ExxonMobil
Signature Polymers

Case study

Exceed™ Tough

Greenage Industries and Reinhardt Teknik partner to create appealing, tough, long-lasting kayaks with ExxonMobil Signature Polymers

Extreme toughness

Broad processing window

Reduced cycle time/energy

Good aesthetics

Data and results presented herein apply specifically to the noted application under this case study.
Your results may differ depending on factors such as operating conditions, equipment and materials used.

Challenge

Producing attractive, multi-colored, tough kayaks with reduced energy and cycle time.

Rotational molding is a preferred process to produce large hollow articles like tanks for water or agrochemicals. In addition, this process is widely used for custom moldings such as for marine sports, fish tubs and defense applications, owing to greater design flexibility and cost advantage. However, potential challenges with rotational molding are energy consumption and long cycle times.

Reinhardt Teknik, a leading global rotomolding machine OEM with state-of-the-art plant in India operating under guidance of Reinhardt GmbH, Germany, teamed with Greenage Industries, a leading South Asian compounder and exporter for rotomolding powders located in India, with the goal of creating a durable, tough kayak that was also aesthetically appealing and produced efficiently using less energy.

Ravi Kadivar, Managing Director, Greenage Industries notes, "Integrating ExxonMobil's metallocene LLDPE into our rotomolding formulations unlocked a new level of performance and versatility. Its high uniform molecular architecture ensures smoother extrusion, superior low-temperature ARM impact and a consistently wide processing window — critical for maintaining quality across varied rotomolding conditions."

Solution

ExxonMobil Exceed™ Tough metallocene PE grades to produce highly durable, tough kayak with cycle time reduction and superior aesthetics.

Leveraging the material expertise of ExxonMobil Signature Polymers, Greenage developed a compounded colored powder with machine and processing expertise from Reinhardt Teknik.

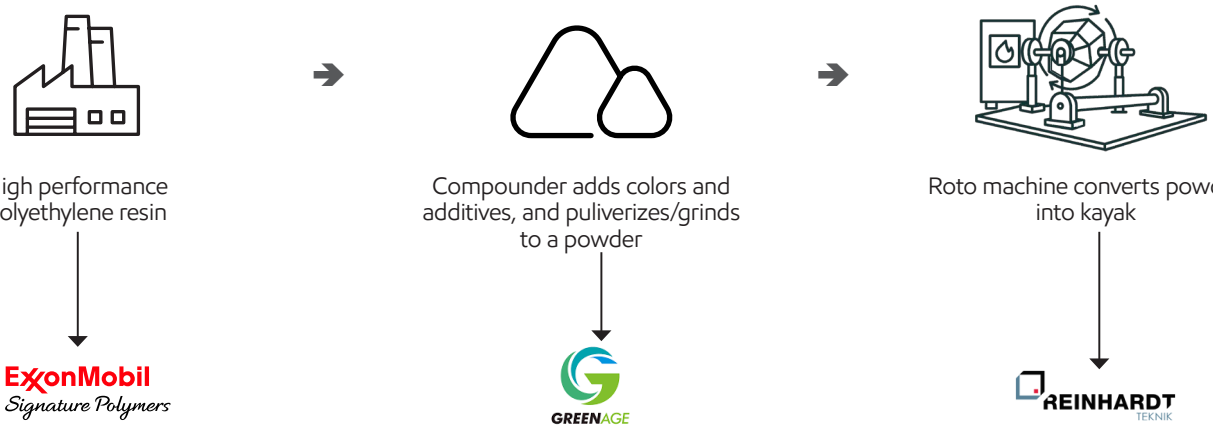
Following initial discussions, Exceed Tough m 4536 was chosen as the high-performance resin for the application. Exceed Tough performance polyethylene offered superior ageing and stress crack performance with enhanced toughness, providing potential cycle time reduction over the conventional compounded ZN C6LL grade.

"As a leading machine OEM, we work with industry leading resin suppliers to evaluate new materials providing holistic solutions to our customers," said Rustom Patell, Reinhardt Teknik. "ExxonMobil's latest rotomolding metallocene LLDPE demonstrates excellent heat stability at elevated temperatures. Designed for rotomolding, this grade offers a broad processing window and cycle reduction possibilities over conventional PE, which is of great value to rotomolders. It exhibits excellent ARM impact performance, critical in applications like kayaks."

GREENAGE

REINHARDT TEKNIK

The design process



Results

Potential benefits of Exceed™ Tough high-performance PE resin:

- Superior heat stability performance with wide processing window
- Excellent aesthetics and whiteness
- Cycle time reduction of up to 20%
- Superior ESCR performance

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ExxonMobil Signature Polymers

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ExxonMobil Signature Polymers was born from the belief that people fuel progress. From automotive and construction to packaging, agriculture, industrial, and beyond, we leverage the scale and reach of ExxonMobil to deliver the insights and innovations that empower our diverse, global partners to take their businesses to new heights. We continuously work to provide the listen-first, service-driven, game-changing collaboration that unlocks opportunities for our partners and advances their business goals.