



Exceed™ Stiff+

Exceed™ Tough+

Enhancing the toughness and sealing performance of heavy duty sacks for salt and other fine powders with Exceed™ Stiff+ and Exceed™ Tough+ performance PE polymers



Stiffness -
toughness
balance



Packaging
speed



Seal
integrity



Moisture
barrier

The opportunity

Pope Packaging, headquartered in Melbourne with manufacturing assets in Adelaide, Australia, is a leading regional supplier of polyethylene based heavy duty sacks for salt, cement, dry mortar and fertilizers.

Viren Shroff, Pope Packaging's National Commercial Project Development Manager explains, "For several years, we had been producing bags with a non-ventilated design due to equipment limitations. This meant the end use was confined to relatively coarse particle size materials, as it is easier to remove the air. However, in 2019, we invested in state-of-the-art vented bag making technology, which offers significant advantages including much faster line speeds for bag production and the ability for our customers to pack finer particle sized materials such as fine salt. The product is also applicable to moisture-sensitive powdery products, such as cement, to extend shelf-life in certain conditions versus traditional paper sack packaging formats."

"Although our customers were satisfied with the performance of our vented bags using our usual resin formulation, we were curious to see whether bags comprised of Exceed Tough+ and Exceed Stiff+ performance PE polymers offered any advantages."

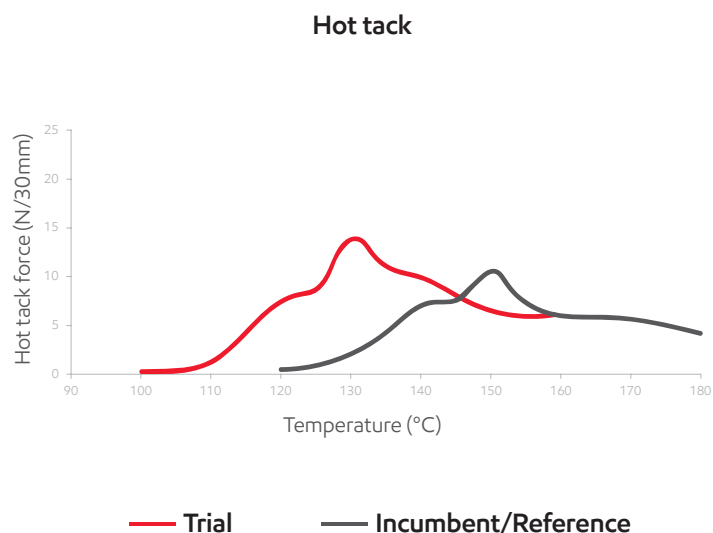
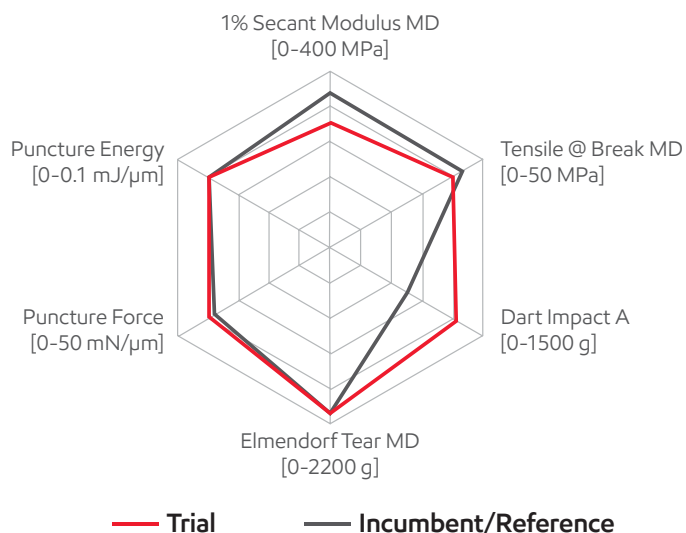
The test

Along with the collaboration of ExxonMobil's technical and sales team and its local distributor, Primaplas, Pope Packaging conducted an extrusion trial using a cost-effective coex structure based on ExxonMobil performance polyethylene products:

- Exceed Stiff+ m 0238 incorporated for improved stiffness-toughness balance
- Exceed Tough+ m 0814 incorporated for extreme toughness and improved packaging integrity.

From the outset, Pope Packaging observed better processability and roll construction with the new solution compared to the incumbent. There was no melt fracture and less gauge variation.

Lab testing of the new solution showed significantly higher dart impact and a much broader hot tack window compared to the incumbent. Stiffness was a little lower, due to the removal of the HDPE component, but the desired stiffness-toughness balance was achieved.



With this excellent balance of properties, Pope Packaging was keen to trial the new heavy duty sack solution on a commercial FFS line at a major salt producer.

Again, a very favourable result was achieved, with the customer reporting impressive seal integrity and seal through contamination, as well as excellent bag drop performance.

Pope Packaging was able to commercialize the new ExxonMobil solution in a number of salt packaging applications, including hot fill up to 60°C, whilst maintaining adequate moisture barrier.

Building on the success of salt packaging, Pope Packaging then trialed the new solution in cement packaging. Although apprehensive at first, the targeted account proceeded with the trial, and later commented that the ExxonMobil solution performed better than their incumbent imported film overall – delivering excellent processing, sealing, and bag drop performance.

The result

High-performance heavy duty polyethylene sacks comprised of ExxonMobil metallocene polyethylene resins such as Exceed™ Stiff+ m 0238 and Exceed™ Tough+ m 0814 can provide the following advantages:

- Excellent stiffness-toughness balance allowing a combination of hot fill capability, excellent bag drop performance and potential downgauging opportunities
- Broad hot tack window enabling high FFS packaging speed
- Excellent seal integrity and seal through contamination, ideal for packing fine powders
- Maintenance of acceptable moisture barrier

The “mono-material” construction of polyethylene heavy duty sacks also contributes to their recyclability*.

ExxonMobil test method	Based on
Tensile & elongation (PE)	ASTM D-882
Seal strength	ASTM F-2029; ASTM F-88
Hot tack	ASTM F-1921
Puncture resistance	ASTM D-5748
Elmendorf tear	ASTM D-1922-09
Dart Impact	ASTM D-1709

*Recyclable in the few communities with programs and facilities in place that collect and recycle plastic film.

Contact us for more information: [exxonmobilchemical.com/pe](https://www.exxonmobilchemical.com/pe)

ExxonMobil
Signature Polymers

Bring your impossible



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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, it is the names that change. Everything else remains the same. We will be making these modifications over the next six months 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 changed in this document:

Legacy commercial name	New commercial name
Enable™ 4002	Exceed™ Stiff+ m 0238
Exceed™ XP 8784	Exceed™ Tough+ m 0814

Some of our existing Exceed, Achieve, Paxon and premium PP/HD grades have moved to Exceed brand; most existing Enable grades have moved to Exceed Flow[+]; most of our existing Exceed XP grades have moved to Exceed Tough[+]; most of our existing Exceed S grades have moved to Exceed Stiff[+]. More details here https://www.exxonmobilchemical.com/en/brands/signature-polymers/exceed_high_performance_polymers or contact your ExxonMobil representative to know more.

Want to see what's changed in our portfolio? Go to [exxonmobilchemical.com/sptransform](https://www.exxonmobilchemical.com/sptransform)