ExxonMobil
Signature Polymers

Fact sheet

Picture courtesy of Qingdao LAF Technology Co., Ltd.

Exceed™ Stiff+

Discover how ExxonMobil Signature Polymers can help improve the heat resistance and mechanical performance for hot-filling flexitank applications

- Excellent mechanical performance
- Outstanding heat resistance
- Downgauge opportunities
- Cost effectiveness

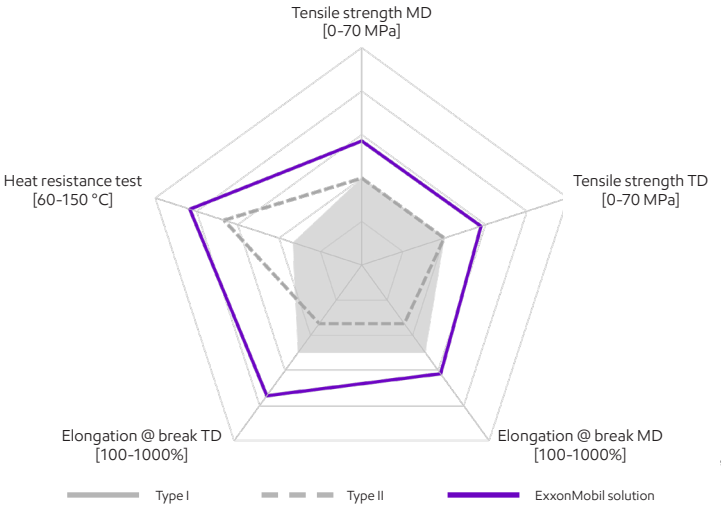
Data and results presented herein apply specifically to the noted application under this fact sheet.
Your results may differ depending on factors such as operating conditions, equipment and materials used.

A flexitank is a large bladder with valves that is designed to fit within a general freight container. It has a capacity of 24,000 liters (more than 20 metric tons) per unit and is a flexible packaging alternative to rigid packaging, like drums or ISO tanks (a tank container built under International Organization for Standardization). It is regarded as an attractive transportation mode because of its lower packaging cost and higher operation efficiency vs. these alternatives.

Flexitanks can be used in non-hazardous infills with various requirements. Due to rapid growth in demand for construction, bitumen is an increasingly popular infill. As bitumen can only flow in a heated state, it requires hot-filling into flexitanks. Therefore, heat resistance is the most important requirement for this type of flexitank film, while mechanical performance and flexibility are also needed.

Flexitanks are currently produced using polyethylene or polypropylene, and both have limitations. To maintain structural integrity at high temperature, PE film must be considerably thicker, with thicknesses reaching as much as 300 µm. This is significantly greater than the standard 125 µm film currently used in flexitanks, which raises cost considerations. While the higher melting temperature of PP provides significant heat resistance, it requires higher sealing temperature or sealing time, thus slowing production speeds.

ExxonMobil now offers customizable, cost-effective solutions to address the requirements of hot-filling applications. These solutions deliver exceptional mechanical performance and remarkable heat resistance. Exceed™ Stiff+ m 0820 metallocene polyethylene can ensure toughness, while Exceed Stiff+ m 0238 metallocene polyethylene can offer excellent heat resistance and robust sealing strength. These two grades allow a flexitank to withstand the most demanding conditions, ensuring structural integrity during hot-filling, while minimizing leakage during transportation.

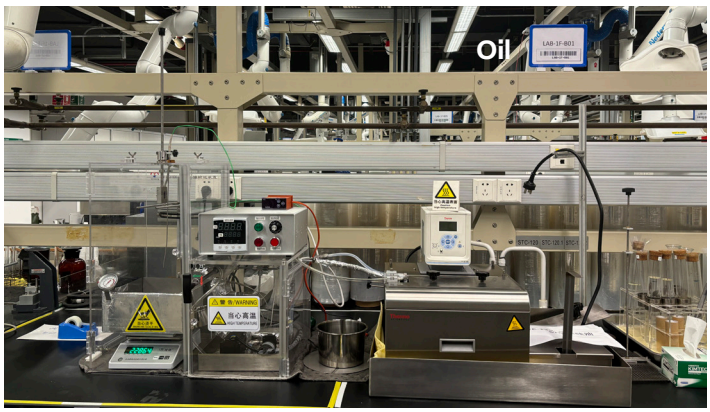


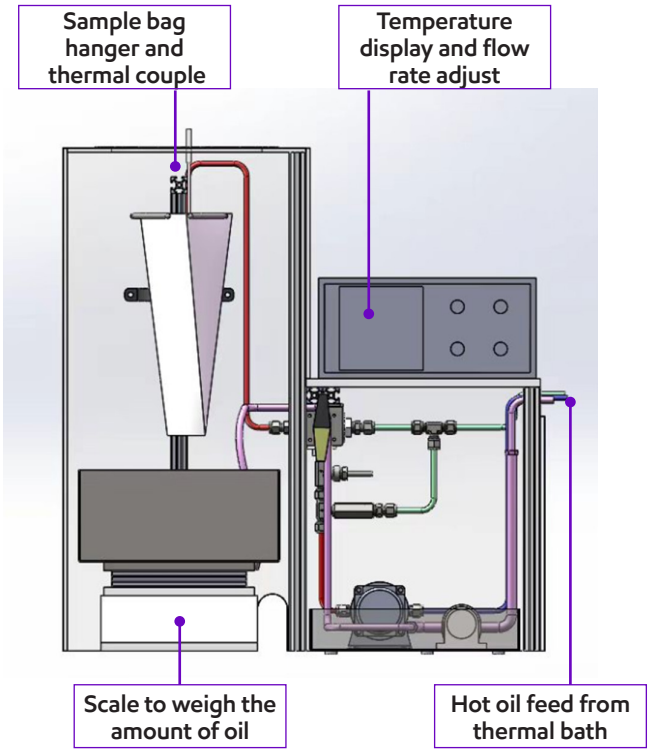
	Market reference*	ExxonMobil solution
Thickness	125-300 µm	125 µm
Composition	PE or PP	Solution with Exceed™ Stiff+ m 0238 and Exceed Stiff+ m 0820

* Reference is from Flexitank group stand T/SHBX 004-2024, Type I (<90oC), Type II (<120oC)

Additionally, ExxonMobil converted the practices of our customers into a measurable testing methodology, enhancing the test's measurability, repeatability, and safety. As a result, specialized hot-oil filling equipment was custom-designed and implemented.

Tailor-made hot-oil filling equipment developed by ExxonMobil





Look to ExxonMobil Signature Polymers to deliver cost-effective hot-filling flexitank solutions that can help improve heat resistance and mechanical performance.

Test item	Test method
Tensile strength	ExxonMobil method
Elongation	ExxonMobil method
Heat resistance	ExxonMobil method

Data from tests performed by or on behalf of ExxonMobil

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.

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. The composition of the products are unchanged, it is only the names that updated. We will be making these modifications over the next few months, through mid 2025, 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 been changed in this document:

Legacy Commercial Name	New Commercial Name
Enable™ 4002	**Exceed™ Stiff+ m 0238**
Exceed™ S 9272	**Exceed Stiff+ m 0820**

Want to see what's changed in our portfolio? Go to exxonmobilchemical.com/sptransform