ExxonMobil
Signature Polymers

Fact sheet



Exceed™ Stiff+

Design durable non-laminated pouches and bags with Exceed™ Stiff+ performance polyethylene

Creating stiffer, tougher, more durable flexible packaging often requires multiple resins, more blending, and sacrifices in conversion efficiency. What if your resin did more? Exceed Stiff+ resins deliver simplicity without compromise. Now you can get stiffness and toughness with less blending, and resin solutions that streamline film and package making operations while improving package durability.



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

Exceed Stiff+ performance PE resins offer two significant advantages in non-laminated coex pillow pouches used to package solid, liquid and frozen food as well as institutional and industrial contents:

- An increase in film and package toughness delivered with fewer resins
- A significant increase in core layer stiffness/toughness enabling skin layer and finished package optimization

Beneficial attributes

- Outstanding toughness at high stiffness
- Single-resin solution for PE + lean HDPE blends
- Enhanced bag drop performance

Value

- Simpler formulations reduce operational scrap/waste
- More durable packaging reduces failures, product loss and complaints

Exceed™ Stiff+ performance polyethylene delivers comprehensive improvements in film and package performance

Exceed Stiff+ m 0820.ML PE maximizes bag drop survivability and dart drop impact, the two key measures of packaging toughness and durability.

Exceed Stiff+ m 0926.ML PE also enables a more durable solution but delivers both simplification and package optimization benefits. Specifically, the lean HDPE blend used in the core has been replaced with a single Exceed Stiff+ resin and the stiffness improvement enabled the 0.916d resin used in the sealant skin to be replaced with the 0.912d Exxtra™ Seal m 1012 resin, which further improves toughness and enhances sealing.

Exceed Stiff+ m 2025.ML PE delivers the lowest melt pressure and temperature, and has been designed to help maximize the toughness and stiffness of films produced on pressure-limited blown film lines.

MD modulus, 1% secant (MPa)



Dart drop impact (g)



Max puncture force (N)



Melt pressure (bar)*



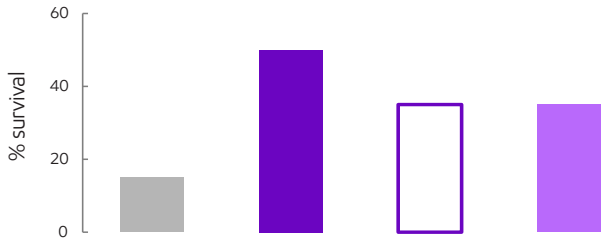
Melt temperature (°C)*



* Blown film line data recorded during processing

Bag drop - VFFS bags

Failure on the wall of the bags
(PE films, progressive drop 1-3 m, 20 bags, content = 2 L water)



	Reference	Exceed Stiff+ m 0820.ML	Exceed Stiff+ m 0926.ML	Exceed Stiff+ m 2025.ML
	60 µm 1 / 3 / 1			
Sealant skin[1]	mLL C8 (1.0; 0.916) + 10% ExxonMobil™ LD 07523	Exxtra Seal m 1012 + 10% ExxonMobil™ LD 07523	Exxtra Seal m 1012 + 10% ExxonMobil™ LD 07523	Exxtra Seal m 1012 + 10% ExxonMobil™ LD 07523
Core[2]	ZN C8 (1.0; 0.920) + 15% HDPE[3]	Exceed Stiff+ m 0820.ML[4] + 10% HDPE[3]	Exceed Stiff+ m 0926.ML	Exceed Stiff+ m 2025.ML
Skin[1]	Exceed™ m 1018			

1. Skins contain 1% slip + 1.5% anti-block
2. Core contains 1% slip
3. Film formulation designed to have same average film density with less HDPE content (around 0.921g/cm3)
4. The Exceed Stiff+ m 0820.MLresin had an MI of 0.65 g/10 min versus the product target of 0.80 g/10 min at 190 °C & 2.16 kg.

Grade	Melt index (g/10 min)	Density (g/cm³)	Slip / anti-block
Exceed Stiff+ m 0820.ML	0.80	0.920	No
Exceed Stiff+ m 0926.ML	0.85	0.926	No
Exceed Stiff+ m 2025.ML	2.0	0.925	No

Test item	Test method
Melt Index (MI)	ExxonMobil test method following principles of ASTM D-1238 or supplier datasheet
Density	ExxonMobil test method following principles of ASTM D-4703 and ASTM D-1505 or supplier datasheet
Dart drop impact resistance by free falling dart	ExxonMobil test method following principles of ASTM D-1709
Tensile properties on film	ExxonMobil test method following principles of ASTM D-882-18
Puncture	ExxonMobil test method

Data from tests performed by or on behalf of ExxonMobil. MAC202007.0106-04.

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 their business goals.

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