



tomorrow's
performance
today

ExxonMobil performance polyethylene

Stretch hood packaging films with leading-edge technology for a new generation



Puncture
resistance



Toughness



Holding
force



Less
material
use

Challenge:

Develop a new generation of high-performance stretch hood films

Zhejiang Bili Polymer Technology Co. Ltd. has established itself as the leader in stretch hood films in China. The company is relentless in enhancing its market competitiveness as it strives to become an international powerhouse with global influence. To achieve its goals, the company continues to strengthen its capabilities with the addition of new capacity and stretch hood technology from Lachenmeier, Denmark, while also focusing on the development of leading-edge technology to upgrade product quality.

Solution:

Exceed™ XP and Vistamaxx™ performance polymers

Having a long-term technical collaboration in place, which focused on the development of innovative packaging solutions to meet booming industry needs, Zhejiang Bili and ExxonMobil turned their attention to high-performance stretch hood films. The development of new stretch hood film solutions took advantage of Zhejiang Bili's industry experience and ExxonMobil's polymer and application expertise.

"Today, end users are increasingly turning to stretch hood solutions to replace traditional cardboard and shrink hood alternatives," said Zhu Qiang, Vice Chairman, Zhejiang Bili

Polymer Technology Co. Ltd. "ExxonMobil's performance PE polymers and Vistamaxx performance polymers provide outstanding performance which, combined with our manufacturing know-how, created opportunities to develop solutions that some people might think will only happen in the future. ExxonMobil PE has made them possible today."

Result:

Stretch hood films with enhanced toughness, puncture resistance and high holding force

ExxonMobil's industry-leading performance polymers enable Zhejiang Bili to fabricate tailor-made EVA-free stretch hood packaging solutions. Using Exceed XP 6026 and Vistamaxx 6102FL performance polymers in the core layer and Exceed™ performance PE polymers in the skin layers of the film provides a good combination of excellent toughness, high clarity and a tailored balance between elasticity and holding force. As a result, these films are ideal for a diverse range of hooding lines and applications.

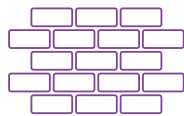
"The addition of Exceed XP 6026 significantly improves the toughness and puncture resistance of the film which, together with high holding force, greatly reinforces the load protection and pallet stability throughout supply chain," said Zhu Qiang. "The enhanced film performance also allows the manufacture of thinner stretch hood films that use less material and save packaging costs for end-users."

Film attributes	Derived benefits
<ul style="list-style-type: none"> ▪ Toughness and puncture resistance ▪ Holding force 	<ul style="list-style-type: none"> ▪ Better package integrity ▪ Improved load stability ▪ Less damage or loss during transportation
<ul style="list-style-type: none"> ▪ Good optical properties 	<ul style="list-style-type: none"> ▪ Brand promotion ▪ Easy bar code scanning ▪ Quality trace and inventory management
<ul style="list-style-type: none"> ▪ Customized COF and elasticity 	<ul style="list-style-type: none"> ▪ Hooding resilience ▪ Reduced hooding failure ▪ Consistent packaging operation
<ul style="list-style-type: none"> ▪ Downgauging 	<ul style="list-style-type: none"> ▪ Unit packaging cost savings ▪ Source reduction
<ul style="list-style-type: none"> ▪ EVA-free solution 	<ul style="list-style-type: none"> ▪ Lower odor ▪ Improved tensile strength

The new stretch hood solutions are well-suited for a wide range of applications including:



Products packed in bags
such as chemicals, sand,
cement, soil and peat
(palletized goods)



Building products
such as bricks, tiles and
insulation materials
(palletized goods)



Packaged goods,
e.g. beverage, food and
consumer products in
bottle, can or pails



Large and small
household appliances
(white goods)



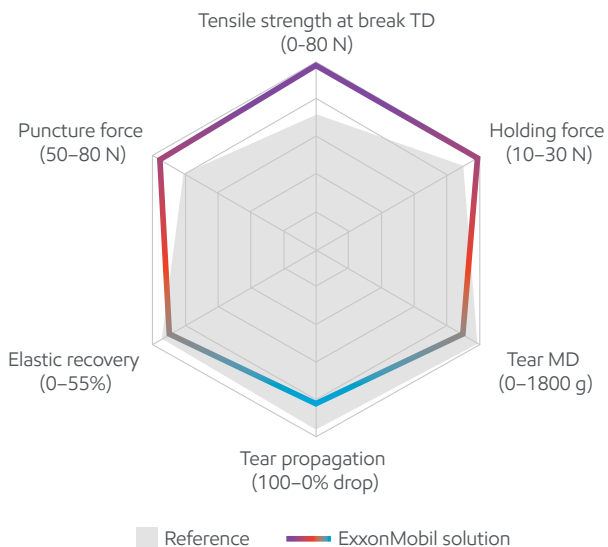
“The collaboration with ExxonMobil PE delivered exactly what we were looking for. A new generation of high performance stretch hood films that will allow us to increase our presence in overseas markets, while providing opportunities to develop our market share in China.”

Zhu Qiang, Vice Chairman,
Zhejiang Bili Polymer
Technology Co. Ltd.

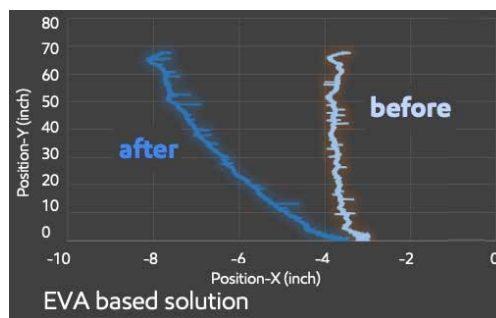
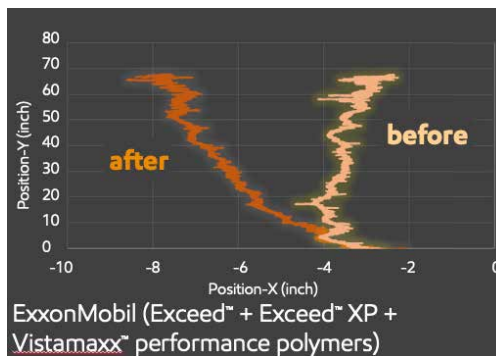


BILI PACKAGING
比例包裝

Selected properties for an Exceed™ XP, Exceed™ and Vistamaxx™ performance polymers film, compared to EVA based reference film



WOMS201811.0164
 EVA based solution: MAC-182965
 ExxonMobil: MAC-179780
 Data obtained from tests performed by or on behalf of ExxonMobil



WOMS201904.0592-01
 EVA based solution: MAC-191918
 ExxonMobil: MAC-191919
 Data obtained from tests performed by or on behalf of ExxonMobil

Film structures of ExxonMobil solution and reference

	Reference	ExxonMobil
	120 µm	120 µm
Layer ratio	3-layer coex	1 / 3 / 1
Skins		Exceed 1018
Core	EVA based solution	Exceed XP 6026ML Vistamaxx 6102FL

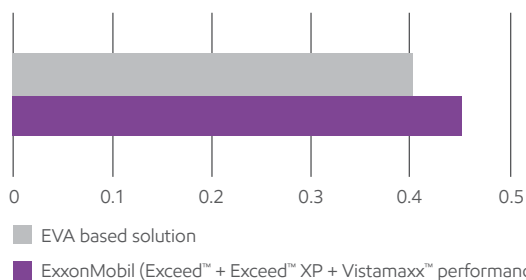
Transport simulation test



Acceleration test



Failure acceleration (g)



WOMS201904.0592-01
 EVA based solution: MAC-191918
 ExxonMobil: MAC-191919
 Data obtained from tests performed by or on behalf of ExxonMobil

Testing parameters

Tilt degree	Up to 27° (normal 27°)
Vibration Level	Up to 60 Hz (normal 45Hz)
Duration	Up to 20s (normal 5s)

Test results demonstrate that the ExxonMobil solution can fully replace the conventional EVA based solution. In particular, during acceleration tests, the ExxonMobil solution delivers better load stability and more tolerance across the complex supply chain.

Grades	Melt index (g/10 min)	Density (g/cm ³)	Key values in stretch hood film
Exceed XP 6026ML ³	0.2	0.916	<ul style="list-style-type: none"> ▪ Exceptional melt strength for stable bubble ▪ High holding force ▪ Outstanding puncture resistance
Exceed 1018MA ¹ /MK ² /MF ² /MJ ²	1.0	0.918	<ul style="list-style-type: none"> ▪ Excellent toughness ▪ Good optics ▪ Strong sealing performance
Vistamaxx 6102FL ⁴	1.4	0.862	<ul style="list-style-type: none"> ▪ Enhanced elasticity ▪ Good toughness

Data obtained from tests performed by or on behalf of ExxonMobil

1. Effective date of PDS: 05/22/2018 2. Effective date of PDS: 10/01/2018 3. Effective date of PDS: 05/22/2018 4. Effective date of PDS: 01/01/2017

Test item	Test method
Tensile properties	ExxonMobil method
Puncture test	ExxonMobil method
Stretch hood test TD (elastic recovery)	ExxonMobil method
Stretch hood test TD (holding force)	ExxonMobil method
Elmendorf tear resistance	ExxonMobil method
Stretch hood test TD – MD tear propagation	ExxonMobil method
Density	Based on ASTM D1505
Melt Index (190°C/2.16 kg)	Based on ASTM D1238
Acceleration test	Newton test method
Transport simulation test	Newton test method

Newton Research & Development Centre Sdn. Bhd is one of the leading research institutes that offers expertly designed packaging solutions for palletized loads, member of EUMOS and ISTA.

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? Learn more about how we're helping our customers create innovative solutions now. Contact your ExxonMobil PE representative and begin experiencing tomorrow's performance today in stretch hood packaging.



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