

From the Editor's Desk

Greetings to all Repol Konnect readers. It is my privilege to communicate with all our esteemed customers through Repol Konnect.

The first half of 2013-14 has been very turbulent due to the extreme volatility in the exchange rate. This has adversely affected demand growth in the polymer industry. However, with the Rupee stabilizing in the low 60s to the Dollar, we hope that the coming quarter will bring positive tidings for the industry.

Meanwhile, we have continued our efforts to create new business opportunities in polypropylene by conducting 55 events/exhibitions in the first half of 2013-14 throughout India. We have also participated in an international agriculture exhibition, Agritech Asia, which highlights the huge potential of polyolefins in agriculture. This edition of Repol Konnect focuses on emerging applications of Polypropylene in the Agriculture sector.

Hope you enjoy reading the newsletter.

Puneet Madan



Boosting Productivity with REPOL POLYPROPYLENE

Indian agricultural sector is plagued by issues such as low yield, poor quality, transportation losses, disorganized PDS etc. which has not allowed the sector to blossom. For achieving proper growth of the sector it is very important to address these issues. Polypropylene can play a major role in addressing the problems.



Continued on Page 4 & 5



This year RIL has added one more feather to its cap by getting "Award for excellence in training" in 4th Asia's Best Employer Brand Awards, Singapore.

Full Report on Page 3

International Trade Fair No. 1 for Plastics and Rubber Worldwide



K 2013: Please visit us at Hall 6 D I I

K, the world's biggest Plastics and Rubber exposition, with over 3000 exhibitors, will be held in Düsseldorf, Germany from 16th – 23rd October 2013. Spread over a net exhibition space of 168,000 sqm. in 19 exhibition halls, K is the ideal business and contact platform for inspirational ideas and forward-looking decisions. Leading companies of the plastic and rubber industries will be presenting everything the industry has to offer on the highest international level.

Reliance, with a stand area of 450 sqm., will be present in the prestigious Hall 6 amongst other global majors like Dupont, SABIC, LyondellBasell, Borealis, Bayer, Lanxess etc. We will be showcasing our products and capabilities in the Plastics and Rubber Sector.

We cordially invite you and look forward to welcoming you at our stand at Hall 6 / D I I

APLHA FOAMS



Alpha Foam Limited is a well-diversified company manufacturing plastic components, seats for automotive industry and nonwovens for agriculture, health care and hygiene industry in its facility at Pune. There are number of applications like crop covers, fruit covers, mulch fabric and nursery bags, in which non woven have achieved prominence. With the support of Reliance Polymer team we are propagating these applications through KVKs, Farmer interactions, field trials and awareness programs. Alpha Foam is the only company in India which manufactures the entire range of nonwoven i.e. Spunlace, Spunbond, SMS and Melt Blown. It is also able to provide coatings of LDPE, PP and TPU on the above mentioned nonwovens. The manufacturing facility is supported by a very well equipped laboratory to check and control the quality of nonwoven as per EDANA and INDA standards. Alpha Foam has the unique distinction of manufacturing high quality vacuum formed components in Polypropylene (PP) and Acrylonitrile Butadiene Styrene (ABS). Some of the components manufactured are Fenders, Interior trims, Mudguards, Noise shields. In-house Design and technical expertise provides us the ability to develop vacuum formed component for the automotive sector. We also manufacture polyurethane foam and seats for various automotive companies. Custom designed seats are manufactured for buses in steel and plastic. Development of new and innovative products is the prime focus of the company. We are setting up SMMS 3.2 meter line which will go on stream in 3rd quarter of 2014. We are also setting up Twin sheet vacuum forming machine this year. The company is involved in business areas which have a huge scope of growth and hence our purpose is to develop & deliver innovative products.



Mr. Rajiv Ranka
Managing Director



Mr. Apurva Ranka
Managing Director

TOTAL PACKAGING



Mr. Haresh Gudhka
CEO



Mr. Hitesh Gudhka
MD

Total Packaging started its operation in 1985, with the manufacturing facility at Daman. Currently we are one of the leading manufacturers of plastic bags with the production of 2000 MT PP / LL-LD and HM film put together, with an annual turnover above Rs 200 Cr. We are servicing customers across the country and outside the country. Packaging range includes pick up bags, grocery bags, BOPP bags, printed shopping bags, laminated printed pouches, gusseted zipper, standy pouches etc.



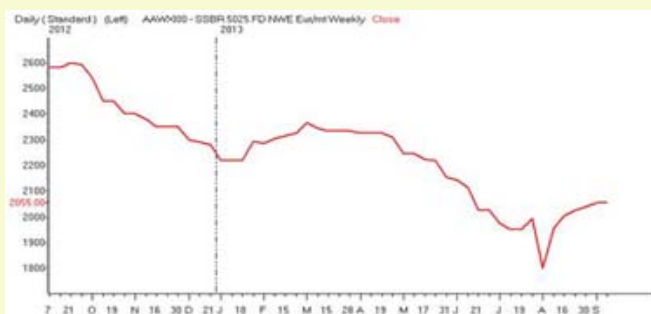
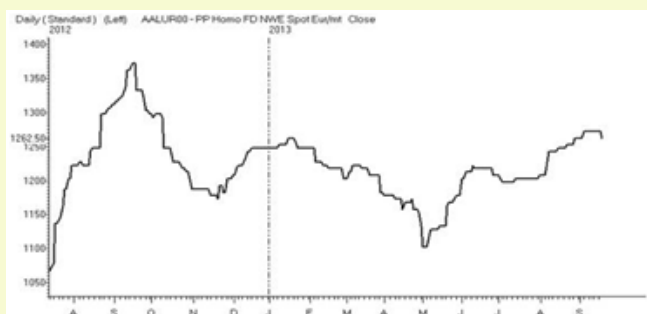
With the increasing packaging necessity the company promises to cater wide range of industry like supermarkets, cash n carry, retail showrooms, hotels and motels, medical stores, chemical industry, textile industry, pharmaceutical, food industry and garments industry. With our skilled man-power and state of the art technology we deliver highest standards leading us to a high level of customer satisfaction. Total packaging aims at being the leader in the polybag industry and with a ISO 9001/2008 certification adds to our pride for offering best quality products. We are planning to expand the business with latest technology machines and development of products to extend the horizon and give new dimensions to plastic packaging industry. Needless to say, the continuous support from Reliance has contributed to our success and growth. We appreciate the effort and support extended by Reliance polymer team and we expect to continue in long run.



Cautious optimism in Polypropylene market as automotive sector shows recovery



A cautious optimism is forming in the polypropylene market based on indications that the decline in the downstream European automotive sector could have found a bottom amid improved macroeconomic data. Upbeat European economic data suggested that the European recession is more or less over, and that some European economies are showing signs of growth at the start of September traditionally, a higher standard of living, and higher GDP growth, is seen as supportive for growth in many segments of the petrochemicals industry. The Eurozone manufacturing PMI, a key indicator of regional private-sector activity, climbed to a 26-month high of 51.4 in August, up from 50.3 in July, London-based financial information services company Markit said. This was also the second consecutive month for Eurozone manufacturing activity to be in expansion following 23 of contraction.



While the rise in polypropylene prices coincided with a slowing in the decline of sales as measured by EU car registrations, sources tended to justify the increase in polypropylene spot prices as being more significantly affected by other issues such as tight stock supply and widespread inventory replenishment, particularly seen during the month of May. Sales volumes in June, although not as dynamic as May, were believed by sources to be in line with expectations. Firmer fundamentals and snug feedstock availability were some of the reasons for the increase in polypropylene prices over June. Underlying demand also remained modest, with end users reluctant to commit to large volumes. However the stock transfer from producers to converters was believed to carry through from the end of May to the beginning of June. Despite the recent optimism caused by upbeat economic data, the European petrochemicals industry is cautious with regards to the outlook as energy prices remained high.

By - Miguel Cambeiro, Daved Chohan, Antonios Panagiotoupoulos, Michelle Ho

Edited by Derek Sands

Reliance Industries wins “Award for excellence in training” in 4th Asia's Best Employers Brand Awards, Singapore

Some of the key highlights which qualified us to receiving this award are:

- The robust Learning Academies structure across business, functions and domains
- Academies enabled the delivery of **2,129,770** man-hours of training in the FY 12-13.
- The Behavioral skill development training accounted for **9650** man days of training in FY 12-13.
- Newer and state-of-the-art modules both in the Technical and Management domains.
- Quantum increase in utilization of e-learning and self-study modules by employees.
- e-learning modules available for any time access by our employees.



※Asia's best employer brand awards are hosted by the Employer Branding Institute, World HRD Congress and State of the Industry Group and are endorsed by the Asian Confederation of Businesses



REPOL IN AGRICULTURE

India's agricultural economy

Agriculture in India accounts for over 16% of the country's GDP and employs about 50% of the country's entire workforce. After the United States, India has the largest amount of arable land – land that is suitable for cultivation of crops. There is no debating the importance of the agricultural sector for India. While there have been major milestones achieved in the sector like the Green Revolution, and while India has claimed its place in the world as the largest producer of many fruits and vegetables, the country lags behind a big way in terms of yield and earnings. A lot of reasons have been attributed to this problem – from fragmented land holdings preventing the feasibility of farm mechanization to water problems to poor infrastructure like absence of cold storages – the issues are dime a dozen. The inter-related problems mean that the Indian farmer on an average receives anywhere between 10-23% of the price that the end consumer pays while in countries like the United States, farmers receive anywhere between 64-81% of the price.



Polypropylene Non-woven Banana Skirting Bag

- Protection from insect attacks
- Allows air / moisture to pass through
- UV stabilized which makes its life longer
- Advancement of fruit maturity
- Higher yield
- Uniform produce
- Economical
- Increase in profit

Effect of Non-Woven Skirting Bag

Suitability assessed by: National Research Centre for Banana (Affiliated to ICAR, Government of India)

Targeting farm productivity by using REPOL Polypropylene fruit & crop cover

It is clear that to make farming a more rewarding profession, multiple problems along the entire chain, starting from the farm and ending at the consumer, need to be addressed. One such problem that begs for attention is farm productivity.

Crop	Average yield, India* (tonnes/hectare)	Highest yield achieved in the World*(tonnes/hectare)
Mangoes	6.3	40.6
Bananas	37.8	59.3
Potatoes	19.9	44.3
Tomatoes	19.3	524.9
Onions	16.6	67.3
Fresh Vegetables	13.4	76.8

While farm mechanization makes sense only when a farm crosses certain threshold revenue, there are other practices that are cost effective, and yet, our farmers are totally incognisant of such practices. Some of these methods are

applicable from the smallest to the largest of farms. One such method is the application of plastics in the form of non-woven fabrics to increase yield and productivity.

Major source of problems affecting the Indian farms are

- 1) Frost
- 2) Insect attacks
- 3) Excessive sunlight
- 4) Fluctuating weather patterns



These problems can be addressed by the usage of fruit and crop covers. For fruit cover, polypropylene bag can be used either as bunch sleeve (where it covers the whole bunch of the fruit) or as an individual fruit cover. As a crop cover, Polypropylene fabric is laid over the crop where it takes the contour of the crop protecting it from various deterrents while allowing air and sunlight to pass through.

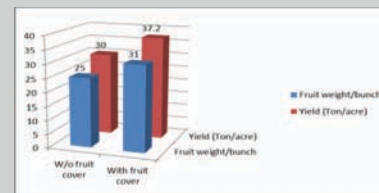
Reliance Polymers has been putting a concerted effort to test the effects of Nonwoven covers on yield and productivity, and has been a major force in creating awareness amongst farmers to try such practices. The group has so far worked with progressive farmers to observe the effects, and is also working closely with many agricultural universities across the country to generate study reports that measure the positive effects precisely.

REPOL Nonwoven Fruit Cover



Advantages of using REPOL Nonwoven skirting bag in BANANA

- Increase in weight
- Advancement of fruit maturity (early harvest)
- Protect from insect attack
- Blemish free fruits, Good Shine & Gloss
- Uniform produce



Before

After

Advantages of using REPOL Nonwoven cover in Grapes

- Reduction in Pink berries
- Extended Shelf life
- Protection from insect attack



Similar tests have been done for other fruits like mango, litchi and pomegranate. Initial trials and tests have yielded positive results. In the case of pomegranate, the benefits have been so tremendous that 500 acres of land have already come under non-woven coverage.

Studies assessed by-



National Research Centre for Banana



National Research Centre for Grapes



National Research Centre for Pomegranate



Dapoli University



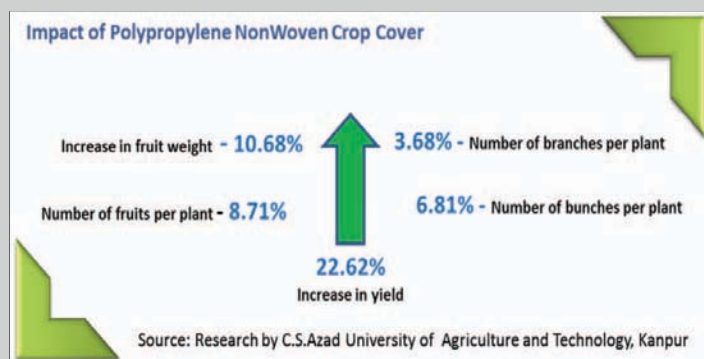
CSA Agriculture University



National Research Centre for Litchi

REPOL Nonwoven Crop Cover

Crop cover effect in tomato



Protection against frost in Tinda



Crops where these covers have been found to be effective are Tinda, Brinjal, Tomato and Chilly. Armed with the positive results from reports obtained from these universities, Reliance Polymer Division will be making a case with Government agencies to provide subsidies to farmers for purchasing Nonwoven covers. Widespread adoption of this application has potential to revolutionize the Indian farm and put it into a higher plane of yield and productivity, thus benefiting our farmers greatly.



The exhibition was inaugurated by Honourable Chief Minister of Gujarat Mr. Narendra Modi. More than 2 lakh farmers from all over India visited the exhibition where they deliberated and exchanged ideas while learning about the new technologies in agricultural sector. Reliance Polymer showcased various new applications used in agriculture and dairy industry including fruit cover, crop cover and silage bags. Overall, the exhibition was a big success and our efforts were highly appreciated by distinguished visitors.

PLASMA (Plastic Manufacturers Association), Madurai AGM



Reliance Polymers gave a brief address on various applications of Polypropylene such as molding, Film & FF sectors to nearly 250 processors while emphasizing the need for industry to focus on new niche products with value addition and adherence to quality standards as laid out by PCB & Govt.



Fodder week Celebration, Hyderabad

Reliance Polymers & UPL Advanta-Hyderabad celebrated Fodder week in Hyderabad from 7-14th July 2013 and made presentation on PP FIBC Silage bags at five places namely: Motadka village in Guntur, Kankipadu village in Vijawada, Mandapeta in Rajahmundry, Kakinada and Vizag Dairy in Vizagapatam to promote the new concept of Silage bags.



Exploring the use of Geosynthetics in Coal Mines

The tripartite meeting was organized by ITTA to discuss and promote various applications of geotextile in coal sector. Reliance Polymers took an active part in the meeting. Subsequent site visits to their underground mine and open cast mine were done and potential application was identified for their haul roads, temporary access roads and coal sludge disposal in their other mines.



Global Agriculture Summit- Vibrant Gujarat, Gandhinagar



With the focus on educating the farmers about innovations in agricultural sector, a Global Agriculture Summit was organized in Gandhinagar. Reputed personalities related to agricultural sector participated and shared new technological solutions to the existing agricultural problems in India. A presentation on "Polypropylene application in Agriculture" was made by Reliance Polymer to highlight emerging applications such as fruit cover, crop cover, silage bag etc.



Reliance Polymers join hands with Indian Dairy Association to promote Polypropylene Silage bags

Reliance Polymers made a presentation on Fodder management & Polypropylene Silage bags in presence of eminent personalities of dairy sector. Also communicated were the advantages of Polypropylene for packing of dairy products such as flavoured milk, ice cream and sweets.



Silage bag promotion with Rajasthan Veterinary College, Bikaner



RAJUVAS & Reliance Polymers jointly organized a program on fodder preparation using Polypropylene Silage bags. Col. A.K.Gehlot, Vice Chancellor, Rajasthan Veterinary College addressed the media (ETV, ZTV) emphasizing the importance of preserving green fodder in Polypropylene Jumbo Bags. RAJUVAS and Reliance Polymers are also planning to enter an MOU for the promotion of Silage bags.



Fodder management with AHD, Orissa

Kolkata Regional Office along with Animal Husbandry Dept.-(Govt. of Orissa) conducted a demonstration for progressive farmers to provide information about the usage and advantages of "Silage Bags. The whole programme was covered by "DD Oriya "through video shooting for their local TV broadcast.



Innovation in Silage making-Jorhat, Assam



The program was organized at Assam Agricultural University, Jorhat on 23rd July mainly for the promotion of Polypropylene non-woven banana bunch cover where we highlighted the advantages of fruit cover. The University has decided to undertake projects for carrying out detailed study and simultaneously propagate usage of non-woven fruit covers amongst farmers.



Innovation on Silage Making with Repol Polypropylene Bags, KVKNavsari, Gujarat

Prominent farmers at Navsari KVK were invited and they were briefed about silage, its preparation, storage process and benefits over traditional silos by Ahmedabad Regional Office. Live demonstrations were carried out to educate the famers on the silage making process.



GEAR SHIFTER MECHANISM- FROM ETP TO POLYPROPYLENE

Gear Shifter mechanism is basically made out of either metal or Nylon composites. Recently, Gear Shifter Base developed in Long Glass Fibre Reinforced Polypropylene (PPLFT) substituted expensive engineering plastics. The long fibre PP compound, made out of Repol, is supplied by our customer.

The product has been commercialised successfully by one of the leading OEMs for Passenger Vehicles. It is also under evaluation for cable type mechanism in light commercial vehicles.

The product offers following advantages:

1. Weight Reduction
2. Cost reduction
3. Easy processing



The annual cost benefit will be Rs. 3.5 crores based on 12 lakh components production per annum.

Exploring opportunities for metal/engineering plastic replacement

Reliance Polymers team comprising of representatives from Head office & Delhi Regional office conducted a high level meeting with senior Maruti Suzuki officials to identify replacement of metal and engineering plastic parts by parts made of Polypropylene. Further meetings are planned to take this forward.



Successful Nine Years Performance Report by PWD Pune on Polypropylene Geotextile fabric laying in Pune (2004-2013)

Daund Gar-Dapodi road (Pune district) failed frequently because of weak black cotton soil subgrade and inadequate drainage. Reliance Polymers in coordination with PWD Pune, IIT Bombay laid woven slit film tape polypropylene geotextile fabric on the road to prevent the failure. 9 years hence PWD Pune has come out with the evaluation report stamping the mark of success on the project. After 9 years, there are no visible signs of distress on the roads and the geotextile sample is still intact without any puncture.

Outcome of 9 years successful laying of geotextile in Pune:-

1. Inclusion of PP geotextile fabric in Schedule of Rates (SOR).
2. 4 DPRs already implemented and 3 DPRs in pipeline.
3. More than 17 km road stretches laid with PP geotextile at different location in Maharashtra
4. Recently Tender allocated to a construction company –Kolhapur-5 km road stretch with PP geotextile.



Before geotextile layer

After geotextile layer

INDUSTRY EVENTS

- K-Show, Germany, 16-23rd Oct. 2013
- International Conference on Advances in Fibres, Finishes, Technical Textiles & Nonwovens (AFTTN-2013), 01-02 Oct. 2013
- Silver Jubilee Celebrations of Indian Chapter of IGS, New Delhi, Oct. 2013
- Plastivision India, Mumbai, 12-16th Dec. 2013
- Agro Dairy Fair, Jalandhar, 22-23rd Nov. 2013



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