



MSK creates high-performance shrink-pass-through film solutions incorporating up to 70% recycled* PE content



Incorporates
recycled* PE
content



Good transverse
direction shrinkage



Easy
processability

*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:

MSK is a German equipment manufacturer well known internationally for its sophisticated industrial packaging lines, logistics systems and pallet handling solutions.

The MSK Flowtech system—a high speed, fully automated shrink-pass-through packaging system—is commonly used to package and protect appliances, large format paper, cardboard and building materials for storage and transportation. For appliance packaging for instance, the machine can wrap up to 400 products an hour.

One of the key benefits of the Flowtech machines is their enablement to use thinner films, lower quantities of film and even films incorporating recycled* content. Towards that goal, MSK has been pushing the envelope in developing thinner shrink films and films that incorporate recycled* PE content.

Stretch hood and shrink packaging films for industrial applications such as the packaging of beverages, building materials and appliances have some of the most stringent performance requirements of any packaging film.

They must stand up to the test of protecting and bearing heavy loads and big formats without puncturing or giving way. The concern with using recycled content in these films is the anticipated loss of mechanical strength.

Counting on its long history of partnership with ExxonMobil, MSK collaborated with ExxonMobil on the latest shrink film solution for their shrink-pass-through systems, with the requirements that the solution:

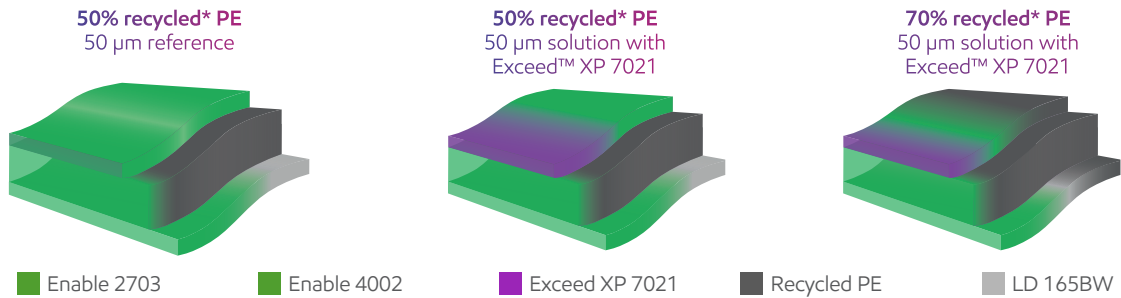
- include recycled* PE content without compromising mechanical performance
- offer broader sealing operating window
- must be easy to process on their high speed shrink pass-through system.

*Recyclable in communities with programs and facilities in place to collect and recycle plastic film

Solution:

The MSK and ExxonMobil teams collaborated to test three formulations – two of which incorporated 50% recycled* PE content and one that incorporated 70% recycled* PE content.

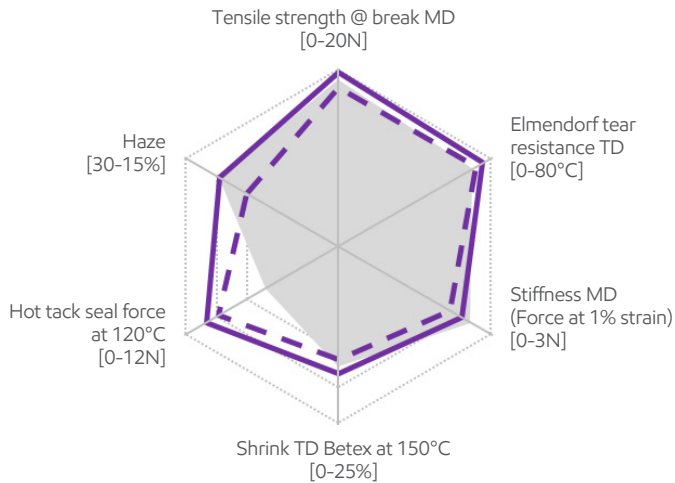
The lead solution is a low density Exceed™ XP 7021 performance polyethylene formulation. It offers a combination of attributes such as excellent sealing operating window, excellent shrinkage in transverse direction and it allows the incorporation of up to 70% recycled* PE content without compromising mechanical performance. The high performance shrink films produced are easy to process on a shrink pass-through system.



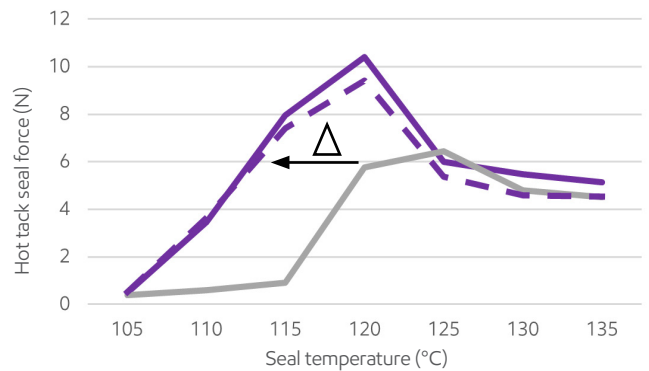
Key benefits and value of the solution:

- Potential to incorporate high recycled* PE content of up to 70% without compromising transverse direction shrinkage or mechanical performance
- Potential to reduce energy consumption due to broader sealing operating window
- Enabling of high line speeds

Excellent mechanical properties for Exceed XP with recycled* PE content



Broader sealing operating window for Exceed XP with recycled* PE content



- 50% recycled* PE content
- 50% recycled* PE solution with Exceed XP 7021
- - - 70% recycled* PE solution with Exceed XP 7021
- △ change in temperature of the sealing operating window

Polymer properties	Exceed™ XP 7021	Enable™ 4002	LD 165BW
Melt index (g/10 min)	0.20	0.25	0.33
Density (g/cm ³)	0.911	0.938	0.922

Recycle type: rLDPE

Data traceability:

50% recycled* PE content - B2110-000029425

50% recycled* PE solution with Exceed XP 7021 - B2110-000029424

70% recycled* PE solution with Exceed XP 7021 - B2110-000029426

Test item	Test method
Tensile properties	ExxonMobil method
Elmendorf tear	Based on ASTM D1922
Betex shrink	ExxonMobil method
Hot tack	ExxonMobil method
Haze	Based on ASTM D1003
Melt index	Based on ASTM D1238
Density	Based on ASTM D792A

Why ExxonMobil PE? Why today?



What some might view as solutions that will only happen in the future, ExxonMobil PE is making possible today – through our innovative and reliable products, collaborative approach, technology leadership and support, and our unmatched global supply and resources. Why wait for tomorrow to advance your business today? Contact your ExxonMobil PE representative and begin experiencing tomorrow’s performance today in your shrink films.

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