

Packaging

SOUTH ASIA

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10 ways to reduce food manufacturing costs

Industrial products/ packaging

From lightweight components to step-out toughness and stiffness balance for vehicle bumpers and door trims, ExxonMobil Product Solutions offer the ingredients for optimal performance in exterior automotive parts.



PlastIndia 2023 Pragati Maidan New Delhi



This high performance PP woven sack incorporates 25% circular plastic content from waste PP woven sacks

High performance PP woven sack with recycled Polypropylene incorporated



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Design and collaborate for recycling and the use of recyclates

ExxonMobil at PlastIndia 2023 – tough, processable, and recyclable

At the recent PlastIndia exhibition in Delhi, *Packaging South Asia's* editor Naresh Khanna took the opportunity to speak with Nitin Thakur, the ExxonMobil sales manager for polyethylene based in Gurgaon, and Saurabh Sharma, the company's Market Development manager for South Asia for Polypropylene and Vistamaxx Adhesions, based in Bengaluru. ExxonMobil has multiple interests in India from oil and downstream products such as lubricants and polymers for plastics that are used in verticals from automobiles to packaging. It has approximately 150 expert resources in India, the majority of whom operate from its Bengaluru office.

Naresh Khanna

Our three-cornered conversation with Nitin Thakur and Saurabh Sharma at Exxon Mobil's large and busy stand at PlastIndia centered on sustainability. It attempted to understand the company's development and production of a variety of polymers that are suitable for flexible packaging solutions with the required barrier, strength, and machining properties for a series of specific applications. The new PE polymers can be used and combined for 'Design for Recycling' materials that either use less material, are more easily recyclable, or, as in the case of Vistamaxx, enable the use of recycled material.

A given in this approach is that the objective of producing better packaging laminates that are more sustainable requires considerable collaboration that ultimately includes brand owners, raw material suppliers, film and laminate producers, packaging material printers, converters, and even recyclers. From our conversation and the cases and samples shared with us, it becomes apparent ExxonMobil is working with Indian converters to develop solutions for specific packaging material cases.



Nitin Thakur (L)-sales manager for polyethylene based in Gurgaon and Saurabh Sharma (R)-Market Development manager for South Asia for Polypropylene and Vistamaxx Adhesions, based in Bengaluru, at the ExxonMobil stand in PlastIndia. Photo PSA

PLASTINDIA 2023

Review – Part 1

The packaging solutions discussed, and spec sheets shared with us were for products such as recyclable full PE laminated pillow pouches, high-barrier PE pouches for edible oil with improved recyclability, non-barrier liquid packaging, downgauged PE collation shrink films, and PP woven sacks using 25% recycled PP from waste PP sack and Vistamaxx polymer.

The company is working with many of the blown film lines used in the country. Samples included those developed with local film producers using both imported and domestically manufactured blown film lines such as Rajoo and Shubham. Moreover, ExxonMobil is working on developments with cast PE and stretch film lines as well.

Thakur spoke about the company's evolution of its polyethylene products aimed at monopolymer solutions, "We started making Exceed in 1995, a platform associated with toughness. The idea was to prevent leakage and provide bag integrity. And over some time, after using this polymer, the industry came back to us and asked us to improve its processability – it's a tough polymer to produce.

"The industry also came back to us for light-weighting and we created a new platform that looked more at downgauging, and this led to Exceed XP with a great balance of toughness and processability and we got very good traction with it. As a result of the request for better processability, we came up with our Enable in 2008, which helps make a laminate easier to process and also has toughness – an optimal balance of toughness and processability.

"However, the brands still wanted better monomaterial solutions with better optics and printability properties for stand-up pouches. Thus we brought about ExceedS giving us a unique platform with a balance of stiffness and toughness. However with a monomaterial solution, the moment you downgauge a film, the most important thing is the optics, and the printability and that is a function of the stiffness." According to Thakur, for stiffness, you generally add an HD component but with HDPE the overall performance goes down.

"This is where ExceedS comes in with stiffness and toughness balance," he said. "One of our successes with ExceedS was in the development with Parakh Agro of a monomaterial PE/PE laminate wherein a 3-layer blown film top layer is bonded to a 7-layer film containing 2-3% EVOH. This is a solution that is recyclable and where we were able to fix the gloss issues with the top layer while maintaining the stiffness and barrier properties needed by a high-barrier standup pouch. This is a recyclable high-barrier monomaterial solution that works well for home care products such as fabric conditioners and also for food products such as tomato ketchup. This solution is ready for the market."

When we discussed the development with Vinay Nalawade, director of Parakh Packaging, he explained that the development is for a universal high-barrier structure that works for all pouch formats, including standup with spout, zipper, 3-side seal, and others. "It is useful for the laundry and food and beverage segments such as premium edible oil packaging that require better gloss on the outside layer. A perfect solution, that apart from passing all the impact and barrier tests, also complies with the CEFLEX recyclability standards."

Thakur presented a recyclable pillow pouch solution consisting of a 7-layer film with barrier properties coming from an EVOH layer. When we pointed out that EVOH is considered an expensive material in India, he explained, "Any Indian edible oil pouch in India is currently using about 15% polyamide, while this newly developed pouch is using ExceedS with only 3% EVOH.

"This would, of course, enable PE/PE solutions that can use more than 95% PE and meet some of the stringent standards for recyclable monomaterial pouches. Since polyamide provides not only a barrier but also gives you impact properties. Hence the minute you eliminate it, it has to be replaced by some performance polymer – this is where Exceed S also comes in and the best part is that it has a transparent window."



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■ Using recyclates and plastic waste management

We ask how the industry can reduce plastic and recycle it more systematically or laterally. Saurabh Sharma addresses this by saying, “We always say the issue is of plastic waste and recently we approached this by simplifying the laminate structures. We try to make materials that are not heterogenous with different kinds of plastic such as polyester, polyethylene, and polypropylene but simplify the structures with similar materials. As you can see at our stand, for us the first step is to design for recycling.

“Earlier we discussed the PE solutions and similarly we have PP-based monomaterial solutions. Further, we are collaborating with the value chain with our performance products that can help film and laminate producers when they use recyclates as a component. For instance, the actors in the value chain ask us to improve the performance or the printability of a product that contains let's say 25% recycle material and we come up with a solution.

“In some applications, we try to replace the polyester with BOPP. We have a brand called Vistamax, which is a PP-based material that is a very good sealant for polypropylene. With its low initiation sealing temperature on the inner layer, it permits you to improve the productivity of the packaging lines. While the inner layer is sealing faster, the aesthetics of the outer layer is maintained allowing you to increase the speed and efficiency of your filling and sealing lines.”

Sharma showed us a sample of a raffia bag used for bulk packaging of several commodities. “For something like a polypropylene raffia bag with the help of Vistamax, we can incorporate up to 25% recycled inputs. When you are using recycled material there is some shortcoming in the properties of the overall structure and the Vistamax can make up for that – and it has good compatibility with recycled PP materials.”

When we ask which new developments have reached shelves in India, or how soon we can expect them to, Sharma shares his perception of the current situation in the country, “Various brands are taking up these solutions, and once they see it work for 20% of their packaging materials, we expect significant take up of these developments. We are at that stage where we are ready to ramp up and we see many good things that are happening in the value chain.”

“Many brand owners have taken pledges to take action by 2025. Also important are consumer sentiments. While the pandemic was a disruption, it's not as if sustainability took a back seat completely. It did not come to a full stop but it may have pushed the paused button. At the same time, there are positive sustainability trends, such as brand owners who converted their use of PET/BOPP shrink stretch films to monomaterial stretch films. In the long term, the brand owners seem determined and many are keen to downgauge packaging structures without compromising their properties.”

■ Chemical recycling in Texas

In answer to our question on ExxonMobil's approach to recycling plastic waste, Sharma replied, “We are in chemical recycling – asking if we can help reduce plastic waste going to landfills, by collecting and washing it. Our advanced chemical recycling plant near Houston, Texas in the US, can process almost 40,000 tons of plastic already. We are evaluating the setting up of plants in other parts of the world and expect to achieve chemical recycling of about 500,000 tons of plastic waste annually by 2026 or 2027.”

On the share of packaging among the various verticals in which plastics play a role, Sharma answered, “As far as plastic packaging, we are very excited to work in this space as well as others such as automobiles. At our booth, we are showing many performance products across verticals. For instance, we have been growing aggressively in automobile lightweighting with many polypropylene products. At the same time, we are happy to work across the segments in the packaging space. Moreover, to answer your question, as far as the use of plastics in India (is concerned), packaging applications are likely to be bigger than automobiles.” ■



Top: The high barrier recyclable monomer PE solution developed by ExxonMobil in collaboration with Parakh Agro in Pune

Middle: The medium duty downgauged bag using a PET 12 micron film and a PE 65 micron structure developed by ExxonMobil in collaboration with Sudpack Kamakshi near Ahmedabad

Bottom: High-performance PP woven sack using 25% recycled polypropylene content developed by ExxonMobil in collaboration with Suraj Logistix headquartered in Kolkata Photos PSA