



Exceed™ Flow+

Exceed™ Tough+

Exceed high performance polymers: Essential for the protection and preservation of a broad range of products

Exceed™ high performance polymers offer a new benchmark for a broad range of applications that require high performance. This portfolio of products enables converters to cost-effectively fabricate films and liners essential for protection and preservation.

Depending on a customer's application requirements, Exceed product grades can be selected to deliver levels of impact strength, flex-crack, and/or tear resistance for high performance. Additionally, grades offering high melt strength and enhanced processability can be selected for excellent film processing.

Exceed portfolio grades can be selected to offer:

Delivered attributes	Derived benefits & potential value
Step-out mechanical properties <ul style="list-style-type: none"> • Extreme toughness • Exceptional flex-crack resistance • Outstanding thin-film MD tear • Balanced shrink performance • Controlled holding force 	<ul style="list-style-type: none"> • Durability for extremely damage resistant products • High package integrity and less risk of damage in transit <ul style="list-style-type: none"> - Minimized waste across the value-chain • Potential to optimize solutions using linear blends • Improved monolayer performance • Possibilities for downgauging <ul style="list-style-type: none"> - Raw material savings and simplified logistics
High melt strength and output	<ul style="list-style-type: none"> • Improved bubble stability for increased converter performance • High output without the need for LDPE • Options for thicker liners while retaining performance
Excellent seal performance	<ul style="list-style-type: none"> • Enhanced sealing capability with excellent machinability • Potential for improved shelf-life and product safety
Enhanced stiffness	<ul style="list-style-type: none"> • Higher stiffness at given density levels <ul style="list-style-type: none"> - Up to 30% average modulus increase at 0.916 g/cm³ density
Good aging property retention	<ul style="list-style-type: none"> • Potential for increased durability and longer life
Food contact compliance ¹	<ul style="list-style-type: none"> • Very low extractables for minimal taste and odor • TNPP-free²

Exceed, Exceed Flow+, Exceed Tough+, Exceed Stiff+: when high performance matters

- Flexible and food packaging
- Liquid packaging and flexi-tank liners
- Agriculture and horticulture – greenhouse and tunnel cover films, or thinner films (mulch, silage stretch wrap)
- Construction – liners, class-A liners

1. Please contact ExxonMobil Chemical Customer Service for the official food law certificates which provide more detailed information.

2. Tris(nonylphenol)phosphite (TNPP) CAS# 26523-78-4 is not intentionally used by ExxonMobil in this product. Although this product is not routinely tested for its presence, based on product composition knowledge this substance is not expected to be present. However, the fact that this substance is not intentionally used by ExxonMobil in this product does not exclude that trace levels of this substance may be present as a result of the specific characteristics of the raw materials and/or of the manufacturing process

Flexible packaging

Liquid products

The flex-crack resistance and toughness of Exceed™ high performance polymers deliver liquid packaging films with high performance. Converters and brand owners are able to protect and preserve their liquid products from production to utilization, minimizing the risk of product leakage and contamination.

Films based on Exceed resins are ideal for bag-in-box bladders, pillow and stand-up pouch films, as well as larger flexi-tank container liners. Depending on the grade, Exceed offers exceptional or extreme:

- Flex-crack resistance
- Toughness
- Seal performance
- Melt strength
- Extrudability
- Cost optimization opportunities



Food products

The toughness and sealing performance of Exceed produces food packaging films with high performance. Converters and brand owners can protect and preserve their food products from production to the table.

Films based on Exceed are ideal for flexible food packaging, including pouches and bags, which need to withstand demanding environments, like freezers, or be capable of holding larger and heavier contents. This includes packaging for frozen food, dry food, and meat and cheese products. Depending on the grade, Exceed offers exceptional or extreme:

- Toughness
- Flex-crack resistance
- Seal performance
- Melt strength
- Extrudability
- Cost optimization opportunities



Agriculture & horticulture

Greenhouse and walk-in tunnel covers

Exceed™ performance polymers enable converters to fabricate-with-ease tough films that offer high performance for greenhouse and walk-in tunnel covers that are typically 80-220µm thick and up to 20m wide – with and without EVA.

With very high dart impact, puncture resistance, and tensile strength, these films withstand the rigors of installation and varied environmental conditions, including harsh weather. The films also exhibit excellent aged property retention for long lasting, durable solutions. Depending on the grade, Exceed offers exceptional or extreme:

- Toughness
- Aging properties
- Optical properties
- Melt strength
- Extrudability
- Film formulation simplification



Mulch, silage and other films

New levels of MD tear strength can be reached in thin films when processed with high MD orientation on blown lines, using select Exceed grades.

This combination of MD tear with the extreme toughness performance of Exceed is ideal for thin agricultural films, such as silage stretch and mulch, to help maintain film integrity in the field and during handling. High melt strength enables high output without the need for LDPE resin, which is detrimental to MD tear and toughness. Depending on the grade, Exceed offers exceptional or extreme:

- Toughness
- MD tear strength at high machine orientation
- Melt strength
- Cost optimization opportunities



Construction

Liners

Exceed offers a new benchmark for dart impact resistance in construction class-A and other highly demanding liner solutions that require high performance.

Stronger, more impact resistant liners provide engineers with the potential to build safe, protected, and energy efficient structures. In addition, exceptional melt strength offers opportunities for higher extrusion output and thicker liners while retaining performance. Depending on the grade, Exceed offers exceptional or extreme:

- Toughness
- Impact resistance
- Melt strength
- Film flexibility and sealing
- Cost optimization opportunities
- Film formulation simplification



ExxonMobil
Signature Polymers

Bring your impossible

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 and business goals.



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Product grades slate & application recommendations

The Exceed™ high performance polymers portfolio offers a broad range of grades which can be selected to provide benefits including improved processability and step-out mechanical properties for a variety of applications. Working collectively across the value chain allows the creation of differentiated solutions, that help converters to enhance their business through new opportunities, more stable operations, improved output and/or simplified film formulations.

Application recommendations

Performance polymer grade	Market / applications
Exceed Flow+ m 0216 0.2MI, density 0.916, MFR 48-52	<ul style="list-style-type: none"> Liquid packaging and flexi-tank liners Agriculture and horticulture – greenhouse, tunnel cover films
Exceed Flow+ m 0516 0.5MI, density 0.916, MFR 36-38	<ul style="list-style-type: none"> Flexible packaging Thicker films or liners
Exceed Tough+ m 1019 1MI, density 0.918, MFR 28-30	<ul style="list-style-type: none"> Flexible packaging Liquid packaging and flexi-tank liners
Exceed Tough+ m 0518 0.5MI, density 0.918, MFR 28-30	<ul style="list-style-type: none"> Flexible packaging Liquid packaging and flexi-tank liners Agriculture and horticulture – thinner films (mulch, silage stretch wrap) Construction – liners, class-A liners
Exceed Tough+ m 0516.ML 0.5MI, density 0.916, MFR 28-30	<ul style="list-style-type: none"> Flexible packaging Liquid packaging and flexi-tank liners Agriculture and horticulture – thinner films (mulch, silage stretch wrap) Construction – liners, class-A liners
Exceed Tough+ m 0516.MK 0.5MI, density 0.916, MFR 28-30	<ul style="list-style-type: none"> Flexible packaging Liquid packaging and flexi-tank liners
Exceed Tough+ m 0814.ML 0.8MI, density 0.916, MFR 28-30	<ul style="list-style-type: none"> Laminated sacks Freezer films Barrier packaging Sachets
Exceed Tough+ m 0814.MK 0.8MI, density 0.916, MFR 28-30	<ul style="list-style-type: none"> Laminated sacks Freezer films Barrier packaging Sachets

Product grades slate

Performance polymers	Melt index	Density	Melt flow ratio	Tensile strength at break	Dart drop impact	Puncture resistance	MD tear strength (<25 µm)	Flex-crack	Secant modulus	Seal strength	Hot-tack window	Hexane extractables	TD shrink	Optics (Haze)	Slip/antiblock	Extrudability	Bubble stability	High stalk extrusion capability
				Resin properties														
Resin properties				Mechanical properties (1mil/25 µm monolayer film)										Processing properties				
Exceed Flow+ m 0216	0.2	0.916	48-52	●	●	●	●	▲	●	■	●	●	▲				●	●
Exceed Flow+ m 0516	0.5	0.916	36-38		■	■	■	■	▲	■	■	●		●			▲	▲
Exceed Tough+ m 1019	1.0	0.918	28-30	▲	▲	■	■	▲	▲	■	■	▲				▲		
Exceed Tough+ m 0518	0.5	0.918	28-30	●	●	■	●	●	●	■	■	●		■			▲	
Exceed Tough+ m 0516	0.5	0.916	28-30	●	●	■	●	●	●	■	■	●		■			▲	
Exceed Tough+ m 0516	0.5	0.916	28-30	●	■	■	●	▲	●	■	■	●			●		▲	
Exceed Tough+ m 0814	0.8	0.914	28-32	▲	●	■	■	▲	■	■	■	●		■		▲	■	
Exceed Tough+ m 0814	0.8	0.914	28-32	▲	■	■	■	▲	■	■	■	●			●	▲	■	

Test method: Melt index - ASTM D-1238; Density - ASTM D-4703 and ASTM D-1505 / ISO 1183; Melt flow ratio (MFR) - ASTM D-1238; Flow behavior – capillary and oscillatory rheology - EMC methods; Tensile test - ASTM D-882; Dart impact - ASTM D-1709 (procedure A); Elmendorf tear - ASTM D 1992-09; Puncture resistance - EMC method; Seal strength sample preparation – heat seal mode - ASTM F-2029; Hot tack - ASTM F-1921; Holes after flex - EMC method (gelbo device); Haze - ASTM D-1003; Shrinkage tester: betex - EMC method; Hexane extractable test - FDA 177.1520.d3ii

When compared to HAO of same density: ● Extreme ▲ Exceptional ■ Excellent