



95% PE-based barrier packaging with improved recyclability* potential and uncompromising package functionality



Designed for
recyclability



Exceptional
toughness



High barrier
properties



Good optics

Challenge:

Production of recyclable barrier packaging with very high PE content without compromising on package integrity, functionality or optics.

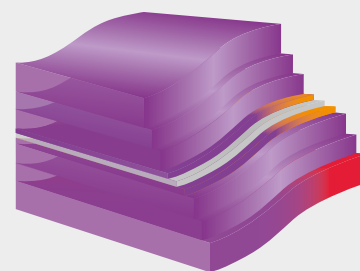
Potential solution:

Creation of 95% PE-based barrier packaging with good oxygen barrier and outstanding package integrity. The films were produced with ExxonMobil best in class resins, including Exceed™ XP performance PE and Exceed™ 2012 performance PE, together with EVAL™ EVOH resins. The films were extruded on an Alpine 9-layer barrier line. Exceed XP performance polyethylene resins can help to provide exceptional toughness, while the EVAL EVOH L171B resin can help to provide high barrier properties.

Recyclable* barrier package

Thickness: 75µm

- Exceed XP 7052
- Exceed 2012
- EVAL L171B
- Tie resin masterbatch



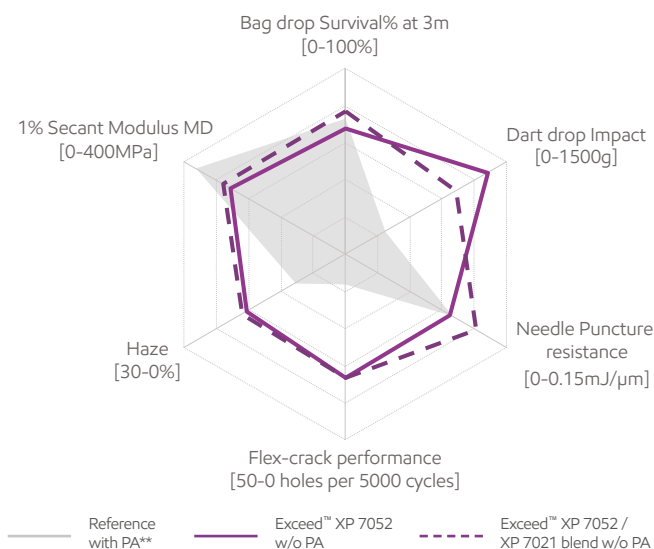
* Recyclable in communities with programs and facilities in place that collect and recycle plastic film.

Result:

The combination of Exceed™ XP performance PE and EVAL™ EVOH resins can deliver outstanding package integrity, including more than twofold better performance on flex-crack and dart drop impact, together with puncture values comparable to that of polyamide (PA) containing barrier film. A solution based on Exceed XP 7052 can match the needle puncture performance of the PA-containing reference, while a solution based on a blend of Exceed XP 7052 and Exceed XP 7021 can deliver an improved needle puncture performance.

Regarding package functionality factors, such as oxygen barrier – not shown in the graph due to space limitations – ExxonMobil data tells that it is comparable to traditional PA-containing barrier films; whereas for other critical aspects, like optics, Exceed XP performance PE-based solutions outperform the PA-containing barrier film in haze.

In summary, using the latest generations of performance resins from ExxonMobil and EVAL, it is possible to create a 95% PE-based barrier package, without compromising on package integrity, optics and barrier properties.



Oxygen transmission rate (OTR) less than 0.4 cc/(m²*day)
Water vapor transmission rate (WVTR) less than 6 g/(m²*day).
Data traceability R2301-011290.

** PE/Tie/coPA/EVOH/coPA/Tie/PE with thickness distribution: 24.2/6/6/2.6/6/6/24.2 with 16% PA

Test item	Test method
Oxygen transmission rate (OTR)	Based on ASTM F1927 (measured at 23°C and 50% RH of the test gas)
Water vapor transmission rate (WVTR)	Based on ASTM F1249 (measured at 37.8°C and 90% RH of the test gas)
Dart drop impact	ExxonMobil test method - Method A
Needle puncture resistance	ExxonMobil test method
Tensile properties film at room temperature in MD	ExxonMobil test method
Total haze	Based on ASTM D1003-21 B
Leak detection / Dye penetration on flexed samples	ExxonMobil test method

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. Learn more about how we're helping our customers create solutions with sustainability benefits. Why wait for tomorrow to advance your business today? Contact your ExxonMobil PE representative and begin experiencing tomorrow's performance today in flexible packaging.

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