



Exceed™ Stiff

Exceed™ Tough

Rotomolded products with improved toughness using ExxonMobil Exceed™ Stiff and Exceed™ Tough performance polymers



Excellent impact resistance



Good durability



Outstanding visual appeal



Potential energy savings

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.

The rotomolding plastic process allows for the fabrication of large hollow parts or components in almost all shapes and sizes. It is especially suitable for a wide range of applications, including storage tanks, consumer sporting equipment, playground equipment, industrial parts and more.

Rotomolded products need to be strong enough to endure harsh weather conditions and long-term use. High-quality rotomolded products with improved toughness and durability are now possible using our Exceed™ Stiff and Exceed™ Tough performance polymers.



Picture courtesy of Greenage Industries

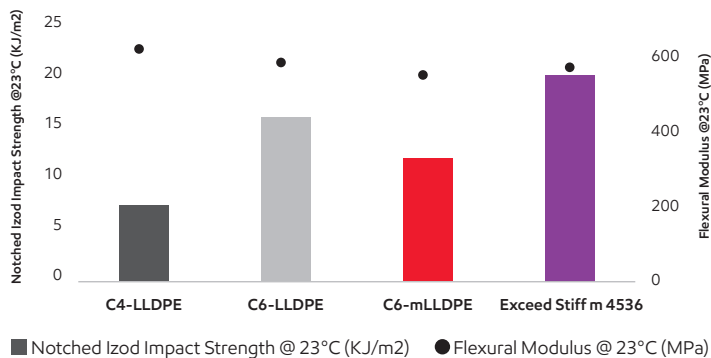
Exceed™ Stiff m 4536 metallocene PE is great for rotomolding applications and can upgrade linear low-density polyethylene (LLDPE) grade solutions

Exceed Stiff m 4536 PE resins offer manufacturers the opportunity to produce high-performance products with exceptional impact resistance with balanced stiffness, surpassing that of commonly available LLDPE. This enables rotomolders to scope potential thickness reduction in their molded products.

Moreover, Exceed Stiff m 4536 resins deliver significant environment stress cracking resistance (ESCR), ensuring that tanks and other products can withstand exposure to chemicals and other environmental factors, while maintaining their strength and durability over time.

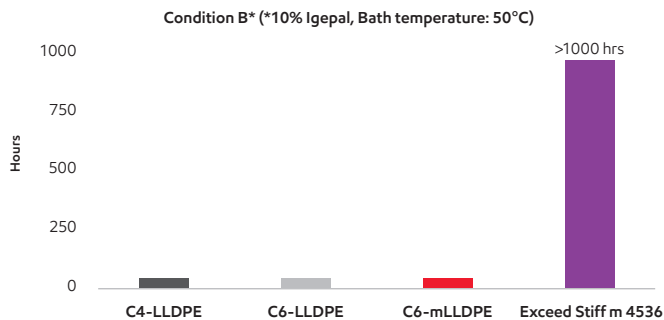
Additionally, Exceed Stiff m 4536 provides a fine surface finish of rotomolding applications and allows for the incorporation of increased recycled content without compromising the quality of the finished products. Notably, some customers also reported lower production costs and reduced operation cycle times when rotomolding their products using Exceed Stiff m 4536 metallocene PE resins because of the low zero shear viscosity.

Notched Izod Impact vs Flexural Modulus



Testing performed on compression molded specimens as per ExxonMobil test method. Data from tests performed by or on behalf of ExxonMobil.

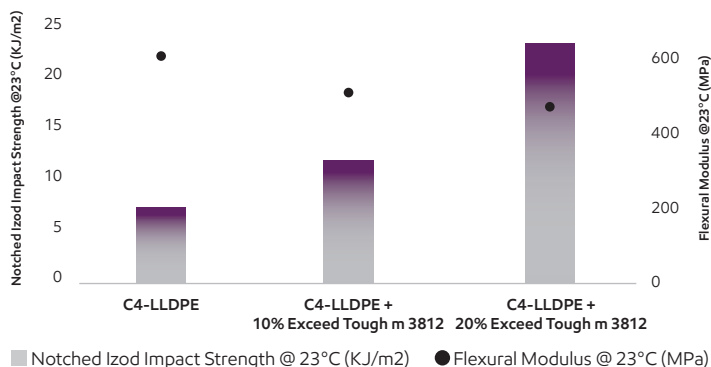
ESCR F50 (Hours)



Testing performed on compression molded specimens as per ExxonMobil test method. Data from tests performed by or on behalf of ExxonMobil.

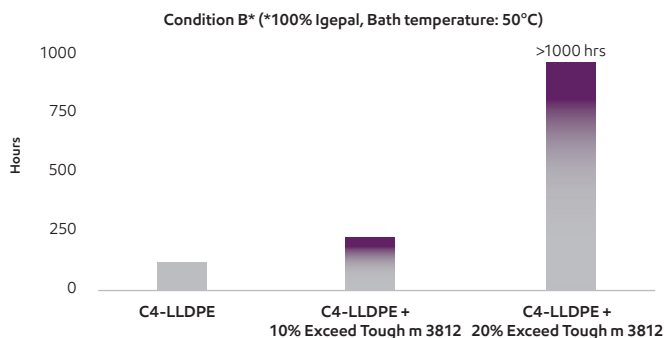
Exceed™ Tough m 3812 metallocene PE, as a lean blend partner, can enhance your rotomolding solutions with an excellent improvement in impact strength and a significant boost in ESCR performance.

Notched Izod Impact vs Flexural Modulus



Testing performed on compression molded specimens as per ExxonMobil test method. Data from tests performed by or on behalf of ExxonMobil.

ESCR F50 (Hours)



Testing performed on compression molded specimens as per ExxonMobil test method. Data from tests performed by or on behalf of ExxonMobil.

Grade name	2.16 kg MI (g/10min)	5 kg MFR (g/10min)	21.6 kg MFR (g/10min)	Density (g/cm³)	Hardness (Shore D)	Vicat (°C)
Exceed Stiff m 4536.PA	4.5	11	79	0.936	58	118
Exceed Tough m 3812.PA	3.8	9.8	67	0.912	48	93

Test item	Test method	Test item	Test method
MI (2.16 kg, 190 °C)	ExxonMobil method	Shore hardness	ExxonMobil method
MFR (5 kg, 190 °C)	ExxonMobil method	Vicat point	ExxonMobil method
MFR (21.6 kg, 190 °C)	ExxonMobil method	Notched Izod impact	ExxonMobil method based on ISO 180/A
Density	ExxonMobil method	Flexural modulus	ExxonMobil method based on ISO 178
ESCR (Condition-B; 10% Igepal, Bath Temperature: 50°C) F50	ExxonMobil method based on ASTM D1693		

Contact us for more information: exxonmobilchemical.com/pe

ExxonMobil
Signature Polymers

Bring your impossible



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What's new: ExxonMobil Signature Polymers

All our polymers are now positioned under a single portfolio brand: Signature Polymers. The aim is to simplify our product architecture and naming to improve portfolio navigation for you. We would like to stress that our commitment to high quality products remains the same, it is the names that change. Everything else remains the same. We will be making these modifications over the next six months so you will see both old and new grade names highlighted during that time.

Here's a quick overview of brands and grade names that have changed in this document:

Legacy Commercial Name	New Commercial Name
Exceed™ 4536	Exceed™ Stiff m 4536
Exceed 3812	Exceed™ Tough m 3812

Some of our existing Exceed, Achieve, Paxon and premium PP/HD grades have moved to Exceed brand; most existing Enable grades have moved to Exceed Flow[+]; most of our existing Exceed XP grades have moved to Exceed Tough[+]; most of our existing Exceed S grades have moved to Exceed Stiff[+]. More details here https://www.exxonmobilchemical.com/en/brands/signature-polymers/exceed_high_performance_polymers or contact your ExxonMobil representative to know more.

Want to see what's changed in our portfolio? Go to [exxonmobilchemical.com/sptransform](https://www.exxonmobilchemical.com/en/brands/signature-polymers/exceed_high_performance_polymers)