

MONO-MATERIAL SOLUTIONS FOR FLEXIBLE PACKAGING APPLICATION

In flexible packaging, current multi-material laminate structures for flow wraps deliver quality and performance, as each material provides a specific functionality. However there is a growing demand for sustainable packaging solutions when it comes to recycling as the separation of the individual layers of polymers is often too expensive or technologically impractical.

Mono-PE packaging is a sustainable solution as it is easy to recycle. A duplex BOPE (biaxial oriented polyethylene) laminate is the core of a solution where all layers are created from PE polymer grades. This enables flexible packaging solutions to be recycled in a single stream, without having to separate the individual layers.

SABIC has developed a tailor made resin SABIC BX202 for BOPE film and SABIC 5212P for high stiffness BOPP film application.

SABIC BX202 for BOPE film offers good stiffness and toughness which provides more possibilities for BOPE in mono-PE material solution of flexible packaging and down gauging.

High stiffness and heat resistance SABIC 5212P for BOPP films enable customers to further increase their packaging sealing window and packing line speed.



SABIC SOLUTIONS FOR BOPE FILM

GRADE	Melt Index (g/10min)	Density (g/cm ³)	FEATURES
SABIC LLDPE BX202 (BOPE bulk layer)	2.1	0.921	Good processibility, Super toughness and stiffness
SABIC COHERE™ 8402 (BOPE sealant layer)	3.5	0.902	Good processibility, Excellent flexi-crack and dart impact resistance, enhanced heat sealing

SABIC BX202 POLYMER FOR BOPE VALUE PROPOSITION



DESIGN FOR RECYCLABILITY

- TF-BOPE facilitates mono-material PE structures.



MECHANICAL AND OPTICS

- Super toughness and stiffness
- Easy tear opening
- High clarity and low haze.



PROCESSABILITY

- Higher throughput vs. blown film.



ECONOMICS & PERFORMANCE

- Down gauging opportunities (potentially from 50µm to 25µm) compared to blown PE film.

POTENTIAL APPLICATIONS



Sachet



Pillow pouch



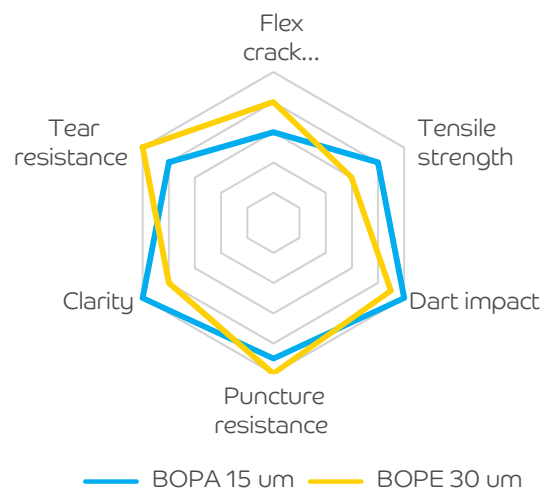
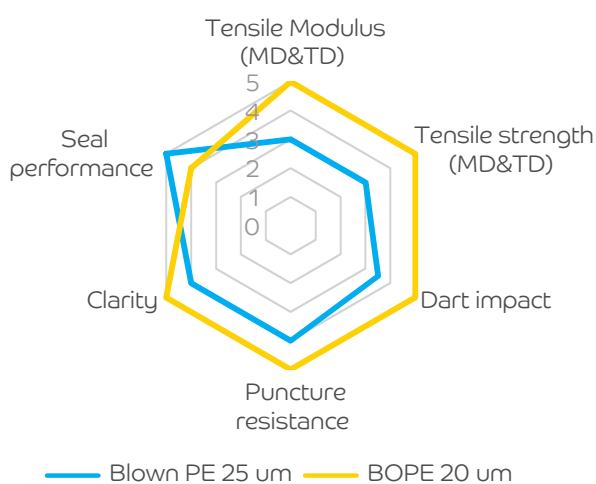
Stand Up Pouch

MONO-MATERIAL SOLUTIONS FOR FLEXIBLE PACKAGING APPLICATION

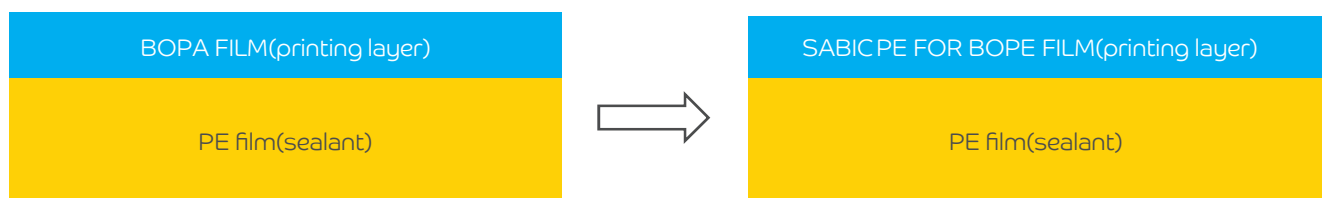
BOPE film layer structure

Layer structure	Lamination	Sealing	Sealing Low SIT
10% Outer	SABICBX202 + Anti-block	SABICBX202 + Anti-block	SABICBX202 + Anti-block
80% Core	SABICBX202 + Slip	SABICBX202 + Slip	SABICBX202 + Slip
10% Inner	SABICBX202+ Anti-block	mLLDPE+Anti-block	Cohere 8402 Anti-block

- Thickness: 20-50µm
- Produced by BOPP line with MD 4-5x and TD 8-9x stretching ratio



Mono-material solutions with BOPE



VALUE PROPOSITION

- Mono material solution with good recyclability
- Good dart impact (both at room and cold temp.)
- Good clarity and low haze



HIGH STIFFNESS BOPP FILM SOLUTIONS FOR FLEXIBLE PACKAGING APPLICATION

CHALLENGES IN THE INDUSTRY

- Down gauging & easy to recycle packaging to meet circular economy goals
- Increasing performance of film, including stiffness toughness balance, barrier properties and hot fill requirement
- Meet compliance requirement which market nowadays needs, more of higher product purity and safety

SABIC SOLUTIONS FOR BOPP FILMS

GRADE	Melt Index (g/10min)	FEATURES
SABICPP 521P	3.0	Excellent optical properties, high tensile strength, metallizable, homo PP for BOPP application
SABICPP 5212P	3.0	High crystallinity, high stiffness, high heat resistance & metallizable, homo PP for BOPP application

SABIC PP 5212P POLYMER

Characters:

- High stiffness, high heat resistance
- Good processibility
- Good water vapor barrier
- Metallizable



Applications:

- BOPP plain film, label, lamination film, cavitated film, tobacco film, barrier film and food packaging

Barrier performance (17um BOPP)	SABICPP 5212P	SABICPP PP 521P
WVTR (gm/(m ² -day)) *	6.37	7.43
OTR (cc/(m ² -day))**	1800	3000

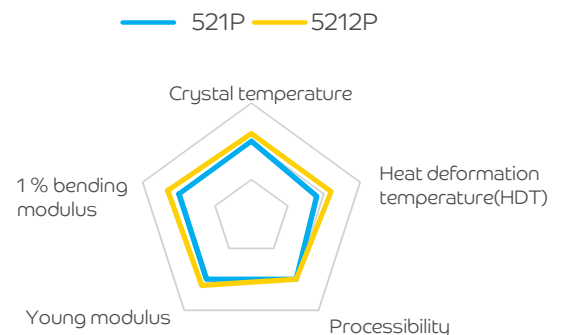
* Temp: 37.8°C, Pressure: 760 mm Hg, Humidity: 95%

** Temp: 23°C, relative humidity: 0%

Higher stiffness, increase 20~25% (bending and young modulus)

- Down gauging potential
- High stiffness requirement

13°C higher than 521P, more suitable for microwave conditions
7°C higher crystal temperature than 521P



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