


ExxonMobil's HDPE business innovates for growth

ExxonMobil's high density polyethylene (HDPE) business has taken a lead in driving growth by innovating to meet customer needs. Three recent initiatives stand out – improving supply flexibility to mitigate logistics issues, introducing a new PE grade to meet a specific customer need for a simpler solution, and the upcycling of its roto-molding grades.

HDPE supply flexibility enhanced

To enhance HDPE supply reliability to customers in North America, ExxonMobil has now made some of its key injection molding HDPE grades available from its Beaumont, Texas facility in addition to its usual source, the majority-owned Imperial Oil facility in Sarnia, Canada.

"Previously, our injection molding HDPE grades were only available from the Sarnia facility, but this could be an issue during harsh Canadian winters," said Dr. James Stern, HDPE Business Development Manager, North America & EMEAF. "Introducing dual sourcing from Sarnia and Beaumont helps overcome any potential logistical issues that may arise from harsh Canadian winters or tropical storms affecting the Gulf of Mexico."

While all injection molding HDPE grades are available from Sarnia, those grades which are used primarily for pail and crate applications can now also be produced in Beaumont. Grades are functionally equivalent between facilities, so they are an easy drop-in product for customers.

"Whatever the cause of any logistical disruptions, having two supply points for a major portion of our North American injection molding HDPE grades helps provide greater assurances for customer business planning continuity," said Stern. "There's nothing worse for a customer than supply disruptions and this move by our HDPE business is designed to help mitigate that."

The ExxonMobil Beaumont, Texas plant is now supplying HDPE grades

As well as providing supply flexibility, Beaumont offers significant manufacturing potential and as such, capacity could be further increased as needed to meet market demand.

To save blending two grades, one unique PE grade was created to meet specifications of our client's product line

The UV performance of ExxonMobil's roto-molding grades has been upcycled for products used outdoors

Bespoke PE grade replaces HD/LLD PE blending

Responding to a specific product request from a major North American customer, the Rotational and Injection Molding (RIM) team at Imperial Oil has recently developed a unique PE grade.

"A customer had been blending an HDPE grade with an LLDPE grade to use on an industrial waste disposal product line," said Ahmed Abushehada, Polymers Account Executive, Imperial Oil. "However, blending was causing performance issues with the products, so they came to us for a single product solution."

The client asked Imperial to create a single pellet PE grade that would meet the specifications of their product line, including high durability and easy processability. The RIM team designed and executed a successful plant trial.

"Opportunities like this typically take a long time to progress but upon receiving the challenge the RIM team moved rapidly," said Ravin Lee, Polymers RIM Supply Demand Planner. "The single product solution is a game changer. While ExxonMobil™ LL 6318.17 meets the needs of our customer, it is also providing new growth opportunities in applications where HDPE and LLDPE grades are typically blended. The MI/density combination is a new offering in the ExxonMobil HD injection molding (HDIM) portfolio that will open up the aperture to new customers and applications."

With a density of 0.931 g/cm^3, ExxonMobil™ LL 6318.17, is a narrow molecular weight distribution, hexene copolymer that offers excellent toughness, impact strength and environmental stress crack resistance, while being easy to process.

"The plant trial for the new grade was successfully conducted within about a year and the customer is delighted with the results and the value it is adding to their business," said Abushehada. "It has also motivated the RIM team to start looking at the development of other differentiated HDIM grades."

Upcycling the roto-molding grades

There are multiple factors affecting UV performance of finished products made with PE. These factors include geographic location, elevation, proximity to water, pigment additives, molding cycle and part thickness, to name a few.

In order to mitigate these factors and create longer-lasting, more durable products, the ExxonMobil team developed a new suite of upcycled roto-molding grades with enhanced UV performance.

"Any product that is used outside needs to be capable of withstanding the weather," said Stern. "UV stabilization performance can promote a long product life, so we decided to upcycle the UV performance of some of our roto-molding grades for products that are primarily used outside."

Five roto-molding grades — ExxonMobil™ HD 8570.29, ExxonMobil™ HD 8760.29, ExxonMobil™ HD 8660.29, ExxonMobil™ HD 8512.29 and ExxonMobil™ LL 8460.29 — have been upcycled to offer a UV20 rating to help enhance long-term weatherability. The grades also provide an optimal balance of stiffness and low-temperature impact strength, as well as a broad operating window in challenging roto-molding processes.

Products manufactured using ExxonMobil roto-molding grades include:

- Containers
- Recreational products
- Large agricultural tanks
- Consumer products
- Toys
- Chemical storage tanks

"It's always been important that customers use PE grades that are commensurate with the requirements of the expected lifetime of the products they are manufacturing," said Stern. "With the changing needs of our society it has perhaps never been more important to review the performance of our grades so they meet the current and future needs of our customers and the environment they operate within."

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