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PLASTICS INDIA

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

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INDIAN PLASTICS FEDERATION

8B, Royd Street, 1st Floor
Kolkata - 700 016 (INDIA)
Phone: 2217 5699 / 5700 / 6004
Telefax : 91-33-2217 6005
Email : ipf@cal2.vsnl.net.in
Web : www.plasticfederation.org

Editor : Sri Pradip Nayyar

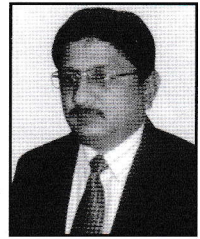
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Editorial



Dear Members,

On the occasion of Poila Baishak I wish all members a **Very Happy Bengali New Year.**



Whatever one's business may be, getting new clients or buyers is the foremost goal for all. Without doubt the most important goal for every company should be to find customers that one can turn into regular buyers. Having said that, the question that comes to everybody's mind is: 'How am I supposed to begin getting new buyers?' The answer to this question, though not simple, has to be answered first before you start working on your new marketing campaign.

To start with, making one's business visible both on online and offline media can possibly be the best way to bring in a new client. The simple logic that applies here is that 'more the people see you, the more likely it is that they will call you when they want to buy.' But to achieve this, you need to target the right audience. I don't think any business would like to end up showcasing itself to the wrong audience who are unlikely to be the buyers.

Businesses also need to understand that in these uncertain economic times, buyers too are keeping a tight rein on spending. So, unless you have something that is really value-for-money, chances are that you will never be considered a supplier/ seller worth exploring. For the very reason, when you start looking for new buyers, try to highlight the points which makes your products stand out amongst others in the market, or simply convey a sense of exclusivity.

Another good move to make your first-time customer buy from you, is by varying your offerings. Since he is a first-time buyer, it will not be possible for you to know the buyer's budget. So make it known that you can cater to buyers of varied budgets. Also try creating an urgency in the customer's mind, which can drive a faster buying decision. This is a classical marketing principle and works almost every time.

The top reason why buyers hesitate to make a purchase is doubt. They wonder if their needs will truly be met once they buy your products. To do away with these doubts, it's imperative for each and every business to answer every query a prospective buyer might have. Failing to do so in a professional manner raises doubts in the mind of the buyer and usually leaves him with no other option than to go to the next seller/supplier.

The current competitive market dynamics demand that a business understands its potential buyer. The mantra to compel customers to buy your products is to show him how your product is capable of meeting his expectations. Are you being able to do so?

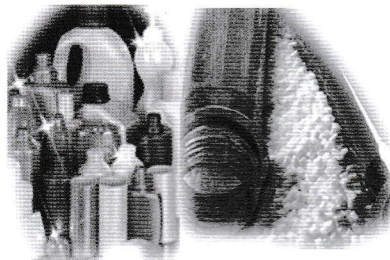
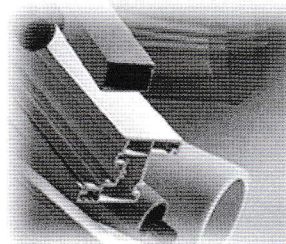
Yours truly,

Pradip Nayyar

Editor



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PRESIDENTIAL ADDRESS



Dear Members,

The Cricket World Cup has just come to an end and after a gap of 28 years, this time, India has been able to win the World Cup once again. Hence the New Financial Year has started on a strong positive note and I hope that the remaining months will be good for all of us.

On 15th April 2011 we will be celebrating The Bengali New Year's Day and I wish all the members a "Happy Bengali New Year".

I would like to share some insight on some new development in the field of Plasticizers:

Dow Wire & Cable has introduced DOW ECOLIBRIUM™ Bio-Based Plasticizer, a new family of Phthalate - free plasticizer for use in wire insulation and jacketing that are made from nearly 100% renewable feed stocks. The new plasticizer were developed to meet growing demand for more sustainable options in wiring applications such as personal electronics and appliance wiring, residential and commercial building wiring, communications and data cabling and automotive wiring. The use of these Bio-Based Plasticizers in PVC compounds for wire applications can help cable-makers and original equipment manufacturers (OEMs) reduce greenhouse gas emissions by up to 40% if used instead of traditional PVC plasticizers. Field trials demonstrated that the new plasticizers exhibit the same performance and feel as incumbent PVC plasticizers while meeting all regulatory requirements for flame resistance. These Bio-Based Plasticizers offer specific benefits in terms of processing, electrical and temperature performance, and end-use for low and high temperature wiring applications in several key wire and cable market segments. Personal Electronics and Appliances—Wires jacketed with material that includes Dow Ecolibrium can achieve an outstanding balance of flame retardance, flexibility and heat performance. In wiring for personal electronics the use of the Bio-Based Plasticizers can deliver on global OEM requirements for heat deformation resistance, flexibility and electrical performance. Building & Construction—They are phthalate-and lead-free, offering safe building wire options for end-users. By virtue of being bio-based, their production can also provide opportunities for cable-makers and building industry end-users to achieve carbon credits and, in the USA, certification by the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) Rating Systems. The new products are also effective in data communications delivery applications. • Automotive – Wires used for the transmission of power and data inside passenger and commercial vehicles that are jacketed with material that includes these Bio-based Plasticizers can provide an environmentally-friendly solution that exhibits requirements for heat resistance and ease of installation. Olvex 51 Biobased Plasticizer for PVC has been developed by Brazil's SGS Polimeros. Olvex 51 is a bio-based, renewable primary plasticizer produced from vegetable raw materials and renewables which is used as a substitute for petroleum-based plasticizers (DOA, DOP/DEHP, etc) replacing it in 100% and used in traditional PVC, PLA. It can replace conventional phthalate based plasticizers that have restrictions in many markets and products in the industrialization of nitrile rubber. PolyOne, in conjunction with ADM, has commercialized a soy-based plasticizer that can directly replace butyl benzyl phthalate (BBP), which has issues concerning toxicity and price volatility. Based on the chemistry, PolyOne's biobased plasticizer is very compatible with PVC resin and has been applied to flooring and caulk and sealant products that can be used in sustainable building projects. The company is also in an agreement with Segetis, an innovative bio-based chemical company, to explore the development of bio-derived plasticizer for use in targeted petroleum and bio-based polymers. GRINDSTED® Soft-n-Safe from Danisco is a new acetylated mono-glyceride derived from hydrogenated castor oil offering good performance over phthalates or other plasticizers. It is colorless, odorless and completely biodegradable. This product belongs to a class of natural oils and fats that are globally approved as direct Food Ingredients making it both a safe and sustainable solution for flexible PVC. While plasticizers find several applications, the use of this biobased plasticizer has to be specialized due to cost factors. The product is targeted for use in the production of flexible PVC for consumer products such as toys, bottle cap liners, floorings, teething rings, tubes, cling films, conveyor belts, food packaging and medical devices. It has been authorized for marketing within Europe and has also been included in Europe's positive list for food contact materials. In addition, it is considered safe to be used in food contact materials.

With warm regards

Sourabh Khemani
President



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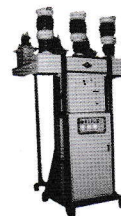
YUKEN HYDRAULICS (OLDEST DEALER SINCE 1992)

Hydraulic Pumps Pressure Control Valves
 DC Valves Flow Control Valves / Check Valves.



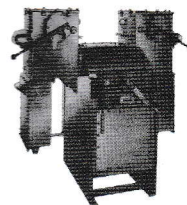
MEI SWITCH GEAR :

Star Delta Starter, Slipring Motor Starter,
 Oil Circuit Breaker, Automatic Oil Switch Fuse Unit
 Type VLE 200A, MOCB / VCB, Indoor & Outdoor
 CT/PT 33 KV Indoor, Type remote control panel
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KIRLOSKAR MOTOR :

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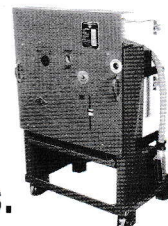


STANDARD SWITCHGEAR :

Main Switches, MCB, DB Box & Others Industrials
 & Domestic Products.

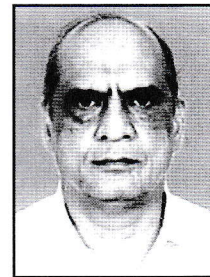
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From the Desk of

The Hony. Secretary



Dear Members,

At the outset I wish all members a **VERY HAPPY BENGALI NEW YEAR.**

In my previous message to you I had informed you that IPF has been given possession of 1.02 acre land at Sankrail in Dist. Hooghly to set up a Knowledge Centre (Testing & Training). I had also requested members to come forward with their suggestions to help conceptualise the Knowledge Centre. I thank those members who have sent their recommendations. I would also request other members to kindly apply their mind for a few minutes and come out with some fruitful ideas that will help develop a good Knowledge Centre. A brain-storming session is being organised on 23rd April 2011 at Rotary Sadan to get more creative ideas for developing this centre. Meetings in this connection have also been held with DG-CIPET and senior officials of Department of Chemicals and Petrochemicals, New Delhi to involve them in our project. Members willing to join hands in this project may do so by making a donation for development of this Knowledge Centre.

The response received from members for Chinaplas2011 visit is very good. We have increased seat reservation with China Eastern from 25 to 35 members. In case any member is still interested to join the IPF delegation he may pursue this matter with the Convenor Shri Dipak Gathani Mob No.98300 39614; Ph: 091-033-2221 8342 OR Email: dipak.gathani@rajdagroup.com

Work on Indplas'12 International Exhibition on Plastics is going on in full swing. Stall rates have been tentatively finalised and I expect that by end May / June we may be able to despatch the brochures to our members for stall booking.

There has been some confusion in some sectors of plastic industry on the contents of the new 'Plastic Waste Management & Handling Rules, 2011' that was notified by the MoEF in February 2011. IPF has sent a memorandum to the Ministry of MoEF and other concerned authorities expressing our reservation on certain clauses and requesting for clarification to avoid confusion in the mind of manufacturers and traders.

With Best Wishes

A handwritten signature in black ink, appearing to read 'R. Poddar'.

Ramawatar Poddar
Hony. Secretary

..“High Density Polyethylene Blow Moulded Kettle for a New Enduse – Edible Oil for Rural Population”

– Ms Poorvi C. Desai, Business Development - Polymers, Reliance Industries Limited



Plastic, which is manufactured from polymer resins, gives rise to innumerable products using various technologies, including blow moulding. Blow Moulding has been one of the most sought out projects by entrepreneurs who intend to start a business with low

investments in the plastic industry. A movement in the blow moulding industry from bottles to 2000 litre water tanks has made this industry move at a faster pace. Creation of new plastic blow moulded plastic products has been possible due to the creativity of entrepreneurs, technical persons, mould designers and machinery suppliers in the country.

Blow moulding is used for manufacturing a wide range of bottles from drinking water bottles, pharmaceutical bottles for eye drops, nasal drops, ayurvedic medicines, cosmetic bottles for lotions, shampoo bottles, hair oil bottles, detergent bottles to floor cleaner bottles. Plastic bottles and containers used for storing liquids such as water, diesel, chemicals, edible oil etc (medium capacity

containers) have been some of the most accepted storage products due to their high impact strength, light weight, aesthetics and cost-effectiveness. Plastic, with its versatility, allows for multiple designs, shapes, colours, production capacities, has been a delight to the blow moulding industry.

10 Litre, 15 Litre & 20 Litre High Density Polyethylene Blow Moulded Kettle for Edible Oil sold by Retailers for Rural Population

Edible Oil in India

In India, trade estimate of edible oil availability from Domestic Oilseeds in 2008-09(Nov-Oct) was 77.7 lakh tonnes. Edible Oil import in 2008-09(Nov-Oct) was 81.83 lakh tonnes

India is the 4th Largest Edible Oil Economy. 50% of the total edible oil in India is sold loose.

The government has passed the Eligible Oil Packaging (Regulation) Order, which makes its compulsory for edible oils to be sold in packed form, with effect from December 15, 1998.

Market Potential

Edible Oil Demand Projection

	2004	2010	2015
Total Demand (Mln. Tonnes)	10.9	15.6	21.3
Total Area under Oilseeds (Mln. Hectares)	23.4	28	32
Yield (Tonnes/hectare)	1.07	1.2	1.4
Production of Oilseeds (Mln. tonnes)	25.1	33.6	44.8
Domestic supply of edible oils (Mln. tonnes)	7	10.1	13.4
Total edible oil imports - (Mln. tonnes)	4.3	5.9	8.3
Imports as share of demand	39.40%	38.10%	39.50%

Source : Rabo Bank

Oilseeds Sector in India: Size

- India is one of the world's largest edible oil economies with 15,000 oil mills, 689 solvent extraction units, 251 Vanaspati plants and over

1,000 refineries employing more than one million people. The total market size is at Rs. 600,000 Mln. and import export trade is worth Rs.130, 000 Mln.

- India is also a leading producer of oilseeds,

contributing 8-10% of world oilseed production. India is estimated to account for around 6% of the world's production of edible oils. Though it has the largest cultivated area under oilseeds in the world crop yields tantamount to only 50-60% of the world's average.

- India is the fifth largest producer of oilseeds in the world, behind US, China, Brazil, and Argentina.
- Three oilseeds - Groundnut, Soybean and Rapeseed/ Mustard - together account for over 80 per cent of aggregate cultivated oilseeds output.

Structural Characteristics

- Broadly, edible oil/fat products can be categorised into four categories, namely vegetable refined oil, hydrogenated oil (vanaspathi), bakery fats/margarine, and de-oiled cakes.
- The Indian edible oil industry can be classified into the following segments. Ghanis, small scale expellers, solvent extractors, oil refiners and vanaspathi manufacturers.
- Oil mills crush oil seeds and extract oil, 70% of which is sold in the open market. The remaining 30% is refined and sold as branded oil. After the extraction of oil, residual seeds are processed further by solvent extractors, to make solvent-extracted oil. Most of the solvent extracted oil is used to make 'vanaspathi'.
- The Indian edible oil industry is highly fragmented with a large number of small scale producers. The ghanis belong to the SSI segment and usually serve the rural markets.
- Small scale expellers, much like the ghanis, use metal screws to press or expel oil from seeds. However, they are larger than the ghanis, oil expelling capacity being in the range of 5-10 tonnes per day, compared to around 50-60 kilos a day for ghanis.
- Solvent extractors belong to the organised segment and are also the second largest after the SSI segment, in the domestic edible oil industry. They use modern technology to process low oil & high meal seeds (eg. soyabean, cottonseed) into edible oil and de-oiled cake.
- Oil refining also belongs to the organised sector and has recorded rapid growth in recent times. Refiners generally refine both expeller oils and

solvent extracted oils.

- Vanaspathi is made by hydrogenation of refined oil to vegetable shortening or spread and is similar to the milk product ghee and absorbs around 10% of the total edible oil supply in India.
- Due to increased consumer preference for non traditional oils such as soyabean and sunflower oil, the organised sector has emerged as one of the fastest growing sectors in recent times clocking double digit growth. Branded products, though small portion of the total edible oils market, have been one of the main drivers of rapid growth.

FEATURES

Characteristics

- Oils: primarily a commodity market - price sensitive
- Effective distribution chain - through a complex network of C&F agents, wholesalers / stockists & retailers (kirana shops, supermarkets).
- Oil sold in bulk (tin, HDPE containers) to institutions; in retail packs (PET bottles, cans, jars, pouches) to small customers.
- Seasonal demand for oils & vanaspathi - September to November (peak season).
- Regulation: Under the Edible Oils Packaging (Regulation) Order, 1998, edible oils cannot be sold loose' but can be sold only in 'packed' form
- Oil consumption - North is largest market, followed by South, West & East zones

Imports and Prices

- Oils and vanaspathi substitutes can be freely imported under OGL
- Import duties: 15 % basic + 10 % surcharge (Oil); 40% basic (Oilseeds)
- Large scale imports of oils and vanaspathi substitutes - primarily to check price rise and meet supply shortages

Usage

- Oil and vanaspathi is used as cooking media (in households, hotels, restaurants, canteens, institutions)
- Vanaspathi used as an industrial input - for making bakery products & confectionery

High Density Polyethylene Blow Moulded Products for Entrepreneurs

The vast plastic processing industry, includes low capacity blow moulded bottles such as pharmaceutical bottles and high capacity blow moulded products such as 220 litre HMHDPE L Ring Drums for chemicals. This has helped entrepreneurs fetch higher value additions for these low capacity bottles and higher volumes of business for the high capacity drums. Delivery of pharmaceuticals, chemicals etc, in plastic containers ensure a high degree of safety. The plastic container made out of blow moulding acts as a carrier for transportation of chemicals, diesel etc eg HDPE Carboys, HDPE Jerry cans, 220 litre HMHDPE L Ring Drums. Blow Moulded Containers offer a high impact resistance and less breakage. Eg. Safe delivery is needed for Chemicals & Pharmaceuticals. These chemicals which may be hazardous needs to be packed in products which are chemically resistant and are safe during transportation and handling. Blow moulded high density polyethylene products thus becomes a need for packaging.

High Density Polyethylene Blow Moulded Kettle for a New Enduse – Edible Oil for Rural Population

High Density Polyethylene Blow Moulded Kettle for Edible Oil for Rural Population – Potential 368 KT assuming 15 litre capacity of 700 gms

Edible oil is a basic need for cooking food. Edible oil in the rural population (70% of total population) today is sold loose (79 lac tonnes). Loose edible oil could be transported in HMHDPE 220 litre blow moulded L ring drums and distributed in various villages. The edible oil from polyethylene blow moulded tank could be distributed in 10 litre, 15 litre, 20 litre polyethylene blow moulded kettle which could be used by retailers while supplying edible oil in bottles to rural population. A polyethylene blow moulded kettle provides easy pouring of edible oil during sale of the oil to the population in rural areas. The polyethylene blow moulded kettle has 2 lids made up of polyethylene which are tightly fitted onto the blow moulded kettle. Plastics kettle available in various colours, capacities could be used by the retailers in rural areas. The advantages of plastics are numerous :

1. Light weight
2. Good Aesthetics
3. Better Hygiene
4. Safe handling of liquids such as edible oil with easy pouring
5. Low costs
6. Could be used for multiple uses such as edible oil, water, other liquids
7. Blow moulding process involves low investments in machinery
8. Injection moulding process for caps also involves low investments in machinery

High Density Polyethylene Blow Moulded Kettle

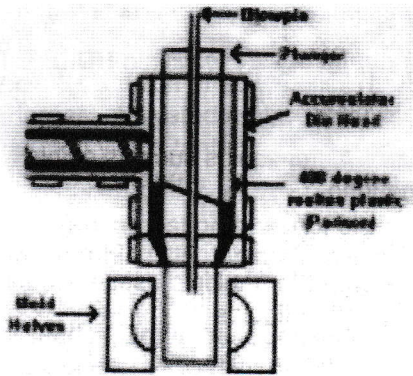
	Weight(gms)
10 litre	400
15 litre	700
20 litre	900

Key Concerns

1. A low market penetration of packed edible oil amongst rural population (70%), the main reason being that the loose edible oil is unbranded and is available at lower cost than the branded packed edible oil. Affordability is a major constraint amongst rural population
2. Amongst the other 30% urban population, trend towards shopping malls makes the use of 1 litre pouches more popular. Another reason is that of freshness. Small packs of 1 litre gives fresh edible oil in comparison to edible oil in 15 litre HDPE Edible Oil containers
3. To look at the hotel industry which requires oil in bulk would help 15 litre HDPE Edible Oil Containers penetrate in this segment
4. Mandation (with effect from Dec 15, 1998) that edible oils should be sold in packed form is not followed
5. This mandate was followed during the drosy case & is otherwise not followed

Versatile Process of Blow Moulding

Blow molding is a molding process in which air pressure is used to inflate soft plastic into a mold cavity. It is an important industrial process



for making one-piece hollow plastic parts with thin walls, such as bottles and similar containers. Since many of these items are used for consumer beverages for mass markets, production is typically organized for very high quantities.

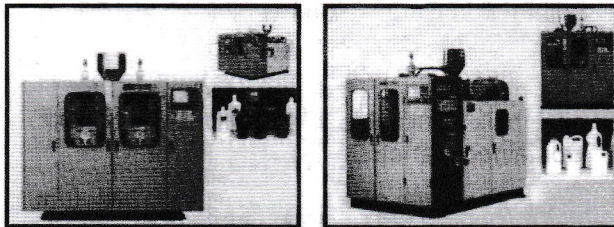
Fabrication of a Tube of Molten Plastic called Parison

Inflation of the tube to the desired Final shape

Blow molding is accomplished in two steps: (1) fabrication of a starting tube of molten plastic, called a parison and (2) inflation of the tube to the desired final shape. Forming the parison is accomplished by either of two processes: extrusion or injection molding.

Versatility of blow moulding process as well as blow moulding machinery helps entrepreneurs in producing more number of products through more number of moulds on the same machinery leading to a higher product mix and thus a higher net profitability.

Versatile Machinery of Blow Moulding



- Technological changes, new applications, new enduses leading to the versatility of the machinery capable of producing a single product or a wide range of products
- New products, new applications helping in achieving a higher capacity utilisation to fetch a better net profitability
- Broadening knowledgebase on the enduse

sector helping the mould makers in achieving a widened range of products

- Need arising out of enduses sectors such as Organised Retail, Pharma, Automotive, Edible Oil
- New Developments in Blow Moulding Machinery



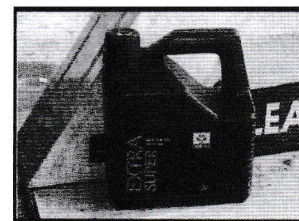
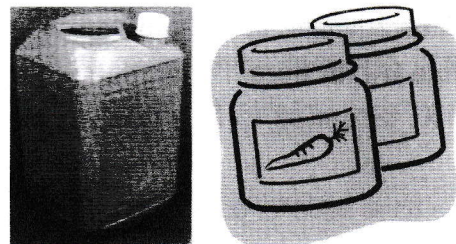
- Zebra line Blow Moulded Kettle
- 2000 litre m/c for Water tanks
- 4 parison m/c
- Inline mould labelling m/c
- 2 colour machine

- Product design of 15 Lt HDPE Edible Oil containers could be modified by giving studs(elevation) on the top of the container and studs(depression) on the bottom of the previous container wherein both these containers could be locked for better stackability of the products

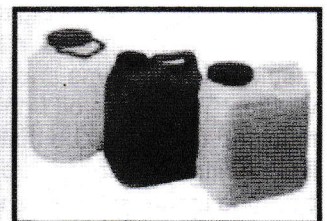
Versatile Products from Blow Moulding

Major Applications of Blow Moulded Products

Consumer goods



HDPE 5 Litre Lube Oil Container



15 Litre HDPE Edible Oil Container

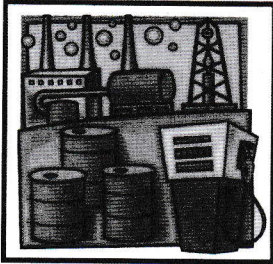
Packaging for vegetable ghee

Packaging for pharmaceutical over the counter products such as chyavan prash etc.

Water bottles, toys, housewares

Container for cosmetics
Fruit juices, milk products packaging
Detergent packaging

Industrial



HMHDPE Lring Drum



5 litre HDPE Lube Oil Container

220 litre Packaging of lubricants, brake fluid oils, greases, chemicals - pesticide/insecticide containers large containers and jerry cans for transporting and storing chemicals. Amongst the other applications are ball valves for toilet flushing.

Versatile Advantages of Blow Moulded Products

HDPE blow moulded containers provide:

- Good stiffness
- Good impact resistance and hence less breakage
- Inert to most of the chemicals and hence better compatibility with materials to be packed
- Greater rigidity which permits use of thinner walls thereby providing light weight low cost packaging
- Low permeability to solvents thereby widening the scope of applications
- Very good environmental stress crack resistance

Blow moulding process started with blowing of bottles, and now has large capacity blowing of 2000 litre Overhead Water tanks.

Also, developments in machinery eg blow moulding machines for ice box where the internal body and the external body of the ice box is manufactured on a single machine and a single mould and is cut in between separating both the internal body of ice box and the external body of ice box.

New Developments in Blow Moulds

Productivity with multiple moulds is being met with multiparison machines such as 4 parison blow

moulding machines.

The constraint of stackability in HDPE Edible Oil Containers would now be overcome with the expertise of mould makers in the country.

Conclusion

Usage of Plastics has grown with new product designs and new mould designs with the expertise of mould makers in the country. Technical persons in the plastic industry should work towards innovation in products and enduses. Entrepreneurs can then commercialise these products/enduses. This can be done through innovations in machinery by Machinery suppliers. Blow moulding machines initiated with single layer machines but are now available with multiple layer machines, blow moulding machines which initiated with low capacity machines for bottles are now available with high capacity blow moulding machines for 2000 litre overhead water tanks and blow moulding machines which initiated with single parison machines are now available with blow moulding machines with multiple parisons in the country. Machinery suppliers in the country, to whom an entrepreneur approaches during a startup of a project thus helps an entrepreneur identify the appropriate machinery.

Entrepreneurs could look at multiple products on a single machine

- 15 litre HDPE Edible Oil Container
- 15 litre HDPE Carboys for chemicals, diesel
- 15 litre HDPE Edible Oil Containers could be used by housewives for
 - Foodgrain Storage
 - Other Food Related Products
 - Multipurpose, available in different shapes and colours

Other New Innovations Needed in Blow Moulding in India

Mini blow moulded carboys for milk, juices, curds, yogurts of 100 ml to 2 litre with handle for reuse of these containers would make the blow moulding industry grow at a faster pace. Wheels at the bottom of 210 litre HMHDPE Lring Drums with nut and bolt design would help these blow moulded containers to be stationary as well as mobile for handling of liquid and powdered chemicals.

Source : *Plastics News*

THE EFFICACY OF OXO-BIODEGRADABLE TECHNOLOGY

Michael F. Stephen



Michael Stephens has 40 years experience in manufacturing of plastic packaging; is a developer of modern Oxo-biodegradable technology. He is a Member of ISO, BSi, CEN, ASTM Standards Committees; Member of the British Plastics Federation – biodegradable plastics Committee; Committee Member – European Committee of Society of Plastics Engineers. Fellow of the Royal Society of the Arts. He recently gave a major presentation on oxo-biodegradable plastics in Bangalore at the Karnataka State Pollution Control Board Head Quarters.

Is there an alternative solution?

With the recent Government ban on the manufacture, distribution and use of non bio-degradable plastics across India (Feb.2011), there is now an urgency to come up with a solution which protects the Indian plastics manufacturing Industry, delivers a workable and useable product, but meets with the demands imposed by Central Government. Paper, jute and cotton do not solve the problem and do not help the plastics manufacturers or their customers. Plastics will never disappear from use, but can be adapted to meet the requirements of everyone.

Bio-degradable plastics are defined under two technologies – Oxo-biodegradable and Hydro biodegradable. Michael Stephens explains the technology and benefits of oxo-biodegradable plastic, which is now widely used in over 90 Countries around the World, including India.

Considerable controversy is attached to the subject of oxo-biodegradability. Even describing this oxidative process as bio-degradable can cause an explosive reaction on the part of hydro-biodegradable technology advocates.

For the one or two readers that are not familiar with the oxo-biodegradable technology let me briefly describe the process.

A masterbatch (additive contained in a pellet of polyolefin) is introduced at the processing stage of a petro-chemical derived plastic material. The inclusion rate is small being 1or 2%. Thus the impact on processing parameters and finished material properties is negligible.

INSERT ITEM 1

The additive typically consists of a transition metal salt and stabilisers. The salt has a catalytic action that causes a free radical reaction causing chain cleavage, in turn leading to the creation of hydroperoxides which are precursors to complete bio assimilation –these include esters, alcohols, aldehydes and carboxylic acids. The stabilisers retard this action under the elevated temperatures of processing and in the environment –typically geared to match the required time scale of functionality of the finished packaging item.

There are a number of papers and test results that confirm the biodegradability of these materials.

Ironically some scientific verification of the process took place as long ago as the 1970's. It is the classic scenario of context when related to scientific papers. A good example of this is the late Professor James Guillet's work at Toronto University in 1976 (1). His work illustrated that carbon derived from oxidised polyolefin could be sequestered by plants –albeit very slowly. In fact, so slow that it could only be studied using radio-labelled polymers. Biodegradation of carbon-14 labelled polymers has also been studied by Albertsson (2) at KTH, Stockholm, Kostyniak at the State University New York at Buffalo (3), and Bartha at Rutgers University (4).

However, with the newer technologies the rate of mineralization is sufficiently fast to be studied directly. Proof of this type of mineralization has been provided by studies by Jakubowicz at SP in Sweden (5) and Chiellini at the University of Pisa (6). For photodegraded polyethylene mineralization has been shown by Lemaire and others (7).

The Jakubowicz study carried out at SP in Sweden together with Kaiser at EMPA in Switzerland showed mineralization of the polyethylene containing oxo' technology (as measured by carbon dioxide evolution) of 60% in 180 days.

Aside from carbon labelling there are currently a number of ways of measuring and/or detecting the degradation and ultimate biodegradation of oxo' technology treated polyolefin. Closely associated with the assessment of biodegradation is the measurement of molecular mass. We all know that polyolefin materials such as polyethylene and polypropylene have huge molecular structures –reflected by their large molecular weights - in the order of 100 to 200 thousand units.

There is no single molecular weight at which a hydrocarbon polymer can be said to be suitable for microbiological digestion. Associated waxes and paraffins, which are low molecular weight hydrocarbons, are readily biodegradable. The microbial species involved in this biodegradation have been summarized (8). Typically when the molecular weight is less than 10,000 the polymer can be attacked, but with a functional group, such as a carboxylic acid, this can be higher. This was demonstrated in the 1994 work by Arnaud et al (7) to be around 40,000 Mw.

The work in Table 1. by Michèle Weiland at the Université Libre de Bruxelles is typical.

Temperature	Time (days)	Mw	Mn	Mw/Mn	n
	0	94,900	17,600	5.4	—
70	2	11,800	2,100	5.6	7.4
	5	3,510	1,090	3.2	15.1
	12	2,380	780	3.1	21.6
	20	2,080	690	3.0	24.5
	28	1,840	610	3.0	27.9
60	2	17,200	3,730	4.6	3.7
	5	4,620	1,240	3.7	13.2
	10	3,060	930	3.3	17.9
	25	2,170	710	3.1	23.8
	40	2,000	660	3.0	25.7
40	15	29,800	4,250	7.0	3.1
	25	14,900	2,590	5.8	5.8
	45	6,960	1,560	4.5	10.3
	95	3,390	940	3.6	17.7

Table 1. Molecular weight changes of LDPE film containing transition metal salt degradation catalyst.

Another method of chemically studying the oxidation process is to measure the concentration of the molecules resulting from the reaction. Typically this is done using FTIR (Fourier Transform Infra Red) and measuring the carbonyl group formation. The carbonyl group occurs in oxidation products such as aldehydes, ketones, esters and lactones and this group is chosen because of the strength of its absorption in the infra red.

Typical results are shown below for films both thermally oxidized and photo-oxidised. The degradation can be tracked by measuring the mechanical properties, but typically a Δ DO of 0.10 corresponds to a 50% drop in mechanical properties and by the time the film has a Δ DO of 0.30 it is too fragile to handle and spontaneously disintegrates.

Contd. to Page - 23



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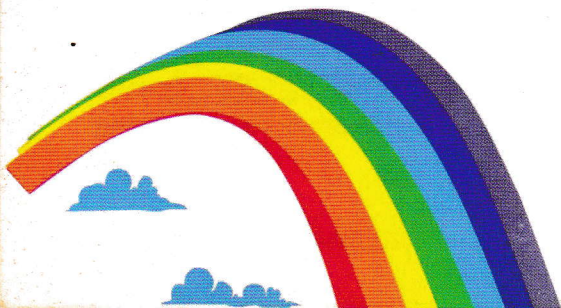
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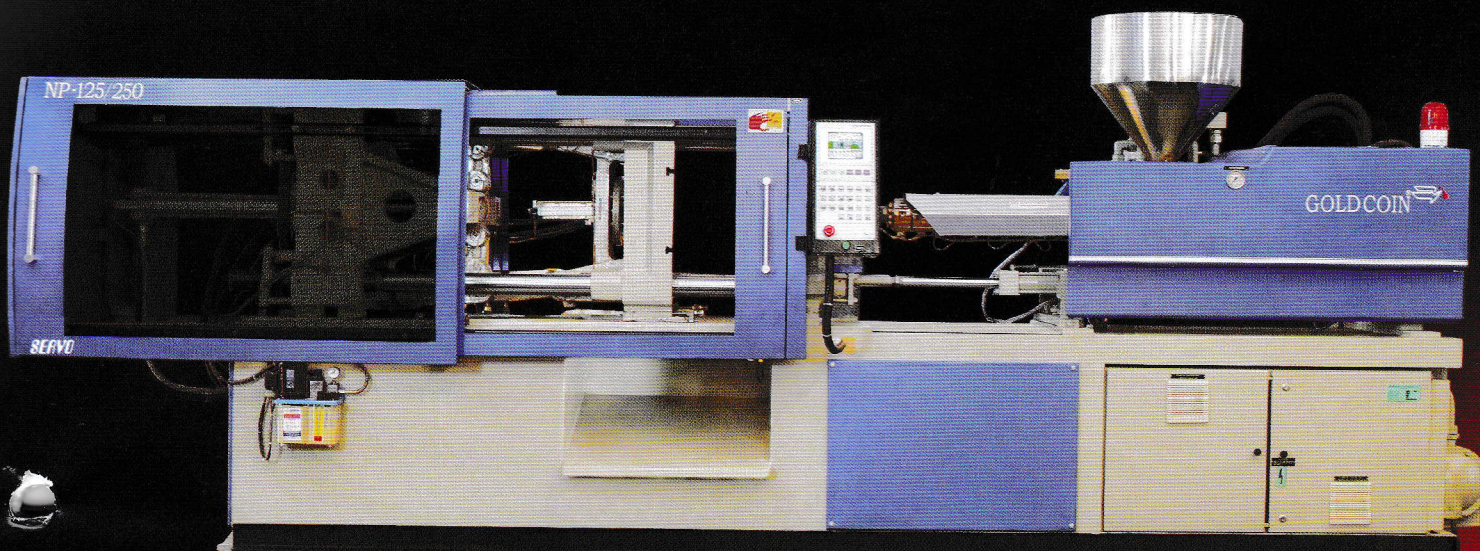
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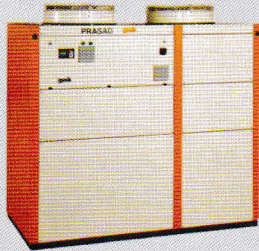


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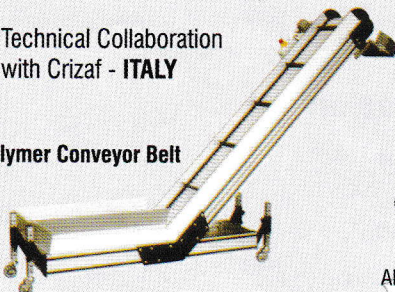
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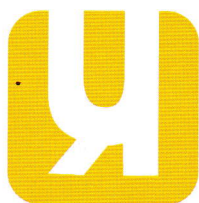
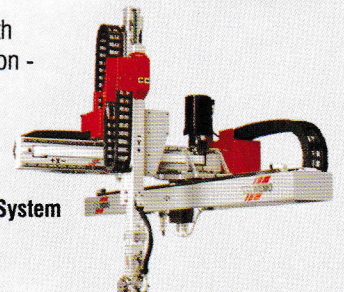
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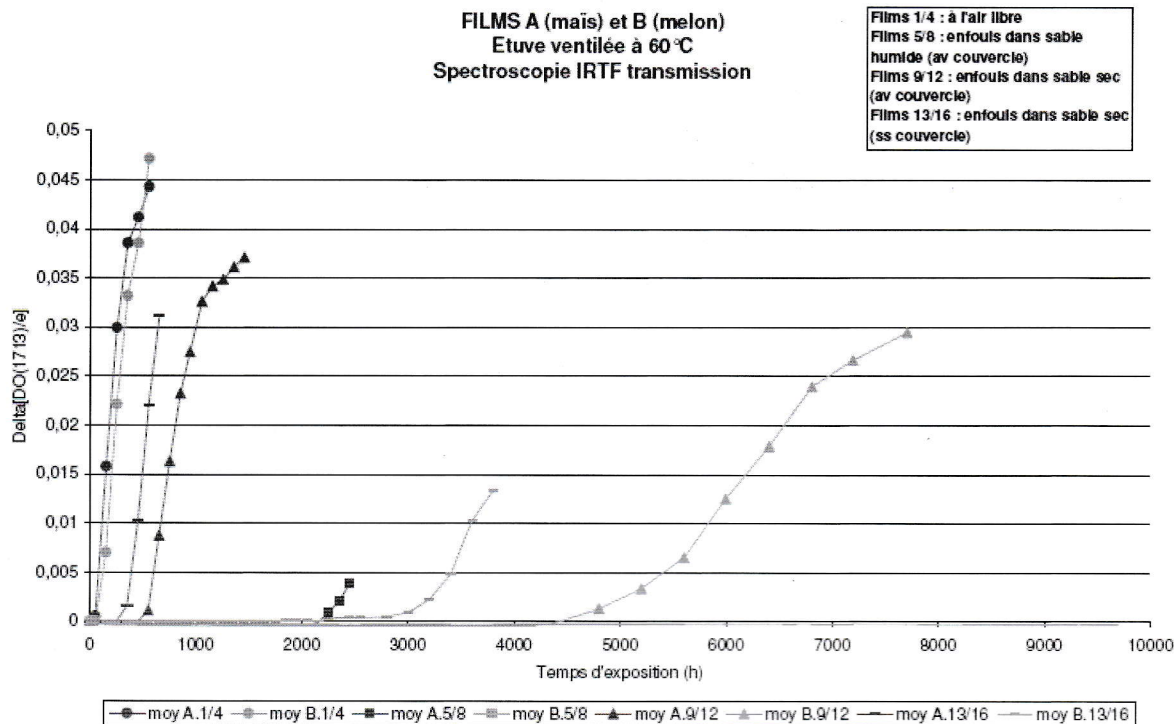
TECHNICAL DATA :

Model	-	TFAT 1250/50 YEAR 2002
Extruder	-	03 NOS
Motor Rating	-	18/20/18 KW DC
Die -	-	KUHNE DIE
Die Size	-	250/300 MM
Heating Load	-	34 KW
Rollar Width	-	1250 MM
Surface Winder	-	2 STATIONS
Film Layflat Range	-	600-1150 MM
Film Thickness Range	-	25-150 MICRONE
Output	-	130kg/HRS
Connected Load	-	120 KW
Plant Dimension (LXWXH)	-	9x5.5x9 MTRS

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Model	-	ECL 1500 Year 1996
Screw Die	-	75 MM
L/D Ratio	-	28 : 1
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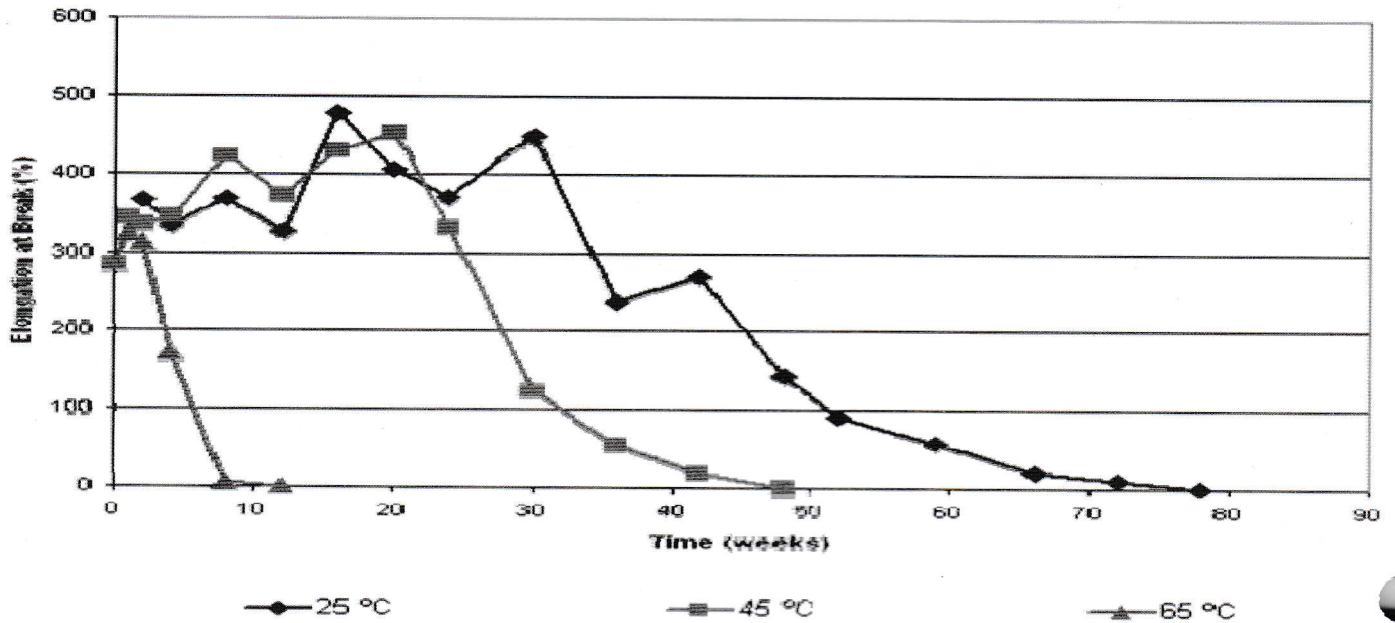
(Above) Extract from Sevar Laboratory Testing Exercise, Bandol, France 2008. Mulch films exposed in and on soil.

The free radical process instigated by oxo technology produces intermediate compounds. These pre-cursors to ultimate biodegradation are hydroperoxides and by using gas chromatography (GC) and identifying the molecules by mass spectrometry (MS) they can be fully identified. One such study has been undertaken at the Department of Polymer Technology at the Royal Institute of Technology in Stockholm (11). A summary of the compounds identified is below (there were only very small differences observed using different transition metal catalysts):

- Carboxylic acids: formic acid to octadecanoic acid, benzoic acid
- Ketoacids: 4-oxopentanoic acid, 5-oxopentanoic acid
- Lactones: butyrolactone to 2(3H)-furanone
- Ketones: 2-pentanone to 2-heptanone
- Hydrocarbons: heptane to heneicosane
- Aldehydes: 3-methyl-pentanal to 2-propyl-5-oxohexanal
- Esters: hexanoic acid ethyl ester to undecanoic acid methyl ester

These benign bio-assimilable compounds are only present at very low levels and have no negative toxicological effect.

The physical effect on the plastic product as a result of the oxidative breakdown and reduction in molecular weight of the polyolefin is to reduce the strength of the material so that it becomes brittle and disintegrates. For film this is usually measured by determining the change in elongation, because this tends to be more progressive than tensile strength which can drop off suddenly during degradation. In order to obtain results in a relatively short time the degradation is carried out at elevated temperatures.



Study carried out by CRIQ Quebec Canada 640-PE36987
(Centre of Industrial Research Quebec)

The above papers and tests are only a small portion of the data constantly growing that substantiates the claims associated with oxo'technology.

INSERT ITEM 2 AND 3

The unique aspect of this technology is the ability to provide a controlled shelf life –or window of functionality –for a packaging material. Thus, a bread bag can be geared to remain functional for a shorter period than a snack food bag. After the guaranteed period of functionality the material will degrade and ultimately bio-degrade. The time scale for that process is dependant upon the disposal method. If the disposal is before the functional time scale has elapsed the resultant elevated levels of heat and/or UV exposure –will accelerate the process.

Further information can be obtained from the various manufacturers of oxo-degradable materials on the Internet. I recommend checking out these sites. There is considerable evidence to be gained there.

Standards:-

Currently the only Standard Guideline for assessing oxo-biodegradable performance is ASTM 6954-04. However, this is a cumbersome long term test. The British Standards Institute is finalizing its standard BSi 8472 – this should be available later this year. The French Standards Organisation AFNOR is also working on a Standard for oxo-biodegradability. It will be interesting to see who completes first, because under European Union rules only one standard can be published.

In the United Arab Emirates legislation for oxo-biodegradability has resulted in ESMA, their standards organisation, creating a Standard UAE.S 5009 /2009 that will most likely be used throughout the Middle East.

It is also possible to measure the performance of oxo-biodegradable materials via ISO 14885 and ISO 17556.

Innovative Use of Plastics Can Improve the Efficiency of Cars

Innovative materials and expert application development, aimed at enhancing the performance of vehicle systems, improving their sustainability and reducing their total cost, form the forefront of DuPont Performance Polymers in the automotive sector.

At K 2010, DuPont is focusing on new developments in several of these areas, as it supports the global automotive industry in its drive to reduce dependence on fossil fuels and CO₂ emissions. These include new, longer-life, high temperature and chemically resistant materials to help downsize engines whilst maintaining, or increasing, their performance; lightweighting materials and innovative metal replacement ideas to help reduce vehicle weight for better fuel economy; alternative fuel-resistant materials to embrace new, more bio-based fuels; the use of renewably-sourced materials with high performance characteristics; and the development of low-emission materials that maintain

their mechanical performance.

"We are experiencing dynamic times within the automotive industry, as OEMs and suppliers start to rethink almost every aspect of the vehicle in their pursuit of more sustainable, cost-effective and desirable solutions," says Klaus Bender, Automotive Marketing Manager - Europe. "We firmly believe that the drive to reduce cost and weight will introduce plastics in applications never before considered, and that DuPont can actively support this trend by inventing new materials and innovative solutions that can help meet these goals quickly, drawing from our rich history of invention and global team of technical and development experts."

Longer-life. light weight materials

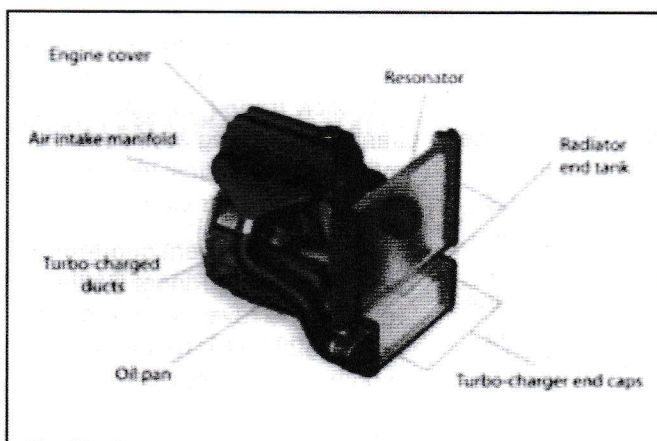
The downsizing of engines to meet fuel economy and CO₂ reduction while still delivering engine performance is leading to hotter temperatures, harsher chemicals and tighter underhood packaging constraints. Moreover, metals do not represent the

long-term, sustainable answer. In response to the automotive industry's innovative needs, DuPont Performance Polymers has introduced

new, long-term aging resistant plastics, such as DuPont Zytel PLUS nylon, inviting new ways to replace metal, especially under the hood, in transmissions and exhaust systems. Zytel PLUS nylon delivers excellent performance levels and importantly maintains those excellent performance levels much longer than traditional nylons.

Alternative-fuel resistant materials

The use of new biofuels places demands greater resistance from the materials used in fuel system and engine hoses, gaskets and o-rings. DuPont research, and independent testing by several leading fuels system OEMs, has demonstrated that fluoroelastomers offer the best permeation performance of traditional elastomeric sealing materials used for such components. Moreover, Viton has been shown to be 1000 times better than silicon (VMQ) and 100 times better than HNBR in permeation resistance. It also has better heat aging and compression set resistance performance than either VMQ or HNBR. In addition, recent testing of Zytel and Delrin engineering polymers and Vamac Ultra ethylene acrylic elastomers (AEM) in aggressive AdBlue¹ aqueous urea solution has demonstrated the effectiveness of these products for selective catalytic reduction (SCR) systems used to reduce NO_x emissions from diesel engines.



Renewably-sourced materials

DuPont Performance Polymers has introduced a number of renewably sourced products that are made, in whole or in part, from renewable agricultural feedstocks (such

as corn, castor beans and non-food biomass) rather than petroleum to help the automotive industry reduce its dependence on depleteable petroleum-based products. Among the 20 high-performance product families are: DuPont Sorona polymer, DuPont Sorona EP

thermoplastic polymer, DuPont Hytrel RS thermoplastic elastomer and DuPont Zytel RS long chain polyamides. These products create a much smaller environmental footprint than the entirely petrochemically-based materials they replace with no compromise in performance.

Planet Bottle features degradability and recycled content

Two companies worked together to introduce a bottle at K 2010 that the partners consider the greenest on the planet.

The so-called Planet Bottle is made from 100 percent recycled PET, with oxo-biodegradable additives in both the bottle and the label.

The partners say the bottles are recyclable, just like regular PET. But if consumers fail to return them for recycling, they will degrade instead, whether they end up as litter or in a landfill.

Patrick Rooney, CEO of Calgary, Alberta-based Planet Bottle Corp., got involved in plastics because he felt that packagers needed to do something to make bottles biodegrade, "because everybody these days seems to hate plastic bottles."

At this point, his customers have been small bottlers. For example, a company in Quebec has used oxo-biodegradable PET to compete with another bottler that uses recycled PET.

Rooney's initial goal was to come up with a degradable drink container. He started off looking at bio-based resins, like polylactic acid. Then he took a look at oxo-biodegradable additives, which

are commonly used in some plastic bags.

"I thought, 'You guys have been doing this for plastic bags for 20 years. Why can't it be done for PET?'"

Planet Bottle worked with Wells Plastics Ltd., a Stone, England-based manufacturer of additive masterbatches, and developer of the Reverte-grand range of oxo-biodegradable products.

Planet Bottle's breakthrough came out in 2008, with a PET bottle made with virgin resin and the Reverte additive, molded at Plastic Technologies Inc.

Rooney is aware that recyclers have questioned the wisdom of putting oxo-biodegradable additives in the PET recycling stream. Some are worried about the impact the additives will have on recycled resins, which are sometimes used in durable applications.

"I believe in recycling, but the statistics say it isn't working," Rooney said. In 2008, the U.S. recycling rate for PET was 28 percent. And he points out that if the Planet Bottle is successful, the company has the potential to be a huge customer for PET recyclers.

Right now he's trying to convince one of the Big 3 drink makers — Coke, Pepsi or Nestle — to give the bottle a try.

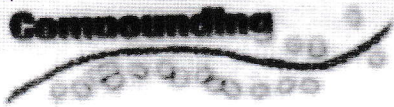
"The CEOs are going to make this decision, not the buyers. They're not going to want their legacy to be all these [unrecycled] bottles," Rooney said at the Düsseldorf show.

Carl Birch, sales and marketing director at Wells Plastics, said his company has been working with plastics recyclers to make sure that Reverte does not have a negative impact on the recycling stream. Wells has simulated how recyclers would be affected if up to 5 percent of all PET bottles contained the additive. The tests included looking at the impact of the additive on the strength and color of the resulting recycled resin.

Planet Bottle, formerly Planet Green Bottle Corp., became a publicly traded company in January following a reverse merger with medical imaging firm Imagin Molecular Corp.

In its most recent quarterly earnings report, Planet Bottle reported no revenue, and a net loss of \$221,944, for the three months ended Sept. 30.

PolyOne introduces 'multisensory' effect of GLS



The mood was just peachy for PolyOne Corp. at K 2010 — thanks to a prototype shampoo bottle that executives with the Avon Lake, Ohio-based firm used to show what three of their product lines can do.

The peach bottle, molded by Somater of Ninove, Belgium, mimics the smell, feel and look of a ripe peach, according to PolyOne. It uses a GLS soft-touch thermoplastic elastomer colored with an OnColor-brand masterbatch concentrate and scented with onCap fragrance.

Officials described the effect as “multisensory packaging.”

“In cosmetics and personal care, there’s a benefit to our customers when the package conveys the quality of the material inside,” PolyOne GLS global marketing director Rick Noller said in an interview at K 2010.

“Cost is always important in packaging,” Noller added. “But if you can increase market share,

that’s more important than cost.”

Another new product focus for PolyOne at the event was OnFlex S-brand high-temperature TPEs. The materials expand the performance of styrenic block copolymers while offering higher compression set. They can replace thermoset rubber in a number of appliance, packaging, automotive and pipe applications, Noller said.

Vacman Internacional SA de CV of Tlalneptla, Mexico, is using OnFlex S to replace neoprene rubber in five seals and gaskets used in a wet vacuum. The material also enables Vacman to recycle scrap and end-of-life parts.

PolyOne GLS “has more projects now than we’ve had in a long time, with the primary objective being differentiation,” General Manager Walt Ripple said at K 2010. “TPEs are a fabulous way to do that with look, feel or scent.

“A big part of it is overall design freedom, like being able to overmold onto substrates,” he added. “TPEs in the early ’90s were more about soft touch; now

they’re about design flexibility.”

Ripple also said that, for PolyOne GLS, the consumer market “bounced back after early 2009.”

“Our project level is very robust,” he said.

Other new or recently introduced materials for PolyOne at K 2010, held Oct. 27 to Nov. 3 in Düsseldorf, included:

- * OnCap-brand antifog additives for polypropylene film, which allow packaging film to resist the formation of moisture droplets — or “fog” — on the surface that touches the food product.

- * OnColor Complete, an eco-friendly liquid colorant that can help reduce the costs of operations while eliminating waste and enhancing employee safety, according to PolyOne.

- * Edgetek AM-brand flame-retardant, non-halogen, nylon-based compounds for thin-walled parts.

PolyOne ranks as North America’s largest compounder and concentrate maker.

Rexam considers sale of closures unit

According to several sources, Rexam plc is considering selling its closures business, including assets the company acquired in its 2007 buyout of Owens-Illinois Inc.

A source in the closures unit

of the London-based company, who spoke to Plastics News on condition of anonymity, said Dec. 13 that employees recently were informed that an internal audit recently identified that business as ripe for divestiture.

Employees were told that an external audit will be conducted in the first quarter of 2011 to determine the feasibility of a sale, the source said.

In a Dec. 13 telephone interview, Rexam Americas

spokesman Greg Brooke confirmed that the parent company is exploring options, including the potential sale of its beverage and specialty closures assets.

"As soon as we have made decisions on next steps, we'll inform our people and customers. In the meantime, we remain focused on customer satisfaction and strengthening the business for the future," he said.

Brooke would not give specifics of the company's actions. The unit under discussion also includes a high-barrier food closures business.

Rexam's business units are Beverage Can and Plastic Packaging, which includes Closures, Personal Care and Healthcare divisions. One analyst, who covers large-scale mergers and acquisitions and who spoke to Plastics News on condition of anonymity, said Dec. 3 that London financial group Barclays plc would handle the sale of one-third of Rexam's closures business, and that the

listing would occur in the first quarter of 2011.

Brooke would not comment on the analyst's statement. Rexam in February 2010 announced the closing of its Constantine, Mich., closures plant, which it estimated would result in savings of £2 million (\$3.2 million) in 2010 and £5 million (\$7.9 million) in 2011.

The closures unit has been an underperformer for Rexam in recent years, posting negative numbers for all of 2009 and the first half of 2010 — most recently, although sales increased due to resin price pass-throughs, volume dropped 9 percent for the first half of 2010 vs. the year-ago period, which the company blamed on soft demand for beverage closures.

In a Nov. 16 news release, CEO Graham Chipchase acknowledged that demand for closures had remained soft year-over-year.

For the first half of 2010, Rexam reported underlying profit before taxes of £198 million

(\$314 million) on sales of £2.49 billion (\$3.95 billion), compared to underlying pre-tax profit of £135 million (\$214 million) on sales of £2.5 billion (\$3.96 billion).

Rexam bought Owens-Illinois assets in 2007 for \$1.8 billion. The move catapulted Rexam into the top position in the United States for pharmaceutical packaging and closures production.

Rexam increased sales from £4.6 billion (\$7.3 billion) in 2008 to nearly £4.9 billion (\$7.7 billion) in 2009, but its underlying profits before taxes declined from £328 million (\$517 million) to £285 million (\$449 million).

Plastic Packaging accounted for 26 percent of the company's sales in 2009 and 30 percent of its underlying operating profit, and appears to be on track for similar performance this year.

The company will release full-year 2010 financial results Feb. 23.

Source : Plastics News

Both PET lines now running at Clear Path Recycling

Although not yet operating at full capacity, both PET recycling lines at Clear Path Recycling LLC in Fayetteville are now up and running, giving Clear Path a nameplate annual capacity of 160 million million pounds at the present time.

"We've been operating the second line [which has a capacity of 120 million pounds] since early November," said Ron Salati, vice president of administration and commercial affairs for Clear Path, in a phone interview two days prior to the plant's official ribbon-cutting ceremony on Dec. 8.

"Both of our wash lines and all of our input lines are running, and we are selling a significant amount of flake to our owners and selling some flake on the outside," he said.

Clear Path is a joint venture of carpet manufacturer Shaw Industries Group Inc. and PET and polyester staple-fiber producer DAK Americas LLC, which supplies Shaw with recycled PET resins for its ClearTouch filament-fiber carpet.

Even though 75 percent of Clear Path's output is targeted for internal use, the plant fills a void in the recycled PET resin market that has existed since Wellman Inc. pulled the plug on its 200 million-pound PET plant in Johnsonville, S.C., four years ago.

The 120-million pound line is

for clear flake and the 40-million pound line, used initially for clean flake, is for green flake.

Long-range plans for another 120-million pound line, which would make it the largest PET recycling plant in North America. Construction and installation of a second line would take anywhere from nine to 12 months, Salati said.

"Once we've achieved our expected capacity and economic [targets], we will decide sometime next year" on the expansion, he said. "We've been on budget financially. We have to tweak operations in the first half of next year and get up to speed. 2011 is going to be the year for the plant to prove itself financially."

Unlike many PET recycling plants, Clear Path gets a majority of its PET bottles from materials collected at curbside, rather than deposit programs. "The wash line from Sorema and our proprietary technology allows us to do that and have the material come out clean," said Salati. "We wash the bottles. We wash the material when we grind the bottles, and we wash the flake."

He said Clear Path was largely purchasing its materials from municipalities and material resources facilities, primarily east of the Mississippi, although it has bought some material in California, on the West Coast and in Canada. Three silos give

them the ability to store 650,000 pounds of material onsite.

Clear Path will resell the non-PET materials that are separated out of the PET bales, Salati said. "We will take the byproducts and cap materials. That is a good material we can sell."

Since the plant opened in mid-July, the workforce has increased from 57 to "somewhere in the 80s," which is the size needed to operate the current lines, Salati said. "I don't think it's going to grow more until we expand."

PET bottles analysed to be a greener alternative to aluminium cans and glass containers

By using less energy, generating less solid waste and creating significantly fewer greenhouse gases, PET bottles offer a better environmental footprint than aluminum cans or glass bottles. This was the conclusion of a life-cycle inventory of single-serving soda containers. The study was conducted by Franklin Associates for the PET Resin Association (PETRA). It compared total energy, solid waste and greenhouse gas emissions per 100,000 ounces of soft drinks packaged in typical 20-oz PET bottles, 8-oz glass bottles, or 12-

oz aluminum cans. In conclusion, PET bottles showed appreciably lower numbers across the board.

Greenhouse gas emissions for the PET bottles were calculated at 1,125 lbs of carbon dioxide equivalents, compared to 2,766 lbs for aluminum and 4,949 lbs for

glass. At 59% less than aluminum and 77% less than glass, the lower greenhouse gas emissions for the PET bottles were most notable. Energy use for the PET bottles totaled 11.0 million BTU per 100,000 ounces of soft drink, compared to 16.0 million BTU for

aluminum and 26.6 million BTU for glass. Solid wastes for the PET bottles totaled 302 lbs, 767 lbs for aluminum, and 4,457 lbs for glass. Solid waste volume was 0.67 cubic yards for PET, 0.95 cubic yards for aluminum, 2.14 cubic yards for glass.

Total Energy, Solid Waste & Greenhouse Gas Emissions For Soft Drink Containers (per 100,000 oz of soft drink)

Container	Energy Use (in millions)	Solid Waste		Greenhouse Gases (CO2 equivalents)
		(Weight)	(Volume)	
PET Bottle	11.0 BTU	615 lbs	0.67 cu yd	1,125 lbs
Aluminum Can	16.0 BTU	767 lbs	0.95 cu yd	2,766 lbs
Glass Bottle	26.6 BTU	4,457 lbs	2.14 cu yd	4,848 lbs

Source: Table EX-2, Franklin Associates

The life cycle inventory covered extraction of raw materials through container fabrication, as well as post-consumer disposal and recycling. Post-consumer disposal and recycling calculations included transporting to a landfill or incinerator, equipment operations at a landfill, and energy recovered by an incinerator, but excluded incinerator and landfill emissions. Post-fabrication transportation to the filling site, filling, distribution, storage, retail use and consumer use were excluded.

Allied Development Corporation has conducted a comparative life cycle study to calculate green credentials of each packaging type including PET container, glass container, aluminium tins. The study sponsored by Husky Injection Molding Systems concluded that PET containers result into less greenhouse gas (GHG) emissions and used less energy than glass or aluminium cans. It was reported that PET had the lowest GHG emissions at 0.69 KG/1000 unit. The glass container resulted in 1.10KG/1000 unit and the

aluminium can had the highest GHG release of 1.26 KG/1000 unit (81% more than PET). This is because the manufacturing process of aluminium from bauxite releases a significant amount of GHG, which contributes to the high level of GHG for aluminium cans. PET bottles also registered the lowest energy consumption at 3,225MJ/1000 units. Glass had the highest energy consumption at 4,227MJ/1000 units – nearly a third more than PET. Aluminium cans used 21% more energy than PET at 3,917MJ/1000 units.

Source : *Plastics News*

BULLISH TREND FOR BIOPLASTICS

Worldwide demand is growing together with industrial applications

Growing demand According to a new market report from BCC Research, the global market for bioplastics is expected to reach nearly 572,000 tons in 2010, and is expected to increase to more than 3.2 million tons in 2015, for a 5-year compound annual growth rate of 41.4%.

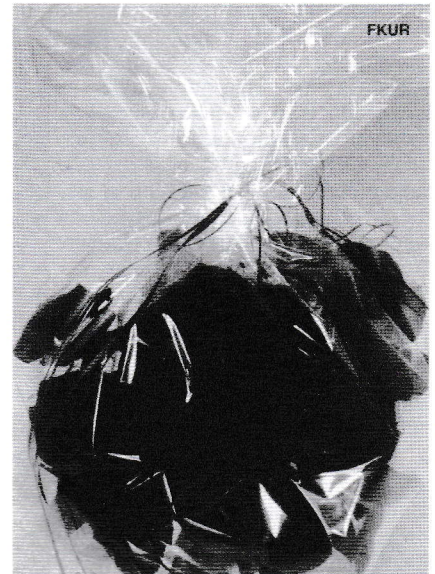
The largest segment of the market is North America, which is expected to reach nearly 1.5 million tons in 2015, after increasing at a 41.4% rate from the estimated 2010 total of more than 258,000 tons. The second-largest segment, Europe, is expected to increase from more than 175,000 tons in 2010 to nearly 754,000 in 2015 (+33.9%).

The Asia-Pacific segment region is projected to exceed 592,000 tons in 2015, after rising at a 45.9% rate from

89,700 tons in 2010. South America is expected to rise at a healthy rate of 53.2%, from 44,460 tons in 2010 to nearly 375,000 in 2015.

The terms "bioplastics" and "biodegradable plastics" have been used interchangeably, but there is a difference between the two types of polymers. Market forces, especially increasing focus on environmental threats such as global warming and disposal of products containing toxic materials, have strongly driven development and early use of these materials.

In order to maximize market impact, there is now a growing trend to compound bio-based plastics with oil-based plastics to extend their reach into markets for durable products used in cars, cell phones, and elsewhere. The focus has shifted to total carbon



footprint, and away from contribution to the solid waste stream.

www.bccresearch.com

Exploiting end-of-life plastics

Since 1997, IdentiPlast, the international plastics recycling & recovery conference organised by PlasticsEurope, has established itself as a centre of excellence where showcase studies of "best practices in end-of-life plastics are exchanged between all relevant stakeholders. This year the conference will bring together top-level waste management policy and technical experts, government officials, NGOs and industry leaders to discuss how the optimum use of end-of-life plastics can be ensured and nurtured. The conference, to be held in London on November 9-10, will explore the role of business, users and policymakers in ensuring a cradle-to-cradle cycle for plastics.

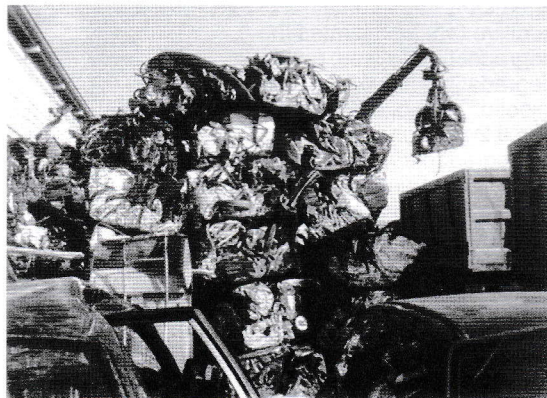
IdentiPlast 2010 will tackle mainly themes and present speakers covering relevant interests of the European region. The conference programme will include the following topics:

- waste legislation including implementation
- REACH and food contact legislation in relation to waste
- waste management (collection, treatment, sorting)
- life cycle thinking
- identification technologies
- material recycling (high volume plastics only, unless trend-setting)
- recovery technologies
- feedstock recycling

- waste stream sectors (automotive, B&C, E&E, packaging)
- output markets
- economic and environmental benefits.

A central theme will be the implementation of EU policies. Even two years after the adoption of the European Waste Framework Directive, for example, governments are still facing the challenges of implementation. Key presentations will be given from the European Commission, Sabic, EPRO, Axion Recycling and the city of Ameland (Netherlands). Other highlights include the participation of MEP Jill Evans, Stéphane Arditi, EEB and Paul Augustowski, president and CEO of Basell Orlen Polyolefins in a panel discussion: how do we turn used plastics into a valued resource?

www.plasticseurope.org



The degradable plastics industry has been on the verge of commercial success for decades. However, demand growth was limited because most degradable plastics were too expensive, were unavailable in large enough quantities or had performance drawbacks that limited them to niche markets.

This situation began to change in the early 2000s, as interest in environmentally friendly products gained strength, boosted by the efforts of major users. At the same time, the availability of biodegradable plastics increased significantly due to expansions by key producers. These and other trends are presented in a new study from Freedonia Group. These positive trends are expected to continue. US demand for degradable plastics is forecast to rise 16.6% per year from 69,000 tons in 2009 to 147,000 in 2014, valued at 380 million dollar. Opportunities will reflect continued capacity growth, efforts to reduce pollution and reliance on petroleum products, and consumer demand for sustainable, environmentally friendly packaging and manufactured goods. Polylactic acid (PLA) and starch-based plastics currently dominate the market

and both products are expected to see strong growth. PLA will register the faster gains, over 20% per year through 2014, due to increased availability, greater processor familiarity and performance enhancements that will expand potential applications. The strong outlook for degradable plastics is prompting the development of new products. One of these is polyhydroxyalkanoate (PHA). While sales of PHA were negligible in 2009, rapid growth over the next ten years should boost the product up among the leading types of degradable plastics. Growth is predicated on significant capacity increases, competitive pricing and the development of grades capable of replacing polyolefins in higher performance injection moulded articles as well as in foodservice disposables, nonwovens, containers and bottles.

www.freedoniagroup.com

Manifold programme

Preparations for the 5th European Bioplastics Conference - to be held on December 1-2 in Düsseldorf - are entering the hot phase. More than 25 expert-speakers from all over the world await the delegates and adjoint to the conference, exhibitors from all sectors of the bioplastics industry will showcase their portfolio. The industry's leading business event will feature presentations with topics on technological innovation, newest products, evaluations of bioplastic consumer goods and the status on the discussion on recovery and recycling systems. Some of the highlights are the following: Harald Häger (Evonik) will talk about "Polyamides from Renewable Resources - Past, Present, Future". Bioplastics and consumer goods is the topic tackled by Oliver Schmid of Propper - one of the pioneering companies producing consumer goods of longlife bio-based plastics via injection moulding. Fredric Petit (DSM will) give some insights into "The next generation; durable bio-performance materials". What is more, participants also are actively joining the ranks of exhibitors of the highly specialised exhibition adjoint to the conference.

www.european-bioplastics.org

Cling film for food

On the occasion of K 2010 Novamont is unveiling the first industrial cling film that is biodegradable and compostable. It is made using second-generation

Mater-Bi biopolymer from renewable resources of agricultural origin. The stretchy cling film can be used for any kind of foodstuffs, even food that has a high fat content (oils, sauces, butter etc.) or that is acidic. After use it can be disposed of as organic waste as it has been certified as compostable in accordance with EN13432 standard and is compatible with various kinds of composting plant technology. The product has the same technical characteristics of strength and stretch as traditional products developed for domestic use without using any plasticisers or additives that could transfer into food. It is specially formulated to be easy to tear off without needing a serrated cutting edge, making it safer and more convenient. An intrinsic characteristic of the material is its high permeability to water vapour, helping to evaporate the



condensation that forms particularly with warm food or in the fridge. This makes it ideal for preserving and protecting foodstuffs.

www.novamont.com

First cap

The first oxo-biodegradable cap for 5-gallon water bottles has been introduced by Norland International. The LDPE caps contain a unique additive that accelerates the degradation process, resulting in total degradation in five to 10 years. The injection moulded Earth Cap - which has a 2-year shelf life - also features a biodegradable non-adhesive tamper-evident label and 2-mm foam seal, making the entire cap structure totally biodegradable.

The special additive is blended into LDPE using a unique mixing and drying system. Once disposed of and exposed to UV light, heat, and moisture, the caps first embrittle and then break

down into small pieces. Once the molecular weight is reduced sufficiently, the material becomes available for bio-digestion and the broken down matter becomes a food source for bacteria or microbial activity. Depending on environmental conditions, the plastic cap is expected to totally degrade in about 5 to 10 years.

The proprietary additive greatly enhances degradability of the caps while maintaining clarity and tensile strength. Caps that contain the special additive will degrade in landfills, ditches, rivers, and other water sources. In addition, they are fully recyclable and compatible with municipal collection and recycling systems. There is no contamination with the plastics recycling stream and industrial composting facilities are not required

www.norlandintl.com

Bio-soccer

A bio-sourced elastomer has been selected by Sony for its original soccer ball, named Join the Team!, specifically developed for donation to children in Africa. In many African countries, including South Africa, where the 2010 FIFA World Cup took place last summer and for which Sony was an official sponsor, soccer is often being played in very demanding conditions, which shortens durability of the balls. Wishing the children to play soccer as long as possible, Sony has leveraged its expertise in material research to make "Join the Team!",

a unique soccer ball built to endure Africa's rugged terrains, in which the Pebax Rnew thermoplastic elastomer from Arkema is used.

This high durability TPE is partially made from non-edible renewable resource, castor oil, which contributes to global warming reduction. This ball features a dual layered surface, one of them being in Pebax Rnew, which brings 1.6 times higher durability than conventional soccer balls.

These footballs were distributed by NGOs - UNDP (United Nations Development Programme) and JICA (Japan International Cooperation Agency) - during and after the 2010 World Cup.

www.arkema.com

Source : Macplas International

OSCAR FOR ECO-FRIENDLY PACKAGING

Traditional starring role for plastics in the annual awards

Eco-compatibility and simplicity of use: these are the winning characteristics of the products that were awarded prizes in Milan in mid-June, during the 53rd edition of the Packaging Oscar, promoted by Istituto Italiano Imballaggio (Italian Packaging Institute). Nine prizes, one awarded jointly, were given to a like number of designs selected from the 23 that had reached the finals. All the awards were for innovative, eco-friendly packaging, in compliance with the trend towards the optimization of the environmental impact of the entire manufacturing process, and the recycling of packaging materials on the part of the plastics industry.

As a result of this commitment, over the space of a decade, the weight and thickness of packaging materials have been considerably reduced, while the use of recycled materials has increased correspondingly right up to today's high levels. This has helped to radically reduce the impact of products



which in turn leads to products that are more functional in terms of eco-compatibility and ease of use.

As in previous editions, this year many projects involving an extensive use of polymeric materials received awards. Below, we provide a summary of each, along with the reasons why the jury selected them.

In the Eco-compatible Packaging section (Solid Food Products category), an award was given to Barilla's Ringo biscuits package, in which the packaging was simplified by replacing a poly laminate with a single-ply film, facilitating recycling and reducing the amount of material used. This has positive effects on environmental impact, without reducing the packaging's ability to guarantee good preservation of the biscuits.

More specifically, for Ringo Snack and Ringo Tubo, the amount of materials used was reduced to 23 and 13.9 tons

on the environment. As regards plastics, for example, the weight of individual packaging units made using synthetic materials has dropped by 28% on average.

The eco-innovations seen in the 2010 edition of the award were all connected to a quest for simplicity,

Source : Macplas International

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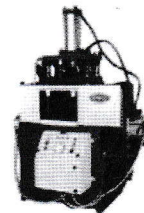
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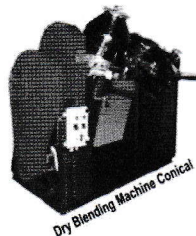
PLASTICS SCRAP GRANULATOR
GRINDING CAPACITY :
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Scrap Granulator



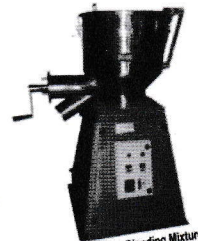
Lump Cutter



Dry Blending Machine Conical



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MONTHLY CIRCULAR OF THE FEDERATION

CIRCULAR NO. 41/2011 :

Sub: Membership of the Federation

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

1. a) Name & Address of the Applicant Firm : **M/S PIYUSH POLYTEX INDUSTRIES PVT. LTD.**
5, Dr. Rajendra Prasad Sarani, 2nd Floor
Kolkata - 700 001.
- b) Class of membership : **Life Manufacturer member**
- c) Proposed by : M/s Ramlal Ramchandra
- d) Seconded by : M/s K. K. Polycolor Asia Ltd.
- e) Name of representative : Mr. R. C. Dhona
- f) Items of manufacture : Manufacturer of PP Non-woven Fabric
2. a) Name & Address of the Applicant Firm : **M/S SHRIMAA POLYFABS PVT. LTD.**
113/1B, Chittaranjan Avenue
Flat No. 5-B, 5th Floor
Kolkata - 700 073
- b) Class of membership : **Manufacturer member**
- c) Proposed by : M/s Rajda Sales (Cal) Pvt. Ltd.
- d) Seconded by : M/s Stretch Plast
- e) Name of representative : Mr. Sajjan Bansal
- f) Items of manufacture : Manufacturer of HDPE/PP Woven Sacks

(Circulated in terms of Article 15 of the Articles of Association of the Federation)

CIRCULAR NO. 42/2011 :

Sub: Consumer Price Index Number for Industrial Workers for Kolkata for the months of October 2010 to January 2011

Month	Consumer Price Index	
	Base (1982 = 100)	Base (1960 = 100)
October, 2010	906	4294
November, 2010	906	4294
December, 2010	922	4370
January, 2011	922	4370

CIRCULAR NO. 43/2011 :

Sub: Dar es Salaam International Trade Fair (DITF '11) from June 28-July 8, 2011 at Dar es Salaam, Tanzania

The India Trade Promotion Organisation (ITPO) has decided to participate at national level at the above mentioned trade fair under the theme 'Agriculture First'. Interested members may contact directly at the following address:

Mr. Dipten Basu, Regional Manager
India Trade Promotion Organisation
1/1 Wood Street, 5th Floor
Kolkata - 700 016

Phone : 91-033-2282 5820/2904, Fax : 91-033-2282 8269

Mobile : 98300 47211

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K K Polycolor India Ltd.



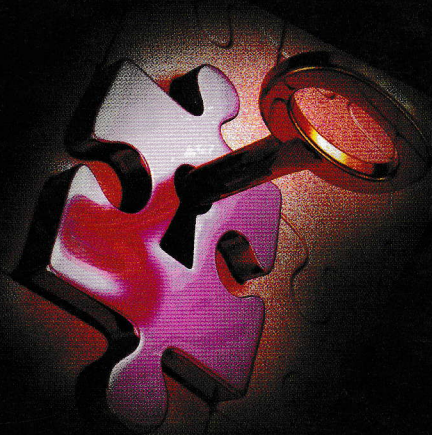
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