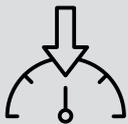




Exceed™ Tough+    ExxonMobil™ HD    Vistamaxx™

# Selene and ExxonMobil Signature Polymers create downgauged high-performance valve bags incorporating up to 50% PCR content

 <p>Downgauging opportunities</p>	 <p>Incorporates up to 50% PCR content</p>	 <p>Excellent package integrity</p>	 <p>High packaging speed</p>
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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

As the global packaging industry embraces concepts of a more circular economy, the need for packaging that is designed for both recyclability and resource-efficiency is apparent. For example, the EU Regulation on Packaging and Packaging Waste (PPWR)\* reinforces the need for recyclable packaging. But beyond compliance, brand owners and converters are seeking packaging solutions that can enhance packaging's end-of-life value, address extended producer responsibility (EPR) schemes, and support a more circular economy.

Achieving these goals requires packaging to be thoughtfully designed from the very beginning; for example, not only for recyclability, but also to enable the incorporation of a significant amount of post-consumer recycled (PCR) content sourced from similar applications.

To address this challenge, Selene and ExxonMobil Signature Polymers wanted to create downgauged valve bags, designed for recyclability\*\*, which can help lower packaging costs and address EPR schemes—where applicable—for the value chain users.

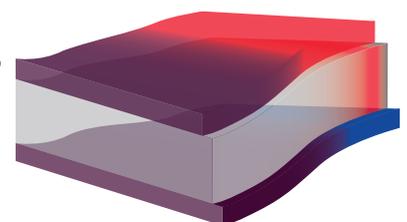
## Solution

The collaboration led to the development of a heat-sealable valve bag solution, using ExxonMobil Signature Polymers resins such as Exceed™ Tough+ and Vistamaxx™ performance polymers.

This innovative solution is not only designed for recyclability\*\* but also supports the incorporation of up to 50% PCR content, enabling reduced film thickness without compromising performance.

**Thickness: 130 µm**

- Exceed™ Tough+ m 1019
- ExxonMobil™ HD 5207
- White PCR content
- Vistamaxx™ 3020



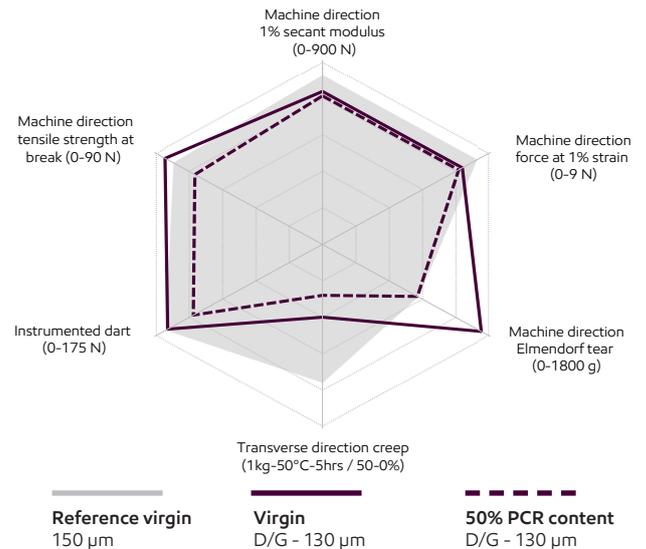
\* <https://eur-lex.europa.eu/eli/reg/2025/40/oj>

\*\* 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.

## Results

“ExxonMobil Signature Polymers has helped transform our valve bag designs. Their high-performance PE acts as a powerful booster when incorporating PCR content, enabling robust heat-sealed bottoms that minimize leakage and allowing downgauging without compromising film integrity. Combined with Windmüller & Hölscher’s AD PLASTIC™ machine technology, we created a solution that truly delivers: High performance. Smart use.” said Marco Rubertà, Technical Director of Selene.

- Similar mechanical performance with downgauged films (130 microns versus 150 microns)
- Maintained dart impact resistance and stiffness through using Exceed™ Tough+ m 1019 metallocene polyethylene in the skin layers
- Heat-sealing bags made on Windmüller & Hölscher AD PLASTIC™ valve bottomer, thanks to Vistamaxx™ 3020 performance polymer, supersede the need to use glue and solvent, thereby improving design for recyclability\*
- Higher line speed achievable compared to the reference film, enabled by downgauging and the use of Vistamaxx 3020 performance polymer in the skin layer
- Packaging weight reduction and possibility to incorporate PCR content, leading to potential lower EPR fees in some EU countries.



Test item	Test method based on
Tensile properties on film at room temperature	ExxonMobil method
Elmendorf tear strength	ASTM D-1922
Creep resistance at elevated temperature	ExxonMobil method
Instrumented impact test on film	ISO 7765-2

\* 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.

Data from tests performed by or on behalf of ExxonMobil.  
Data traceability: 2025-RTI-4863

ExxonMobil

Bring your impossible

Signature Polymers

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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