Introductions and VPM for LG Chem Polyethylene

Best Quality through Technology Service

We, LG Chem NCC/PO Business Unit, Provide Our Customers with Maximum Satisfaction

LG Chem

LG Chem

CONTENTS

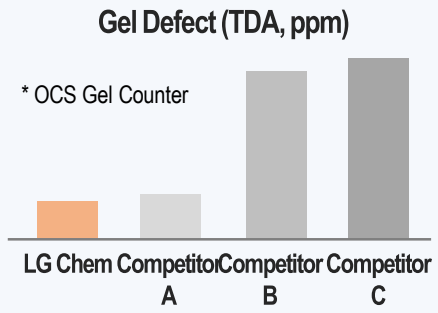
LG Chem MDOPE Characteristics

LG Chem

MDOPE LO6003P

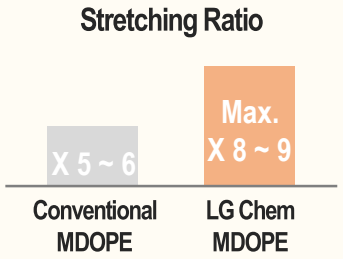
Advantages of LG Chem MDOPE Products

Superior Gel Quality



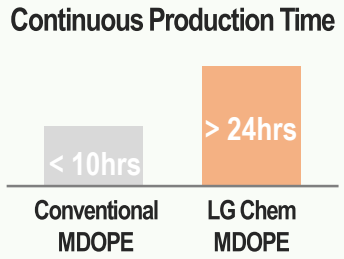
Excellent Stretchability

- Collaboration with MDO machine companies.
- Conventional MDOPE recipes break or create holes when stretched more than 7 times, but LG MDOPE recipes show excellent stretchability.



Long-term Product-ability

- In general, MDOPE have roll contamination issue due to migration.
- LG MDOPE has significantly less migration, so, there is no need to stop facilities for cleaning.



Applications of MDOPE Films

- Diverse types of pouches (Stand-up, Spout and Pillow pouch etc.)
  : Food package, Pet food, Refill products
- Lamination films and tubes
  : Label, Lid / Toothpaste and Cosmetic products

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MDO Film Properties

LG Chem can provide raw materials and formulations depending on the film properties required by the customer.

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MDOPE LO6003P

Superior Stiffness (SS)

- Total density: 0.954g/cm^3
- High modulus value
- Good for easy-cut

Stiffness-Toughness (ST)

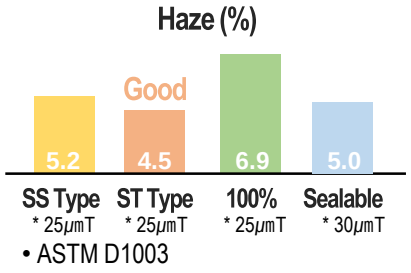
- Total density: 0.942g/cm^3
- Balance MD / TD properties
- Good transmittance

LO6003P 100%

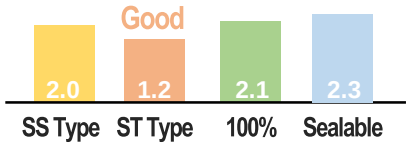
- Total density: 0.962g/cm^3
- Excellent Stiffness
- Excellent easy-cut

Sealable MDO

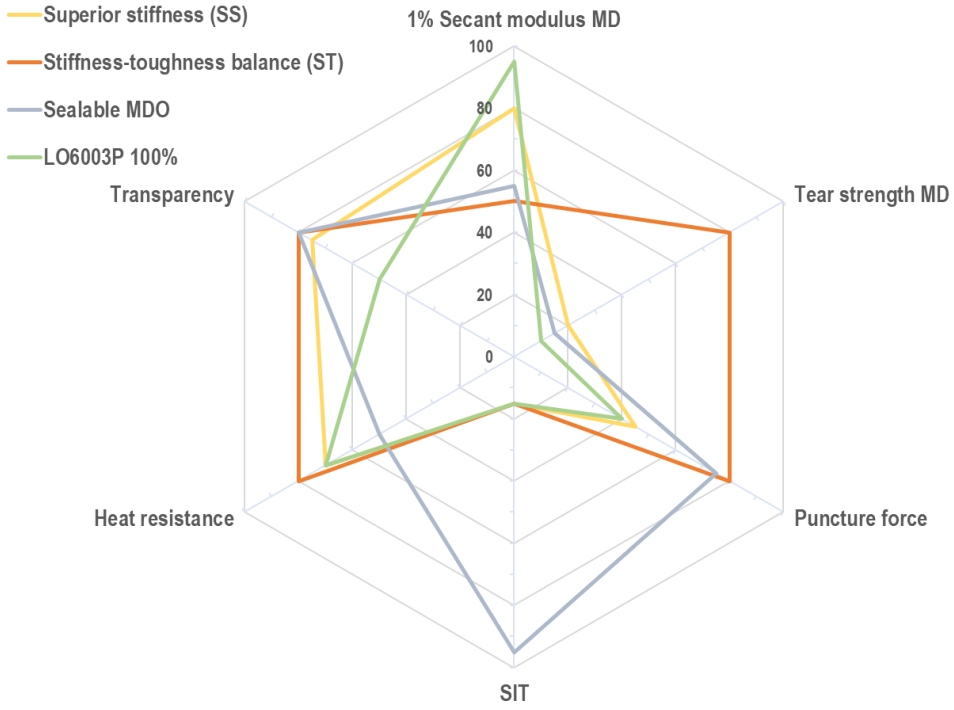
- Total density: 0.943g/cm^3
- No lamination
- Excellent Sealing property

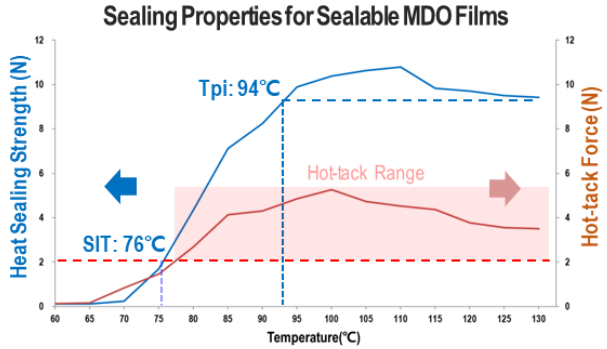


• ASTM D1003



• LG Method, 100℃ 5min in the oven





- By applying XM5137, it shows excellent sealing properties even after the MDO stretching process

※ SIT: Sealing Initiation Temperature
Tpi: Plateau Initiation Temperature (Onset temp. of max. sealing strength)

<Cooling time> SIT(LG Method): 30s / Hot-tack(ASTM F1921): 0.1s
- Sealing pressure: 0.275N/㎟, Sealing time: 0.5s,
Peeling speed: 200㎜/s, Sample width: 25㎜

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MDO Film Properties and HS Grade for Sealable MDO

LG Chem

MDOPE LO6003P

Introduction

Film Properties

Resin Properties

Collaboration

Technical Data of MDO Films

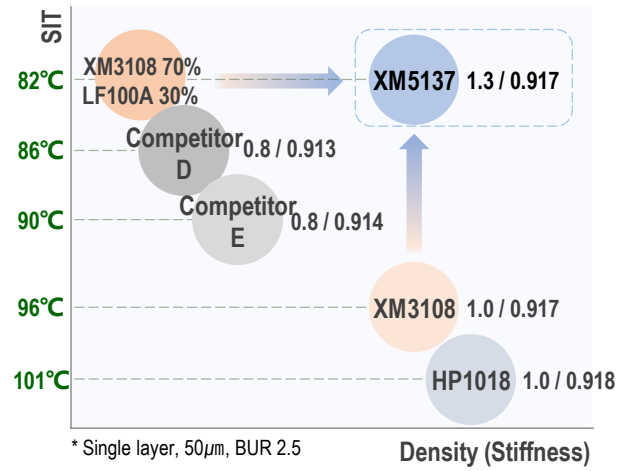
- Verification of production stability and physical properties of LG Chem raw materials and recipes through global MDO facility line test.
- Even though the same recipes, the film properties vary depending on facility and process conditions, so they are expressed as a range.

		Test Method	Unit	SS Type MDO	ST Type MDO	LO6003P 100% MDO	Sealable MDO
Stretching ration		-	Times	6.2 - 7.0	7.0	7.0	7.0
Thickness		-	㎛	25			30
1% Secant Modulus	MD	ASTM D882	MPa	2,100 - 2,300	1,400 - 1,800	3,000	1,500
	TD			1,900 - 2,000	1,300 - 1,600	2,300	1,600
Elmendorf Tear strength	MD	ASTM D1922	g	10 - 50	150 - 250	20	50
	TD			150 – 400	100 - 130	200	400
Haze		ASTM D1003	%	4.5 - 6.5	4.5 – 6	7	5
Heat Shrinkage	MD	100℃ 5min	%	1.0 - 4.0	0.5 - 3.0	1.0	2.0
	TD			0.0	0.0	0.0	0.0
Puncture force		ASTM F1306	N	6 - 8	13 - 17	6	13

XM5137 for Sealable MDO

- Excellent sealing performance despite having a general density and going through a stretching process.
- Key values
  - Cost saving with reducing POP contents and energy for heat sealing
  - Easy film handling and setting of sealing process conditions
- Properties

Plant	$MI_{2.16}$ (g/10min)	Density (g/㎤)	Tm (℃)	Additives			PFAS
				AO	Code	Slip	AB	
Yeosu	1.3	0.917	122	O	BN	X	X	Free
					BA	X	2,500	
					BM	500	2,500	
					BI	800	2,500	



Resin Properties of LO6003P

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MDOPE LO6003P

LO6003P

- **Key values**
  - **Excellent thermal resistance(Shrinkage rate)**
  - **Good transparency(Low haze)**
  - **Processability(Good stretchable)**

- **Resin Properties**

Plant	$MI_{2.16}$ (g/10min)	Density (g/㎤)	Tm (℃)	Additives		PFAS
				AO	Slip, AB	
Yeosu	**0.85**	**0.962**	134	O	X	Non PFAS

- **Film Properties**

1% Secant modulus MD / TD[1)]	ASTM D882	MPa	1,065 / 1,710
Haze[2)]	ASTM D1003	%	7.6
WVTR[3)]	ASTM F1249	g/m²·day	2.9

1) Blown single-layer 50㎛, Extrusion temp. 180℃, BUR 2.5 : 1
2) Non-block type 30㎛ film manufactured on the customer's MDO line, Apply more than 70% of MDOPE
3) Water Vapor Transmission Rate, Single layer 50㎛ ,38℃ /100%R.H., Atmospheric pressure

- **Applications**

Food packaging(All PE, Lami.)	Stand-up pouch, Spout pouch, Pillow Pouch, Lid
Lamination films and Tubes	Toothpaste & Cosmetic products
General & Industrial packaging	Icepack, Refill pouch, Label etc.

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LUTENE™ LO6003P

Application

- Food Packaging, Lamination Film, Stand Up Pouches, General Packaging Films, Industrial Packaging, Multilayer Packaging Film

Characteristics

- Superior mechanical properties with good clarity and processability for MDO Film application
- Additives
  - Slip : No, Anti-Block : No, Processing Aid : No, Antioxidant : Yes

Properties

Item	Test Method	Unit	LO6003P
Resin Properties			
Density	ASTM D1505	g/㎤	0.962
Melt Index (190℃/2.16kg)	ASTM D1238	g/10min	0.85
Vicat Softening Temperature (B50)	ISO 306	℃	127.0
Film Properties			
Secant Modulus - 2% Secant MD/TD	ASTM D882	MPa	830 / 1,090
Elmendorf Tear Strength MD/TD	ASTM D1922	g	14 / 1,060
Puncture Force	ASTM D5748	N	27.4
Haze	ASTM D1003	%	48
Gloss	ASTM D2457	GU	29

1) Film properties are measured on 25㎛ film specimen*, and properties may vary depending on processing equipment & conditions.
2) The data in this table are typical values, and not guaranteed specification

Film Processing Information*

- Film Process: Blown Film
- Processing temperature: 170 ~ 210℃
- BUR: 2.5 : 1
- Film thickness (㎛): 25

For additional sales, order and technical assistance — Revised : 30/11/2024

Head office NCC/PO Division, LG Chem Ltd.
Yeoui-do P.O.Box 672, 21st floor LG Twin Tower,
Yeoui-daero 128, Yeongdeungpo-gu Seoul, Korea.
Tel. 82-2-3773-7808/7745/3961

Packaging CS Team
211, Hwangsae-ro,Osan-si, Gyeonggi-do, 18126, Korea.
Tel. 82-31-5187-0215

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MDOPE LO6003P

Collaboration with MDO Film Value Chain

LG Chem' s MDO technology has been verified through MDO companies, and provides Technical support to MDO customers around the world

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Reifenhauser

Through collaboration with Reifenhauser, the world's first 18um MDO film was manufactured. This was possible based on superior stretchability & processability.

MDO promotion in Europe

1. Exhibit at the BOBST booth during the last Drupa exhibition ('24. 5. 28. ~ 6. 7.)
2. LG Chem Recipe demonstrated during Open House Event ('24. 11. 7.)

NEWS

Reifenhäuser exhibits 'fully recyclable', 18-micrometre MDO-PE film

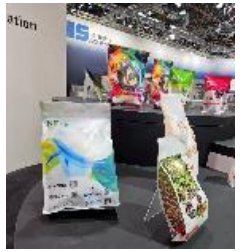
30 MAY 2024

Reifenhäuser Blown Film is displaying the 'world's first' 18-micrometre MDO-PE film at drupa 2024; it is said to reduce thickness by 25% compared to previous films and unlock the use of fully recyclable, low-carbon mono-material flexibles.

The solution is produced on Reifenhäuser's EVO blown film lines using the patented EVO Ultra Stretch technology – this time combining it with suitable raw materials. The Ultra Stretch unit is positioned directly in the system's haul-off, meaning the film is stretched from the first heat; this is believed to result in a stable, reliable process that can be reproduced over many hours.

LG Chem and BOBST worked alongside Reifenhäuser to develop and test the film for practical suitability. Reportedly, it performs 'excellently' in the converting process.

※ **Source:** Article on Packaging Europe journal (30. May. '24)



Drupa exhibition

Live Demonstration

Ultra-thin, yet Economically Brilliant MDO-PE Blown Film

November 7th, 2024
Reifenhäuser Technical Center in Troisdorf (Germany)

Open House Event

W&H

When testing W&H company, an MDO film with a draw ratio of 7 times was manufactured using 100% LO6003P product.

Through this, it was confirmed that a product with excellent high modulus and good transparency could be obtained.

LO6003P 100% MDO Film, 25um, x7.0			
Test items	Test Method	Unit	Value
1% Secant Modulus [MD / TD]	ASTM D882	MPa	3,000 / 2,300
Haze	ASTM D1003	%	7

Hosokawa Alpine

Through Hosokawa Alpine trial of various raw materials and recipes, we confirmed superior plate-out characteristics and processability compared to competitors, and especially stretchability up to 8 times.

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XM Series Overview

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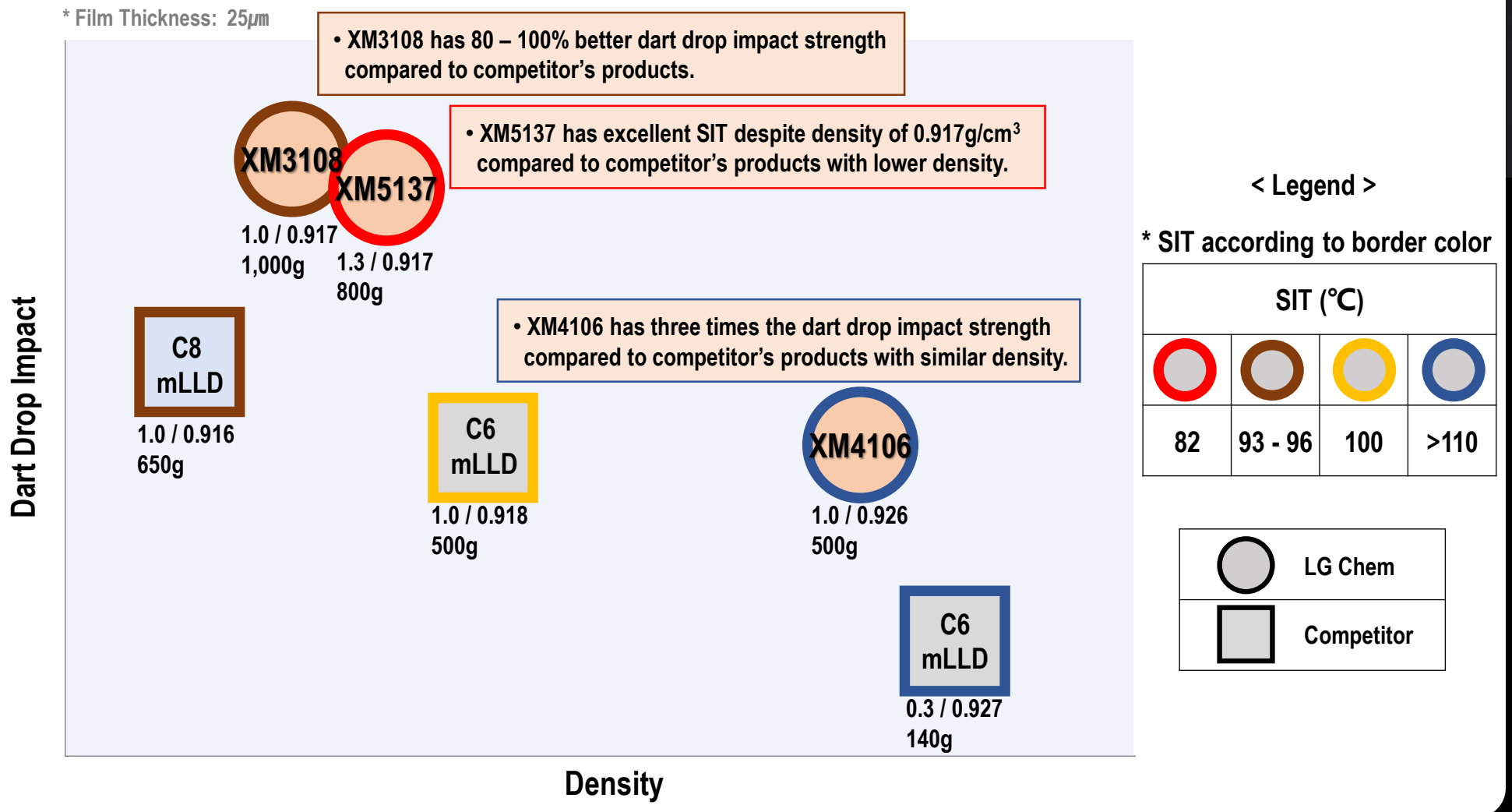
LG Chem has catalyst development technology and continues to launch the XM Series to provide value to customers.

XM Series

Overview



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XM5137 At a Glance

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Advantages of XM5137

XM5137 (HS)

Property

1. **Exceptional sealing properties**
   SIT : 82 ℃ (Den' : 0.917)
2. **Outstanding hot-tack**
   Specialized in high-speed packaging
3. **Non-blocking**
   Easy un-winding process
4. **Excellent processability**
   Reduce Contaminant / transition gel

Sustainability

1. **PFAS Free**
2. **Recyclable**
   All-PE packaging

Various Applications

1. **Food packaging**
   Liquid sauce, powder products
2. **All PE Sealant Film**
   Detergent, Pet food, Ice pack
3. **E-commerce packaging**
   Air pack, Air cell

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Technical Data Sheet

LG Chem

XM5137 shows unparalleled sealing performance in the similar density range

XM5137 (HS)

Grade Line-up

Grade	MI	Density	Melting Point	Tensile strength at Break [MD/TD]	Elongation at Break [MD/TD]	Dart impact	Haze	Additives [Slip / AB]
Test Method (ASTM)	D1238	D1505	LG method	D882	D882	D1709A	D1003	-
Unit	g/10min	g/cm^3	℃	kg/cm^2	%	g	%	ppm
XM5137BN	**1.3**	**0.917**	**124**	**450 / 500**	**500 / 600**	**800**	**32**	**0 / 0**
XM5137BA	**1.3**	**0.917**	**124**	**450 / 500**	**500 / 600**	**800**	**10**	**0 / 2,500**
XM5137BM	**1.3**	**0.917**	**124**	**450 / 500**	**500 / 600**	**800**	**10**	**500 / 2,500**
XM5137BI	**1.3**	**0.917**	**124**	**450 / 500**	**500 / 600**	**800**	**10**	**800 / 2,500**

• Film properties are measured on **25㎛** film specimen
and properties may vary depending on processing equipment & conditions.

Analysis with Competing Grades

XM5137 shows unparalleled sealing performance in the similar density range

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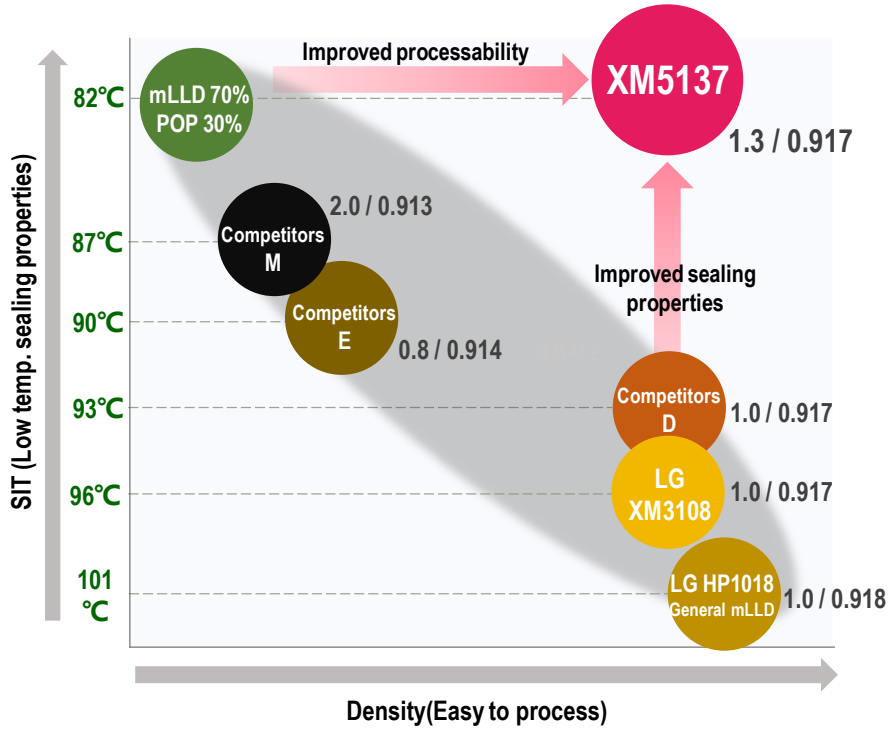
1.1 Exceptional sealing properties (SIT)



SIT* : 82℃

- In general, density and SIT are correlated
- XM5137 shows the lowest SIT with density (0.917)
- Lowest SIT compared to competing grades

* SIT : Seal Initiation Temperature

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Exceptional Sealing Properties

XM5137 is suitable for high-speed sealing thanks to outstanding hot-tack properties

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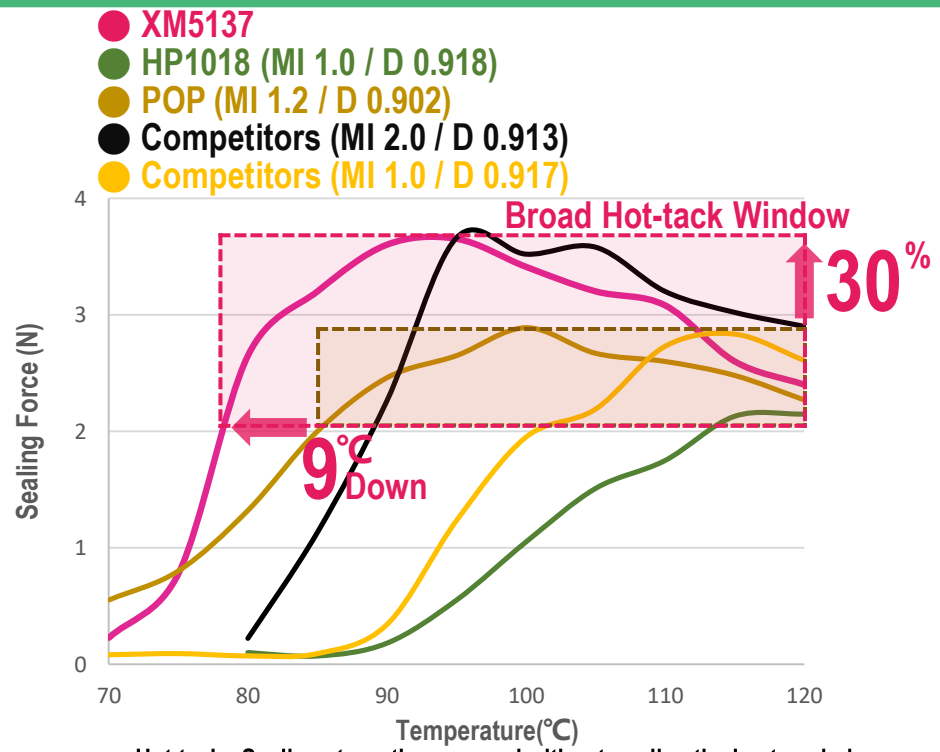
XM5137 (HS)

2. Outstanding Hot-Tack



▪ Hot-tack : Sealing strength measured without cooling the heat-sealed area

Broad high-speed sealing range

- Hot-tack range 9℃ broader compared to POP
- Excellent Hot-tack strength compared to POP
- Less damage on the film even though the heat-sealed area is cooled for a short period of time

→ Excellent for high-speed sealing packaging

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Easy to process

- XM5137 is not sticky and easy to process
- XM5137 is a "PFAS Free" product with excellent processability
  - PFAS Free : Eco-friendly products that do not contain PFAS ingredient that are subject to regulation from 2025

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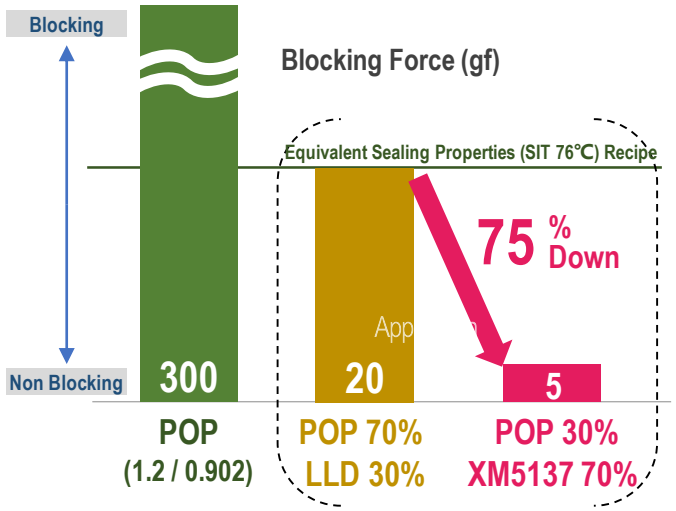
XM5137 (HS)

3. Non-blocking Properties

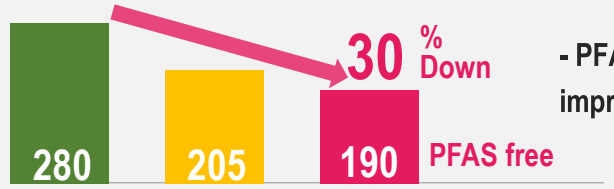
General LLD Density ➡Non-sticky



- Specimen Size: 10×10cm, Aging: 80℃ / 30min, Load: 250g
- Blocking force measured at UTM 100mm/min speed

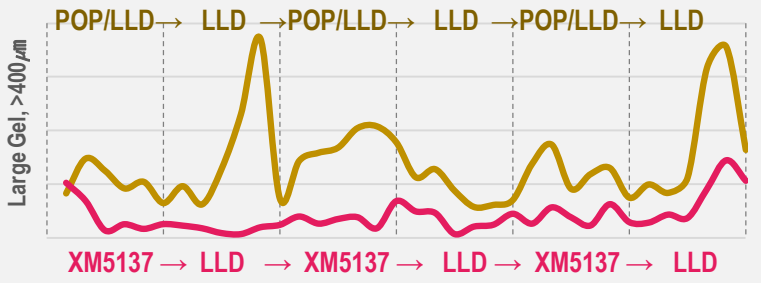
4. Excellent processability

Processing load (Bar) Reduce Processing Load 30%



- PFAS free based on improved processability

Gel amount when changing grades



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Formulation Guide

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XM5137 can be applied as follows according to customer's recipe.

XM5137 (HS)

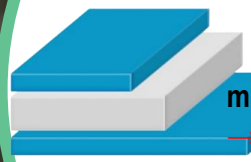
Introduction

Grades

Properties

Value Proposition

Sealant Layer



mLLDPE + POP

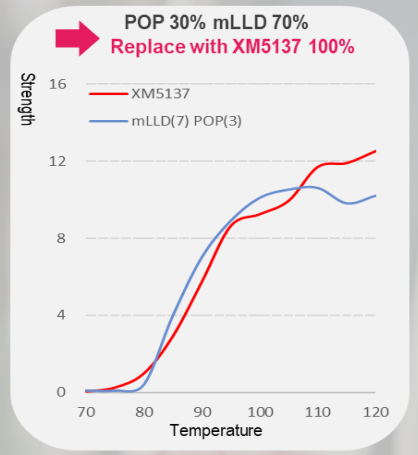
→ XM 5137 or XM5137 + POP ↓

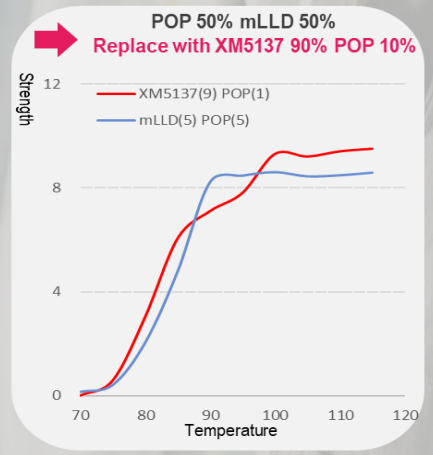
XM: Extreme Metallalocene

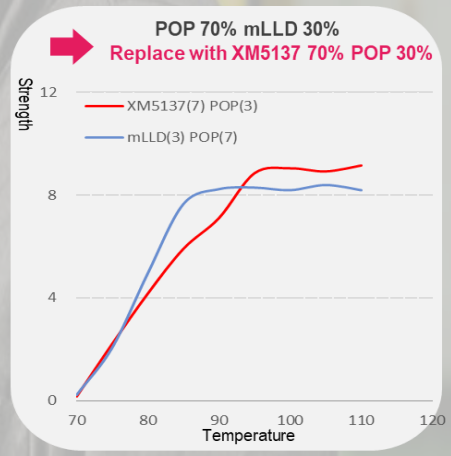
Down gauging with the XM5137 can reduce POP usage of the sealant layer.

- Sealing strength and SIT similar to existing products
- Customized sealant layer total packaging solution

**SIT: Seal Initiation Temperature*







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Value Proposition for Mono-material Pouch

LG Chem

XM5137 provides properties optimized for the sealant layer of mono-material packaging.

XM5137 (HS)

Introduction

Grades

Properties

Value Proposition

Mono-material Pouch

LG recommended recipe

▪ Oriented PE formulation(MDOPE, BOPE)

LG All pe solution	
MDOPE	LO6003P, SO6703, XM3108
BOPE	LO4904P

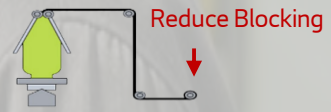
▪ Sealant PE formulation(with XM5137)

LO6003P / XM3108	LO6003P / XM3108
XM 3108	XM 3108
POP(30%) + LLD(70%)	XM5137 100%

Value

❶ Superior sealing performance
- Low temperature sealing
- Good contamination sealing
- Enhanced mechanical properties

❷ Processability
- Packaging process
  : High output in pouch-making
- Conversion process



❸ Cost Saving Opportunities
- Reduce POP usage
- Reduced preparation time

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Value Proposition for Powder packaging

XM5137 provides excellent properties for powder packaging requiring contaminant sealing.

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XM5137 (HS)

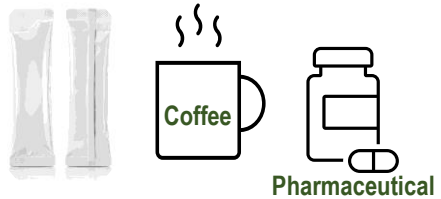
Introduction

Grades

Properties

Value Proposition

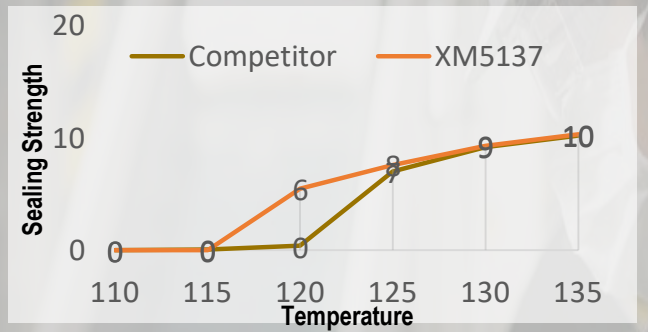
Powder packaging



Superior sealing performance

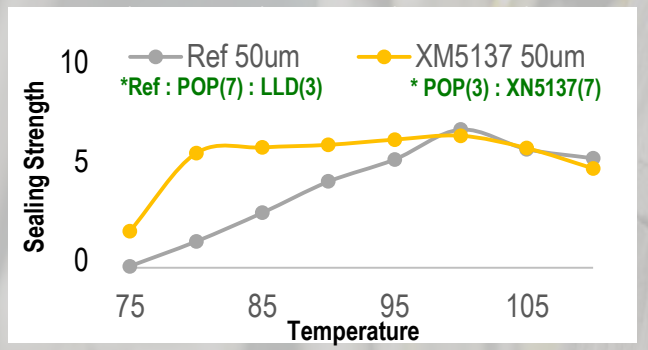
▪ Contamination sealing strength

- Competitor : mLLD , Density(0.918)



*Measurement of sealing strength after powder contamination
*Powder : milk powder

▪ Hot-tack



*Coffee packaging material hot-tack strength measurement results

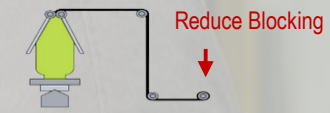
Value

❶ Superior sealing performance

- Low temperature sealing
- Superior Hot tack strength
- Good contamination sealing

❷ Processability

- Conversion process



❸ Cost Saving Opportunities

- Reduce POP usage
- Reduced preparation time

LG Chem

XM4106 (ST)

Introduction

Properties

Value Proposition

Overview

XM 4 Series shows excellent impact strength despite its high density.
- it can be actively used in stiff-applications that require physical properties.

XM 4 Series

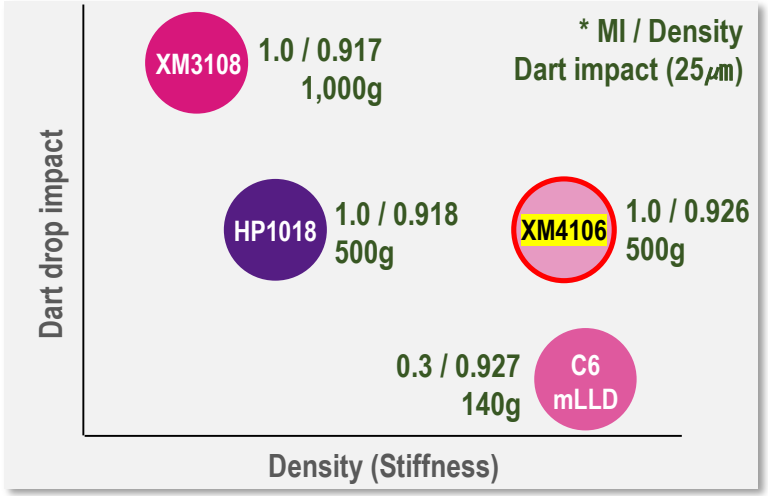
Properties and Value propositions

1. Medium density but excellent dart impact
   → Down Gauging with equivalent film texture
2. Improved Processability
   → Production performance ↑

Applications

1. Heavy Duty Bag
2. Stand-up Pouch & Ice Pack

< XM4106 has excellent Stiffness & Toughness balance >



Technical Data

< There are 2 grades according to the additive prescription >

* Film Thickness: 25㎛

		XM4106		Test Method
		BN	BA	
MI (g/10min)		1.0		ASTM D1238
Density (g/cm^3)		0.926		ASTM D1505
Melting Point (℃)		124		LG Method
Tensile strength at break [MD/TD] (kg/cm^2)		550 / 500		ASTM D882
Elongation at break [MD/TD] (%)		550 / 700		ASTM D882
Dart drop impact (g)		500		ASTM D1709A
Haze (%)		25		ASTM D1003
Additives (ppm)	Slip agent	X	X	-
	Anti-block agent	X	2,250	-

Stiffness & Toughness

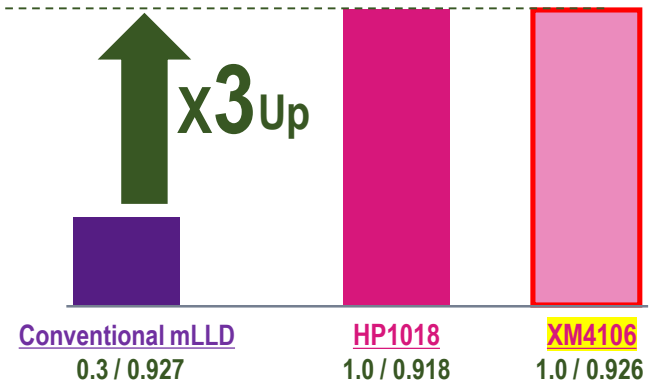
LG Chem

XM4106 Series has superior stiffness and toughness properties even medium-range density.
- Three times the impact strength of a similar density & equivalent to density of 0.918.
- It exhibits better stiff & toughness balance than conventional mLLD and HP series.

Stiffness & Toughness

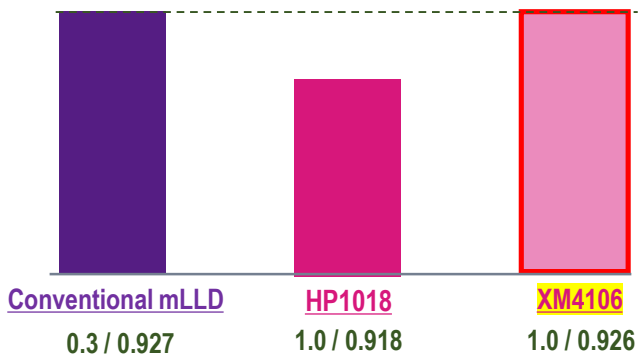
<It exhibits three times the impact strength of a similar density product, which is equivalent to a product with density of 0.918>

Dart Impact



<XM4106 is similar in stiffness to the 0.930 density product>

Stiffness (1% secant modulus)



* Film thickness 50㎛, Blown film extruder (Die : 45Φ / BUR 2.5)

LG Chem

Processability

XM 4106 Series has better processability than conventional mLLDPE

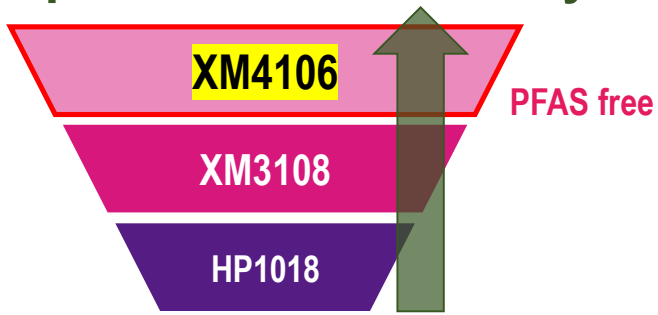
- The processability has been improved to reduce the processing load and increase the extrusion volume, and it is designed as a PFAS-free product.

XM4106 (ST)

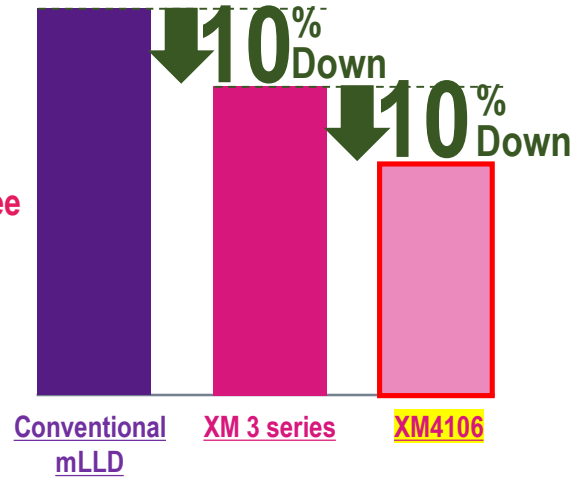
Processability

"Broad MWD"

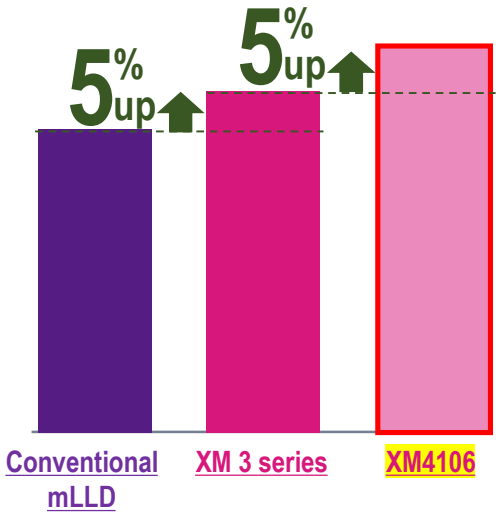
→ Improved Processability



Pressure (bar)



Output (bar)



* Machine : Blown film extruder (Die : 45Φ / BUR 2.5)

LG Chem

Overview

XM 3 Series shows excellent impact strength than existing products

LG Chem

XM3108

Introduction

Properties

Value Proposition

XM 3 Series

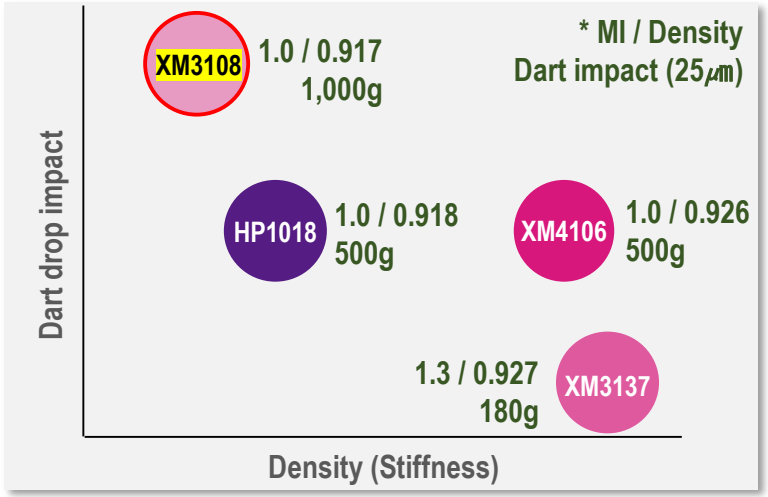
Properties and Value propositions

1. Excellent Dart impact Strength
2. Down Gauging, due to improved physical properties
3. Boosting PCR
   - When mixed with PCR, properties are not degraded

Applications

1. Food packaging(Lamination film)
2. Industrial film

< XM3108 has twice the dart impact strength than HP1018 >



Technical Data

< There are several sub-products depending on the additive prescription >

* Film Thickness: 25㎛

		XM 3108				XM 3056		Test Method
		BN	BA	BM	BH	BN	BH	
MI (g/10min)		1.0				0.5		ASTM D1238
Density (g/cm^3)		0.917				0.916		ASTM D1505
Melting Point (℃)		121				122		LG Method
Tensile strength at break [MD/TD] (kg/cm^2)		500 / 450				550 / 450		ASTM D882
Elongation at break [MD/TD] (%)		450 / 600				400 / 600		ASTM D882
Dart drop impact (g)		1,000	850	850	850	1,200	1,000	ASTM D1709A
Haze (%)		30	16	16	16	24	14	ASTM D1003
Additives (ppm)	Slip agent	X	X	500	1,000	X	1,000	-
	Anti-block agent	X	2,250	2,250	2,250	X	2,250	-

LG Chem

Superior Toughness

LG Chem

XM 3 Series have superior dart impact strength compared to conventional mLLDPE.

- In comparing raw materials alone, twice the impact strength
- Even when blended with LDPE, it exhibits excellent toughness.

XM3108

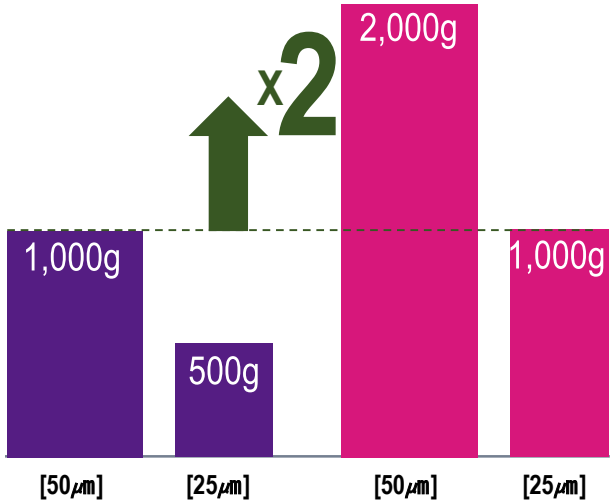
Introduction

Properties

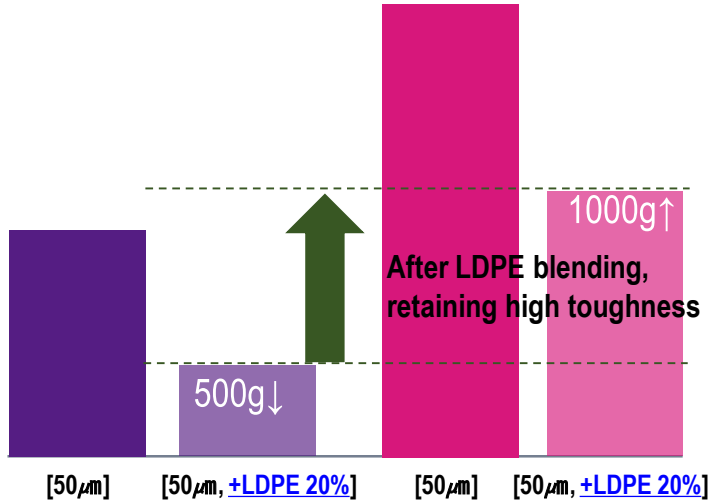
Value Proposition

Dart impact strength

< XM3108 has twice the impact strength than Conventional mLLD >



< Even when blended with LDPE 20%, it shows more than twice the impact strength of conventional products >



* Processing condition
Blown film / B.U.R(2.5)

LG Chem

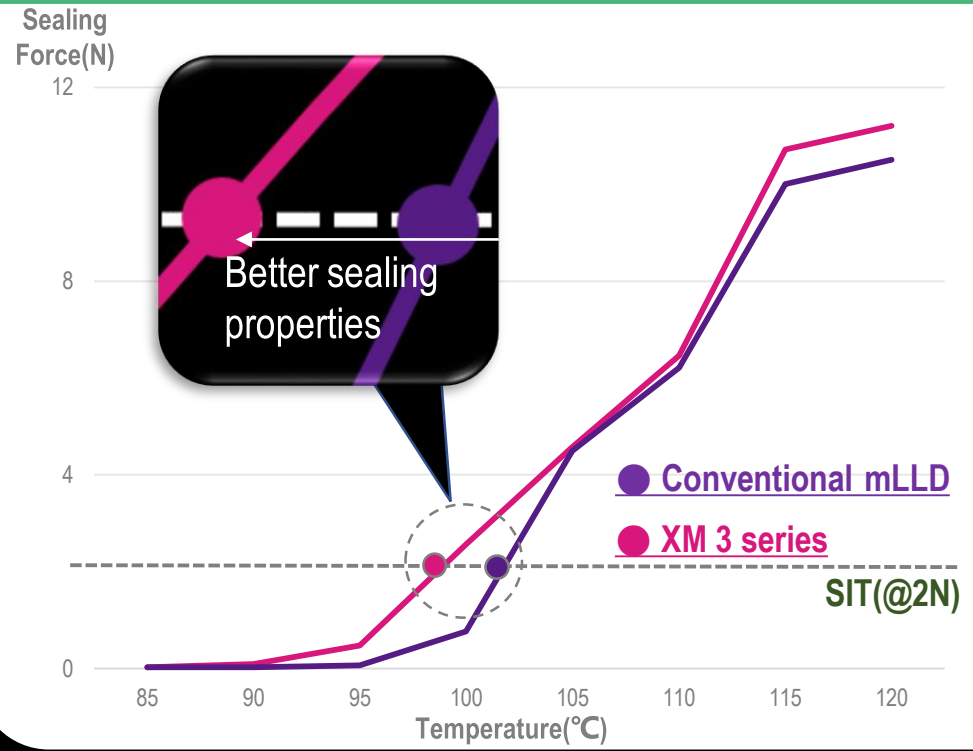
Better Sealing Properties

XM 3 Series have excellent sealing properties compared to conventional mLLDPE.

- Compared to conventional products, SIT is lowered by 4 degrees.
- This advantage can improve process-stability and efficiency.

XM3108

Heat sealing properties



< When measuring heat sealing strength, the XM 3 Series initiates sealing at temperatures as low as 4 degrees >

4℃ Down

SIT* : 100→96℃

The better SIT provide,

- Energy efficiency
- Operation & Product safety
- High speed sealing

* SIT : Seal Initiation Temperature

Value Proposition

LG Chem

XM Series can provide various advantages such as Cost, Energy and Sustainability.
- Based on its excellent physical properties, it can provide benefits such as thickness reduction, cost reduction, and PCR boosting.

Main applications

< Even if the thickness is reduced by 20%, it shows the same physical properties as before >

Down-gauging

~20% Thinner Down

XM Series provide,

- Dart impact increased by 80% (at the same thickness)
- Possibility of additional use of low-cost raw materials
- Down-gauging & Cost saving 20~30%

Cost Saving

~20% Cheaper Down

< It is possible to reduce the cost as much as the thickness reduction >

< When mixed with the recycling product, the physical properties of the film are not degraded >

Boosting

30~40% apply

Through the XM Series,

- High reduction of CO2 emissions (Resin usage↓)
- Provides a boosting effect when applying PCR products

Reduction CO2

6.5~25*% Down

< Due to the reduction in the amount of raw materials, carbon emissions can also be reduced >

LG Chem

Value Proposition for All PE Stand-up Pouch

LG Chem

All XM sealant layer All-PE SUP provides excellent physical properties and sustainable value than existing products using dissimilar materials

XM3108 & XM4106

Introduction

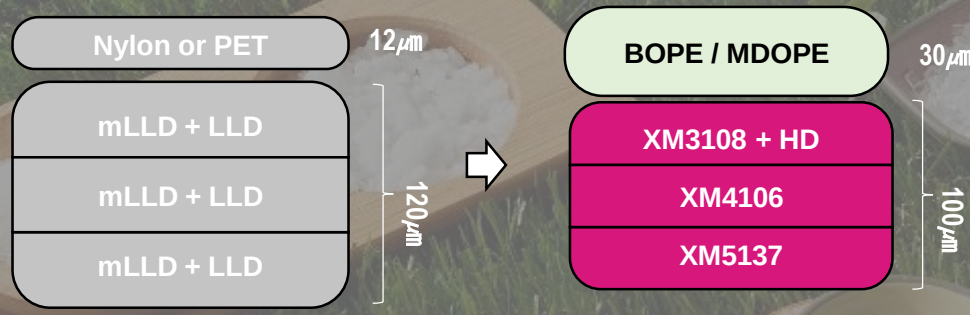
Properties

Value Proposition

Stand-up Pouch

◆ All-PE Formulation

- 'Nylon or PET' is replaced by BOPE/MDOPE and Sealant layer, XM used on all layers.
- Simplified customer handling by applying mid-layer XM4106 alone



◆ All XM Sealant Layer

- Similar Stiffness & Enhanced mechanical strength

[Ref. Nylon or PET applied]

[XM applied]

LG Chem

LG Chem
Non PFAS mLLDPE

LG Chem has developed Non PFAS LLDPE products and can provide prototypes in preparation for upcoming universal regulations – PPWR(Announce '24 / Start '26) & ECHA(Announce '26 / Start '27 ~ '28)

Grade & Properties

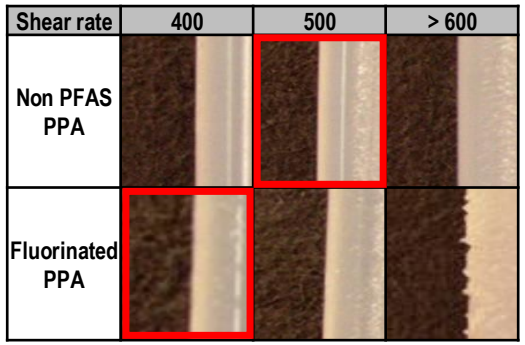
	Test Method	Unit	HP1018	XM3108
MI	ASTM D1238	g/10min	1.0	1.0
Density	ASTM D1505	g/cm^3	0.918	0.917
Melting Point	LG Method	℃	118	121
Tensile strength at break	ASTM D882	kg/cm^2	500 / 520	500 / 450
Elongation at break	ASTM D882	%	550 / 640	450 / 600
Dart drop impact	ASTM D1709A	g	500	1,000
Haze	ASTM D1003	%	29	30
Additives	Grade		ZN	ZN / ZM
	Slip agent	ppm	0	0 / 500
	Anti-Block agent	ppm	0	0 / 2,250

1) Film properties are measured on 25㎛ film specimen*,
and properties may vary depending on processing equipment & conditions.
* B.U.R : 2.5, Processing temperature : 170℃
2) The data in this table are typical values, and not guaranteed specification

LG Method for comparing PPA Performance

◆ Melt fracture Simulation Method

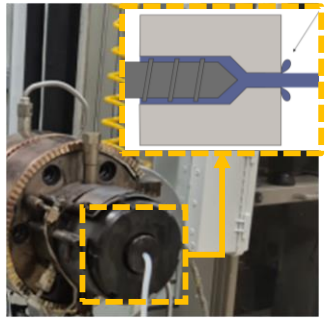
Comparing PPA coating performance using a capillary rheometer set up to simulate melt fracture and confirming equivalent performance compared to fluorinated PPA.

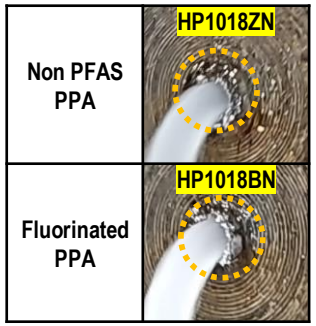


Melt Fracture Occur

◆ Die Drool Simulation Method

A die drool test method was established using a Goeffert extruder,
and Non PFAS products were confirmed to be equivalent to PFAS products.





Global Trend in regulation of PFAS(Per- and Polyflouroalkyl substances)

LG Chem

PFAS ban regulations are divided into regulations for materials under ECHA and for packaging under PPWR.
LG Chem is preparing to comply with regulations in accordance with the schedule of PPWR.

◆ ECHA Timeline (European Chemicals Agency)

EU PFAS regulations originally aimed for implementation from 2026/2027, but due to extensive review, the EU Commission recently mentioned that a decision cannot be made within 2025, and it is expected to be implemented by 2027/2028

’23. Jan.	`24. Sep	’26. Announce	’27 / ’28 Start
Ban List (~Now) - ’99. PFOS - ’20. PFOA - ’23. PFHxS - ’23. C9-14 PFCAs - ’24. PFHxA	Proposal to ECHA for universal ban of PFAS (SE, DK, DE, NL, NO)	Under review by ECHA "As of September, three out of the 14 major uses are under review, with four already reviewed."	Expected final decision by the EU Commission	Start of universal ban regulation for PFAS

※ **Exceptions :** Applying a grace period

If there are alternatives but they are not being produced on a commercial scale	5 years
If there are no suitable alternatives or if the registration and approval process for additional regulations is lengthy	12 years

◆ PPWR Timeline (European Packaging and Packaging Waste Regulation)

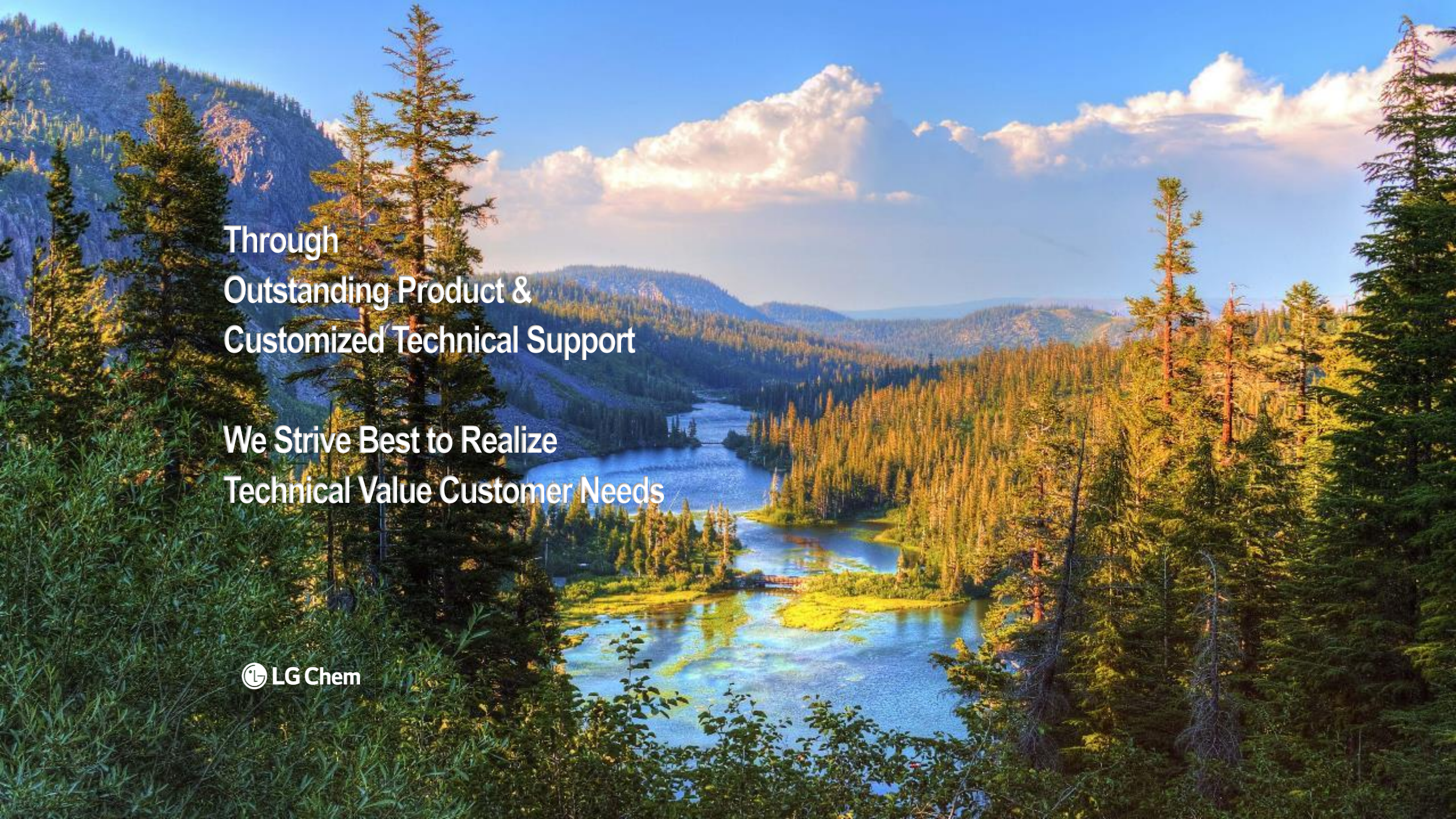
Anticipating the application of PFAS regulations related to food contact materials and packaging regardless of the Universal Ban, according to PPWR, during 2026

’24. 4Q Announce	’26. 2Q~ Start
Announcement of PFAS ban for food contact application (18-month grace period)	Start of universal ban

※ **PFAS content standard** (All of the following criteria must be met)

Each PFAS analyzed (excluding polymers):	< 25 ppb
Total of all PFAS analyzed (excluding polymers):	< 250 ppb
All PFAS including polymers	< 50 ppm

※ **Source :** AMI PFAS Workshop, Brussels, Belgium (10. Sep. ’24)


Through
Outstanding Product &
Customized Technical Support
We Strive Best to Realize
Technical Value Customer Needs
LG Chem