ExxonMobil
Signature Polymers

Case study

Exceed™ Stiff+ Exxtra™ Seal Exceed™ ExxonMobil™ LD ExxonMobil™ HD

Colines creates an innovative pouch, designed for recyclability* with cast calender MDO PE + 7-layer blown barrier film using ExxonMobil Signature Polymers

- Designed for recyclability*
- Maintains packaging integrity
- Optimized for packaging lines
- Excellent sealability

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

To make a stiff, tough laminated pouch designed for recyclability*, meeting converting and end-use requirements with a substrate film made using cast calender MDO technology.

The primary challenge was to develop a laminated pouch designed for recyclability with high performance characteristics, including easy printing, lamination and pouch production on existing converting equipment. This requires integrating advanced materials and MDO technology to meet stringent packaging requirements for both food and non-food applications.

"Our ability to offer both cast film lines with integrated MDO units and a new 9-layer blown barrier line puts us in a unique position to support advanced packaging solutions," said Nicola Lombardini, R&D Manager at Colines. "The close collaboration with ExxonMobil Signature Polymers has been key to driving creativity and ensuring the success of this innovative pouch designed for recyclability. The cast MDO is run in a unique manner in calender mode, resulting in an excellent control of the thickness profile and planarity while guaranteeing unique mechanical properties to the film".

*Designed with features intended to support recyclability. Actual recyclability depends on factors such as local collection, sortation, and recycling infrastructure, as well as the condition and configuration of the package after use. However, access to facilities that accept and process plastic film is limited and not widely available.

Solution

The solution involved using cast calender MDO technology to produce a high quality low gel substrate film, combined with a tough 7-layer blown barrier sealant film.
Key components included:

Substrate film: Produced using Colines' unique cast calender MDO technology, exploring the right selection of ExxonMobil Signature Polymers to reach the required stretch ratio in a controlled manner to deliver the desired stiffness and clarity.

- Exceed™ HD 6107 and Exceed™ Stiff+ m 2025.ML

Sealant film: Can be made using a 7- or 9-layer blown barrier film extrusion, offering a wide sealing temperature window and excellent final pouch performance.

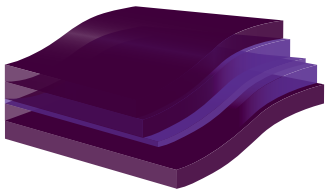
- Exceed™ Stiff+ m 0926.ML contributed to the pouch drop performance
- Exxtra™ Seal POP 2008.MK offered a broad sealing window
- Exceed™ m 2018.MA ensured good adhesion to the substrate film
- ExxonMobil™ LD 03322.BW1 enhanced processing stability
- Exceed™ HD 6107 boosted the overall stiffness

mpb SÜMER PLASTİK COLINES®

MDO cast calender substrate film

Thickness: 30 µm

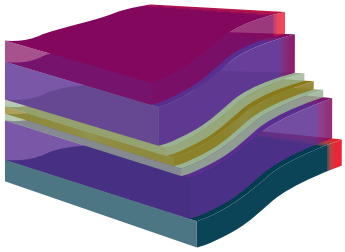
- Exceed™ HD 6107
- Exceed™ Stiff+ m 2025.ML



7-layer blown barrier sealant film

Thickness: 80 µm

- Exceed™ m 2018.MA
- ExxonMobil™ LD 03322.BW1
- Exceed™ Stiff+ m 0926.ML
- Exceed™ HD 6107
- MPB Coesive® L600F
- SoarnoL™ DC3203 RC
- Exxtra™ Seal POP 2008.MK



The 9 layer formulation has double subskin layers of Exceed™ Stiff+ m 0926.ML.

Contributors

- ExxonMobil Signature Polymers: Outstanding stiffness of the cast MDO PE film allows converting on existing printing , lamination and pouch making equipment without compromising packaging integrity or aesthetics.
- Colines: Colines blown film technology for barrier sealant film, and unrivalled cast calender MDO PE film technology for stiff transparent substrate film.
- Sümer Plastik: Complete packaging solution powered by Sümer Plastik's advanced extrusion, printing and lamination
- Mitsubishi Chemical Group: for EVOH supply
- Industrie Polieco – MPB SpA: for tie layer

Results

The innovative pouch designed for recyclability* demonstrated excellent performance in terms of final pouch properties such as an excellent survival rate of 100% dropping from typical shelf heights of 2m. The cast calender MDO technology provided a differentiated product for companies with cast lines, enabling them to diversify their offerings. The laminated pouches were suitable for various applications, enhancing the value chain from producers to end-users.

This case study highlights the successful collaboration and technological advancements in creating a high-performance pouch designed for recyclability*, benefiting all members of the value chain.

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Data from ExxonMobil test method performed by or on behalf of ExxonMobil. 2025-RTI-4755.

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 their business goals.