

# HDPE packaging films

New material solutions to meet all current and future market trends





In today’s rapidly evolving market, the packaging industry faces increasing demands for innovative solutions that address both environmental and consumer needs. As brand owners and consumers alike prioritize sustainability and waste reduction, the focus on food security requirements, health and wellness and protection across various sectors has never been more critical.

Explore the key drivers and emerging trends in packaging, highlighting the importance of lightweight, cost-effective, and high-performance materials that not only enhance product shelf life but also meet stringent regulatory requirements. From food packaging to medical applications and construction barriers, discover how LYB advancements in HDPE films are shaping the future of packaging.

# Market Demands

Food Security	Health & Wellness	Protection	Sustainability
<ul style="list-style-type: none"><li>• Improve shelf life</li><li>• Prevent perishability</li><li>• Limit damage</li><li>• Safety</li></ul>	<ul style="list-style-type: none"><li>• Hygiene</li><li>• Personal protection</li><li>• Medical</li><li>• Aging Population</li><li>• Growing global population</li></ul>	<ul style="list-style-type: none"><li>• Construction</li><li>• Moisture barrier</li><li>• Personal protection</li><li>• Extreme weather</li></ul>	<ul style="list-style-type: none"><li>• Circularity</li><li>• Mono-material</li><li>• Bulk Shipping</li><li>• Lower CO2 footprint</li><li>• Designed for recyclability</li></ul>

**Food security:** As sustainability and waste reduction become priorities, food security packaging requirements are rising. Consumers and brand owners demand lightweight, cost-effective solutions that extend shelf life and differentiate products. At LYB, we are at the forefront of these innovations, developing advanced HDPE packaging films that meet these evolving needs.

**Health and wellness:** Health and wellness packaging is evolving with increased pharmaceutical production and regulations requiring unit dose packaging, childproof features, and medical instrument sterilization. LYB cutting-edge HDPE solutions ensure compliance and safety, supporting the industry’s growth.

**Protection:** To maintain freshness, food packaging must protect against moisture throughout the supply chain. Similar protective needs exist in medical and construction applications, such as hospital gowns and house-wrap. LYB engineered HDPE materials provide superior protection and durability in these critical areas.

**Sustainability:** The difficulty of recycling laminate structures like PET, PE and PP is driving the development of mono-material solutions. LYB is leading the way with sustainable HDPE alternatives that do not compromise performance or shelf life. Our innovative HDPE pouches, favored by younger consumers, offer a cost-effective and eco-friendly option over rigid alternatives.





# HDPE packaging films

Markets/Applications



## Agriculture

HDPE packaging films are highly versatile in agricultural applications. Woven oriented tapes with UV stabilizers are ideal for hay bale wraps, pond liners and gravel/mulch bags. Additionally, their low gel content and excellent orientability, combined with a wide range of molecular weight distributions, make them perfect for agricultural netting applications.



## Building & Construction

HDPE packaging films are ideal for a variety of building and construction applications, whether in residential or commercial real estate. They are particularly suitable for house wrap applications, providing excellent protection and durability. These films are also used in flashing tape for walls, exterior walls, stone walls, stucco walls, and transitions. Additionally, they are effective for sealing windows and doors, ducting, electrical penetrations, HVAC penetrations, recessed windows, and steep slope roofs, among many other applications in this market.



## Food and Beverage

HDPE packaging films are essential for moisture-sensitive applications in the food industry, serving a wide range of products such as cookies, crackers, meat, cheese, pasta, and salads. The growing demand for polyethylene pouches is driven by the need for recyclable materials that maintain high packaging quality and printability. Additionally, HDPE films are used in yogurt lidding and bag-in-box applications, showcasing their versatility and wide-ranging capabilities.



### **Packaging and Labeling**

LYB LDPE and EVA products complement HDPE packaging films perfectly, especially for printable adhesive labels on bottles and cans. This synergy extends to other applications, including can liners, diaper backing, ice bags and tissue/towel overwrap, where excellent printability and performance are essential.



### **Industrial and Commercial Packaging**

MMW HDPE are ideal blend components for enhancing the modulus of containment films. They are perfect for stretch and shrink films used in various applications, including warehouse pallet wraps, online shopping packages, water bottles, canned goods and boat overwraps.



### **Healthcare & Pharmaceutical**

LYB ability to align with customer capabilities and required end properties, combined with our clean, low organoleptic resins, allows us to create precise blends with superior characteristics for derma patches and medical pouches. These products must meet stringent performance requirements to ensure patient safety. Packaging for medical supplies must maintain sterility, making puncture resistance and seal strength crucial. Our offerings in this space range from packaging and surgical gowns to derma patches and pouches.



### **Textiles**

Our low gel, low organoleptic HDPE materials with excellent orientability are ideal for producing various tape applications in the textile market. These applications include artificial turf, produce netting, clothing, and banners.



# HDPE packaging films

Providing innovative solutions for customers



LYB continues to broaden its HDPE Packaging Film product line to meet the ever increasing demands of the industry. Various combinations of current new products position the converter to achieve their goals to improve film structure performance and optimize costs to maintain existing markets while opening the door to new markets.

## Key properties of focus in development:

- Tear strength
- Stiffness/Modulus
- Low taste and odor
- Film appearance
- Moisture barrier
- Sustainability

## Reasons to partner with LYB

### Key advantages:

#### Breadth:

Broad portfolio of custom and standard products

#### Customization:

Customized product formulations and flexible manufacturing

#### Scale:

Flexible supply capabilities from small lot to bulk handling

#### Localized supply:

Supported by regionalized warehouses

#### Technology focus:

Innovative technology and collaborative application development

#### Quality:

Analytical and quality control analysis for product consistency and reliability

# LYB technology and market demand

LYB suite of technologies enables market demands

## High water vapor and oxygen barrier packaging

Creating packages that allow food to stay fresh longer



- HDPE grades such as *Alathon* M6020SB provide outstanding optics, stiffness, tensile and water barrier properties.
- Tie resins like *Plexar* PX3418 provide PX3418 provide adhesion to both polyolefins and non polyolefin materials like EVOH.
- Extrusion grades such as *Petrothene* GA503026 allow production of resealable closures.
- Orientable EVOH grades (available through sales partner MSIT) provides high oxygen barrier.

## Snack and other packaging

Produced entirely using polyethylene, with the potential to replace PET and BOPP films.



- HDPE grades such as *Alathon* L5645 and L5576X01 provide excellent stiffness, tensile and barrier properties.
- High speed coating and lamination of packaging enabled by LDPE grades such as *Petrothene* NA214000.
- Premium opacity and package aesthetics enabled by class leading concentrates such as *Polybatch* White 8000 EC.

## Multilayer dry food packaging

Every component in the multilayer dry-food package was produced with LYB products.



- Designed in ease open seals supplied by *Toppyl Polybutene-1* and *Ultrathene* EVA copolymers.
- Improved shelf life enabled by high water vapor barrier HDPE grades such as *Alathon* M6020SB and L5885.
- *Alathon* M6020SB HDPE provides increased clarity and optical properties.
- Increased toughness with higher *Petrothene* GA1810 LLDPE content

# LYB HDPE packaging film plant assets

	Grade	Melt index (g/10min.)	Density (g/cc)	Plant asset	Typical applications	
	M6020SB	2	0.959	VTO	High moisture barrier - nucleated, improved clarity	
	M6020	2	0.959	VTO	Premium WVTR	
	M6210	0.95	0.958	VTO	Cereal liner, slug wrap	
	L5885	0.85	0.958	VTO	Cereal liner, slug wrap	
	L5485	0.85	0.954	VTO	Poultry packaging, frozen food	
	L5645	0.54	0.959	VTO	General purpose, oriented film & tapes, BOPE	
	L5845	0.43	0.958	VTO	General purpose, oriented film & tapes, BOPE	
	M5410	1.1	0.954	VTO	General purpose — toughness	
	L5845	0.43	0.95	VTO	General purpose — toughness	
	LP510300	0.33	0.949	CLO	Blend resin for shrink films	
	LP540200	0.17	0.94	CLO	Blend resin for shrink films	
	L4550	0.45	0.945	VTO	Oriented tape applications, BOPE	
	H6018	18	0.96	VTO	Cast film and extrusion coating	
	H6012	12	0.96	VTO	Cast film and extrusion coating	

## Benefits of VTO (Victoria, TX site):

- Very low gels, catalyst free resins, low organoleptics - (results in 'clean' resin)
- Food contact compliant resins
- Multiple reactors allow for more precise MWD control – allows for wider range of products
- Octene comonomer incorporation for enhanced toughness properties
- Superior barrier properties
- Rapid transition capabilities enabling “speed to market” for new product development
- Grades built for orientation applications (MDO and BOPE)

## Benefits of CLO (Clinton, OH site):

- Hexene comonomer
- Additive finishing line for customizability
- Enhanced catalyst technology
- Increased melt strength for bubble stability
- Excellent blend component for shrink films and stiffness in general purpose film applications

# About Us

We are **LyondellBasell (LYB)** – a leader in the global chemical industry creating solutions for everyday sustainable living. Through advanced technology and focused investments, we are enabling a circular and low carbon economy. Across all we do, we aim to unlock value for our customers, investors and society. As one of the world's largest producers of polymers and a leader in polyolefin technologies, we develop, manufacture and market high-quality and innovative products for applications ranging from sustainable transportation and food safety to clean water and quality healthcare. For more information, please visit [www.lyb.com](http://www.lyb.com) or follow [@LyondellBasell](https://www.linkedin.com/company/lyondellbasell) on LinkedIn.

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