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#### PLASTICS INDIA

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

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# Editorial



#### Dear Members,

I consider it my greatest privilege to present before you the January 2012 issue of our journal "Plastics India" – particularly because, as you are aware, I am the Editor of the journal continuously for three years. I hope you are getting the issue regularly every month – also you are enjoying reading the same and getting useful information about Plastic Industry. I shall always welcome your suggestions to make the journal better and better.

I cannot help mentioning the accident of fire at AMRI. Hospital at Dhakuria on 9<sup>th</sup> December 2011. Since then it has been a hot topic with the Newspapers, TV channels etc. Ninety one lives were lost in the accident. My heartfelt sympathies go out to those who lost their kith and kin in such a devastating fire. Controversial and conflicting comments have been read and heard in the News media with regard to the reasons and responsibilities of the accident.

For the present, the case is with the Police who have arrested 7 AMRI Directors. Six of them are lodged in a city jail and one is undergoing treatment at a hospital' for a serious ailment. Three other Directors against whom arrest warrants have been issued are absconding and Police is searching for them. As usual, Police will first investigate the whole matter, and they might arrest more people. After complete investigations they will file a charge sheet in the Court – giving a chance to the persons charge sheeted to present their defence.

On my part I feel the Police action against only the above Directors at the institution is a bit discriminatory – particularly against those who have no part of responsibility in the day-today activities and administration of the Hospital. On the other hand the managers, other supporting staff of the Hospital and even the Health Department of the Govt of West Bengal have many questions to answer.

I strongly feel that those who are directly responsible for the accident should be punished without any discrimination or favour. Such a step will act as a strong deterrent against any future negligence or lapse so that such accidents do not recur in future.

Philanthropy has a very long tradition in India. From the 1900s onwards, we saw a lot of Indian Industrial houses, and especially the Tatas, Birlas, lead the way in reinventing philanthropy in the modern age. They have set up many kinds of institutions; they have supported many kinds of movements all across India. Is it right on our part to blame them in case of an accident in any of the schools, colleges or hospitals they set up?

I further feel that West Bengal is already quite low on the priority list of industrialists and practically no new industries are being set up due to other reasons. Any such step to further unnecessary scare away the prospective investors from West Bengal should be avoided without, in anyway interfering, influencing or pressurizing the due process of law.

At present, my heart is too full and so more in the next issue.

Yours truly,

Pradip Nayyar

Editor





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**33** Monthly Circular

# PRESIDENTIA A D D R E S S



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#### **Dear Members**

By this time many of our members are getting ready for their participation in Plastindia 2012 exhibition either as exhibitors or visitors. IPF itself is participating as an exhibitor. We have taken an 18 sq. m. stall in Hall No. ODPA, Stall No. 3 of Pragati Maidan. Elaborate arrangements are being made for stall booking of Indplas'12 exhibition at Pragati Maidan. All India Launch function of Indplas'12 will be held in the auditorium above Hall No.18 on 3<sup>rd</sup> February 2012 at 3.00 pm. IPF invites all its members who are present in New Delhi to kindly attend the launch function.

For the convenience of Plastindia 12 exhibitors IPF has decided to extend the Early Bird Discount time to 29<sup>th</sup> February 2012. This will enable PI-12 participants to get registered during the exhibition period. Till date the response to Indplas'12 has been very encouraging. We have received 2 platinum sponsors, 8 gold sponsors, 16 silver sponsors and 10 support sponsors with a total space booking of over 1250 sq. m. Enquiries are regularly coming in and we hope all the stalls will be booked well before the exhibition. Members who are interested and have not yet booked their stalls are requested to book their stalls as quickly as possible. Delay in booking may only result in regret. You will have the further advantage to get a stall at a prominent location since these locations are the first stalls to be booked by any exhibitor.

Members who are either participating or not participating in Indplas'12 as exhibitors are requested to contact prospective parties to participate in Indplas'12 as exhibitors.

With warn regards

Rajesh Mohta President



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#### SECRETARIAL REPORT

#### Dear Members,

This volume of Plastics India may be in your hand just prior to Plastindia 2012 exhibition being held at Pragati Maidan, New Delhi from February 1 – 6, 2012. We had earlier informed our members that Plastindia Foundation has offered IPF members their Exhibitors Directory 2012 at a concessional tariff of Rs.550/- against the normal charge of Rs.800/-. They have even offered IPF members multiple entry visitors pass at a discounted price of Rs.1080/- against the normal charge of Rs.1500/-. IPF members have even been offered single metre stalls at PI-12 for Rs.16,803/- against the normal charge of Rs.21,803/-. We hope interested members have taken this opportunity offered by Plastindia Foundation.

The Federation has booked an area of 2,00,000 sq. ft. in Science City for holding our Indplas'12 exhibition for which an advance payment of Rs.5 lakh has already been made. This time arrangement has been made for booking of stalls in Indplas'12 from our stall at Pragati Maidan, New Delhi from February 1-6, 2012. This will be very help to those exhibitors participating in PI-12 exhibition willing to participate in Indplas'12 to book their stalls. The first installment of Early Bird discount has also been extended to 29<sup>th</sup> February 2012 to motivate PI-12 exhibitors to book their stalls. To speed up work for Indplas'12 two sub-committees have been formed for Exhibitors Directory and Gale Nite. Convenors for the same have also been appointed.

IPF has applied for a National Award for Technology Innovation in Petrochemicals and Downstream Plastic Processing Industry under the category of Polymer Waste Management and Recycling Technology as Team.

The Federation participated in the Governing Council meeting of MSME (CTR & TC) held at Writers' Building. A technical lecture has also been organised on 21<sup>st</sup> December 2012 at IPF Conference Hall jointly with IPI (Kolkata Chapter).

With best wishes,

Pradip Nayar Hony. Secretary

# Advance in Extrusion Part - 2



Mr. Jivan Nakum RIL- PARC, Chembur, Mumbai Contact: +91 9987001948 E mail: Jivanlal.nakum@ril.com

Advances in multi layer blown film technology. (Source: TAPPI) Why multi layer? combinations of alternative materials, which are possible on the multi layer blown-film line, are becoming more common.



(Ref: Modern Plastics) When it comes to extruded film, complexity today appears to be the way to go. Forget monolayers – and many applications traditionally featuring three or five layers are migrating to additional layers as well.

"Definitely there is more demand for multilayer film driven by savings in expensive barrier, tie, and outside layers," 10 years ago, five layers would have been the maximum produced by many processors. But five years ago, seven layers became the standard for food packaging, pushing up the demand for barrier materials, such as EVOH and nylon, the demand in barrier EVOH has quadrupled in the last 10 years.

In non-barrier applications, generally 3-layer designs and the larger part of the multilayer sector, processors are looking to up structures to five layers to 9 layers to remain competitive and provide more flexibility in their offering.

Downsizing of multilayer films and

As the barrier film market turns more competitive, controlling costs becomes imperative and the barrier thickness of a structure is coming under higher scrutiny

Trends of 3- and 5-layer films being extruded in wider (from an average of 1m to up to 2.8m) widths to provide overall better quality control. Increased output, up to 30% more thanks to recent developments in cooling rings, sensor technology, bubble controls, new auto die design, gravimetric control s which are in high demand.

"Price pressure is forcing many [processors] to go to five layers to maintain precise layer control and more efficient use of post-production recyclate. They have the opportunity to put less expensive resins and reclaim in the middle layers to cut costs and also downsize structure."

Although barrier film processing represents a much smaller market, the growth in flexible food packaging has also translated into higher demand of barrier films in seven and nine layers. "The main reason is economics. It is cheaper to make a 5-layer structure in seven layers and a 7layer in nine layers,"

In the past many barrier film structures were over-engineered since end users were not too concerned about how much barrier was enough for their product as long as the film did its job. But as resin prices in recent years jumped, more control of costs became imperative and the barrier thicknesses required came under higher scrutiny.



An example of a 7l a y er film (see Structure) that originally required 45% nylon, 10% EVOH, and 10% tie on each of the two layers. The film design also needed an expensive polyethylene (PE) sealant layer making up 25% of the total. After evaluation it

was shown that 5% EVOH would provide the needed barrier yet it was impossible to run this thin on the original equipment.

Coextruded films offer you the most

cost-effective way to combine the performance characteristics of multiple film materials to achieve a multitude of needs. What once could only be attained by laminating separate layers can now be achieved in the co extrusion process.

Co extrusion allows the creation of ultra-thin layers within a film. This material reduction means that there is no need to pay for more resin than is actually needed for each of the layers. If the same material were to be added as a monofilm lamination, it would have to be much thicker to survive the converting process.

A better option was seen with a 10layer co extrusion or 11 Layer structure that not only achieved the 5% EVOH requirement but also cut costs by splitting the sealant layer and using only 15% of the expensive tie as well as including 15% cheaper filler resin.

Flexibility only comes with increased layer use. Seeing very realistic barrier layer designs coming onto the market today, less over-engineered than in the past because gauge control has improved so much in the last five years and end users see less need to build in that extra thick barrier to ensure film integrity. Complex film structures allow, in some cases, the possibility of eliminating altogether the extra cost of lamination that is done in a second processing step.

As good as the recent processing machinery improvements , the benefits multilayer film processors are achieving would not be possible without the latest developments in resins & machine technology. Due to cost concerns, package designers are becoming more cognizant of the amount of materials required to provide specific levels of barrier. No longer is it acceptable to over-engineer a package 'just to be safe.'" Companies are becoming more sophisticated in barrier measurement techniques and are working diligently to translate barrier levels directly into shelf life.

The sophisticated structures produced today are requiring single resins that provide more than one function in different layers, such as softness but stiffness, or low haze and gloss but high sealability. Designers are combining many more different resins today in layer structures to achieve materials that can be down gauged yet run on existing packaging equipment.

That producing a 7-plus-layer structure to meet specific criteria such as moisture, gas, UV light barriers, and clarity can be highly challenging for the designer. "The chosen resins and desired layer thicknesses of each might not process well as a whole, resulting in shear rates and pressures unsuitable for the design parameters of the die," . Advance co extrusion die with simulation software that allows the processor and film designer to analyze polymer flow through the die in "what-if" scenarios to predict performance of the new structure.

#### 50 µm Conventional Film



Recent trends in extrusion technology for films have been towards the use of higher screw dia of middle layer extruder with increasing outputs and technical complexity of packaging film auxiliary layers with high speed production. This has been permitted as the design of hightorque, high L/D extruders has been developed. For instance as outputs of PE extrusion line began to exceed higher kg/hr the continued use of auxiliary /tandem extrusion systems would have needed to add a second melting extruder (third extruder, fourth etc..) to the successful extrusion systems in use. At this point the use of a multi extruder allowed a less expensive alternative.

Improvements in motor technology are also allowing the use of direct-drive extrusion systems eliminating the use of a gear-box reduction. It is expected that as motor costs continue to decrease, this technology will expand to smaller diameter extruders.

Advances in co extrusion technology continue to improve film-making systems and film properties. The introduction of microlayer or monolayer co extrusion is showing dramatic improvements in stretch-film mechanical properties as well as gas barrier improvements with multilayer barrier resin combinations.

#### Specific advantages include.

 Achieve specific performance properties

- Reduce costs
- Reduce waste
- Synergistically improve film properties
- Process non compatible materials
- Sustainability and enhancing carbon foot print
- Better investment for long term benefits
- Higher productivity with lesser inventory
- Tailor-made film product can be formulated with usage of specialty resins.

#### Achieve specific performance properties



 $\bullet\,$  Barrier properties-OTR,WVTR ,CO² and  $N^2$ 

• Better dart impact strength & tensile properties

- Better seal ability
- Better optical properties(Aesthetics)
- Antistatic surface properties

Layer wise special coloration possible
Good integrity in thickness and layer wise resin contribution.

#### **Reduce costs**

• Expensive resin saving due to desired layer combinations with gauge uniformity.

• Gauge reduction possible with usage of best layer combinations.

• Recycled/Regrind material possible to process in middle layer.

• Due to higher output & fully automized features, operational cost can be minimized with minimal manpower.

• Roll inventory and bulk order control is easy with better logistic control.

#### **Reduce waste**

• Better bubble, take off, Nip & winding station control during start up operation which lower the % of wastage due to better automatic controls on film manufacturing.

**Better optical properties (Aesthetics)** 

• Color films, Glossy films, in built printing possible with this blown film techniques.

# Sustainability and enhancing carbon foot print.

• Lower energy consumption with enhanced productivity and minimum men hours use.

• Recycled/Regrind resin can be used in centre layer.

#### Extrusion blown film: Product variants

- Agri films
- Green house films
- Food packaging lamination films
- Surface printed Oil, Ghee & Milk packaging films
- Shrink film
- Surface protection films
- Cling film
- Banner films
- Soft films for medical applications

#### Recent advances in multi layer blown film technology. Control of extrusion lines depends mainly on

- Material feeding
- Blend dosing
- Single or co-extrusion control
- Temperature control
- Application Software

#### Extruders are manufactured in

Size ranges from 30- mm to 120 mm diameter
L / D ratios of 26:1-30:1
Output range from - 50 kg/hr to 1200 kg/hr
Gear boxes with integral thrust housing
High efficiency blowers, heaters insulated for safety purposes and heat conservation to achieve precise temperature control.
Computer designed barrier screws tailored to suit various resin grades and process requirements to ensure maximum outputs with quality product.
Watercooled feed sections.
Variable speed drives [AC/DC] sized to suit the applica-

tion and output rate.• All extruders mounted on robust platform rotating on a heavy duty slewing bearing to give jerk free operation controlled by PLC. The platform has one / two speed AC motor to provide single or multiple oscillation speeds to suit different line speeds.

#### Die parts:-

#### Automatic Die System

Die with automatic gauge control system, die lip is available with closely spaced cartridge heaters around its perimeter. These heaters are used to by the gauge control system to make melt temperature adjustments at distinct points around the die's perimeter to compensate for film thickness deviations

• High Precision dies made on CNC machines to ensure dimensional accuracy of die profile.

- Easy-use centering screws to adjust die
- lip gap to accurate thickness control

• Material distribution systems designed and made from best quality dieconstruction materials stabilized to prevent distortion due to high temperatures.

• Smooth spiral passages precision machined, mirror polished and hard chrome plated to allow uninterrupted flow of plastic melt to prevent degradation.

• Highly efficient, energy saving, insulated ceramic heaters for longer life on die zones for precise heat control

Streamlined Co extrusion Die (SCD) takes the co extrusion of blown barrier films to a higher level. With a size reduction of approximately 50% .SCD is now the most compact barrier film co extrusion die in the market.

#### Features

 Most compact size of any blown barrier film die

Maintains streamlined SCD® design

• Narrowest Residence Time Distribution (RTD) of any blown barrier film die

• Number of layers: 5, 6, 7, 8, 9, 10 or 11.

#### **Benefits**

- Improved operational flexibility in resin selection and processing parameters
- Rapid purging for efficient product changeovers
- Minimizes gel formation and carbon

buildup

The SCD is designed to minimize the resistance it imparts to the flow of melt through its distribution channels and spirals.

If streamlining brings to the airplane design the benefits of speed, efficiency and maneuverability, it brings to die design the benefits of low residence time distribution (RTD), efficient purging, and greater processing flexibility



#### Stack die

• Inverted conical spiral stake die(Incoss):-



Inverted Conical Stack Die-INCOSS® is a hybrid between the conventional dies with vertical flow path and

normal stack dies with horizontal melt flow path. The melt distribution system is on inverted conical structure rather than on a disc or a cylinder.

Each mandrel resembles a cone tapered downwards. The mandrel nest into each other providing excellent seals against polymer leaks. Polymer is side fed at the bottom of the die, rises to its corresponding mandrel. It is suitable for larger die sizes (more than 500 mm). This dies offers the lowest wet surface area as compares to the conventional die or the disc die. Widely accepted for stretch film, Cling film & shrink films, geomembrane films. Includes advantages of vertical spiral and flat dies. Better profile control.

• Universal co extruder die(UCD):-

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1.Conventio nal spiral dies distribute the polymer melt on the surface of concentric cylinders / mandrels. In coextrusion

configuration, the consecutive layer, therefore have correspondingly larger wetted surface area. This means that, in a three layer configuration, for example, the inner layer melt flow path is shortest, the middle layer melt flow path is shorter and the outer layer melt flow path is longest of all. A seven layer die has a polymer/metal interface 6 to 10 times larger than the corresponding area of the inner layer.

2. In addition to this, the spiral die design have inherent problem of stagnant locations which causes polymer degradation resulting into:

- Longer change over time

- Longer cleaning time

- Problems related to thermal degradation of polymer, like gel particles, unmelted particles in film.

3. The conventional spiral dies have a great limitation of subsequent addition of any further layer or even the incorporation of Internal Bubble Cooling (IBC) at a later date. As against this,

4. Universal co-ex die has a horizontal melt distribution system, which is on a disk type structure rather than on a cylinder.

5. These features make UCD® a truly modular and are open for subsequent addition of several layers as also the incorporation of IBC at a later date.

6. The shorter melt flow path reduces polymer residence time as also the volume of molten polymer inside the die. This calls for relatively lower energy consumption.

7. The modularity of UCD® also allows incorporation of IBC on the smallest die; say even a 150 mm die, which was not possible hitherto on conventional spiral die due to inherent design problem.

8. The modular stacks also provide opportunity to operate at substantially different temperatures in individual layer stacks. This gives great flexibility of polymer selection which is not possible on conventional spiral die. 9. It is also possible to process thermally sensitive materials on UCD® because of absolutely streamlined flow path without stagnant spots.

10. The cleaning of die is extremely easy on UCD® as compared to conventional spiral die because the stacks are like discs and cleaning is absolutely convenient as one has to work on the open metal surface only. This saves lot of cleaning time. In addition, the processor may also prefer to clean only the affected layer module instead of cleaning the whole die as in conventional spiral die.

11. A major advantage of UCD® is its capability to add, replace, relocate or remove layers at any further date without even sending the UCD® to the factory for rework. Only the central pin is replaced if layers are added or removed. This kind of change is virtually impossible with conventional die and usually requires the purchase of a complete new die. In contrast to the conventional die, the UCD® is always a lower height module giving effectively increased tower height. The lower height also provides for an ease of operation.

Most versatile and low wet surface area with same wet surface area for different layers. Isolation of temperatures between layers. Easy for dismantling particular layer for cleaning or purging. Upgradability possible with layers and retrofitting IBC.

In conventional die energy consumption is higher, IBC fitting is not possible and layer up gradation is also impossible as compare to UCD.In conventional die wet surface area is more and polymer degradation is also more due to the same.

In UCD energy consumption is lower, IBC fitting possible with layer up gradation at any time. Due to lesser wet surface area polymer degradation is low as compared to conventional die.

#### Air Cooling Ring and Blower



It delivers the desired improvement in gauge uniformity while preventing any loss in cooling efficiency. Its

operating principle assures a quick

response time to any input for thickness correction.

A gentle stream pre-cools and stabilizes the bubble as it expands upwards along the forming cone.

#### **Double Cooling Ring**

For better output and faster cooling chilled water is used to cool the extrudate immediately for better optics, better mechanical with higher productivity. Better draw ability can be achieved with the use of double cooling ring. A high velocity, high volume stream draws the partially cooled bubble radially outwards. This action thins the melt stream to improve thermal conductivity.

#### Internal bubble cooling (IBC) Why IBC?



• Wastage reduction during extrusion starts up.

• For enhanced output rates

• Better optical properties of the blown films can be achieved

• Mechanical properties can increased due to lower haze line(Frost line)

- Better film bubble control and width consistency
- Better BUR control

#### Internal bubble cooling:-What it does?

Works on air exchange printcipals. Exchanges air from inside the bubble and remove the hot spaces. Sense and maintain bubble diameter. Mechanical type or non contact type ultrasonic sensors are available for better bubble stability.

Film cooling system to get production efficiency and thickness regularity.

• For increased cooling efficiency and production rate, heat exchanger is included in high output models.

• Aluminum cast aerodynamic type double lip air cooling ring with multiple entries and circular inserts to guide air impinging on film bubble.

• Irish ring to create air cylinder along the bubble for optimum cooling.

· Membrane filters at the suction of blower to arrest dust particles.

 AC frequency variable drive for blower to control air flow as optional.

· Self centering air ring mounting on the die head enabling free movement near the die.

#### **Collapsing Frame**

 The collapsing frames provide superior handling of the extruded bubble. They are fully adjustable from top to bottom. To ensure quality during collapsing, the frames are available in a variety of collapsing surfaces to suit the needs of specific film. These surfaces include carbon fiber rollers, maple or pearl slats, aluminum rollers. Shallow and deep gusseting type is also available on extrusion system.

#### **Bubble Guide System**

Bubble guide system is equipped with a low friction, multi-level bubble stabilizing cage that provides enhanced bubble stability for optimum lay flat and gauge uniformity over a wide range of bubble diameters

· Single point control mechanism to adjust arms to bubble diameter.

 PTFE rings on basket arms to provide low friction to moving film.

#### Take Off Units

Collapsible flattening board with choice of:

Wooden strips, Aluminum rollers to handle sticky materials Or Teflon coated rollers

• Sturdy vertical structure will supports, adequate ladders and safety railings.

• Nip system - steel chrome plated roller and rubber roller with pneumatic nip operation.

 Water cooling provided in steel roller for heat removal

• Speed variation - step less control up to 60 meters per minute through reduction gearbox and AC variable drive. Suitable balanced guide rollers to support lay flat film to winder.

 Synchronization of nip and winder drives. Chain pulley block mounting provision

#### Oscillating haul off (Take up unit)

Haul off works with 180° oscillation and randomize film gauze and uniformity widthwise. It enhances flatness and thickness uniformity. High speed converting line and coating line require good integrity of input substrate and it's flatness with thickness uniformity for quality laminate output.GSM can be control uniformly.



(Davis Standard)



#### **Reason for thickness variation**

Melt flow variation in cross head sections

- Uneven melt distribution .
- Melt temperature variation

Die lips and other flow surfaces-Limitation on machine tolerances

- Uneven film cooling
- Ambient current drafts
- Cage of bubble not evenly placed
- Nip elongation(Jerking)

#### Gauge randomization techniques.

- Oscillating or rotating die
- Oscillating or rotating platform
- Oscillating haul off

Oscillating die not suitable for coextrusion.While oscillating platform not able to correct the variations due to uneven cooling, advance drafts, Rollers on the bubble cage & flattening and nipping of the film.

Oscillating haul off:-Wider width reversions haul offs with motorized gusseting, uniform air cushioning, without heating and silent motion technology make it more efficient.

#### **Edge Guiding**

Edge guide equipment which uses turning bars to correct the position of the flattened tube in a frictionless and space saving manner.

#### Panels with PLC base control (Supervisory control system)

"Live "All in one.

 It converts your production line into a measuring, self diagnostic, reporting tool.

 Easy, immediate and full access to both line and product parameters and functional status.

 "Live "creates statistic reports of product quality and quantity, manages the raw material and energy consumptions per reel and process order.

 "Live check "generates an intuitive and easy access image/icon diagnostics.

• It guides the operator by displaying the element to be checked with its position.

#### **Control Cabinet**

Fabricated from steel sheets and mounted on robust fabricated frames which houses:

Sophisticated, process control panel with protection

Microprocessor based PID temperature controllers

• DOL Starter / AC variable frequency drives for Air Ring Blower

PLC based control for Single / Two speed motor of oscillating platform

Extruder thyristor drives with Tacho Feedback & AC frequency drives for Nip **Rolls and Winder Drums** 

#### Winders

The improved properties of new resins have allowed processors to down gauge films. These thinner films require more sensitive and sophisticated web handling



equipment, especially if they are going to be wound into larger rolls. Winders and other downstream equipment are designed to handle these new thin films.

To complete the line, the rights winders are needed. Two types of winder s for the extrusion system. Both surface winders and turret winders for the blown film lines for best suitability for various film variants. Winders provide flexibility and guarantee in perfect roll symmetry with automated roll changeovers and tension and pressure tapering control for the best control of roll hardness. A variety of upgrade options are also available like gap winding, bidirectional winding, and sophisticated roll and shaft handling systems.

Mass. a supplier of custom blown films expects larger rolls to assume a bigger role in converting markets. More customers want "longer runs with fewer changeovers." That demand comes principally from adhesive coaters, laminators, and metalizers. Bag makers and form-fillsealers are also interested in largediameter rolls. "Because making larger rolls means getting larger accounts. Winders are made to such technological advancements it can make 1.7 mtr diameter rolls on both the sides.



Surface, semi-automatic-two station winder

• Film winding shafts - two main [and two standby]

Rubber coated drums having AC frequency Variable Drives

 Set of pressure-cum-pulling rollers of rubber and ebonite with AC frequency Variable Drive

Slitting and Trimming arrangement

• Polyband expander rolls to spread wrinkles/creases.

• Trim conveying with blower.

#### Advance features

Oscillating nips instead of oscillating

#### platform

Hopper loader .

Load cell for web tension control in close loop with winder drum drives

- Roller flattening board
- Chain pulley block arrangement

#### Gauge profile analyzer (Online thickness measuring system)

Optimize energy and resources while maximizing production and profits with full line of Quality Assurance Measuring Systems. On-line measuring systems allow for immediate adjustments to production and assured quality control. Rejects are reduced, profits are increased, and customer satisfaction is guaranteed.

Key benefits:

- Improve product quality
- Maximize product yield
- Minimize production costs
- Minimize scrap
- Optimize the process
- Reduce downtime
- Shorter start-up time
- Save on raw materials

#### Gravimetric blending and dosing system

Units mix and blend up to four OR more materials precisely and with maximum accuracy of blend. These modular gravimetric blenders are designed for extrusion and provide throughputs. Independent of recipes, materials or the operational environment, Blend analyses all process data achieving the best possible operating point at any time through continuous self-optimization. Recipe integrity results in an excellent and consistent for better product quality.

Dosing Except for the additive microdosing on the, all component materials are metered by the unique cone-dosing system. This dosing system ensures that a high total material throughput can be achieved, even when metering a large number of additives or Master Batches. On the dosing system additives or master batch are metered by an innovative and highly accurate micro-dosing unit. The additive is dosed into the weigh bin using a vertically aligned feed-screw.



Cone-dosina



(Source: Motan Produce)

(Feed Screw

#### Ultra sonic bubble sensor for **bubble control**





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#### Melt pump

#### Advantages of Melt Pumps

• Constant Throughput. Typically 0.1% stability when used with exclusive differential pressure controller.

Constant Extrudate Dimension. When combined and synchronization of haul-off speed, holds dimensions to very

#### close tolerances.

• Lower melt temperature than with extruder used alone.

• **Greater energy efficiency.** Total energy used by extruder + melt pump less than extruder used alone.

• Freedom from pressure constraints. Extruder screw can operate at pressure optimum for good mixing. Melt pump acts as a pressure transformer to raise or lower back pressure on screw.

#### Automatic Screen Changer.

The growth of extrusion machine capacity & multi layer films are considerably greater than that of rigid moldingbased packaging. Indeed, in some applications, rigid packaging is in regression. While in the past, some extrusion has shown examples of specialty films, they rarely occupy the attention they so rightly deserve. The growth in barrier film applications is astounding to say the least, yet this phenomenon is often ignored and rarely presented. Even now barrier film suppliers are beginning to recognize the enormous cost savings and high performance films for better packaging and replacing laminates.

#### **High Output Package**

If high output is desired, critical line components can be enhanced to increase output by up to 50%. The high output package consists of:

- Low Melt Temperature Screws
- Low Pressure Die
- Efficient Cooling for Air Ring and IBC
- High Speed Winders

• Cooling Rollers on the Primary and Secondary Nips



In 2010-2020 era presents an ideal opportunity to rectify multi layer films situation and as a continual growth to show for a number of years, we are looking

forward to see more capacity addition with better packaging fulfillment examples with Multi layer film extrusion, both on technologically & economically with enhanced carbon credit to the environments.

The key drivers which contribute to the growth of this sector include new innovations and technologies, coupled with high output machines and less power consumption. Since a lot of machinery manufactured in India and abroad meets these criteria, there will be a lot of demand for advance machinery from this region. Furthermore, a strong knowledge base of the plastics processing machinery and new technologies – for both Indian and imported indigenous machinery - brings in a widened horizon for entrepreneurs.

# Troubleshooting blown film processing

Successful production of coextruded products depends on several key factors, including polymer selections, hardware design (screw, feedblock/die, handling equipment, layer construction and optimal processing conditions). Proper selection and adjustment of each factor will minimize difficulties and ensure high quality co extrusion results. Troubleshooting methods for co extrusion become increasingly complex as the number of layers in the structure increases, as the asymmetry of multi-layer con-struction grows, or as processing and rheological characteristics of coextruded materials differ greatly from one another. Understanding the problems associated with non uniform layer distribution and interfacial instability between layers or on film surfaces is very important when troubleshooting the co extrusion process.

# Diagnosing gels unmelts and degraded gels

Gels are often encountered in extrusion. In multilayer co extrusion you have to identify the source layer of the gels.

The causes of gels range from resin contamination to process issues to screw and die design. Depending on the causes of gels, they may have very different characteristics. You first need to determine if you have gels or unmelt.

Unmelts are not really gels by definition; rather, they are materials that have not been melted, hence, they are

called unmelts. The easiest way to distinguish between gels and unmelts is to use a hot-stage microscope. The idea here is to see whether or not the gel will melt at a reasonable temperature, and if the temperature is within the range of the melting point of a known polymer. This would roughly identify the type of polymer (for example, PE or Polyamide), and therefore the source layer or layers of the unmelts. When the gel will not melt within a reasonable temperature range, then it is most likely a true gel. The use of Fourier Transform Infrared Microscopy (FTIR) will then be required.

If a gel is identified as an unmelt, take a look at your resin sources, conveying system and blending system to **rule out any potential resin contamination in these areas.** 

The next step and the most important; investigate the material's processing temperature to ensure that all temperature zones are functioning properly and controlling to the preset target temperature on the recipe settings. Often a simple change in the barrel conditions of the extruder will significantly eliminate or reduce the number of unmelts. A basic understanding of the screw design would help with the extruder barrel zone temperature settings. There are basically three functional zones in a screw regardless of whether it is a single-stage compression screw or a barrier screw. They are named feed zone, melting zone and metering zone. All the melting of the polymer should take place before the start of the metering section. Too slow a melting rate results in an incomplete melting process; too fast a melting rate causes a premature solid bed breakup. Both contribute to the generation of unmelts.

#### Watch for resin blend compatibility.

If changing the temperature profiles cannot eliminate unmelts completely, check into each component in the blend and determine how they interact with each other.

Screw design. If the steps described above fail to eliminate the melts you may have to explore a different screw design.

#### **Degraded Gels**

When gels are degraded or cross linked, these gels will not be melted. In severe cases, they show up discolored

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## **GLIMPSES**

## TECHNICAL LECTURE ON "POTENTIAL APPLICATIONS OF FIBRE-REINFORCED PLASTIC (FRP) COMPOSITES IN INFRASTRUCTURE".



Indian Plastics Federation (IPF) jointly with Indian Plastics Institute (Kolkata Chapter) organized a presentation on "POTENTIAL APPLICATIONS OF FIBRE-REINFORCED PLASTIC (FRP) COMPOSITES IN INFRASTRUCTURE" on 21st December 2011 in the IPF Conference Hall. The speaker was Dr. N.R. Bose, former Chairman, IPI (Kolkata Chapter) and Consultant, Sols 4All Consultants. Dr. Bose spoke on high performance FRP materials for application in high voltage electrical insulation, high compressive strength bridge deck,





structural component and bullet resistant high impact sheets. He also highlighted the application of FRP material in corrosion resistant chemical storage tanks, pipelines as well as building and other light weight structures. Moreover, he had shown several FRP materials for potential uses in various applications. The presentation was very interesting and quite a number of participants took part in the Question and Answer Session.

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#### from yellow to brown, or black.

Again, **resin contamination is a possible culprit.** Occasionally, foreign fibers in the resin cause a gel-like appearance. Normally, the use of Fourier Transform Infrared Microscopy (FTIR) will identify the foreign substance. Excessive processing temperatures can also contribute to premature degradation of the polymer.

Screw and barrel conditions. If the screw or the barrels are not in good working condition and are worn, the residence time of the materials in the extruder will increase dramatically. This would contribute to unexpectedly high melt temperatures. A variable depth thermocouple can help determine the temperature gradient in the melt stream, and indicate the true melt temperature. A fixed thermocouple only gives the melt temperature at the wall of the adapter, and may not indicate a true melt temperature in the middle of the melt stream.

Screw design. A poor **screw design** could contribute to potential degradation area.

Die design. Similarly, a poor **die design** could cause areas of unusually long residence time, which would contribute to polymer degrading in the die.

In summary, to deal with gels you need to find the source layer of the problem; identify the material; determine if problem is a gel, unmelt or degraded gel. You do this by looking at resin blend compatibility, resin contamination, screw and barrel conditions in addition to screw and die design.

## The uniformity problems in layers.

Nonuniform layer distribution is one of the more common problems encountered in film co extrusion. This nonuniformity may appear in either the direction of extrusion or tangential to the direction of film production.

Layer uniformity in the machine direction can be influenced by die imperfections, poor die design or adjustment, excessive extruder pressure variation, variable film tension, or film bubble or web instability.

Layer uniformity tangential to machine direction can be influenced by poor melt

temperature uniformity, viscosity mismatch between layers, poor hardware design, or viscoelastic flow characteristics induced by excessive shear stress.

Poor layer uniformity tangential to machine direction is caused by nonuniform melt temperature across a melt pipe, feedblock and/or die, as well as poor melting in an extruder. Melt temperature variance alters viscosity uniformity, which exhibits a change in flow characteristics and layer distribution. Melt temperature of a single polymer stream can often vary by as much as 30°F. A general rule of thumb is to achieve  $\pm 2°F$  or less variation in melt temperature for each extruder.

Nonuniform layer distribution in the direction tangential to extrusion can also be caused by poor hardware design. Improperly designed flow channels of the feed block or die can cause poor steadystate layer distribution of materials, even with the most closely matched viscosities.

Nonuniform distribution of layers, in the form of parabolic flow lines, intermixing of layers, roughness between polymer boundaries, melt fracture, or uncharacteristically high haze, can be caused by interfacial instability between layers or on film surfaces.

Homogenous melt temperatures can be achieved through installation of a static mixer in the melt, a dynamic mixer on the extrusion screw or a more efficient screw design, or through adjustment of extrusion, feed block and/or die temperatures.

Variation in the thickness of a film, which eventually reaches a steady-state condition of nonuniformity (assuming homogenous melt temperature conditions for each polymer), can be caused by a viscosity mismatch between layers. In a co extrusion system, lower-viscosity polymers migrate to the region of highest shear stress (nearest the die wall) and tend to encapsulate higher-viscosity polymers. The amount of migration is dependent on the degree of viscosity mismatch, the length of the flow path, and the shear stress in the system.

#### Improving layer variation

Improvements in layer variations that are caused by viscosity-induced flow behavior can be achieved through adjustment of melt temperature, modification of distribution channels in the feed block or die, or selection of a polymer with different viscosity characteristics which most commonly are measured by melt index. Also, annular dies typically are more tolerant of viscosity mismatch than flat-die systems.

The instabilities are believed to be a result of the viscoelastic behavior of polymers at the die land or region of highest shear stress.

Improvements in layer instabilities can be achieved by reducing the shear stress between co extrusion layers and/or the die-land surfaces. Shear stress can be reduced by decreasing total output rate, increasing skin-layer melt temperature (decrease in viscosity), increasing the die gap, adding a process lubricant to the skin material, or selecting a lower viscosity material.

An increase in the thickness of the skin layer can also reduce instability between polymer layers by moving the interface further from the high-shear-stress die wall. This is especially significant for asymmetric co extrusion constructions.

Finally, if co extrusion layers exhibit dramatic differences in melt elasticity, then choose materials that match more closely in extrudate elasticity as measured by extrudate swell.

Nonuniform layer distribution in the direction tangential to extrusion can also be caused by poor hardware design. Improperly designed flow channels of the feedblock or die can cause poor steadystate layer distribution of materials, even with the most closely matched viscosities.

Nonuniform distribution of layers, in the form of parabolic flow lines, intermixing of layers, roughness between polymer boundaries, melt fracture, or uncharacteristically high haze, can be caused by interfacial instability between layers or on film surfaces.

#### Problem: Lines in the film surface

Possible cause: Die imperfections.

Remedies: Clean die buildup, Remove contaminates from polymer melt channels, Repair die nicks and burns.

#### Problem: Gauge band in film roll

Possible cause: Poor die design/Poor

die adjustments

Remedies: Install spiral die channel design to remove weld lines, Install rotating haul off /nip in tower to remove gauge bands. Adjust the concentricity of the die in relation to air ring.

# Problem: Repeating patterns of thickness variation in layers.

Possible cause: Excessive pressure variation (Surging)

Remedies: Achieve less pressure variation in each extruder. Adjust feed and transition zone correct temperature profile. Increase back pressure by restrictor flow plug. Increases mesh size to improve screen back pressure. Change worn screw if needed. Check screw design of surging extruder. Check extruder feed throat.

#### Problem: Variable film tention.

Possible cause: Speed variation in drive

Remedies: Check drive, winder speed and alignments of guide rollers. Check roller bearings.

#### Problem: Film bubble instability

Possible cause: Air turbulence.

Remedies: Correct IBC/EBC air exchange volume and protect bubble from external bubble guard.

#### Problem : Intermittent or somewhat random variation in layer thickness

Possible cause: Poor melt temperature uniformity

Remedies: Adjust +\_ 1°C temperature uniformity in each extruders. Adjust correct temperature profile of each extruder to melt complete extrudate.For more efficient melt capacity change design of screw with dynamic mixing/ barrier screw. Adjust screw speed lower side to enhance complete homogeneous mixer and enhancing residence time for the melt. Adjust screw feedblock, metering and die zone temp.

#### Problems

- Variation in layer thickness that reaches steady state distribution
- Parabolic shaped flow lines in machine direction
- Higher haze
- Intermixing of polymer layers

• Roughness between polymer layer boundaries / Melt fracture on the film surfaces

Possible cause: Viscosity mismatch of polymer layers.

Remedies: Select lower viscosity skin layer. Increase skin layer thickness. Increase dies temperature. Increases die opening. Reduce extruder total output rate. Increase melts temperature of the skin layer. Use polymer processing aid or lubrication. Use similar melt elasticity resins (Extrudate swell)...

#### Common problems or mistake related to extrusion & their remedies.

Over-treatment is one of the most common errors made by film producers and converters. Treatment processes oxidize (burn) the surface of a film to make it more wettable, which in turn may improve adhesion when printed or laminated. However, as with any oxidation of a material, if the surface is over-oxidized, it can develop a loose layer of low molecular-weight burned material (or ash), which is poorly adhered to the film surface.

When the over-treated surface is printed or coated with adhesive, the ink or adhesive adheres to the ash, which is easily removed from the surface; the bonding of the ink or adhesive is low. The overtreatment can occur at any point in the film manufacturing and converting chain. When experiencing a sudden loss in adhesion you need to eliminate a formulation change in the ink or adhesive system and also to insure that the substrate is properly treated, not too little but also not too much.

When co extruding a film, it is absolutely necessary to select the resins based on their relative rheological properties as well as their other desirable properties. In general, as you approach the surface of a film from the center, the viscosity of each subsequent outer layer should decrease in viscosity relative to the preceding inner layer. You need to have the viscosity as a function of temperature and shear rate to insure the proper engineering of the co extrusion system.

When establishing or evaluating a film extrusion system and in order to have the best film gauge and coextruded layer thickness control, it is imperative to have an extruder/screw combination that delivers a uniform polymer melt to the co extrusion or single-layer die. Melt pressure uniformity should be within 1% and the melt temperature should vary no more than 1-2 degrees over an extended time.

If you do not have these levels of melt pressure and temperature stability, the extrusion system/screw design should be questioned and the performance should be improved. Otherwise you will have poorer film flatness than necessary for the best slitting and converting yields.

Conclusion: The flexible packaging industry in India has witnessed very strong growth over the last few years. India is an important long term strategic-growth market for international and Indian machine manufacturer for launching of the new film producing technology to reinforce its performance properties and ongoing focus to the region through driving innovations and offering differentiated services that meet the needs of its customers.

## GN Thermoforming Equipment, Canada CELEBRATES 30 YEARS IN BUSINESS!

GN Thermoforming Equipment is celebrating its 30th anniversary as a leading global manufacturer of Servo-Driven, Roll-Fed Thermoforming Machines for the production of food packaging. Today, the company has remained true to its original business philosophy of developing innovative machinery and seeking out export markets for its unique products.

"The company is immensely proud of working with many of its customers on a long-term basis," said Jerome Romkey, Marketing Manager for GN. "This is a tribute to our leadership role in the Thermoforming Industry and our targeted focus on new products and strong customer service."

From the beginning, GN Thermoforming Equipment has been an export-driven company, recognizing quickly that more stable sales growth could be achieved by selling into various markets, thus minimizing the impact of regional economic slowdowns. "We quickly embraced the export business and became very good at it," said Jerome. At the outset, GN focused on the U.S., Mexico, U.K. and Russia and today, it derives more than 90% of its business from exports all over the world.

GN started out in 1981 as a manufacturer of Contact-Heat Machinery and in 2000 made an entry into Radiant-Heat Plug-Assist Equipment to spur future growth. The company, whose workforce has grown from six employees to over 100, has enjoyed significant and steady growth over the past 30 years. Products have been exported to 66 countries and over 1200 thermoformers have been installed worldwide.

It all started in Vienna where Georg Nemeskéri, still in his teens, began experimenting with form and structure and the early stages of building thermoforming machinery in his father's factory. After pursuing his interest and studying in mechanical engineering, Georg immigrated to Chester, Nova Scotia on the east coast of Canada to start a new venture, Chester Plastics, and process thermoformed packaging products. In 1981, Georg started another company, GN, in order to provide high quality Pressure Forming Machinery for the Plastics Industry. Over the course of the past 30 years, he has further expanded the business to meet the growing demand of other consumer product manufacturers. Chester Plastics was eventually sold in 2001.

Besides the headquarters located in Chester, GN established in 2004 GN Europe, a Sales & Service division which is operating from the Czech Republic. An extensive network of 22 manufacturers' representatives is also strategically located throughout the world.

GN's full range of Contact-Heat Cut-In-Place Thermoformers meets the demands of both small- and largevolume applications. They are all ideally suited to produce high-quality food packaging from a range of materials including OPS, PVC, HIPS, PET, PP, and a range of bio-based materials including PLA.

A global network of sales and technical service personnel support OEMs and processors that produce plastic packaging for the bakery and confectionery markets. Key applications include clamshells, cake domes and bases, margarine tubs, muffin and cookie trays, egg trays, cups, yogurt containers, and other food containers. Other more limited uses include trays for the medical/pharmaceutical industry and blister packaging for the industrial market.

More details are available at www.gncanada.com

PRESS CONTACT : Joseph Grande 413.684.2463 joe.grande@verizon.net

# **NEWS - INDIAN PLASTICS INDUSTRY**

#### **Essel Propack Expands Capacity in Goa**

Recently Essel Propack inaugurated its new expanded facility in Goa. The expansion at this facility is an outcome of an exclusive long term contract with one of the leading multinational FMCG companies, Colgate. Based on the committed volume from this anchor customer, EP India has expanded the Goa facility at an additional investment of around ₹40 crore.

"The expansion of our operations in Goa, re-affirm our faith in the growing Indian market. It will enable us maintain our leadership position in the business," says Mr. Ashok Goel, Vice Chairman & Managing Director, Essel Propack.

Post expansion, the production capacity of EP's Goa facility stands increased by 150%. The new installed capacity is fast ramping up and it is expected to reach the full utilization by August 2011-12. The new expanded facility has been installed with several new machines to specifically cater to the company's expanding business of tubes. The machines have been imported from Swiss manufacturer PSG.

#### **Essel Propack Consolidates in USA**

#### **Expands in Danville**

EPL, the world's largest manufacturer of laminated tubes has firmed its ground in the USA. Essel Propack, which earlier had two facilities in Danville, Virginia, one with the plastic tube facility located five miles away from the facility of laminated tubes in Danville has consolidated both. The facility adds 1.1 lakh square feet to the current line and will house the laminated tube, plastic tube and printing operations under one roof.

Essel Propack, which is consolidating and integrating its business the world over to drive synergies in operations, cut down costs and simplify the process and logistics, has taken this forward through the consolidation. In April this year, Essel had announced starting production in its new plant in Mexico. The old plant has been closed and a new facility has been set up in leased premises of Cuautitlan Izcalli industrial zone where the existing plant and its equipments were relocated.

#### VIP Aims for 30% Jump in Topline, to Target Youth

VIP Industries is eyeing a 25-30% topline growth, besides strengthening of its position in segments such as handbags and backpacks, this fiscal. "This year, we are looking at ₹975 crore revenues," VIP Industries Chairman Dilip Piramal said here, adding that the firm is now targeting the youth."The problem is that when you are an established company, the youth are not able to identify with the brand. So we are now targeting them," he said. The company had roped in Bollywood actor John Abraham as the brand ambassador for its skybags and introduced Carlton, the premium fashions luggage brand, recently. The company's revenue for FY'11 stood at ₹758 crore, while its profit was ₹89 crore. As part of its expansion plans, VIP will launch ladies' handbags by the end of the fiscal. The ladies' handbags market is estimated to be worth around ₹1,500 crore, with some key players being Hidesign and Baggit-PTI

(Economic Times, 15.8.2011)

#### Uflex \$180m Investment in Kentucky

Uflex recently announced investing US\$ 180 million for setting up flexible packaging PET film (polyester) plant in the State of Kentucky, USA. Apparently, it is also believed to be the first Greenfield investment to be made in Kentucky by an Indian company.

The investment would earn Uflex its first manufacturing facility in the USA and the investment of INR 810 crore would be invested in phases. The new manufacturing plant is part of Uflex's strategy to gain competitive advantage. This will help increased proximity to the markets, and by bringing broad

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portfolio of value added products to its clients at competitive price points.

Uflex has been undertaking various green and brown field expansion projects adding manufacturing lines for new product categories across facilities in Egypt, Mexico and India with aggregate investments of \$250 million over the current fiscal.

Apart from the venture in US, the company had recently initiated the setting up of a new plant for manufacturing of 30,000 metric tonnes of polyester film in Poland.

With plans of new manufacturing lines and corresponding investments, Uflex aims to hit the next milestone of touching the \$1 billion revenue mark by FY2012.

#### **Uflex Joins INCPEN**

On 7 June, INCPEN (Industry Council for Packaging and the Environment) welcomed Uflex, one of the world's largest flexible packaging manufacturers as its most recent member. Incpen is a non-profit, research-based organization established in 1974 dedicated to analyzing the environmental and social effects of packaging, creating a better understanding of the role of packaging and minimizing the environmental impact of packaging.

INCPEN's members operate at all stages in the supply chain- raw material suppliers, packaging manufactures, product manufacturers and retailers. Working together and sharing knowledge enables cross-sector improvements for the common good.

Mr. Ashok Chaturvedi, chairman and managing director, Uflex said, "We are indeed delighted and privileged to be a member of INCPEN which has global members present in the entire spectrum of the packaging sector vertical chain.

# Motherson to Buy 80% in Germany's Peguform

Auto parts maker Motherson Sumi Systems (MSSL) said it plans to acquire an 80% stake in Germany's Peguform Group from Cross Industries for an undisclosed amount. The world's largest producer of rear view mirrors for passenger cars is expected to close the deal in 2-3 months and will fund it through debt from Indian lenders, said VC Sehgal, vice-chairman, Motherson Group.

Austrian automotive group Cross Industries will continue to hold the balance 20%. Investment bankers peg the valuation for an 80% stake at \$500 million (\$2,229 crore). Peguform has posted a turnover of ₹8,548 crore for the 2010 calendar year.

Shares of Motherson Sumi fell on concerns regarding valuations and pressures on margins. Motherson Sumi, whose shares rose by more than 7% before the announcement on the Bombay Stock Exchange, reversed gains and were down more than 2% at ₹234.25 crore.

"It is excessively overvalued and the entire deal is being funded through debt," said a Mumbai-based auto analyst. Analysts, however, say that margins will improve in the long term.

"The acquisition is very significant as it would add to the top line. However, there are concerns that the acquisition would impact margins in the near term. Motherson Sumi is known to improve performance of acquired companies, which will help bolster margins," said Yaresh Kothari, analyst at Mumbai-based broking firm Angel Broking.

The acquisition will help the Delhi based joint ventures between Motherson group and Japanese major Sumitomo boost its auto parts business as Peguform sells plastic components for vehicle exteriors, dash boards and bumper systems to European carmakers such as Volkswagen and BMW.

"Peguform complements our polymer product range in India, making us one of the largest players globally," said Sehgal. The acquisition will be made through a special purpose vehicle, in which Motherson Sumi Systems will hold a 51% stake and group firm Samvardhana Motherson Finance will own 49%. PwC was the advisor to the deal.

Motherson plans to start the process of deriving synergies from Peguform shortly and complete the integration once the regulatory approvals are in place. "We will explore synergies with our auto moulding

business till the approvals are in place," said GN Gauba, chief financial officer of MSSL.

VC Sehgal started the company in 1977 and established a joint venture with Japanese major Sumitomo in 1983. The joint venture has now presence in 23 countries with 100 manufacturing facilities.

"With this acquisition, our group aims to reach a turnover of \$5 billion in two years," said Sehgal.

MSSL, with a turnover of ₹8,176 crore, is the flagship company of the Samvardhana Motherson Group.

#### India Exempts Japan from Anti-Dumping Duty on PVC Paste Resin

India has exempted Japan from the anti-dumping duty imposed on PVC Paste Resin used on manufacturing of leather products, while confirming that the levy will remain on China, South Korea, Russia, Thailand, Malaysia and Taiwan.

The imposition of duty, which is for a period of five years, is aimed at protecting the interest of domestic players from cheap inward shipments into the country.

The duty ranges from \$1,471 to \$1, 707 per million tonne of the Poly Vinyl Chloride (PVC) Paste Resin.

"The product had been exported to India from the subject countries (except Japan) below their associated normal values," the Department of Revenue said.

The dumped imports of PVC Paste Resin has caused a material injury to the domestic industry, it said.

In June 2010, the Directorate General of Anti Dumping and Allied Duties (DGAD) had imposed a provisional duty on imports of PVC Paste Resin from countries, including Japan.

Now, the DGAD again reviewed the situation and concluded that the duty will be imposed for a period of five years (unless revoked, superseded or amended) with a retrospective effect from July 26, 2010. This would not be applicable for Japan.

PVC Paste Resin is used in artificial leather (Rexene), coated fabrics, tarpaulins, toys, automotive sealants and adhesives.

#### Use Plastic Waste to Bridge Coal Deficit, CPCB to Cement Units

The Central Pollution Control Board (CPCB) has asked cement units in the country to reduce their dependence on coal and use plastic waste to bridge the supply gap for coal.

Cement industries giving a clarion call to bridge the 30% coal deficit from the domestic coal linkages should explore the option of buying municipal plastic waste to bridge the gap, chairman of Central Pollution Control Board (CPCB) SP Gautam said.

Around 150 major and 300 minor cement manufacturers in the country consume close to 29 million tonnes coa! per year. Recently, the supply of coal from the linkages to cement industry has declined from 80% to 50%.

Sensing the rebound in cement shipments, the industry associations have been clamouring for restoring the availability of coal from domestic linkages to the original 80%. Meanwhile, CPCB is urging cement industries nation-wide to cut back coal usage in kilns and opt for blending of plastic refuse from municipal garbage for incineration to achieve the twin benefits of reducing carbon emissions and lower inorganic solid pollution load on the environment.

#### Tetra Pak Greenfield Project near Pune

Tetra Pak, one of the leading processing and packaging companies of the world, will be setting up a new world-class packaging material factory at Chakan, near Pune in western Maharashtra, India. The Indian commitment worth Rs. 600 crore follows similar recent investment to increase production capacity in China, Pakistan, Russia and Brazil.

The new facility, expected to start its commercial supplies from December 2012, will have an initial annual production capacity of 8.5 billion packages, with the potential of scaling up to 16 billion packages per year. It will produce packaging material for such

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packages as Tetra Brik Aseptic, Tetra Fino Aseptic and Tetra Classic Aseptic.

#### HUL Partners with Bharti to Promote Plastic Recycling

Hindustan Unilever Limited and Bharti Retail has partnered to promote plastic recycling among consumers in National Capital Region (NCR).

This programme launched jointly by Hindustan Unilever Limited and Bharti Retail is called "Go Recycle" and will run for three months in all the 31 easyday stores across National Capital region (NCR). This is a first-of-its kind initiative in India and is targeted to help reduce packaging waste and also inform and educate consumers to practice responsible consumption.

The "Go Recycle" programme to consumers through in-store displays, leaflets and mailers. The programme aims to drive consumer participation through a consumer incentive scheme. Consumers who bring empty plastic bottles and pouches of any brands in five FMCG categories (tea pouches, detergent powder pouches, shampoo and conditioner bottles, tooth paste tubes and ketchup pouches & pet packs) will be awarded discount coupons at the 'easyday' and 'easyday Market' stores in NCR. The coupons can be redeemed at these stores to buy any products of the five leading Hindustan Unilever brands, namely Surf, Kissan, Dove, Red Lable and Closeup.

As part of the Unilever Sustainable Living Plan, Unilever aims to halve the waste associated with the disposal of its products by 2020.

#### PACKAGING

#### Parle Agro's Bailley Soda

Parle Agro's Bailley Soda is a product of consumer research. The brand is positioned as 'the strong soda', with a higher gas content making it stronger and fizzier than existing brands. The



move is also in line with the company's vision to be present across all beverage categories.

Strategically designed to carry forward the brand communication of being a strong soda, the bottle is shaped like a grenade and connotes the 'explosive' gualities of the brand.

#### **New Bottles for Marico**

Marico chose polypropylene (PP) clarified with Millad NX8000 agent from Milliken & Company to create ultraclear bottles for its new Naturals almondscented hair oil.



Collaboration among

Marico, Milliken and resin manufacturer Lyondell Basell led to development of the NX8000-clarified PP grade packaging and production of attractive bottles with minimal capital investment.

#### **PET Plus 30% Ethanol**

On 22 February 2011, Coca Cola and H. J. Heinz announced strategic а partnership that enables Heinz produce to its bottles ketchup using Coca-Cola's Plant Bottle



The new PlantBottle packaging of Heinz ketchup bottles Photo: Heinz

packaging. The company claims that the PET plastic bottles are made partially from plants and have a lower reliance on resources non-renewable compared with traditional PET bottles. The partnership is an industry first, and one that both companies hope others will follow to transform how food is packaged around the world.

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Plant Bottle packaging looks, feels and functions similar to a traditional PET Plastic, and remains fully recyclable. The only difference is that up to 30% of the material is made from Plants. Currently, Plant Bottle is made using sugarcane ethanol from Brazil.

#### **PVC Substitute for Infusion Bags**

Traditionally, infusion bags have been made out of PVC. Many product developers expect PP-film to replace the publicly disputed PVC. which a naturally is brittle hard.



The AQUAREX blown film line turns blown film extrusion upside-down by blowing film downward and quenching it with water instead of air

form of plastic. Only after mixing with phthalates, PVC becomes soft and pliable. Such softeners used with PVC are facing criticism. According to the Environmental Protection Agency, PVC is associated with health risks, and has consequently been eliminated from the production of a number of products. Some countries, including China, have banned PVC infusion bags altogether. In such cases, PP films produced on an Aquarex could be a good substitute.

#### A Complete Line for PP Spun Bond Nonwoven Fabric - Rajoo Ushers in a New Technology

Across sectors, the industry is poised to witness radical changes in the adoption of PP Spun bond and melt-blown nonwoven fabrics. Segments such as automotive, medical, personal care and hygiene, home furnishings, household, stationery, agriculture and geotextiles would be the early adopters and enjoy the benefits presented by use of nonwovens. Rajoo Engineers have launched a Complete Line for Producing PP Spun Bond and Melt-blown Nonwoven Fabric.

The spun bonded process direct extrusion followed by online thermal web bonding is the most versatile and popular process. The Rajoo solution, built on a similar line includes:

- Primary extruder
- Trim recycling extruder
- Automatic screen changer
- Melt pump, Barmag
- Spinnerets
- Filament cooling / Fibre quenching
- Filament stretching / Draw bench
- Web forming
- Thermal bonding
- Winding
- Slitter re-winder
- Chillers
- Vacuum furnace / Calciner
- Ultrasonic cleaner
- Touch screen control panel

#### **Spunbond - Line configuration**



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## **Global News**

## Major Polyester Industry Event Coming To Chigago USA

We are delighted to announce that online registration is now live at for the forthcoming POLYESTER EXTRUSION AND RECYCLING FORUM taking place at the Intercontinental Hotel Chicago.

After the event successfully debuted in Newcastle, United Kingdom last year, the companies involved in the Polyester Virgin polymer and recycling segment have again joined forces to bring you a unique event designed 'By the Industry – For the Industry'

With an impressive agenda of keynote speakers a range of relevant topics will



be presented that will be highly interesting for key decision makers from many segments of this dynamic industry. The KEYNOTE presentations will cover topics such as post consumer bottle sorting and washing facilities. We will be inviting all the major processors and re-processors that are involved with PET bottle flakes, packaging and extrusion to get together with fellow industry professionals at this unique event.

#### **Key Facts About The Event**

r The event is a unique industry event dedicated to the latest trends in Polyester Extrusion and Recycling industries.

⊢ Key industry professionals from a broad range of businesses are invited to attend a one day conference with leading industry figures presenting highlytopical KEYNOTE Speeches

□ High importance is being placed on providing ideal conditions for industry professionals to network and to 'ask the experts' for advice on a wide range of subjects relevant to extrusion processing and recycling of post consumer PET

bottles. An evening networking dinner



will follow the day of Keynote presentations

Located at the impressive Intercontinental Hotel, Chicago O'Hare. This location provides excellent transport links to ensure key industry professionals from far afield can easily attend this important date in the industry calendar.

□ Preferential room rate for delegates staying at the Intercontinental Hotel. We recommend that you maximize your networking opportunities with fellow industry professionals by staying 2 nights to ensure you are present for all major networking opportunities.

For more details: www.kreyenborg.com

## Honeywell Introduces New Nylon 6 Resins For Fishing Line And Net Applications

In an announcement made on May 17th during ChinaPlas 2011, Shanghai, Honeywell (NYSE: HON) Resins and Chemicals announced that it has expanded its line of Aegis® nylon 6 resins to include a new formulation specifically tailored for fishing line and net applications.

> This new formulation, Honeywell Aegis H95XC

Gen II Resin, is designed to maximize transparency, flexibility, strength and elongation, which are key attributes needed in fishing line and nets. The resin also has critical performance additives already imbedded, allowing manufacturers to avoid the time and cost normally associated with blending the materials themselves to achieve the best results. Honeywell developed the new resin at its technology center in Shanghai, China, working closely with local manufacturers that convert nylon or copolymer resin into filaments and fibers used to produce fishing lines and nets.

"This resin was developed based on the input of customers to achieve the combination of attributes they require and the ease of use in manufacturing they need," said Sherwin Ling, Asia Business Director for Honeywell Resins and Chemicals. "It is another example of our continuing efforts to customize resins

to meet specific needs of our customers." Fishing lines and nets require certain attributes from nylon, including: transparency so the net cannot be seen underwater; flexibility or softness so the net and line are easy to handle, spread, fold and store; strength so the line or net does not break under heavy loads; and elongation to prevent knot slippage. Honeywell researchers used new

proprietary quantitative testing methods for transparency and softness in formulating the resin to measure and prove its performance. The company is currently sampling customers and plans to enter full production of the resin in the third quarter of this year.

Honeywell Resins and Chemicals is one of the world's largest producers of nylon resin and caprolactam, a critical feedstock used for nylon production. Its resins are used in diverse applications such as fibers and filaments for carpeting, fabrics, nets and cords; engineered plastics components for automotive, consumer, and industrial applications; and films for food and protective packaging. Resins and Chemicals offers more than a halfcentury of technology and customerfocused application development expertise to enable sustainable growth worldwide. Resins and Chemicals also produces chemical intermediates and is one of the world's largest producers of ammonium sulfate fertilizer.

For more details: www.emeraldgroupe.in



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#### CIRCULAR

# **MONTHLY CIRCULAR OF THE FEDERATION**

#### CIRCULAR NO. 55/2012 :

#### Sub: Membership of the Federation

The Federation has received the following applications for membership of the Federation :

		<b>S</b> 11		1
1.	a)	Name & Address of the Applicant Firm	:	M/S SERVO PLASTICS PVT. LTD. 707, Todi Corner, 32, Ezra Street Kolkata – 700.001
	b) c) d) e)	Class of membership Proposed by Seconded by Name of representatives	:	Producer member M/s Jalan Industrial Corpn M/s Creative Poly Packs P. Ltd. 1. Mr. Sisir Jalan 2. Mr. Sandip Jalan
	f)	Items of manufacture	:	Manufacturer of PP/PE Compounds, Colour and Specialised Masterbatches. Ph: 033-22351315
2.	a)	Name & Address of the Applicant Firm	:	<b>M/S. SERVO PACKAGING LTD.</b> 704, Todi Corner, 7 <sup>th</sup> Floor 32, Ezra Street Kolkata – 700 001.
	b)	Class of membership	:	Life Manufacturer member
	c)	Proposed by	:	M/s Jalan Industrial Corpn
	d)	Seconded by	:	M/s Poly Packaging
	e)	Name of Representative	:	Mr. Sisir Jalan
	f)	Items of manufacture	:	Manufacturer of HDPE/PP Woven Sacks Ph: 033-22351315
3.	a)	Name & Address of the Applicant Firm	:	M/S PRAGYA POLYMER Vill – Kharial, PS + P.O Dankuni Coal Complex Delhi Road Hooghly – 712 310
	b)	Class of membership	:	Life Manufacturer member
	c)	Proposed by	· .	M/s Plastic Engineers
	d)	Seconded by	:	M/s Ever Bright Plasic Works
	e)	Name of representatives	:	<ol> <li>Mr. Dhrubajyoti Chanda</li> <li>Mr. Aloke Chanda</li> <li>Mr. Bai Kuman Cunta</li> </ol>
	f)	Items of manufacture		3. Mr. Raj Kumar Gupta Manufacturer of LDPE Tarpaulin, Wide width
	.,			Polythene Sheet (Geo Membrane) Agriculture Poly film – Like Mulch Film, UV Film etc. Ph: 9830063180
4.	a)	Name & Address of the Applicant Firm	:	<b>M/S. KALYANESWARI UDYOG P. LTD.</b> Mental Hospital Road, Punuri, Kulti P.O. – Kult. Dist – Burdwan – 713 343
	b)	Class of membership	:	Life Manufacturer member
	c)	Proposed by	:	M/s Vishambara Investment Pvt. Ltd.
	d)	Seconded by	:	M/s Plastic Engineers
	e)	Name of Representatives		<ol> <li>Mr. Rakesh Agarwal</li> <li>Mr. Vijay Agarwal</li> </ol>
	f)	Items of manufacture		3. Mr. Kajesh Kumar Agarwal
	1)			Manulacturer of PP woven Sacks.

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5. a) Name & Address of the Applicant Firm

- b) Class of membership
- c) Proposed by
- d) Seconded by
- e) Name of Representative
- f) Items of manufacture
- 6. a) Name & Address of the Applicant Firm
  - b) Class of membership
  - c) Proposed by
  - d) Seconded by
  - e) Name of Representatives
  - f) Items of manufacture

7. a) Name & Address of the Applicant Firm

- b) Class of membership
- c) Proposed by
- d) Seconded by
- e) Name of Representative
- f) Items of Manufacture

8. a) Name & Address of the Applicant Firm

- b) Class of membership
- c) Proposed by
- d) Seconded by
- e) Name of Representative
- f) Items of manufacture
- 9. a) Name & Address of the Applicant Firm
  - b) Class of membership
  - c) Proposed by
  - d) Seconded by
  - e) Name of Representative
  - f) Items dealt in

#### CIRCULAR

**M/S. GANAPATI PLASTOCHEM INDUSTRIES PVT. LTD.** 19. Synagogue Street 2<sup>nd</sup> Floor, Room No. 208 Kolkata - 700 001. Life Manufacturer member M/s Accurate Turners Pvt. Ltd. M/s Kusum Management Services P. Ltd. Mr. Deepak Tibrewal Manufacturer of PVC Compound, PVC Delivery Pipe, Suction Pipe etc. Ph: 9831828024 **M/S TIRUPATI POLY INDUSTRIES** : 155, C. R. Avenue, Ground Floor Kolkata - 700 007. Life Manufacturer member M/s Kusum Management Services P. Ltd M/s Accurate Turners Pvt. Ltd. 1. Mr. Rajesh Shroff Mr. Jatan Sethia 2. Manufacturer of Polypropylene Tube/Sheet, BOPP Bags, Non-Woven Fabric Bags. Ph: 9830913319 **M/S. SWISS WRITING PRODUCTS** 29B, Zakaria Street, 1st Floor Kolkata - 700 073. Life Manufacturer member M/s Kusum Management Services P. Ltd M/s Orient Plastics Mr. Sanjay Kanodia Manufacturer of Ball Pen, Pencil, Refill & Sketch Pen. Ph: 033-22218421 **M/S INSHA PLASTIC INDUSTRIES** Dharsa Mullick Para P.O. - Baltikuri, Jagacha Howrah - 711 113. Manufacturer member M/s Harshit Polymers (I) Pvt. Ltd. M/s Ever Bright Plasic (P) Ltd. Md. Moin : Manufacturer of Pipe Fittings, Agriculture 2 Items, Industrial Products etc. M/S LUIBEG ENVIRONMENTAL **TECHNOLOGIES (I) PVT. LTD.** 24, Chowringhee Road, 1st Floor Kolkata - 700 087. **Dealer** member M/s Neha Impex Pvt. Ltd. M/s Plastic Engineers Mr. Biraja Prasanna Jena **Dealer of Polymer Additives** Ph: 033-22521568/9831043330

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- PP/PE Pipes

- UV, Optical Brightner, Anti-block, Masterbatches.
- Consumers specific Masterbatches.
  - Non Woven Fabrics

- Carry Bags
  - gs 1/10

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