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MRAI's

MATERIAL RECYCLING

THE VOICE OF INDIAN RECYCLING INDUSTRY

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DEEPAK MEHTA

THERE IS TECHNOLOGY AVAILABLE FOR HIGH-QUALITY PROCESSING OF FLEXIBLE AND RIGID PLASTICS – INHOUSE, INDUSTRIAL AND POST-CONSUMER WASTE, SAYS **DEEPAK MEHTA** OF LEEVAMS

The new plastic waste management rules 2016, amended in 2018, roll the ball for all concerned to step forward towards their EPR and CSR responsibilities. As the system sets its pace, a lot more clarity, understanding and streamlining would follow, bringing India too in line with global practices.

A big fear or threat amongst the plastic fraternity is, if the targets are not met, the public or the government or even NGOs could choose not use plastics and may come out with a solution that the industry likes the least!

Actually, such a thrust provides the plastic industry a huge opportunity to shape their own future. Circular economy is going to be the zing thing; today's buzz word in the global field of plastics. An era to demonstrate, plastics can be circular by its economical reuse in production, replacing the virgin feedstock. It is going to be a game-changer; a paradigm shift in the mindset of the plastic industry.

If taken in a positive stride, the results ought to show a strong demand from the plastic processors and converters for producing good quality recyclates.

A decade or two ago no rag pickers or kabadiwalas were interested in collecting PET bottles, purely because they found no resale value for it. Today, special attention is given to PET amongst the post-consumer plastic waste segment and recycling is being carried out professionally across the country. No wonder, PET bottles have become the most valuable stream fetching a good return for all the stakeholders.

Currently, recycling of other post-consumer plastic waste rest majorly in the domain of unorganized sector, which plays a minor role in circular economy. Soon we will see professional recycling practices being followed just like PET. One would agree, to qualify EPR, approach towards recycling of such plastic waste ought to be different – far more advanced to meet the emerging qual-

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ity standards for effective reuse of recycled granules or pellets.

Respecting the type, kind and commingled nature of Indian post-consumer waste, especially the recyclables originating from MSW or household stream, the foremost step would be proper sorting, segregation and separation of all the major fractions. The well sorted polymer fraction could then undergo further treatment like washing, drying and pelletizing – thus converting waste into reusable granules. The mixed fraction or the plastic waste that do not have a definitive reuse, may find its current use in polymer composite panels or extruded sections, RDF, pyrolysis or even road construction.

The biggest challenge foreseen is in the field of recycling multilayer or laminated flexible packaging films or pouches, which is currently perceiving reluctance for "mechanical recycling"! The reality is otherwise; more than converting such complexly structured wastes into recycled granules, the real challenge lies in its reuse due to technological limitations in its moulding and/or extrusion in 'as is, where is' basis! Additional treatment is a prerequisite in the present context.

To facilitate recycling of the increasingly more heavily inked and additive laden, at times even with leftover contaminations despite washing, EREMA's patented **INTAREMA TVEplus®** technology broadens the reach, allowing effective and efficient transformation of flexible packaging plastics into valuable, near virgin quality pellets, making recycling a profitable proposition.

Either the inhouse / industrial scrap or washed, clean, dry film flakes are fed into a large cutter/compactor that uses friction to size reduce, compress and pre-warm the plastic material. Unique advantage of the cutter/compactor is the ability to dynamically blend the materials, generally inconsistent in its composition and quantum, to produce a steady, predictable melt. The preheated, densified and partially degassed material is then fed directly to the single-screw extruder at a controlled rate. Compression and melting occur gradually, at a precisely controlled temperature, adding minimal heat history to the reclaim.

In the patented TVEplus® series, melt filter(s) are placed ahead of degassing system, thus exceptionally capable to handle large amount of contaminants at higher production rates and better quality than other vented extruders. Thanks to the design and process engineering that allows effective filtration, extraordinary degassing efficiency and an improved homogenisation, which enable processing of even fully coated, multi-layered and vacuum metalized, printed plastic waste, in a single stage to make high-quality recycled granules.

EREMA tests of the TVEplus® with heavily printed packaging film revealed an increase of approximately three times the efficiency at removing gases from ink, binding agents, other additives and incidental contaminating materials. Even traces of these contaminants that survive from less advanced reclaim processes can cause bubbles, blisters and film tears, rendering finished recycled products unusable.

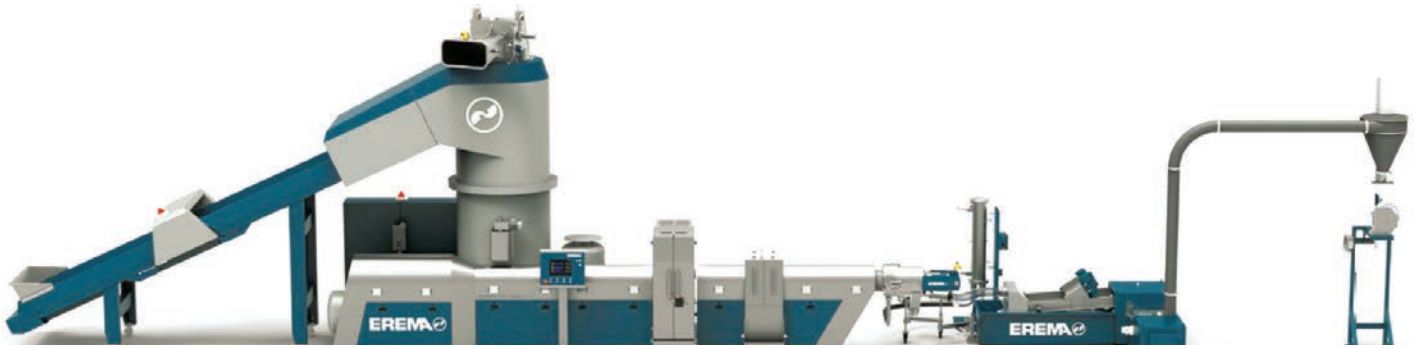
Besides optimized energy requirements, the systems also feature ecoSAVE technology and stand out through user-friendliness and operational reliability. EREMA once again confirms its expertise in addressing and fulfilling both - the technical and economic requirements of the end users.

EREMA's unique RegrindPro® for thick-walled articles - A boon for industrial and professional recycling.

EREMA presents the ultimate in the plastics recycling sector: **RegrindPro®**, the latest and highly efficient technology for the recycling of regrind materials.

RegrindPro® – a giant leap forward in the recycling of regrinds.

Recycling regrind as an alternative to virgin material has enormous potential for processors of plastics. With raw material prices ever



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increasing, the demand for the processing of regrind to make high-quality recycled pellets is growing more and more, especially in the thick-walled packaging, electronics (WEEE or e-waste) and automotive sectors.

The thick-walled input material (HDPE, PP, ABS, PS, etc.), however, requires a specific treatment process which is designed to be able to handle mixed fractions with varying compositions, high bulk density and moisture, plus strong and varying contaminants through a very wide variety of impurities. The recycled pellets also have to meet exacting quality standards to be able to make end products from them with top surface quality and particularly high recyclate content.

With the INTAREMA® RegrindPro® EREMA has succeeded in developing a plant system which is designed exactly for the thick-walled materials. Thanks to extremely gentle processing and highly efficient filtration, the new system enables the recycling of regrind into application-oriented secondary raw materials and RegrindPro® is the technological solution for recycling of in-house, industrial and post-consumer waste.

REFRESHER: HIGH-EFFICIENCY ANTI-ODOUR TECHNOLOGY FOR MORE VALUE-ADDITION.

In a simple term, **Deodourizer** – a perfect complimentary product for odour-optimised premium recycled pellets directly from contaminated post-consumer material. The unbeatable combination of top pellet quality and odour optimisation opens up completely new application opportunities for recycled plastics.

A typical problem of household waste: it develops intense odours. These are caused not only by contaminants adhering to the surface but also by so-called migrated odour substances. The latter are caused by the packaging absorbing the odour of the food, cosmetics or cleaning agents inside it. The substances which migrate like this into the plastic are particularly stubborn.

Removing the entire spectrum of odours again as effectively as possible requires the support of the entire recycling process chain. This includes sorting, washing and the mechanical recycling process. Thanks to the interplay of the INTAREMA® TVEplus® with the innovative ReFresher technology that it is possible to effectively eliminate a considerable amount of these odour substances again. While the TVEplus® extruder system primarily takes care of the high volatile, low molecular substances, the ReFresher also removes the low volatile, high molecular odour matter.

Small pieces of wood, paper – left behind from labels for example – or rubber and silicone contaminants are potential sources of odour, because in conventional processes these impurities can burn slightly during extrusion and in turn transfer the odour to the plastic. The patented TVEplus® extruder system counteracts this odour development in a targeted way.

The focus is always on the basic principle of protecting resources and handling them responsibly. Thanks to the high-quality processing of plastic waste; people who use EREMA systems make a major contribution to sustainability. They in fact develop new markets.