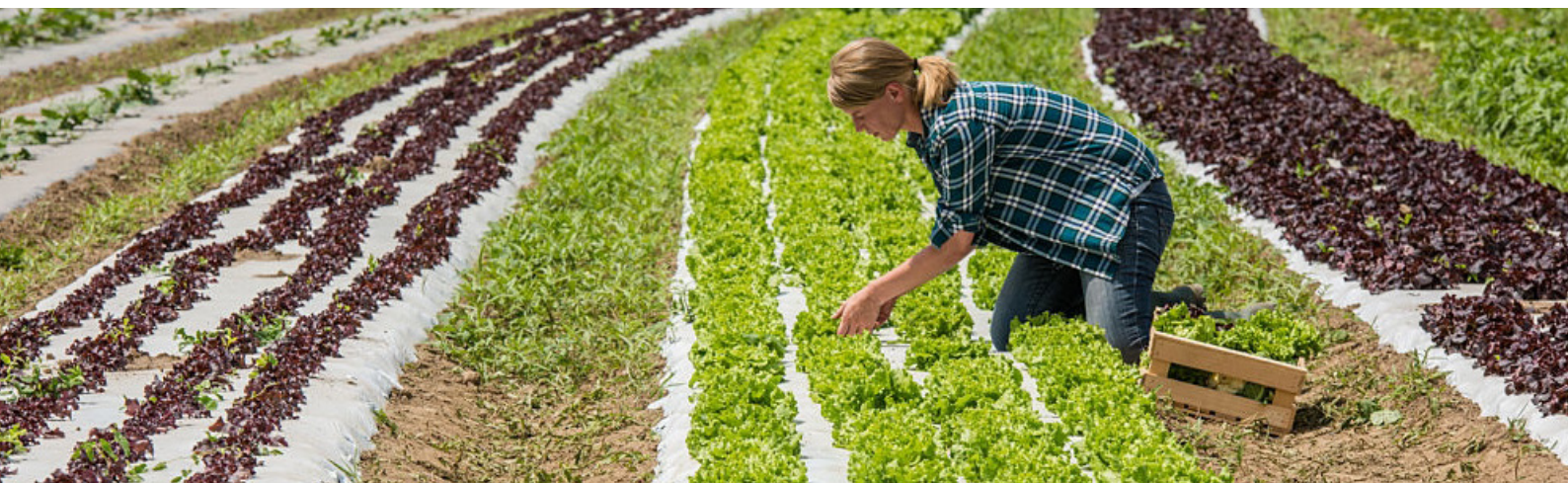




Exceed™ Tough+

High-performance mulch films

ExxonMobil’s portfolio of Exceed™ Tough+ performance polymers, 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 high performance is required, mulch films based on Exceed Tough+ perform under the very toughest conditions by offering:

 Outstanding tear resistance	 Excellent tensile strength	 Good puncture resistance	 Downgauging opportunities	 Extreme high dart
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Delivered attributes	Derived benefits and 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 downtime ▪ Possible energy savings ▪ Worry-free, long-term production

Innovation opportunities

Converters can use Exceed Tough+ performance polymers to develop new-to-the-world, cost-effective mulch film solutions with higher durability at thinner gauges, allowing them to withstand all types of weather.

Exceed Tough+ polymers are designed for when applications demand toughness and strength, including: impact strength, dart impact, puncture resistance, bag-drop performance, puncture force, puncture energy, energy absorption, resilience, durable, stress-crack resistance.

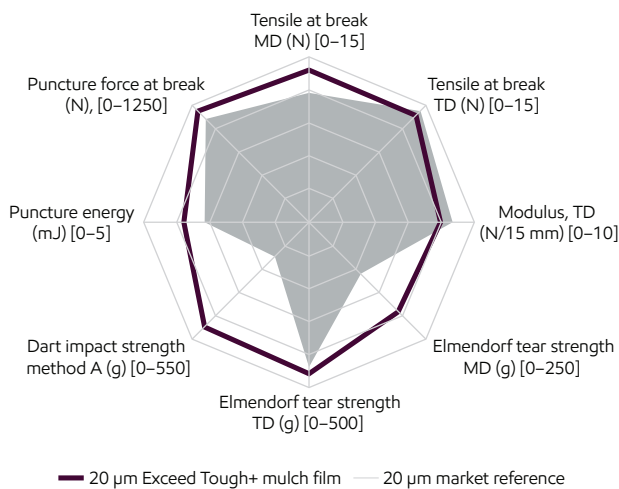
Sustainability benefits

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.

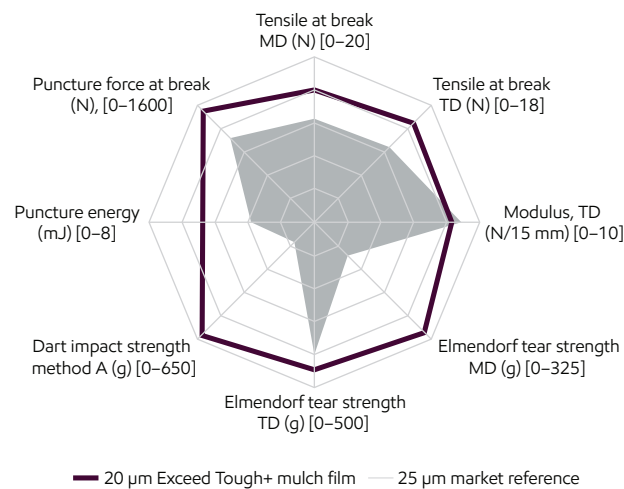
Enhanced processability and lower system costs

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™ Tough+ formulated film and 20 µm market reference film



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



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

Mulch film formulated with Exceed Tough+ performance polymer and market reference films

	Melt index (190°C/2.16 kg)	Density(g/cm3)	Exceed Tough+ coex 5-layer film—20 µm	Exceed Tough+ coex 5-layer film—25 µm	Market reference coex film—20 µm	Market reference coex film—25 µm
Exceed™ Tough+ m 0516.ML	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

Contact us for more information: exxonmobilchemical.com/agriculture

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™ XP 8656ML	Exceed™ Tough+ m 0516.ML

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/sptransform)