

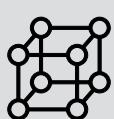


Exceed™ Exceed™ Tough Exceed™ Flow Vistamaxx™

Alliance Films develops its power pre-stretch (PPS) film solution with ExxonMobil Signature Polymers resins and Cloeren NanoLayer™ technology



Extreme stretchability



Outstanding holding force



Exceptional toughness



Easy and consistent processing

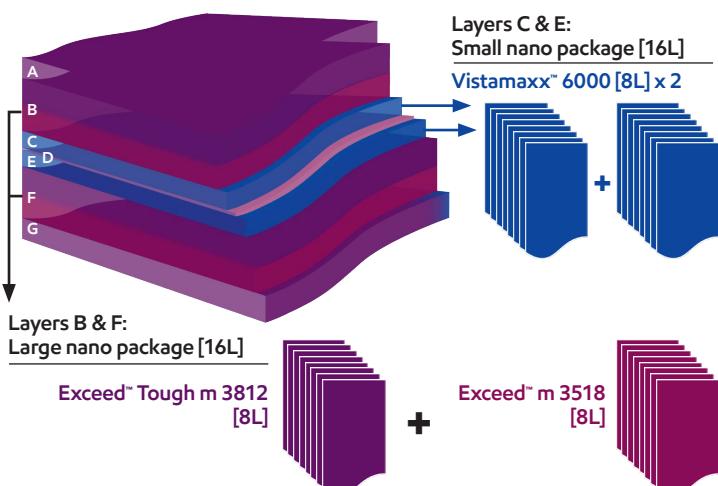
Data and results presented herein apply specifically to the noted application under this case study. Your results may differ depending on factors such as operating conditions, equipment and materials used.

Challenge

Alliance Films, based in Wisconsin, USA, wanted to develop a high-performance film that delivers exceptional holding force and extreme stretchability while maintaining puncture resistance and tear propagation.

"Our commitment to the customer is to offer a line of stretch film unmatched in the marketplace by outperforming in performance, quality, and service," said Troy Wolf, President of Alliance Films.

A: Exceed™ Tough m 4536.PA
D: Exceed™ Flow m 1716.PA
G: Exceed™ Tough m 3812 and Vistamaxx™ 6102



Solution

To meet these demanding performance targets, Alliance Films collaborated with the ExxonMobil Signature Polymers team and Cloeren to engineer a 67-nanolayer film structure.

The film's core performance is driven by a nanolayer combination of Exceed™ m 3518 and Exceed™ Tough m 3812 metallocene polyethylene, delivering a balance of toughness and stretchability. A core layer of Exceed™ Flow m 1716 metallocene polyethylene enhances holding force, while Vistamaxx™ 6000 performance polymer boosts tear propagation resistance.

The skin layers are also carefully designed. A higher density layer made of Exceed Tough m 4536 metallocene polyethylene is used on the release side, while the cling layer is made of a blend of Exceed Tough m 3812 and Vistamaxx 6102 performance polymers.

Most of the layers in the film structure use neat polymers instead of blends, in order to fully benefit from the molecular architecture of the performance PE grades.

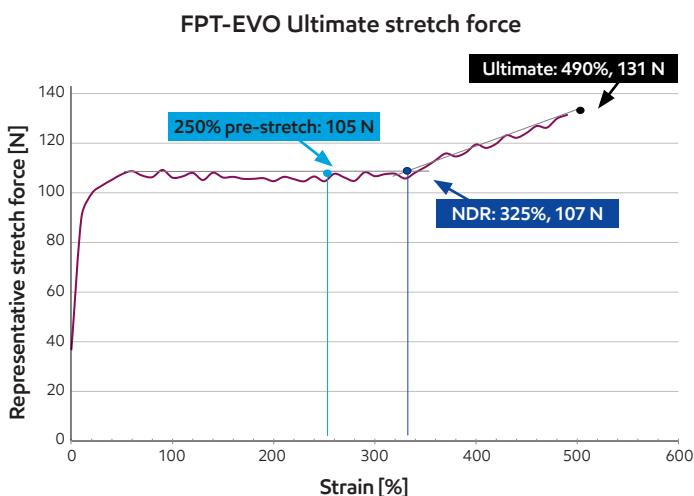
Results

This 12.7-micron PPS film was successfully produced at Alliance Films on a 6-up SML SmartCast® line featuring the Cloeren's 67-layer NanoLayer™ coextrusion system, at a line speed of 460 m/min.

Exceptional film performance validated by ESTL stretch film performance tester (FPT-EVO) testing

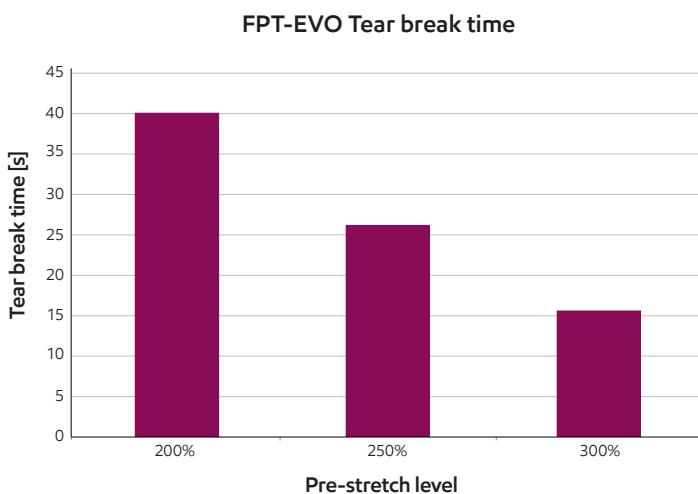
The film exhibits outstanding mechanical properties:

- Ultimate elongation of 490% and force at break of 131 N.
- Stretch force of 105 N at 250%, indicating great potential for high holding force.
- Natural draw ratio (NDR) occurs at 325% strain which results in a wide utilization window when wrapping with this film. The high NDR level also means that it is possible to wrap goods at high pre-stretch level, giving the opportunity to use lower amount of film per pallet.

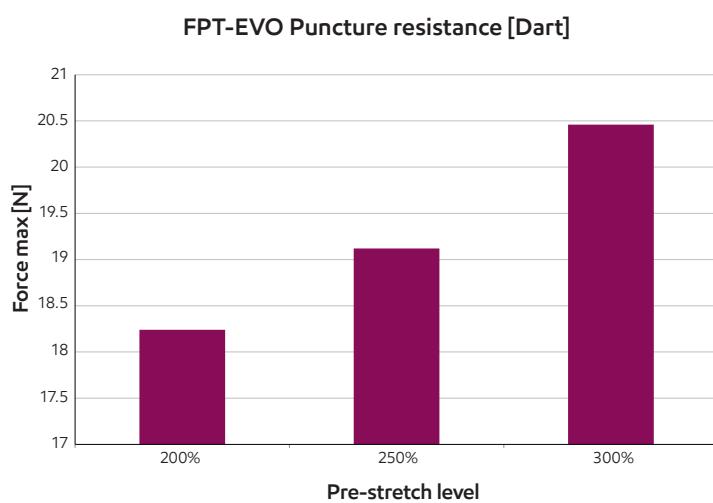


Tear propagation resistance was also strong, showing that the film should have great machinability even at high elongation:

- >25 seconds at 250% pre-stretch
- >15 seconds at 300% pre-stretch



Puncture resistance remained high across 200–300% pre-stretch levels, supporting reliable performance in demanding applications.



Cloeren Incorporated's NanoLayer™ feedblock

Optimized wrapping efficiency tested through Robopac 708 wrapper by Alliance Films

- Pre-stretch levels tested: 200%, 250%, and 300%
- Wrapping setup: 3 wraps on top and 3 wraps on the bottom (roll width: 500 mm) with a turntable speed of 10 RPM
- Containment force was measured at the bottom, middle, and top of the pallet with a Highlight ACE 650 containment tool

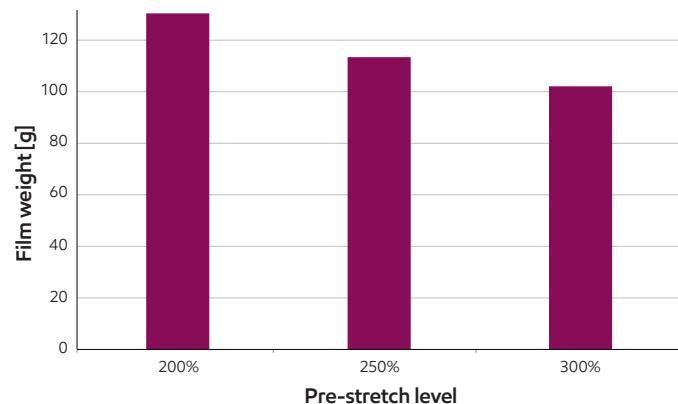
At the highest pre-stretch level of 300%, the film delivered strong containment force, helping to secure loads more effectively. Additionally, film usage was reduced by approximately 10% compared to the standard 250% pre-stretch level, offering potential material savings without compromising performance. These results align with the ESTL data and confirm the film's ability to perform reliably under demanding wrapping conditions.



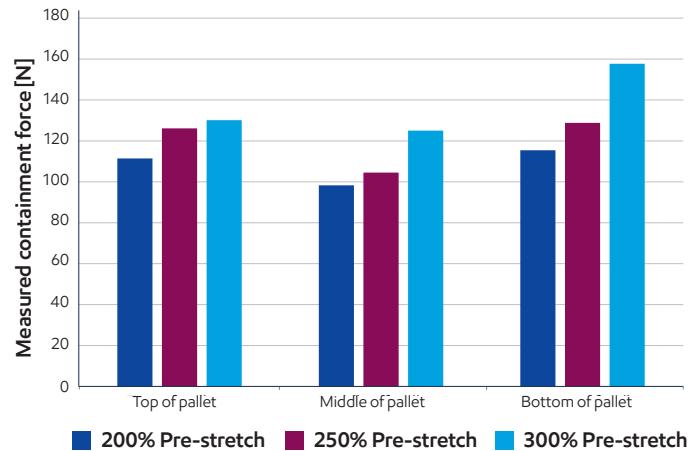
Test item	Based on
ESTL FPT ultimate	ExxonMobil method
ESTL FPT dart	ExxonMobil method
ESTL FPT tear	ExxonMobil method

Testing completed by or on behalf of ExxonMobil – 2025-RTI-4968

Film usage per pallet*



Containment force* with Highlight ACE 650



* Film usage and containment force test by Alliance Films

By leveraging ExxonMobil Signature Polymers and Cloeren's NanoLayer technology, Alliance Films successfully developed a high-performance PPS film that delivers performance and quality.

ExxonMobil
Signature Polymers

Bring your impossible



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