



Exceed™ Stiff+    ExxonMobil™ HD    ExxonMobil™ LD

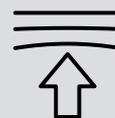
## Bandera and ExxonMobil Signature Polymers created a full PE pet food pouch designed for recyclability\*, using conventional extrusion technologies



Designed for recyclability\*



Good optics



High stiffness

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

Create a high-performance laminated pouch using a non-oriented blown, yet stiff PE film that acts as replacement for PET.

Machine direction-oriented (MDO) PE films can exhibit improved mechanical, barrier and optical properties but implementing MDO technology requires investment in specialized equipment, which can be a significant upfront cost.

Bandera, a worldwide leader in designing and manufacturing extrusion lines for packaging and converting industries, partnered with ExxonMobil Signature Polymers to create PE substrate films with conventional blown film extrusion.

“Extrusion technology has come a long way”, said Diego Castiglioni, Technical Director, Bandera. “Our technology contributes to extreme flexibility and outstanding technical properties; our lines are suitable for PE substrate like films without MDO for mono-material solution”.

### Solution

A PE mono-material pet food pouch, designed for recyclability\* using a substrate film providing stiffness and optics, meeting converting requirements for printing and lamination.

The substrate film was made on a conventional Bandera blown film extrusion line, resulting in good optical properties, high stiffness and dimensional stability at elevated temperatures, which are important requirements for printing and lamination.

As sealant film for this PE pet food pouch, an EVOH-containing film was made on a Bandera Barrier FLEX® extrusion line using an Exxtra™ Seal enhanced polymer, ensuring a broad sealing window.

An example of a good, tough barrier sealant film can be found in the Bandera K2025 machine run sheet.

\*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 film after use. However, access to facilities that accept and process plastic film is limited and not widely available.

# Results

Bandera Barrier FLEX® blown film lines and ExxonMobil Signature Polymers created a solution using conventional blown film extrusion technology, for a stiff high clarity substrate film that can be used for PE mono-material pouch applications designed for recyclability.\*

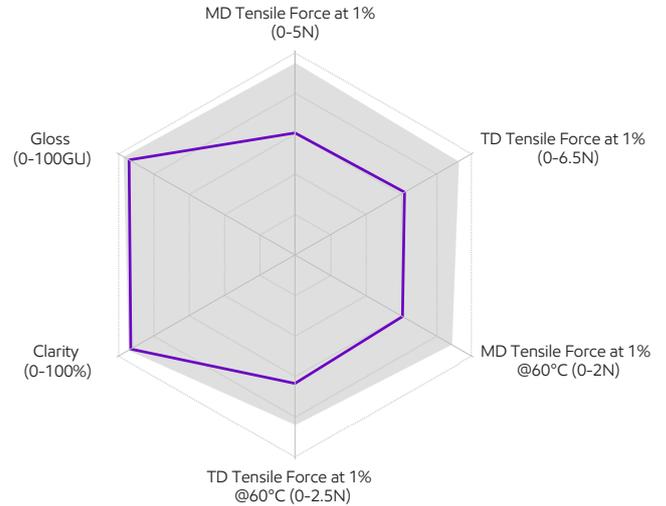
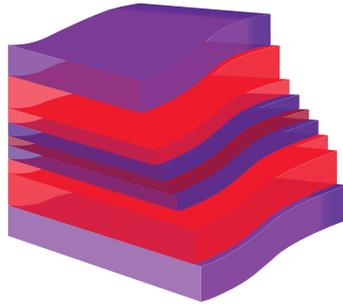
Contributing to the creation of the mono-PE pet food pouch were:

- Goglio, a complete systems provider for packaging lines, high barrier flexible laminates and plastic accessories
- Mitsubishi Chemical Group for EVOH supply in the sealant film; Soarnol™ BF3205B
- Industrie Polieco – MPB SpA for tie layer resin in the sealant film; MPB Coesive® L600F

## Substrate film

Thickness: 30 µm

- Exceed™ Stiff+ m 0938.RA
- Exceed™ Stiff m 1327.RA
- ExxonMobil™ HD 6207FL
- ExxonMobil™ LD 07523.BW



MD: Machine Direction      TD: Transverse Direction

Market reference substrate film: 25µm

Bandera substrate film: 30µm

| Test item  | Test method based on   |
|--|------------------------|
| Tensile properties on film at room temperature     | ExxonMobil test method |
| Tensile properties on film at elevated temperature | ExxonMobil test method |
| Gloss 45°  | ExxonMobil test method |
| Clarity  | ExxonMobil test method |

Data from tests performed by or on behalf of ExxonMobil. 2025-RTI-4921

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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.



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