High-performance mulch films

ExxonMobil's portfolio of performance polymers, including Exceed™ XP, Exceed™ and Enable™, provide a wide range of benefits that allow the fabrication of mulch films with improved toughness on tensile, tear and dart impact strength. These high integrity mulch films are easy to process and provide downgauging opportunities for a more sustainable solution.

When eXtreme Performance is required, mulch films based on Exceed XP perform under the very toughest conditions by offering:

- Outstanding tear resistance
- Excellent tensile strength
- Good puncture resistance
- Downgauging opportunities
- Extreme high dart

Delivered attributes	Derived benefits & potential value
Improved toughness (tensile, tear and dart impact strength)	▪ Reduced film damage and waste during installation or due to extreme weather ▪ Potentially longer service life for films ▪ Easy collection after use ▪ Downgauging opportunities for less material use
High melt strength	▪ Reduced transition time and machine down-time ▪ Possible energy savings ▪ Worry-free, long-term production

Innovation opportunities

Converters can use Exceed XP, Exceed and Enable performance polymers to develop new-to-the-world, cost-effective mulch film solutions. Due to their high durability at thinner gauges they can withstand all types of weather. Allowing the dart, MD tear, tensile strength and puncture resistance to be tailored to meet the applications' needs, each polymer offers specific attributes:

- **Exceed XP** – when eXtreme Performance matters – offers an unrivaled property combination of extreme high dart, outstanding tear, and excellent tensile strength.
- **Exceed** offers superior performance through high toughness, dart and tear.
- **Enable** delivers optimum solutions due to excellent bubble stability with higher alpha olefin (HAO) properties.

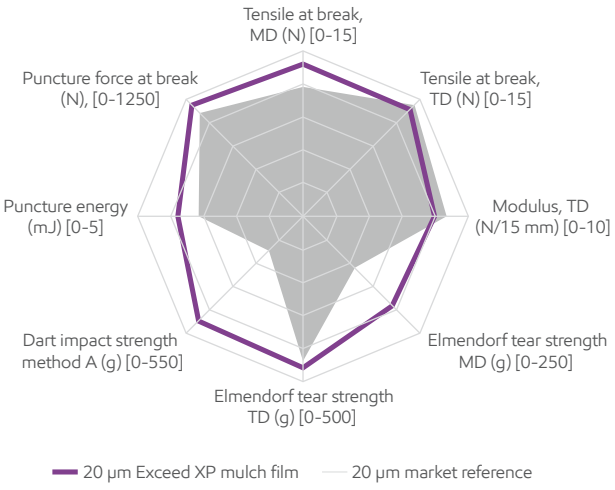
Sustainability benefits

Thinner, but highly durable mulch films use less material and offer downgauging and sustainability benefits. Maintaining film integrity in demanding conditions prevents damage during handling, installation and in the field, reducing the risk of waste and spoilage. After use, highly durable films ease the mulch recollection process, whether done manually or by machine, and the recollection rate can be improved, helping to reduce white pollution of the soil.

Enhanced processability and lower system costs

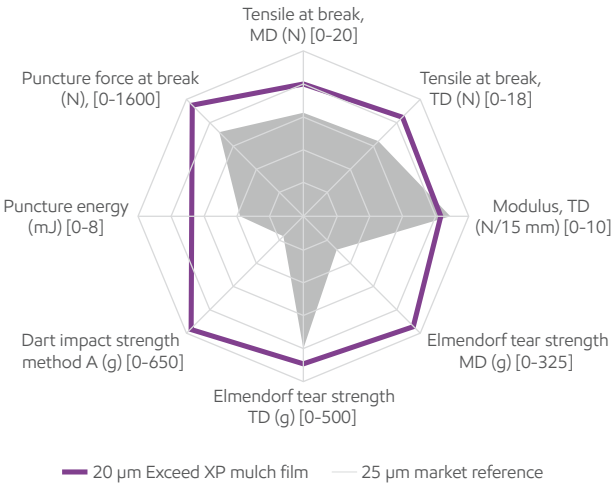
High melt strength delivers improved bubble stability for optimized converter performance. Reduced system costs are possible through downgauging opportunities that use less material, while mulch film integrity is maintained.

Film property data comparison for 20 µm Exceed™ XP formulated film and 20 µm market reference film



R-2019_11_11_11_00013, MAC201808.0260, MAC201807.0070-01

Film property data comparison for 20 µm Exceed XP formulated mulch film and 25 µm market reference film



Mulch film formulated with Exceed XP performance polymer and market reference films

	Melt index (190°C/2.16 kg)	Density (g/cm³)	Exceed XP coex 5-layer film - 20 µm	Exceed XP coex 5-layer film - 25 µm	Market reference coex film - 20 µm	Market reference coex film - 25 µm
Exceed XP 8656ML	0.5	0.916	●	●		
LLDPE 1001	1.0	0.918	●	●		

The solutions here are recommended for the Americas, Europe and South Asia regions. Please contact your ExxonMobil representative for solutions in other regions.

Test	Test method based on
Tensile at break	ASTM D882
Elongation at break	ASTM D882
1% Secant modulus	ASTM D882
Elmendorf tear	ASTM D1922
Dart impact	ASTM D1709
Melt Index	ASTM D1238
Density	ASTM D1505

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