



Exceed™ Tough+

## Winpack leverages Exceed™ Tough+ performance PE to help enable increased post-consumer recyclate (PCR) in mulch films



Incorporates  
recycled content



Improved tear  
resistance



Improved  
dart drop

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.

### Challenge:

#### Develop mulch films with increased PCR

Winpack Group, a leading converter of flexible films based in Chile, wanted to increase the amount of post-consumer recyclate (PCR) used in its mulch films while improving or maintaining performance compared to its existing films. The company believed that the sustainability benefit provided by increasing the incorporation of recycled content in its film formulations could create opportunities to increase market share through new business opportunities.

“Winpack is always looking to improve its competitiveness in an effort to grow market share,” said Luis Martinez, Head of Development and Innovation, Winpack Group. “In this instance, we believed we could increase the incorporation of PCR in our mulch films to help enhance our ability to respond to market demands. Plus, we needed to ensure that film performance was not compromised.”

### Solution:

#### Exceed Tough+ can allow increased incorporation of PCR

Winpack collaborated with ExxonMobil Signature Polymers, acknowledged as an innovator in film formulation and a leader in developing solutions through value chain collaboration.

By combining the strength of ExxonMobil’s technical support with Winpack’s expertise in film conversion, a 3-layer mulch film solution was developed that not only maintained performance in certain mechanical properties such as stiffness, but helped to increase dart and presented a significant improvement in tear performance compared to the reference film, which is a key requirement for mulch films.

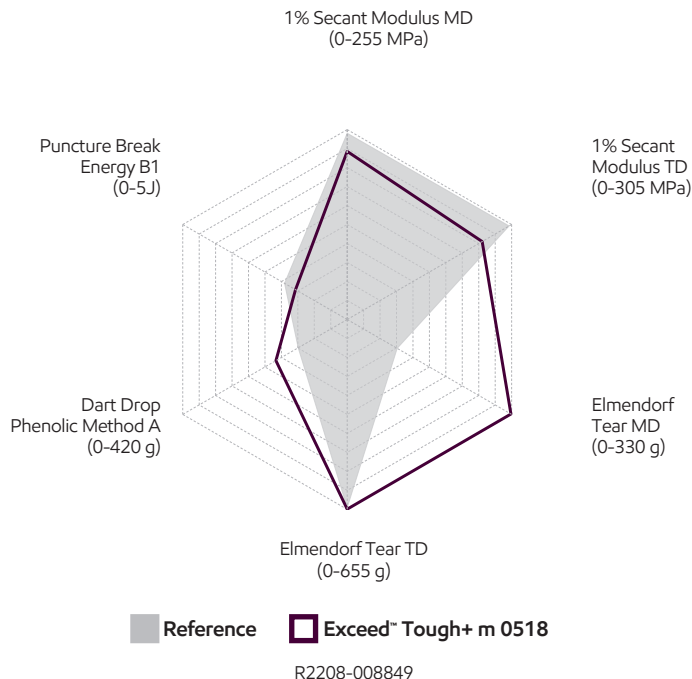
## Results:

### Mulch films with increased PCR incorporation can help with the development of new business opportunities

ExxonMobil's technical support team recommended the use of Exceed™ Tough+ m 0518 performance PE, which helped enable PCR incorporation to be increased from 12% to 20%, while tear resistance and dart puncture improved by 227% and 46% respectively, when compared to the reference film

"As a single-use agricultural product, mulch films with low mechanical properties can cause soil contamination during material collection," said Martinez. "Using Exceed Tough+ m 0518 made it possible to increase PCR incorporation while improving the mulch collection rate. This increased the potential to recycle\* the film to then be used in other applications, while decreasing the possibility of it ending up in a landfill."

Winpack has reported that their new mulch film is generating interest and new business opportunities amongst brand owners and value chain members looking for innovative solutions that can incorporate recycled content.



\*Recyclable in the few communities with programs and facilities in place to collect and recycle plastic film

Test item	Test method
Tensile at Break	Based on ExxonMobil method
1% Secant Modulus	Based on ExxonMobil method
Elmendorf Tear	Based on ASTM D-1922
Dart Impact	Based on ASTM D-1709
Puncture Resistance	Based on ExxonMobil method

**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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## What's new: ExxonMobil Signature Polymers

All our polymers are now positioned under a single portfolio brand: ExxonMobil 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 8358	Exceed™ Tough+ m 0518

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](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)