



REPOL K::NNECT

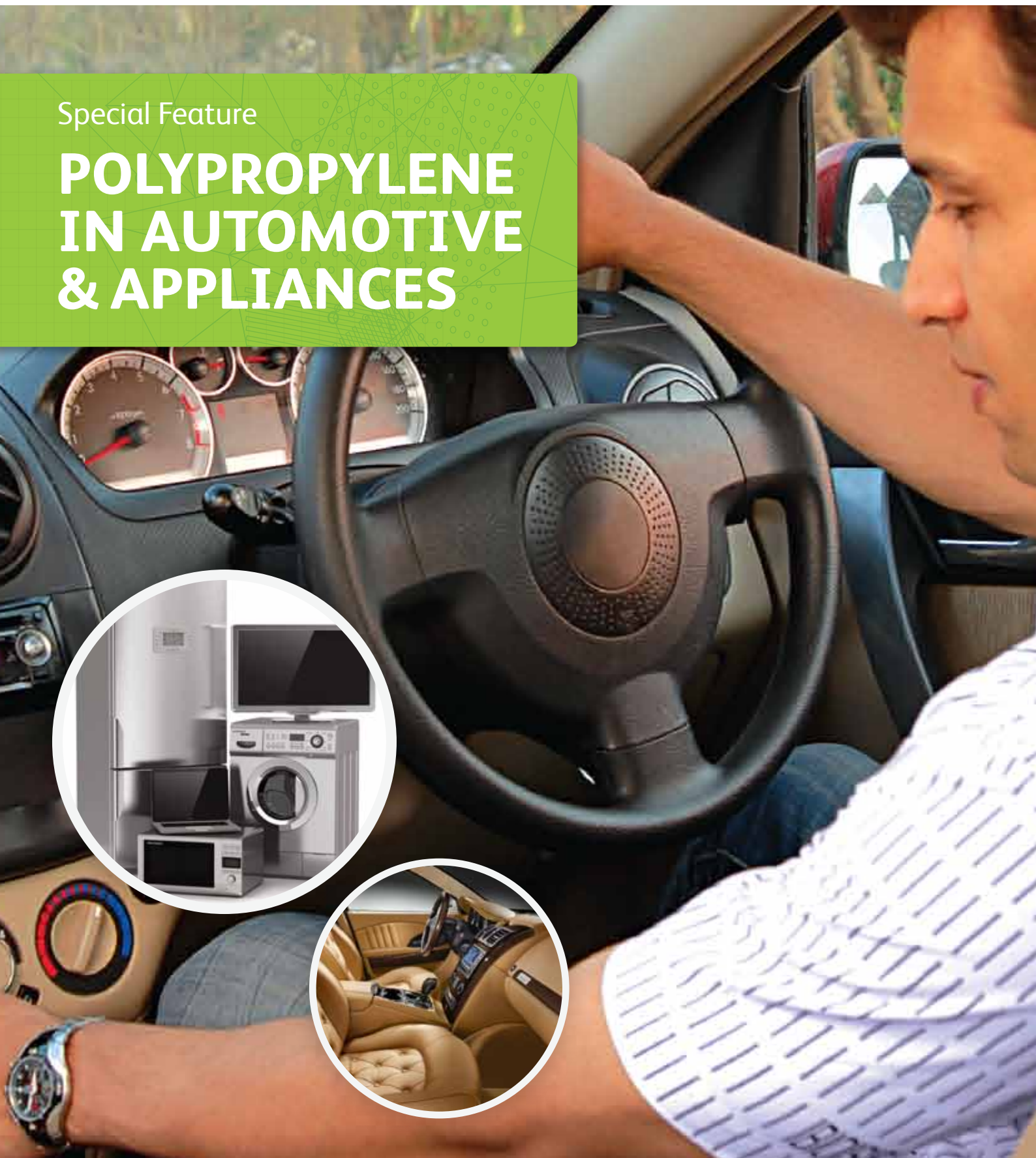
Reliance
POLYMERS

Repol Newsletter

Issue -1/ 2014-15

Special Feature

POLYPROPYLENE IN AUTOMOTIVE & APPLIANCES



Reliance Polymers

360° Partnership Delivering Value

Enables Growth

- Sector-Specific
- Process Focused Developmental, Approach from 'Molecule to Marketplace'
- Product, Application and Market Development
- Structured Sector Management Programmes
- Trends Transplantation
- Market Extension in conjunction with Nodal Agencies, Machinery Manufacturers and Leading Processors

Supports Development

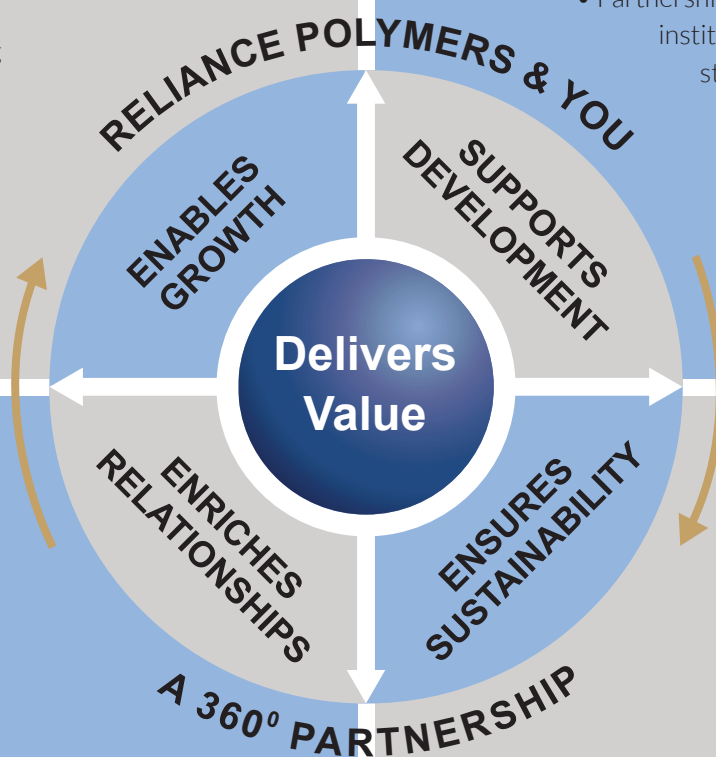
- Technical Support
- Quality Assurance
- Post-trial Vendor Development
- Advisory Services
- An Exclusive Entrepreneur Development Program
- Collaborative Research with Scientific Institutions
 - Partnerships with government bodies and institutions for developing new standards and specifications
 - Capability and development

Enriches Relationships

- Knowledge Transfer.
- Sharing of Intellectual capital and technical resources.
- Customer meets.
- Manpower Training.

Ensures Sustainability

- Development of Sustainable, cost-effective and environment-friendly solutions.
- Easing the pressure on natural resources.
- Focus on renewable resources.
- Balancing economic growth with improved quality life.





From the Editors Desk

Mr. Unmesh Nayak

Greetings to all Repol K::NNECT readers!
It gives me great pleasure to communicate with all the readers through Repol K::NNECT.

The 1st quarter of 2014-15 has brought about a change in the government regime and along with it the expectancy of accelerated economic growth. There is a hope that consumerism will increase and if it does, it would certainly create a better business scenario for the polymer industry. Let's hope the positive signals translate into increased business volume for us.

Meanwhile, our efforts to increase the Polypropylene market have gathered pace and that has reflected in the numerous business developmental activities we have carried out in this quarter.

The same has been covered in this edition of Repol K::NNECT along with a special feature on the usage of Polypropylene in Automotive and Appliances sector.

Hope you enjoy reading the same.

Automotive Materials & Manufacturing 2014

3 days International conference on "Automotive Materials & Manufacturing 2014" was organized by ARAI at Pune with the agenda being "Light-weighting through innovative materials, processes and design"

Highlights of the Conference

- 20 Keynote addresses from eminent speakers from industry and academia.
- About 50 technical presentations on the topics related to materials, manufacturing and design.
- Demonstration of products and ideas by about 40 exhibitors
- Presentation by Reliance Polymers on "PP and it's Composites in Automotive Industry". The paper spoke about the present scenario of PP usage in India and abroad, international trends in the composite usage replacing metal and engineering plastics, opportunities exist in India for similar applications, few case studies, supply chain etc.



Ultra-Clear Repol SRX 100 for Refrigerator Parts

Refrigerator is one of the most common Home Appliances and the industry has been growing rapidly over the past decade. Manufacturers are focussing on parts with improved performance at lower cost in order to increase their market share. With this in mind we have introduced ultra-clear Polypropylene SRX 100 for applications like refrigerator parts.

Repol SRX 100 is a specialty random copolymer with ultra-high clarity, which can be ideally used for Ultra high clarity containers, house wares, ISBM products and appliances parts.

The product offers following advantages

1. Excellent contact clarity
2. Freedom from breakages
3. Economical due to low density (lesser weight)
4. Can be tinted with colour master batches (blue, green etc.)



Typical cost benefit analysis

Basis – Part weight -0.553 kg / AC, Quantity – 1 lakh/ month.

Description	Existing	Proposed
Raw Material	GPPS	Polypropylene
Density (gm/cc)	1.05	0.9
*Price /kg (₹)	125	117
Part Weight (Kg)	2.3	2
Cost/Refrigerator (₹)	287.5	234
Cost/month/1lakh Refrigerators (₹.cr)	2.88	2.34
Cost/annum/ 12 lakh Refrigerator (₹.cr)	34.5	28.1
Saving/ annum/12 Lakh Refrigerator	₹ 6.4. Cr (19% Saving)	

*Price – As on Feb' 2014

Front End Module–Long Glass Fibre Reinforced Polypropylene (PPLFT)

Front End Module (FEM) in PP long glass fibre (PPLFT) is revolutionizing passenger vehicle design and assembly. FEMs are multi piece assemblies that integrate a large number of components like head lights, radiator components, cooling fans, A/C condensers, grill panels, bumpers, hood latches, washer bottles etc.

Recently, this has been implemented/ commercialised by passenger car manufacturers using cost effective PPLFT.

The product offers following advantages

1. Weight reduction~ 35%
2. Cost efficiency through
 - Part consolidation - 35 nos of parts reduced
 - Reduction in significant number of assembly line steps
 - Product engg. & logistics

PP-LFT has long glass fibre which provides high mechanical strength, dimensional stability, lower warpage and good thermal properties.



Typical cost benefit analysis

Basis – Part weight – 5.0 kg / Vehicle, Quantity – 1 lakh/ month.

Description	Existing	Proposed
Raw Material	Metal	PP LFT30%
Density (gm/cc)	7.8	1.17
*Raw material Price/kg ` including processing	120	190
charges	8.0	5.0
Part Weight (Kg)	960	950
Cost/part (₹)	9.60	9.50
Cost/month/1lakh parts(₹.cr)	115.20	114.00
Saving/annum/12 Lakh parts	₹ 1.2Cr	

*Price – As on July' 2014

Car Battery Tray–Long Glass Fibre Reinforced Polypropylene (PPLFT)

Car battery tray is a under-the-hood part which is mainly used for holding the battery. Traditionally, sheet metal is used for this application but it is subject to corrosion in acidic environment. It is coated with non-corrosive coating which is expensive and doesn't last long as coatings deteriorate with time.

Polypropylene (PP) offers an excellent resistance to corrosion in acidic environment- an ideal choice for battery casing itself. Components made out of PPLFT provide enhanced mechanical properties meeting battery tray requirements.

The product offers following advantages

1. Corrosion Resistance –PP has excellent chemical resistance
2. Weight reduction ~44%
3. Cost reduction ~19%
4. Part consolidation-one plastic part replaced three metal welded parts.
5. Excellent mechanical strength, dimensional stability and good thermal properties.



Typical cost benefit analysis

Basis – Part weight – 0.500 kg / Vehicle, Quantity – 1 lakh/month.

Description	Existing	Proposed
Raw Material	Metal	PP LFT30%
Density (gm/cc)	7.8	1.17
*Raw material Price/kg ` including processing	130	190
charges	0.900	0.500
Part Weight (Kg)	117.0	95.0
Cost/part (₹)	1.17	0.95
Cost/month/1lakh parts (₹.cr)	14.04	11.40
Saving/ annum/12 Lakh parts	₹ 2.7Cr (20% Saving)	

*Price – As on July' 2014

AC Blower Fan-Glass Reinforced Polypropylene

Air Conditioner(AC) is one of the fastest growing Home Appliances today. Shift from luxury category to necessity coupled with low penetration level is one of the main reasons for this rapid growth.

New Product developments, design innovation, improved performance, and material replacement for cost reduction are continuously required in order to remain in the competitive market. A recent development is replacement of AC Blower Fan with glass reinforced polypropylene (PP) for the outdoor unit of split ACs.

The product offers following advantages

1. High temperature resistance
2. Cost economics
3. Ease of availability
4. Ease of processing

The product has been successfully evaluated by one of the leading OEMs.



Typical cost benefit analysis

Basis – Part weight -0.553 kg / AC, Quantity – 1 lakh/ month.

Description	Existing	Proposed
Raw Material	ABS GF 22%	PP GF 30%
Density (gm/cc)	1.19	1.14
*Price/kg (₹)	190	140
Part Weight (Kg)	0.577	0.553
Cost/AC (₹)	109.6	77.4
Cost/month/1lakh ACs (₹.cr)	1.10	0.77
Cost/annum/12 lakh ACs (₹.cr)	13.02	9.3
Saving /annum /12 Lakh ACs	₹ 4.0 Cr (30% Saving)	

*Price – As on Feb' 2014

Geosynthetics for Infrastructure Development

CII organized a meeting of its core committee members for chalking out the strategies to enhance the use of Geosynthetics in infrastructure sector. Also discussed in the meeting was the planning and scheduling of 'Global Geosynthetics Summit', a pre-cursor event of Vibrant Gujarat 2015. The event will be a nationwide gathering of people related to the Geosynthetics industry (including the end users nodal agencies).



Workshop-WRD Orissa

The concept of Geotextile bags for river bank protection has picked up in Ganga & Brahmaputra basin states. Last year tenders with requirement of PP to the tune of 5 KT were floated. To create similar demand in other potential States, Reliance Polymers made a presentation on "Application of Geosynthetics in coastal and river training works" to 80 engineers at WRD Bhubhaneswar, Orissa. The 3 hour presentation included an interactive session with department officials and created good awareness about the concept of Geobags and Geotubes. Project proposals with Geobags for bank protection works are expected to follow soon.

Krishi Mahotsav 2014, Gujarat

Reliance Polymers participated in one of the most important Agri events in Gujarat, Krishi Mahotsav 2014, in alliance with AHD Gujarat. Four mega events, organized at Morbi, Kadi, Chota Udepur and Vyra, were inaugurated by Honourable Chief Minister of Gujarat Mrs. Anandiben Patel. Reliance Polymers displayed silage packaging in PP FIBC and distributed catalogues in Gujarati to create targeted awareness about its innovative concepts.



Reliance Foundation

Farmers Meet at Adoni, APA live demonstration on Silage making in PP FIBC bags was done followed by a presentation. The villages in the region are reeling under acute shortage of fodder. This new concept might just help them to prepare silage in a better and effective way. Trial at Reliance Foundation R&D Centre at Mouda (near Seoni, MP). Reliance Polymers carried out a trial with PP silage bags on pilot basis in the R&D farm (10 nos of 100 kgs capacity).



Trends and Developments in Packaging

Reliance polymers Bangalore office organized a CRM on "Trends and Developments in Packaging" where we gave a presentation about the use of polypropylene in rigid Packaging and detailed the advantages of PP clarified bottles over glass bottles.



Agrotextiles usage in Mizoram

Reliance Polymers participated in CRM at KVK Aizwal and presentation on "Usage of Agro Textiles suitable for Mizoram State". The CRM was conducted as a part of GOI scheme for promotion of Agro Textile in NE states.



Nonwoven Tech Asia, Gandhinagar

Non Woven Tech Asia 2014 organized by guj NON (Non woven Manufacturers' Association in Gujarat) & Radeecal Communications was held at Gandhinagar from 5th-7th June'14. Reliance Polymers made a presentation on "PP Nonwovens Emerging Opportunities" highlighting applications in Agriculture, Medical & Hygiene.

Nonwoven cover for Sugarcane

Reliance Polymers gave a presentation to sugarcane farmers on PP NW cover in an event organized by Dyansheel Foundation at Pune. Photo banner of Repol PP crop & fruit cover were displayed prominently at the entrance and inside the seminar hall. Also, the benefits of PP nonwoven cover for fruits and crops were highlighted using a presentation & a movie.

Agritech-2014, Madurai

Reliance Polymers participated in AGRITECH- 2014 at Madurai and propagated the usefulness of polypropylene silage bags & the effectiveness of polypropylene Nonwoven Fruit and Crop covers in Hi-tech agricultural practices. Over 1000 farmers from various districts of Tamil-nadu, Kerala and Pondicherry, Government officials of KVK's, Animal Husbandry, Horticulture visited the stall and appreciated RIL's efforts in bringing such a unique and much needed products and showed keen interest in conducting field trials for the products.



Plastic, Rubber & Trims Conclave 2014

Reliance Polymers participated in a two day "Plastic, Rubber & Trims Conclave 2014" organised by Tata Motors Ltd at it's Pimpri plant where 19 vendors of Tata Motors exhibited their products. Reliance Polymers was the only Resin supplier invited in the event and it made 2 presentations on "Plastics in automotive" and "PP & its composites - for cost and weight reduction" to the gathering of all stakeholders of TATA team. Reliance Polymers also showcased 15 components, the material for which can be easily replaced by PP LFRT and interacted with different teams of TATA & it's vendors for the same.





CORPORATE SOCIAL RESPONSIBILITY/ INDUSTRY EVENTS



Reliance Polymer Team Join hands with Reliance Foundation

Reliance Foundation BIJ (Bharat-India Jodo) relentlessly works to empower marginal farmers to help develop sustainable livelihoods, as well as to integrate them into the mainstream.

Reliance polymer team participated in various training programmes organized for marginal farmers by Reliance Foundation as under:

- 1. Green Fodder storage for lean season to enhance milk production**
- 2. Protection of water reservoir from ground salinity with 'Pond Lining'**
- 3. Fruit & vegetable protection from frost by using 'Crop Cover'**

Reliance Polymers also supported Reliance Foundation to organise 'live demo' of Silage preparation and distributed free sample of 'Silage Bag' among villagers.



Chinaplas 2014

The 28th International Exhibition was held at Shanghai New International Expo Centre, China from 23-26 April 2014. CHINAPLAS 2014 has set a new record registering growth in both exhibitors and visitors numbers, with over 3,067 exhibitors from over 40 countries and regions. The expo had about 130,370 visitors, 14% higher than the last edition of Chinaplas held in Guangzhou. Hall N2 is one of the Chemical and Raw Material halls with major petrochemical companies like Exxonmobil, DOW, SABIC, Borouge along with Reliance.

Our stand, admeasuring 250sq mtrs., was situated at a premium location in N2. The stand design was contemporary and functional with ample meeting areas, and was appreciated by all our visitors and dignitaries. More than 600 visitors, including top processors and distributors, 25% of whom were from overseas - mainly from Middle East, Latin America, South East Asia, Africa and from Europe, visited our stand. Scheduled meetings were held with our key distributors and end users.



The RIL stand was filled with maximum number of flower bouquets gifted by customers. Our Gala Dinner which was held on 24th April at the Hotel Intercontinental was well attended by our top 200 customers and colleagues from the Pet-chem industry. Similar to previous years, Chinaplas 2014, proved to be a major successful event.



Geosynthetics for Formation Treatment

Geosynthetics can be used for formation treatment in railways to good effect. To spread awareness about the concept in the country, Reliance Polymers, with the help of its customers, is currently trying to develop trial projects in various railway zones of India. These projects will be executed and then scientifically monitored on a long term basis to validate and establish the positive effects of Geosynthetics in railway tracks. Currently, Reliance Polymers is working on various trial projects in Gujarat, Western Railway zone.



Polypropylene for Rasgulla Packaging

Reliance Polymers, in coordination with Machinfabrik and NABL tested the feasibility of Polypropylene multilayer containers for Rasgulla packaging and obtained encouraging results. The preservative free rasgullas (shelf life-3 days) were purchased from local sweet shop and filled in Polypropylene multilayer containers with multilayer wad and then retorted in aquaclave machine at Machinfabrik. The packed rasgullas tested for shelf life by NABL showed substantial improvement in shelf life (3 months), absence of microbial growth and unadulterated taste.

The packaging offers various benefits to local sweet makers in terms of easy transportation throughout the country & open

up export market and the service of a preservative free taste to the consumers. Credit goes to our Kolkata Regional office for initiating this breakthrough concept.



Rasgullas packed in the container t=0 month



Rasgullas packed in the container t=3 months

Comments by largest exporter of sweetmeat maker of Kolkata

Mr. Amit



"Many thanks for your encouraging report on our Rosogolla. This report makes us proud & also shall help us immensely as we plan to export our sweets mainly rosogolla to various overseas destinations in near future. This report shall enhance the trustworthiness about quality of our products & shall give us the desired mileage to promote & establish our products more firmly in the forthcoming days. Please accept our sincere most thanks & gratitude".

Upcoming Industry Events 2014

- **AGRITECH ASIA**, Gandhinagar 3rd–5th Sept
- **GLOBAL GEOSYNTHETICS SUMMIT**, Ahmedabad 5th–6th Sept
- **INDIA CHEM**, Mumbai 9th –11th Oct
- **KRISHIDARSHAN EXPO**, Hisar 11th–13th Oct
- **INTERNATIONAL CONFERENCE ON GEOSYNTHETICS**, Berlin 21st–25th Sept

HIGHER YIELDS AT LOW COST WITH POLYPROPYLENE NON-WOVEN CROP AND FRUIT COVERS



Applicable for

Crops: Potato, Tomato, Brinjal, Cabbage and Tinda
Fruits: Banana, Mango, Pomegranate, Litchi and Grapes

Protecting precious crops and fruits can be expensive for many farmers. But an economical and effective solution is here - Polypropylene Non-woven crop and fruit covers. With it, farmers can protect their crop and ensure a great harvest.



Advantages of Polypropylene Non-woven Crop and Fruit Covers

- Protection from fluctuating weather patterns
- Protects the crop against frost
- Permeable – allows air and aids crop growth
- Protects the crop from insect and bird attacks
- Increases yield and produces a healthier crop
- Advances fruit maturity

POLYPROPYLENE BUSINESS DEVELOPMENT GROUP

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