“We managed to incorporate Fraunhofer IAP's microcapsules filled with liquid lubricant into thermoplastics using a twin-screw extruder,” explains Moritz Grünewald, researcher in the Materials Development Group at the SKZ Plastics Center. “The challenging task was to mix the microcapsules with thermoplastics under high temperatures without damaging the capsules. Only when friction occurs in the final component should the capsules break and release the lubricant. This allows the component to lubricate itself automatically. Our friction and wear tests showed a reduction in wear of up to 85% on plastic-steel pairings. Thus, components last significantly longer and generate less microplastic,” said Grünewald.

Based on these results, the material system is being optimized further for potential applications. The development is now focusing on improved mechanical and thermal properties of the self-lubricating plastics.

Testing reinforcing materials

The additional use of reinforcing materials such as fibers is intended to make the self-

lubricating plastics more mechanically stable. In the project, the researchers investigated which type of fiber is best suited for this purpose and how the microcapsules can be optimally bonded to the plastic matrix. In addition, the capsules may also be incorporated into higher-melt plastics in order to further widen the technical application possibilities. To this end, even more stable capsule wall materials are being developed in close cooperation with project partners.

“The main challenge is that the capsules should not break until they come into frictional contact in the final application. However, if we introduce additional fibers and increase the temperatures, the stress on the capsules increases during the mixing process,” explains Dr. Alexandra Latnikova, micro-encapsulation specialist at Fraunhofer IAP. Her team develops the microcapsule systems.

Numerous inquiries from industry highlight the need for novel plastics with optimized friction and wear properties. Micro-encapsulation technology has major advantages for companies in this regard — the wide range of liquid and advanced lubricants can now be used as internal lubricants with on-demand release properties. The project is accompanied by a committee that includes companies from all sectors of the plastics industry, lubricant manufacturers, and micro-encapsulators. The project is open to further partners.

Source :Plastics Today Staff

THE CHEMICAL RECYCLING POSSE: THE GOOD, THE BAD, AND THE LUCKY

Is it better to be lucky than good? Chemical recycling executives speak out about the complexities of their industry.

Chemical recycling (aka advanced recycling) of waste plastics continues to struggle, and few of the 35 or so

companies involved in this technology are actually making and selling the products they promised. Considering the number of patents — and there are hundreds of them that date back some 30 years — for processes such as pyrolysis and converting polymers back to monomers to use as feedstock for new plastics, it amazes me that many of these companies don't have much to show in the way of actual products.

I have discovered a couple of chemical recycling success stories, however. New Hope Energy's Trinity Oaks plant in Tyler, TX, is operating 24/7 as it sells its products to customers that include Chevron Phillips, which is hooking up with many of the waste-to-fuel companies to bolster its sustainability goals. As *PlasticsToday* reported a few months ago, New Hope's biggest problem is meeting demand. The demand for solutions to the plastic waste problem is creating a shortage of technology to deal with it.

As a side note, New Hope's founder and CEO, Johnny Doyle Combs, passed away on May 3 of this year. He and his wife, Karen, founded New Hope Energy in 2013 to fulfill a "personal mission" to pioneer a technology that "keeps plastic out of the ocean and puts it back to work in the economy," said Combs' obituary.

Nexus Fuels: Real numbers and a low profile.

Aside from Agilyx's achievements — *PlasticsToday* ran an update on progress it has made at its Oregon facility — there is another success story I've been made aware of: Nexus Fuels in Atlanta. Nexus' President and co-founder Eric Hartz has always been forthcoming on the company's progress using real numbers, while keeping a rather low profile. The company recently shared that it has "end-to-end diverted more than 1,500+ tons (over 3.1 million pounds) of waste plastics and counting, in a relatively short time and accelerated pace at our commercial operation," said Hartz, adding that it handles waste from Dow's "Orange Bag" recycling program.

"Tanker loads of product are being sold

and sent weekly to customers like Shell and Chevron Phillips. It's a consistent, on-spec, ICSS Plus-certified product which, in turn, [is being converted] into circular recycled-content plastics in their crackers, to meet the demands of their customers."

I think I can say that both Nexus Fuels and New Hope Energy are "good," in that they are demonstrating success at actually producing and selling products, even if one states actual volumes, customers and results, and the other refers to demand constraints. Both have said they could do a lot more with company expansions and better access to cleaner plastic waste. The chemical recycling industry, as I've gathered from speaking with both of these companies, is complex and production is expensive. Overnight successes they are not, but they've kept at it, focused on the technology, and achieved some level of production to prove that they are "pretty good" at what they do.

A 100% plant-based, recyclable, and degradable polymer.

Then there are the "lucky" ones. In May, after receiving press releases from Avantium NV, headquartered in the Netherlands, I wrote to the company asking about the company's advanced technology recycling facilities. Avantium said that it "develops innovative chemistry technologies across industry value chains in order to produce chemicals and materials based on renewable feedstock instead of fossil resources to enable production of the novel plastic PEF which is 100% plant-based, recyclable, and degradable."

In April, Avantium announced that it had signed a conditional off-take agreement with Resilux, an international rigid plastic packaging supplier, for the supply of PET resin from the planned Avantium FDCA (furanedicarboxylic acid) flagship plant, bringing the total of such off-take contracts to five. A week later, Avantium announced that it had completed validation of its plant-based glycols, plantMEG, produced in the Ray Technology demonstration plant in the Dutch city of Delfzijl.

Key applications include polymerization

to PEF and PET polyesters and functional fluids used for de-icing and heat transfer. "Proving the functional performance of the plant-based glycols is an important step in the scale-up of Ray Technology," Avantium stated. A concern about the "nitrogen crisis" and the possibility that it could "hamper innovative and sustainable projects in the chemical industry," noting, for example, that plans for the production of biodegradable plastics in Chemie Park Delfzijl have been halted, which appeared in the June 4 edition of the *NOS Journal*, were dismissed by Avantium. "Avantium is focused on the execution of its strategy and the company is working diligently toward meeting all conditions required for an investment decision for the construction of the FDCA flagship plant," the company responded.

I asked Avantium about the length of time it seems to take — not to mention the huge amount of money — to develop these new materials, demonstrate their viability, and then build a facility that can scale production to meet demand. Tom van Aken, CEO of Avantium, replied: "I realized some time ago that perseverance is needed to bring a new polymer to market. It's been decades ago that new polymers were brought to market. It simply takes time to go through an extensive and rigorous R&D process. This involves developing the chemical synthesis of the FDCA monomer and PEF polymer, scaling and optimizing production, creating the supply chain and applications, as well as regulation compliance. It also involves other elements, such as understanding the end-of-life options and doing a certified life cycle analysis. Most importantly, we work with customers to develop products that can be used in a commercial setting."

Van Aken also noted that the company has performed "many trials" with customers to evaluate performance properties as well as the "circular advantages" of PEF. The company's partnerships with "brands like Carlsberg and Refresco, as well as industry leaders in the supply chain, like Resilux and Toyobo, truly demonstrate the commercial potential of PEF," he said.

“Technologically and commercially, we are now ready to introduce PEF to the market.”

You get lucky sometimes

I explained to van Aken that I have watched the advanced recycling industry struggle with the various processes and the difficulty in developing materials that will disappear once they become products and are left in the environment. I have seen companies rise with enormous investments and fall a few years later unable to reach their projections. What makes Avantium different?

“We are incredibly lucky that we have discovered a polymer that has such a powerful combination of performance characteristics and environmental benefits,” responded van Aken. “It is our responsibility to translate that high potential into commercial success and impact. We have fully proven our technology in our pilot plant at Delfzijl. Our technology is protected with 57 patent families to produce FDCA and to polymerise it to PEF. As a result, we are well ahead of competitors in scaling up the PEF technology.”

As I like to say when I see a golfer hit an amazing shot off the tee for a hole-in-one, it's good to be good but it's better to be lucky. Perhaps that's true for chemical recycling companies, as well. But the plastics industry is based on science, and while luck happens sometimes, even in science, it's mostly the knowledge and skills of the people behind the science that create success. The problem with being “lucky” is that it rarely happens, like a hole-in-one on the golf course. Being good will carry the day in the long run of doing business and being successful.

Source :Clare Goldsberry

7 SUSTAINABLE PACKAGING TRENDS FOR 2021

Sustainable packaging has been a priority for brand owners for more than a decade.

As 2021 advances, we see relevant and effective activities that address the consumers' hunger for brands that show respect for the environment.

The consumers' increased awareness continues to drive the sustainable packaging mission of brand owners. Around 74% of consumers say they are willing to pay an additional amount for products in sustainable packaging. Recyclable packaging seems to matter most to consumers because recycling is something they can do to contribute. However, in many areas, the business of recycling is struggling. This may force brands to adopt other sustainable packaging options.

Here are seven sustainable packaging trends we're seeing in 2021.

1. Refillable parent packaging

The use of refillable containers supports Zero Waste initiatives. It functions on a simple principle: The store provides products in bulk, and customers bring their empty refillable containers and fill them with product (see image above). Cleaning and personal care products are often available this way.

Leslie Campbell, the owner of Sustain LA, explains her mission of zero waste: “Zero Waste has many aspects. The main concerns are: What we are throwing away? How to conserve resources? How to restore the natural process of the planet? Recycling plastic is a solution, but unfortunately, less than 9% of the plastic is recycled.”

The use of refillable containers reduces the transportation and manufacturing costs, but the success of this system relies on multiple factors. This may include; acceptance from general public, additional cost incurred on supply chain, and availability of containers in large quantity.

2. Bulk dispenser refilling

While similar to retailer-to-consumer bulk buying in refillable containers, bulk dispenser refilling is another packaging trend for the wholesaler-to-retailer market. The trend is rapidly expanding in the

USA, Canada, Europe, Indonesia, Brazil, and South Africa. The wholesalers request retailers to bring their container and fill it up.

The concept is being adopted by a limited number of wholesalers and for a limited number of products. However, retailers like Asda and Waitrose are providing a number of products to consumers in bulk dispensers — mainly dry products, like cereals, pastas, and nuts — which need refilling themselves. This trend is expanding rapidly, and general stores and smaller grocery chains are also adopting it for its contribution to environmental sustainability.

Algramo, a Chile-based consumer brand, sells bulk products at an affordable cost in lower-income areas to increase its usage across the region.

3. Returnable/reusable packaging

Returnable/reusable packaging is not a new concept in the business-to-business market. Manufacturers have long reused crates, drums, pallets, and bulk containers.

This returnable trend has returned, with a number of organizations using returnable containers and cutlery items to reduce environmental impact.

CupClub (UK), Globelet (Australia), ReCup (Germany), and CupKita (Indonesia) are pioneers. But the trend is not limited to liquid drinks: Fresh Bowl (US) uses a glass container to serve a fresh salad. The container can then be returned to its kiosk.

As another example, this one for industrial products, Oshkosh Corp. is a giant wholesaler that has adopted the trend and uses returnable packaging. Returnable packaging management software is also available to manage assets through the supply chain.

In 2021, the reusable packaging concept is being embraced by the business-to-consumer market, too.

Major organizations like Nestlé, P&G, PepsiCo, and Unilever are adopting the trend by supporting the Loop circular

economy shopping platform, initiated by Tom Szaky, founder and CEO of TerraCycle.

“Consumers are delivered their favourite products in sustainable and transit packaging. They use it and return it for reuse,” Szaky told CNN. “It was tough to ask consumers for a change, as plastic containers are more convenient for them. But we did, and Nestlé was the first to be a part of the program.”

Loop is growing at a healthy pace. It was initially available in three cities and offered 300 products. Since then, it has expanded nationwide in America.

4. Antimicrobial packaging

Antimicrobial packaging is a newer example of how packaging contributes to sustainability by helping to reduce product waste. However, the development of such packaging is generally expensive and could require major design changes.

Industry expert HayriyeUnal from Sabanci University, Turkey, came up with an innovative idea of creating an antimicrobial film using clay. This film used for packaging will reduce the microbial and ripening activities on food, keeping it fresh for a longer period.

Unal explains, “Using antimicrobial packaging is beneficial in keeping food fresh for a longer period. Along with this, the reduced microbial action will reduce the potential of viral or microbial diseases proportionality. It is prepared from biodegradable clay.”

5. Edible films

Edible packaging is finally available for commercial purposes. Different natural products can create edible packaging, but the most effective one is chitosan. It is a polysaccharide that possesses natural antibacterial activities and is present in ample amount.

Two reasons for using chitosan packaging are that it's edible and can protect food from multiple mechanisms. It serves as a physical barrier and prevents the direct contact of microbes with the food. It also

inhibits the respiratory activity of bacteria by blocking the oxygen supply in the packaging.

The edible films are used for fruits and vegetable packaging. But food scientists believe that by the end of 2021, it will be adopted by restaurants for packaging takeaways.

6. Bioplastics

Bioplastics are prepared from biodegradable, renewable resources such as starch, proteins, and polylactic acid (PLA). The number of available products and suppliers has exploded in recent years and bioplastics are being used today in commercial markets across the globe.

Polyethylene terephthalate (PET) has the highest recycling rate of all the plastics used for packaging. It is typically produced from feedstocks but it can replace some of its petroleum-based components with bio-based alternatives.

According to the European Bioplastics, bio-based PET is a relevant, economic, and effective form of plastic packaging. It contains an elastic texture with strong fibers that makes it suitable to replace other packaging materials for containers, rigid bottles, and films.

Klaus Hartwig, the head of Nestlé research center, elaborates on the company's 100% renewable plastic bottles for mineral water packaging. “We are using PET. It is recyclable and has better environmental performance. We want to make it big, fast, and cost effective,” Hartwig says.

The materials used for the packaging will not compete with a food source. The raw materials are already waste or by-product, such as rice hulls and wood chips.

7. Post-consumer recycled resin

Post-consumer recycled (PCR) resin is a recycled plastic used for making packages like water bottles, sheets, films, and other containers. PCR is now in high demand as many companies have set goals for PCR content in their packaging. Industries rapidly adopting it include electronics, retail, pharmaceutical, and medical

packaging.

Stephanie Baker, owner of the world's largest recycler, KW Plastics, tells us, “We purchase recyclable plastics from the surrounding areas and create recycled packaging material. Our 90% of raw material comes from bottles used in kitchens and bathrooms. Beyond bottles, we produce caps, tubs, tubes, and other disposable types of items.”

Source :Amanda Jerelyn

IIT GUWAHATI RESEARCHERS DEVELOP HOLLOW FIBER MEMBRANE TO REMOVE MICRO-PLASTICS FROM SEA WATER

Indian Institute of Technology Guwahati researchers have developed a microfiltration process to remove micro plastics from seawater in order to prevent the inclusion of plastic residues in edible salt extracted from it.

Prof. Kaustubha Mohanty and Dr. Senthilmurugan Subbiah, Department of Chemical Engineering, IIT Guwahati, have recently published the results of this research in the journal Environmental Technology & Innovation, in a paper co-authored by their research scholar, Naveenkumar Ashok Yaranal.

IIT stated Plastic pollution is rampant all over the world and while there is some level of awareness, the seriousness is not yet understood. Micro-plastics – plastic pieces smaller than one-fifth of an inch – are now found in almost all oceans and marine animals. What's worse, sea salt has been found to have considerable amounts of micro-plastic.

Research performed in East Asia has shown that 90 percent of the table salt brands sampled worldwide has micro-plastics. Another study by IIT Bombay showed that eight brands of Indian sea

salt were contaminated with micrometre sized particles of polyesters, polyethylene terephthalate (PET), polyamide, polyethylene, and polystyrene. Micro-plastics ingested by human beings can disrupt hormones, leading to infertility, and cause nervous system problems, and even cancer.

While there have been many studies to identify and quantify micro-plastics in various food products, including salt, there have been fewer attempts at finding ways to remove them.

“In our hollow fibre membrane filter, hundreds of tiny straw-like tubes are bundled together to create a filter matrix,” explained Dr. Mohanty. The walls of these tubes are filled with microscopic pores, and when water is passed through the tubes, the micro-plastics are trapped inside, thus freeing water of this pollutant.

Hollow fibre membranes are already used extensively in daily life applications such as RO pre-treatment, industrial water/wastewater, juice processing, and other biotech applications, including in dialysis membranes used for kidney ailments. The hollow fibres are made of many kinds of materials and the ones used by the IITG team was made of polypropylene and a silk protein called sericin.

“We were able to remove 99.3 % of the micro-plastics present in seawater, without any reduction in the salt content”, said the key researcher. If this filtered water is used to extract salt, it would be free from micro-plastics. The researcher clarifies that this can only remove micro-plastics from seawater before salt extraction, and obviously cannot remove micro-plastics that get added during salt production, such as through the use of descaling agents in the desalination process itself.

Some advantages of hollow fibre membrane technology that make it promising for pre-treatment of seawater include simplicity of installation and use, cost effectiveness, no need for power supply, no generation of waste, and operability under low water pressure.

Source : The Economic Times

FREE REPORT DETAILS CHEMICAL RESISTANCE OF PIPES MADE FROM VARIOUS PLASTICS

The technical report from the Plastics Pipe Institute lists the resistance levels to some 600 chemicals of most plastics used in piping applications.

The Plastics Pipe Institute Inc. (PPI), the North American association representing the plastic pipe industry, is making available a technical report that details the chemical resistance capabilities of pipes made from various thermoplastic, thermoset, and composite (multi-layered) plastic materials. “Chemical Resistance of Plastic Piping Materials, TR-19” is available free of charge on the PPI website.

“Plastic pipe and fitting materials are generally resistant to attack from many chemicals,” said David Fink, President of PPI. “This inherent property makes them suitable for use in numerous fluid and gas conveyance applications. There are, however, certain chemicals that may damage plastic pipes, either through exposure on the outside of the pipe to chemicals, on the internal surface of the pipe during the transportation of such chemicals, or with exposure to inert fluids containing chemicals in various concentrations. The suitability of a pipe or fitting system for use in a particular fluid or gas application is a function of several factors, which are detailed in TR-19,” said Fink.

The free report contains sections on pipe and fitting materials, product design and joining systems, operating conditions, types of chemical attacks on plastics, and more. It applies to pipe and fitting materials such as CPVC, HDPE, PA, PE-RT, PP-R, PP-RCT, PVC, and PEX. The main table lists the chemical resistance of those plastics to some 600 chemicals, from acetaldehyde to zinc sulfate in various concentration levels.

Source : Plastics Today

WHY IS IT SUDDENLY DIFFICULT TO BUY PLASTIC COMPONENTS IN 2021?

As a component supplier based in the US, we have seen an enormous increase in requests regarding a shortage of plastic components used in the bioprocess and medical device industries. After hours of researching public information as well as studies with industry leading medical device, bioprocess companies and resin suppliers, we can attribute the situation to three factors.

Operation Warp Speed

On May 15, 2020, President Trump announced Operation Warp Speed (OWS) to speed the delivery of vaccines, therapeutics and diagnostics for COVID-19. The goal was to have 300 million doses available by January 2021. As of March, 2021, approximately 80% of the 300 million dose goal had been achieved.

According to www.TheHill.com: “The most innovative feature of OWS was government purchases of large quantities of vaccine types undergoing clinical trials, irrespective of the outcome (such as \$2 billion and \$483 million in early purchases from Pfizer and Moderna, respectively).”

OWSP called for clinical trials, manufacturing, and logistics to be conducted on a parallel rather than a sequential basis. The pursuit of multiple vaccine types built redundancy into the program to insure as many approved vaccine types as possible. (Currently, 251 vaccines are in the process of development.)”

As of April, 2021, the US has 26% of our population fully vaccinated and 40% of

the population have had the first dose. For the global community, Israel is leading with approximately 60% of their country having at least one vaccination followed by the UK and Chile (which joins the US) at over 40%.

Unexpected Force Majeure

Component manufacturers worldwide that supply medical device OEMs and bioprocess customers have had to manage several force majeure scenarios with a limited supply of resins due to chemical shortages, temporary plant closures, hurricanes and cold weather in addition to the pandemic. This resulted in an immediate shortage of nylon, polycarbonate, ABS, POM, Polypropylene, EVA, and Polyethylene. There is forward movement with resin suppliers in overcoming the force majeure; they are also, however, increasing prices. If current forecasts are correct, the force majeure should ease up by the end of the year.

Covid and Elective Surgeries

In addition, there was a decrease in elective surgeries that were offset by an immediate increase in ventilator and vaccine components. As of January 2021, elective surgeries are increasing, which is good news for the general public. This sudden increase in demand, however, can be taxing on component manufacturers unless clear communication and forecasts have been discussed with their customers.

So what does this mean to you? When will you be able to get components again?

The answer will most likely be in hindsight depending on your component supplier. The Warp Speed operation will continue for the unforeseeable future. As referenced above, no country is over the 50% mark for the first vaccination shot as of April 2021 with the exception of Israel. The US has also pledged \$100 million in supplies for the current COVID outbreak in India. The component suppliers that are mandated by

the US government to support the strict OWS guidelines have no choice as the government will certainly demand their continued support in combating COVID as well as receiving a return on their early investment. These companies are doing a public service that is certainly needed and should be applauded! There is, however, mounting frustration as other OEMs that manufacture non-COVID products are now learning about extended lead times or even order cancellations.

Our Solution

Injectech, LLC is a global supplier of medical device and bioprocess components. Our focus is on providing solutions whether they are off-the-shelf, custom or a variation to a current component.

Although we were not immune to the pandemic, our management team conducted a multi-year risk analysis in the early stages of the pandemic. During the last year, we doubled the size of our Class 8 clean room, procured additional molding machines and invested in numerous mold bases. We understood that the pandemic would be a hindrance for several years yet made these investments to position our company for our customers' demands — whenever they would materialize. We communicate with our customers and closely monitoring how external factors will affect their production lines. We are committed to offsetting and internalizing market disrupting scenarios as mentioned above before our customers find themselves in a line down crisis.

Source : Dave Splett

THE GLOBAL MEDICAL INJECTION MOLDING MARKET

The global medical injection moulding market size was valued at USD 1.38 billion in 2019 and is expected to grow at a

compound annual growth rate (CAGR) of 8.2% from 2020 to 2027. The increasing demand for plastic and metal injection moulded components in the medical industry is expected to drive the market over the forecast period. Moreover, the growth of the home healthcare sector on account of the low costs involved as compared to hospital care and intensive care has resulted in a rise in the demand for medical devices. Different types of medical tests conducted by hospitals for diagnosis have also contributed to the increasing demand for medical devices. The rising geriatric population in the country, sophisticated healthcare infrastructure, and relatively higher disposable income levels are some of the key factors driving the healthcare industry in the U.S. In addition, the country has the highest healthcare spending in the world.

Factors, such as ISO certifications & compliance, FDA regulations, material properties, suitability in extreme conditions, and durability are taken into consideration during the manufacturing process. Materials such as silicone, polycarbonate, polyethylene, and polypropylene, are widely used in the medical injection moulding process. It is one of the primary processes that many companies adopt to manufacture medical products by using plastic as well as metal materials.

System Insights

The hot runner system held the largest market share of over 55% in 2019 and is expected to exhibit the fastest CAGR over the forecast period. Hot sprinter moulds consist of two plates, which are heated using a complex framework. This framework maintains the temperature of liquid thermoplastics at the same level as their warming chamber. As a result, the demand for the hot runner system is high.

Moreover, several benefits of hot runner system including faster cycle time and lower pressure requirement to push the molten

mixture into the mould cavity, as well as the elimination of waste due to the absence of runners, accommodation of larger parts with a higher volume of production, and improvement in consistency & quality of parts, are augmenting the segment growth.

The use of cold runner system depends on its advantages, such as easy maintenance and cost-effectiveness; it is suitable for various types of polymers. This system is a feasible option as it can produce higher quality parts. Therefore, the application of cold runner systems is growing at a significant rate owing to lower initial investments compared with other systems.

In addition, flexibility in designing options, capabilities of handling a variety of engineered thermoplastics, and flexibility in gate locations, which can be easily changed or upgraded, will boost the demand for cold runner systems. However, the demand for hot runner is higher owing to its better efficiency.

Class Insights

Class III medical device segment accounted for 38.4% of the overall revenue share in 2019. Class III medical devices, such as defibrillators, ventilators, respirators, and oxygen therapy equipment, are anticipated to have a significant demand on account of the COVID-19 pandemic. The growing adoption of injection moulding to manufacture medical device components is projected to drive the segment growth over the forecast period.

Overall 10.0% of all the medical devices fall under this category. These devices are capable of handling the substantial risk of injury and are designed with the balance of strong cyber security control and easy accessibility. Class III includes devices such as implanted pacemakers, heart valves, and cerebral simulator.

Injection moulding is used to produce a broad range of medical components; it widely used processes in mass production. It has the ability to produce components and small disposable goods with high

precision. Growing adoption of injection moulding to produce numerous parts and components of Class I medical devices is expected to have a positive impact on market growth over the coming years.

The Class II segment is projected to register the fastest CAGR over the forecast period. Injection moulding offers several advantages over other methods, such as lower risk, higher safety, and high productivity. Furthermore, the growing penetration of plastic injection moulded products in the medical industry is expected to drive market growth over the forecast period.

Material Insights

The plastic material segment in the medical industry accounted for 76.0% of the overall revenue share in 2019. Engineering grade plastic resins are beneficial when used for the manufacturing of medical and pharmaceutical products as they have high tensile strength, metal tolerance, and temperature resistance. Furthermore, they also reduce waste, weight, and the overall cost of production.

Plastic injection moulding is a feasible technique for manufacturing complicated designs of medical products. Demand for medical-grade injection-moulded products is increasing as they are durable, naturally resistant to contaminants & chemicals, and offer economies of scale to large scale firms. As a result, the penetration of the material is expected to witness significant growth.

Source : Medical Plastics

GLOBAL SUPPLY CHAINS ARE BEING BATTERED BY FRESH COVID SURGES

Synopsis

At stake is an export boom that shielded trade-driven economies during the

pandemic and was expected to fuel a broader rebound.

Asia's renewed surge in Covid-19 infections is compounding supply-chain blockages across the world's biggest source of manufactured goods.

After weathering earlier pandemic waves better than other regions, the fast-spreading delta variant has thrown into turmoil factories and ports in countries that were once among the most successful containing the virus.

The snarls in Asia -- where the United Nations estimates around 42% of global exports are sourced -- risk twisting their way through global supply chains just as shipments would usually ramp up for the Christmas holiday shopping season.

As earlier snags have shown, problems that start in Asian ports can ripple slowly, showing up later as delays in places like Los Angeles or Rotterdam and higher prices for consumers.

The flare-ups also worsen an already tortured year for exporters, with shipping costs sky-high due to a shortage of containers and as raw materials such as semiconductors become pricier and difficult to source amid red-hot demand.

"Delta is likely to significantly disrupt trade in Asia," said Deborah Elms, executive director of the Singapore-based Asian Trade Centre. "Most of the markets have been fortunate in managing Covid well so far. But as Covid continues to spread, this lucky streak is likely to end for many locations."

In a sign of those concerns, oil prices extended declines at this week's opening in Asia as the delta variant's spread has undermined the outlook for global demand.

In China, the world's third-busiest container port was partly shut recently, while in Southeast Asia -- among the worst-hit regions -- factory executives have stalled production of electronics, garments and scores of other products.

At stake is an export boom that shielded trade-driven economies during the pandemic and was expected to fuel a broader rebound. The World Trade Organization had forecast Asia to lead an 8% rise this year in global goods trade.

Meanwhile, the supply choke will fuel concerns that rising inflation for Chinese producers or U.S. consumers will prove more than transitory, testing expectations among policymakers for a near-term cooling in prices.

The delta variant -- as contagious as chickenpox -- infiltrated China's tough border defenses, seeding the first cases for months in places like Beijing and Wuhan. Indonesia is leading Southeast Asia in cases and deaths, pushing the region toward being among the worst-hit globally as vaccination rollouts lag.

While China's cases are relatively low, its zero-tolerance approach has ensnared the Meishan terminal in Ningbo-Zhoushan port, where all inbound and outbound container services were halted Wednesday after a worker became infected.

That shutdown follows the closure of Yantian port in Shenzhen for about a month after a small outbreak, which had ripple effects for international shipping.

In Southeast Asia, manufacturing managers saw a slump in activity last month as critical exporters struggled to keep factories running, a sign that Covid might finally be making a dent in the region's resilient trade.

While Indonesia, Malaysia, the Philippines, Vietnam and Thailand account for a combined 5.7% of global exports, they can greatly impact bigger economies like the U.S. and China, particularly in electronics, according to estimates by Natixis. China imports 38% of its data processing machines and 29% of its telecommunication equipment from the five countries, while the U.S. depends

on half its semiconductor imports from the bloc.

That extends to export hubs of Japan and South Korea, which have remained mostly on track. Samsung Electronics Co., for instance, last month said revenues in its mobile phone business have been hit by the outbreak in Vietnam.

Vietnam's government has taken extreme measures to minimize the hit to exports -- a broad basket that includes electronics and garments -- as new cases jump to about 16,000 daily, from single digits in April. Authorities have ordered manufacturers to allow workers to sleep overnight at factories as the share of the population fully vaccinated lingers around 1%, near the bottom of the Bloomberg Vaccine Tracker.

It's not been enough for companies like Harco Shoes and Materials Manufacturing Co., in Hung Yen province near Hanoi.

"Things are getting worse and worse as most factories in southern provinces had to stop operations and companies in the north have been struggling to maintain some production," Pham Hong Viet, chairman and chief executive officer, said in a phone interview. "The country's entire supply chain has been seriously disrupted."

Economists are already paring their growth forecasts for Asia as real-time indicators show a hit to consumption and other activity. While "nowcast" readings from Bloomberg Economics show the global economy is poised for acceleration this quarter, the delta flare-up in China alone is affecting areas that account for more than one-third of its gross domestic product.

Among reasons for recently downgrading their global growth forecasts, economists at JPMorgan Chase & Co. highlighted the risk from Asian countries with low vaccination rates.

The virus surge comes as exporters continue to complain of sea freight costs

that can be multiples of what they were before the pandemic, mostly due to a shortage of shipping containers. The Drewry World Container Index reached \$9,421.48 per 40-foot container as of Aug. 12 -- about 350% higher than the same time a year ago.

"The major challenge for us is the high international shipping costs, which are double or even triple what they were pre-pandemic," said Lanm Lai, director of foreign trade at CNC Electric in China's Zhejiang province, whose products include meters and wall switches.

"Last year, during the peak of the pandemic, we thought it would be short term. But looking forward, I don't think there will be a substantial change soon," he said.

Source : The Economic Times

INDIA'S PLASTICS EXPORTS GREW 60% IN JUNE 2021: PLEXCONCIL

Synopsis

During the first quarter, PLEXCONCIL joined hands with the Indo-French Chamber to boost the plastics export to France and Europe.

India's plastics export increased by a 55% to \$3,417 million (cumulative value) in April-to-June 2021 as compared to \$2,211 million in April-June 2020, as per The Plastics Export Promotion Council (PLEXCONCIL). India exported plastics worth \$1,301 million (up 60.4%) in June 2021 vis-à-vis \$811 million in June 2020. Despite the pandemic, India's cumulative exports of plastics were nearly \$10 billion in FY21.

Segments such as consumer & houseware, floor coverings, leather cloth and laminates, pipes and fittings and others registered over 100% growth in global exports during Q1

FY22. Human hair and related products registered more than 350% growth in exports during Q1FY22. Others that did well include writing instruments (74%), rigid packaging & PET preforms (52.6%), polyester films (34.7%), and plastics raw materials (16.9%).

During the first quarter, PLEXCONCIL joined hands with the Indo-French Chamber to boost the plastics export to France and Europe. India's exports of value-added plastics to France have the potential to grow by nearly \$5.6 billion. The country's plastics exports to France were around \$162 million primarily comprising optical items, woven sacks/FIBCs, packaging items, plastic sheets and films, according to the PLEXCONCIL quoting the recent market studies.

India and the United Kingdom (UK) adopted a 'Roadmap 2030' to elevate bilateral ties to a "Comprehensive Strategic Partnership" in May 2021. PLEXCONCIL is taking several initiatives to ensure that

India's plastics' exporters seek a greater share of the UK's annual plastics' imports of \$30-32 billion. India's export of value-added plastics to the UK has the potential to grow by \$5.6 billion. India is exporting plastics valued at around \$365.7 million to the UK.

In a statement, Arvind Goenka, Chairman, PLEXCONCIL, said, "The growth in plastics' exports in the first quarter of FY2022 reflects the efforts and the entrepreneurial spirit of Indian exporters, who posted growth despite facing many challenges during the pandemic. PLEXCONCIL has been taking several steps to target global suppliers and sourcing majors in an evolving supply chain management scenario. The US, UK, EU and France offer several opportunities for increasing exports of Make in India plastics .

Indian plastics' exporters have been asking the Government to consider free trade agreements (FTAs) and enhanced

trade partnerships to make Indian goods competitive; subsidised warehousing in these countries; and counter-guarantee to Indian Status Holder Exporters to borrow at cheaper interest rates from there.

The Union Ministry of Commerce & Industry under Piyush Goyal is engaging plastics exporters which mostly comprises MSMEs. Plastics exporters have welcomed the ministry's initiative to coordinate with different ministries and government bodies to facilitate exports and ease of doing business.

PLEXCONCIL also welcomed the Government's thrust on tapping the global toys market, which is projected to reach revenue of more than \$120 billion by 2023, growing at a CAGR of around 4% during 2017-2023.

In its endeavor to promote plastics exporters, it has lined up several Buyer-Seller Meets (BSMs) in virtual mode.

Source : The Economic Times

IPF WELCOMES TO NEW MEMBERS TO ITS FAMILY APPROVED IN THE EXECUTIVE COMMITTEE MEETING HELD ON 25/01/2021

SL. NO.	NAME OF THE COMPANY	CLASS OF MEMBERSHIP	MEMBERSHIP NO.
1	SONALI POLYPLAST PVT. LTD.	LIFE MANUFACTURER	LM – 420
2	VISHAKHA POLYFAB PVT. LTD.	LIFE MANUFACTURER	LM – 421
3	AMIT OIL PRODUCTS (P) LTD.	LIFE DEALER	LDR – 118

IPF WELCOMES TO NEW MEMBERS TO ITS FAMILY APPROVED IN THE EXECUTIVE COMMITTEE MEETING HELD ON 14/07/2021

SL. NO.	NAME OF THE COMPANY	CLASS OF MEMBERSHIP	MEMBERSHIP NO.
1	EAST HOOGHLY POLYPLAST PVT. LTD.	LIFE MANUFACTURER	LM – 422
2	FINESSE TRADE CORPORATION	LIFE MANUFACTURER	LM – 423
3	C. K. PLASTICS PVT. LTD.	LIFE MANUFACTURER	LM – 424
4	ASL PLASTIC PVT. LTD.	LIFE MANUFACTURER	LM – 425
5	BASUKI ENTERPRISE	LIFE DEALER	LDR – 119
6	SAI PACKAGING	LIFE DEALER	LDR – 120
7	NAVIN COLOUR CORPORATION	LIFE DEALER	LDR - 121

IPF WELCOMES TO NEW MEMBERS TO ITS FAMILY APPROVED IN THE EXECUTIVE COMMITTEE MEETING HELD ON 18/08/2021

SL. NO.	NAME OF THE COMPANY	CLASS OF MEMBERSHIP	MEMBERSHIP NO.
V3	POLYPLAST PVT. LTD.	LIFE MANUFACTURER	LM - 426

ORIGINS OF NEPOTISM

Dr. Devdutt Pattanaik

These days, business families are including their daughters in the family businesses. Yet on careful observation, one notices that the son is given responsibility for “outside” jobs such as production and sales, the jobs that take you to the factory and the market. The daughter is usually put in charge of “inside” jobs such as marketing, finance and human resources, jobs that keep you in the office, on the desk. There is gender discrimination within diversity and inclusion even inside families.

Be that as it may, what prompts an entrepreneur to pass on his enterprise to his children? Why does he not pass it to meritocratic professionals? Is this the ancient Hindu concept of Putra-moha, an obsession with one’s own children that leads to the downfall of the kingdom? This idea is explored in the Mahabharata. Here, the blind king Dhritrashtra is obsessed with his 100 sons, the Kauravas. This leads to the great war that destroys the Kuru clan. In the Ramayana, Dasaratha died heartbroken, because his son was exiled, following family politics. When we read the Ramayana and Mahabharata, we never ask the question why is the crown of the kingdom being passed on to sons and not to some worthy youth? Was this always the case?

The Puranas have constant references to kings being childless. Is this a metaphor for kings who are not satisfied with their children? Could this be why they adopt children who are worthier? We have a Hiranyakashipu torturing his son Prahalad because Prahalad disobeys him and worships Vishnu. Disobedient sons are often rejected by proud kings. Such kings would naturally consider themselves childless. In seeking more compliant children, they adopt perhaps worthier or maybe more obedient children. Then, there are also stories of kingdoms where the royal elephant is asked to go around the kingdom. He randomly picks up a youth

from the streets to become the king. This suggests that kingship has nothing to do with meritocracy and that anybody can be a king.

Hindu scriptures refer a lot to the idea of inheritance. This helps us understand nepotism in the context of Indian culture and dharma. Dharma emerges as culture is established. Culture is essentially created to save human beings from the demands of nature. In nature, might is right, in nature no one comes to your help. Yet, in culture, the meek can be protected. You can help those who are weaker than you; but who deserves help? Of all the weak people in the world, we naturally help our family members, our children, our friends. Essentially, we help those who are extensions of our own selves.

So I expand to mine, while you expand to yours. It takes a lot of spiritual courage to create resources for strangers who we have no connections with. Perhaps this is the root of nepotism. We want to stay immortal. But we know we are not immortal. We transfer ourselves through what we bequeath. We pass

on what we have to our children, male or female, worthy or not. Through them we live on. Through them we become immortal. Our soul rests in our property and lives on beyond us, through our children, our sons and our daughters. Our property, our family name, our family vocation becomes the medium to establish immortality. Hence, we will share these with no one else except those who we refer to as “mine”.

Generosity or daan is about taking care of those beyond the sphere of relationships, about those we are unrelated to. To feed those who we don’t know is not easy. Tribal communities take care of the tribe. To feed the stranger is a virtue that needs to be cultivated. That cultivation of looking beyond ourselves and our people, is dharma. It is a struggle which explains why companies find it tough to give even a portion of its profits to charity.



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