ExxonMobil
Signature Polymers

Case Study

Exceed™ Vistamaxx™ Exceed™ Tough

Winpack maintains stretch film performance while incorporating post-consumer recycled (PCR) content

- Incorporates recycled content
- Consistent performance
- Meets safe load protection protocols

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 stretch films that incorporate PCR content while maintaining mechanical properties.

Winpack Group, a leading regional converter of flexible films based in Chile, wanted to increase the amount of post-consumer recycled (PCR) content incorporated in its manual and automatic stretch films, while improving or maintaining the performance of their films made with 100% virgin polyethylene (PE).

"Increasing the amount of PCR content in our film formulations can deliver solutions that contribute to plastic circularity, creating opportunities to grow our market share through new businesses," said Andres Baboun, General Manager at Winpack. He also added that "due to Extended Producer Responsibility (EPR) regulations progressing in Chile, there is a high demand from Brand Owners for film solutions that incorporate PCR content."

Solution

Exceed™ Tough performance PE allows for the incorporation of up to 50% PCR PE content while maintaining high film performance.

Winpack and ExxonMobil collaborated to develop new solutions that incorporate PCR PE content without compromising performance or processability.

By combining ExxonMobil's technical support and innovative solutions with Winpack's expertise in film conversion, new formulations were developed based on Exceed™ m 4518.CB performance PE and Exceed Tough m 3812.CB performance PE, incorporating up to 50% PCR PE content for 7-layer stretch films.

The recycled content is processed by Winpack at their mechanical recycling plant from post-consumer waste collected in Chile. Incorporating up to 50% PCR from such a mixed and variable stream in a technical film like stretch can be a challenge.

Traceability and high-quality internal analysis between the collection, recycling and extrusion steps can help provide peace of mind to customers. In addition, Exceed performance polymers offer unique value because of the combination of high mechanical properties they can deliver.

WINPACK

Results

High-quality stretch films that can incorporate up to 50% PCR content can generate new business opportunities.

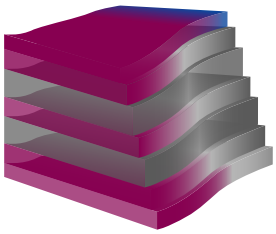
For manual stretch films, Exceed™ m 4518.CB performance PE was incorporated to help increase PCR content levels from 30% to 50% while still achieving the key end-user criteria of good stretch consistency up to 150m. Lower tear break time did not prevent the solution from complying with the minimum target of 14 seconds.

For higher-demanding applications like automatic stretch films, Exceed™ Tough m 3812.CB performance PE was the performance booster chosen for a structure containing 30% PCR without compromising mechanical properties compared to the 100% virgin film. The solution resulted in good stretch (passed at 250m) and wrapping consistency. Both solutions contained Vistamaxx™ 6102FL performance polymer for adequate cling.

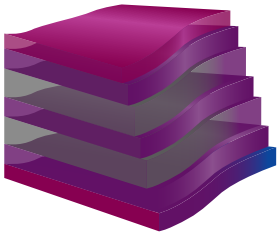
"Using Exceed performance polymers allowed for the increased incorporation of PCR content in the film without affecting the final stretch performance," said Juan Manuel Osorio, Packaging Division Operations Manager at Winpack. "Laboratory test results demonstrated that the films comply with internal safe wrapping protocols standards for safe load protection, while delivering solutions that can contribute to a more circular plastic economy in Chile," he continues.

"According to our estimates, Winpack expects the new stretch films to increase the incorporation of recycled content by approximately 300 tons per month," said Osorio.

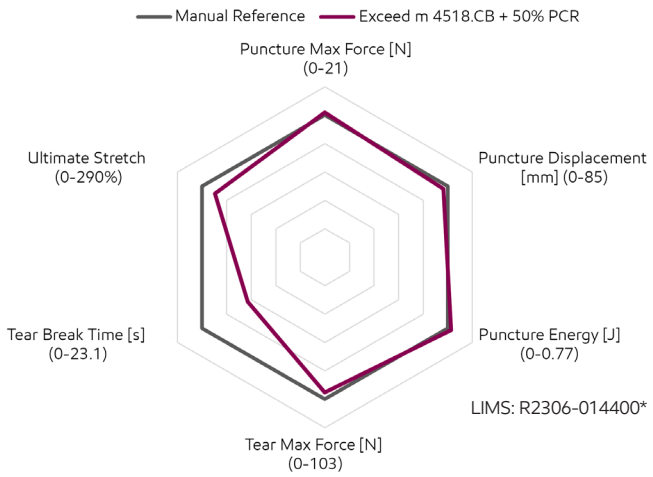
Manual stretch solution
A: Exceed m 4518.CB, Vistamaxx 6102FL
B: Exceed m 4518.CB, LLDPE, PCR
C: PCR
B: Exceed m 4518.CB, LLDPE, PCR
C: PCR
B: Exceed m 4518.CB, LLDPE, PCR
D: Exceed m 4518.CB, LLDPE, Cling additive



Automatic stretch solution
A: Exceed m 3518.CB
B: Exceed Tough m 3812.CB
C: PCR, Exceed Tough m 3812.CB
B: Exceed Tough m 3812.CB
C: PCR, Exceed Tough m 3812.CB
B: Exceed Tough m 3812.CB
D: Exceed m 3518.CB, Exceed Tough m 3812.CB, Vistamaxx 6102FL

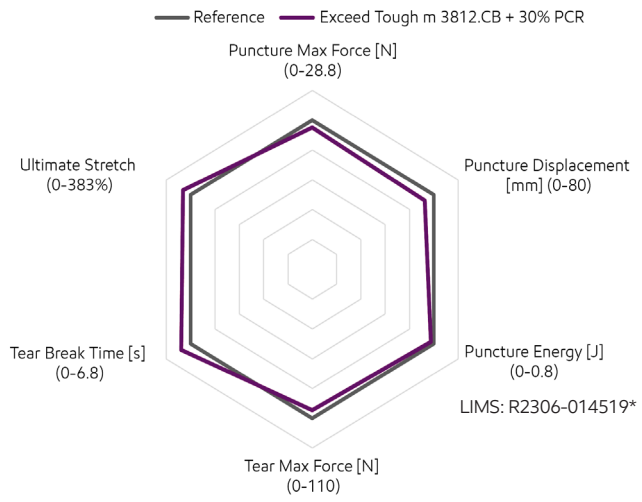


Manual stretch film



*All lab results were obtained in an ESTL performance tester using ExxonMobil testing methods.

Automatic stretch film



Automatic stretch film	Consistency at 250% and 2m/s	Wrapping consistency stretch pass
Reference	Success - 250m	400%
Exceed Tough m 3812.CB	Success - 250m	350%

Contact us for more information: **exxonmobilchemical.com/pe**

ExxonMobil
Signature Polymers

Bring your impossible

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™ 4518CB	Exceed m 4518.CB
Exceed 3518CB	Exceed m 3518.CB
Exceed 3812CB	Exceed™ Tough m 3812.CB

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**