

# FILM, EXTRUSION COATING & GEOMEMBRANE PRODUCTS

MARLEX® POLYETHYLENE



# Film & Extrusion Coating Products

Chevron Phillips Chemical Company LLC (Chevron Phillips Chemical) offers a full range of innovative film & extrusion coating products designed to meet the most challenging customer needs. With multiple manufacturing platforms, you can count on our leading-edge technologies and application development expertise when selecting the right material for your application. If you're in need of polyethylene, we have the right product for you.

## Marlex® Polyethylene

Chevron Phillips Chemical produces a variety of polyethylene products. These products are designed to meet the needs of a wide range of flexible packaging applications, such as blown and cast films, extrusion coating, laminations and more.

### ATTRIBUTES

### APPLICATIONS

#### METALLOCENE POLYETHYLENE

Superior Toughness	High Clarity
Improved Optics	Coextrusion

#### HIGH DENSITY POLYETHYLENE

Low Moisture and Gas Permeability	Liner Films - Cereal, Crackers
Higher Softening Temperature	Grocery Bags
Chemically Resistant	Extrusion Coating

#### LOW DENSITY POLYETHYLENE

Processibility	Bakery
Clarity	Overwrap
Low Temperature Sealing	Coex Films (seal layer)
Good Shrink Properties	Extrusion Coating

#### LINEAR LOW DENSITY POLYETHYLENE

Improved Toughness	Trash Bags
Higher Tensile Strength	Industrial Liners

#### MEDIUM DENSITY POLYETHYLENE

Processibility	Heavy Bags
Stiffness	Industrial Films

## Cast Film

The cast film process differs dramatically from the blown film process primarily due to the fast quench cooling of the chill roll. This fast quench is responsible for the unidirectional orientation characteristics of cast film. These characteristics allow a cast film line to operate at higher production rates, while producing amazing optics. Applications in food and retail packaging take advantage of these strengths. The products below are our solutions to your cast film application needs.

#### HDPE - CAST FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
9607	6.5	0.962	0	0	No	Food & Retail Packaging
9608XD	8.0	0.962	0	0	Yes	Food & Retail Packaging

#### METALLOCENE - CAST FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
D173	3.5	0.918	0	0	No	Stretch Film
D174	4.5	0.918	0	0	No	Stretch Film

#### LLDPE - CAST FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
7120X	2.0	0.919	0	0	No	Food & Retail Packaging
7120B	2.0	0.919	1000	0	No	Food & Retail Packaging

#### LDPE - CAST FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
1122	2.1	0.920	0	0	No	General Purpose Packaging
4571	4.1	0.924	0	0	No	Personal Care
5428	2.2	0.930	1000	10000	No	Converter Film, Bakery Bag
5429	2.2	0.930	600	10000	No	Converter Film, Bakery Bag
5430	2.2	0.925	0	0	No	Overwrap & Converter Film
5440	2.2	0.925	1000	0	No	Overwrap & Converter Film

Notes: MI = g/10 min, Density = g/cc, Slip/Antiblock = ppm



## Marlex® Polyethylene Difference

In addition to a wide variety of traditional film resins, Chevron Phillips Chemical is pleased to offer Marlex® metallocene resins. These products combine the characteristically superior strength and sealability of metallocenes with unprecedented optics. Marlex® resins have the lowest haze and highest gloss across a variety of densities compared to other competitive products.

## Blown Film

The blown film process is the most diverse conversion system used for polyethylene. ASTM defines films as less than 0.254 mm (10 mils) in thickness. Monolayer and multilayer coextrusion technologies lay the groundwork for finding the right products for the application. The blown film process allows some control of properties such as clarity, toughness, and strength via process conditions and resin type. Our highly experienced technical support team can help customers define the blown film processing conditions needed to optimize performance, while our world-class sales and marketing team can assist customers with resin selection and provide other valuable customer services. The products below are our solutions to your blown film application needs.

### HMW-HDPE - BLOWN FILM

PRODUCT	MI	HLM1	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
TRB-115	0.05	9.5	0.950	0	0	No	Blown Film

### HDPE - BLOWN FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
9656	0.75	0.956	0	0	No	General Purpose Packaging
9659	1.0	0.962	0	0	No	Food & Retail Packaging (WVTR)

### MDPE - BLOWN FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
TR-130	0.3	0.937	No	No	No	Food & Retail Packaging

### METALLOCENE - BLOWN FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
D139	1.0	0.918	0	0	Yes	Blown Film
D139DK	1.0	0.918	0	5000	Yes	Blown Film
D139FK	1.0	0.918	1000	5000	Yes	Blown Film
D143	1.4	0.916	0	0	Yes	Blown Film
D143FK	1.4	0.916	1000	5000	Yes	Blown Film
D163	0.9	0.914	0	0	Yes	Blown Film
D170	0.9	0.923	0	0	Yes	Blown Film
D170DK	0.9	0.923	0	5000	Yes	Blown Film
D350	0.9	0.933	0	0	Yes	Blown Film

### LLDPE - BLOWN FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
7105D	0.5	0.918	0	0	Yes	Industrial Packaging
7109	0.9	0.918	0	0	No	Blown Film
7109DJ	0.9	0.918	0	2500	Yes	Blown Film
7109DL	0.9	0.918	0	7500	Yes	Blown Film
7109FJ	0.9	0.918	1000	2500	Yes	Blown Film
7109M	0.9	0.918	1600	6500	No	Blown Film
7120X	2.0	0.919	0	0	No	Food & Retail Packaging
7120B	2.0	0.919	1000	0	No	Food & Retail Packaging
7308DK	0.8	0.925	0	3000	Yes	Industrial Packaging
7308DL	0.8	0.925	0	6500	Yes	Industrial Packaging
7308FK	0.8	0.925	1200	3500	Yes	Industrial Packaging

### LDPE - BLOWN FILM

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
1122	2.1	0.920	0	0	No	Industrial Packaging
2130	1.3	0.924	0	0	No	General Purpose
5335	2.0	0.926	750	2750	No	Food & Retail Packaging
5561	1.3	0.925	0	3000	No	Food & Retail Packaging
5563	1.3	0.925	0	3500	No	Food & Retail Packaging
5613	0.5	0.923	850	6000	No	Industrial Packaging
5619	0.4	0.922	400	1500	No	Industrial Packaging
5626	0.65	0.922	400	4000	No	Industrial Packaging
5628	0.4	0.922	0	1500	No	Industrial Packaging
5754	0.8	0.925	625	2500	No	Food & Retail Packaging
5755	0.8	0.925	00	3000	No	Food & Retail Packaging

Notes: MI = g/10 min, Density = g/cc, Slip/Antiblock = ppm

## Extrusion Coating & Lamination

With more than 50 years experience in the extrusion coating and lamination industry, Chevron Phillips Chemical is one of the leading North American suppliers of extrusion coating polyolefin products. Marlex® polyethylene extrusion coating products are designed to meet the challenging processing demands of extrusion coating and are optimized to provide minimal neck-in with maximum draw properties and excellent adhesion to a wide variety of substrates. The products below are our solutions to your extrusion coating application needs.

### LDPE - EXTRUSION COATING & LAMINATION

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
1013	13.0	0.917	0	0	No	Medium Drawdown Designed for Med. Ct. Wt
1017	7.0	0.917	0	0	No	Minimal Neck-In Extrusion & Lamination Grade
1019	16.0	0.917	0	0	No	Maximum Drawdown Designed for Low Ct. Wt.
4517	5.1	0.923	0	0	No	General Purpose & Board Coating

### METALLOCENE - EXTRUSION COATING & LAMINATION

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
E413	8.0	0.918	0	0	No	Improved toughness and heat seal strength

### HDPE - EXTRUSION COATING & LAMINATION

PRODUCT	MI	DENSITY	SLIP	ANTIBLOCK	PPA	APPLICATIONS
9608XD	8.0	0.962	0	0	Yes	Board Coating & Flexible - HDPE Blend Component

Notes: MI = g/10 min, Density = g/cc, Slip/Antiblock = ppm





# Geomembrane

As the innovation leader in polyethylene geomembrane resins, Chevron Phillips Chemical offers a complete portfolio of LLDPE and MDPE grades designed to meet or exceed the demanding requirements of geomembrane applications in round and flat die processes.

## PREMIUM GEOMEMBRANE RESINS

PRODUCT	MI	HLMI	DENSITY	TYPE	APPLICATION
7104	0.35		0.919	LLDPE	Covers
K306		12.0	0.937	MDPE	Liners
K307		21.0	0.937	MDPE	Liners

## Technical Support

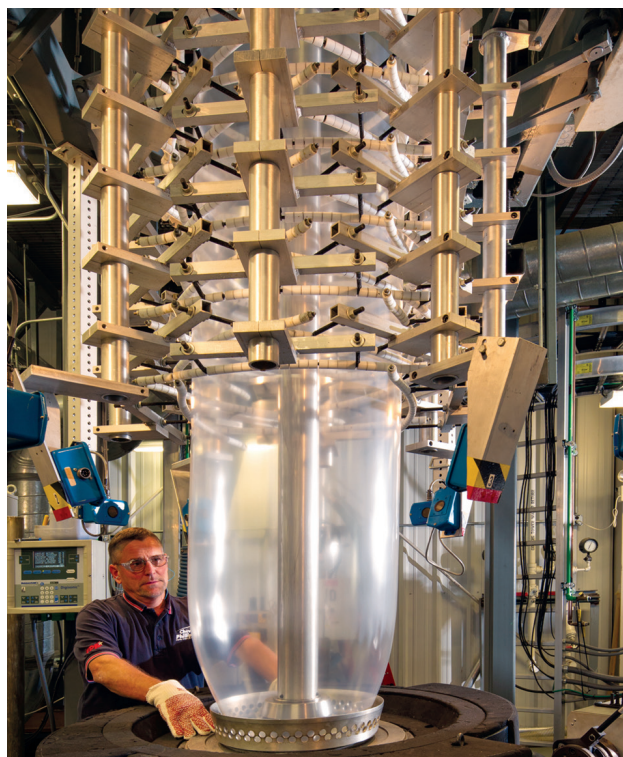
Chevron Phillips Chemical provides support to customers using fabrication and lab equipment available in the Bartlesville Technology Center. These resources include fabrication facilities for extrusion coating & laminating, blown film and cast film. This equipment allows our customers to screen various packaging concepts and structures for application development before using valuable commercial production line time. Our equipment is capable of both single-layer and co-extrusion, slitting, and surface treatment. We offer additional laboratory support to our customer base with analytical and physical testing tailored to the packaging and geomembrane industry. Contact your sales or technical service representative for details and scheduling opportunities.

### FABRICATION

- Film
  - Blown film (3-layer coextrusion)
  - Cast film (5-layer coextrusion)
- Extrusion Coating & Lamination
  - 1 – 5 layer coextrusion
  - Secondary unwind
  - Various chill roll finishes

### TESTING

- Resin
  - Flow
  - Structure
  - Geometry
- Film and coating
  - Optics
  - Surface
  - Barrier
  - Mechanical
  - Strength
  - Structural
- Geomembrane
  - HP-OIT and OIT
  - SP-NCTL
  - ESCR
  - Puncture
  - UV-aging



For more information about these  
and other products, call 800-231-1212.

Safety and Technical Data Sheets available online at [www.cpchem.com/polyethylene](http://www.cpchem.com/polyethylene)