



**POLYBAGS**  
part of the PB Group

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## POLYBAGS CUSTOMER POLYTHENE GUIDE

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### CHEMICAL COMPOSITION

Polythene is a polyolefine with the chemical formula  $(-CH_2-CH_2-)_n$  which is created by 'cracking' petroleum under pressure.

There are a number of different grades with slightly different mechanical properties and also different processing additives. The two most common grades are summarised below:

### STANDARD MELT 2 FILM GRADE - For General Packaging Applications

This polymer includes additives to prevent the film blocking during extrusion and to enable the film to slip open easily when required.

The antiblocking agent is usually silicon dioxide and content will vary between 500 and 900 ppm (parts per million). The slip additive is usually an oleamide slip agent which is a chemical compound that migrates to the surface to produce a slippery film. Depending on the amount of slip required the content will range from 500ppm (medium slip) to 1000ppm (high slip).

### SHRINK MELT 1 FILM GRADE - For Shrinkwrapping and Low Slip Applications

This polymer has a similar chemical structure but greater molecular strength so is used where improved film strength is required such as with heat shrink film and sack production.

This polymer grade has no slip and antiblocking agents which means the film has a less slippery feel and is used when there is a low slip requirement, for example when the bags will be stacked.

### ADDITIONAL ADDITIVES

We also blend to order additional additives during extrusion to give specific film properties. Examples of the most common additives stocked by Polybags are below:

Colour Masterbatch - A full range of Schulman colour matching additives blended to exact tint

Anti-Static - Reducing the ability for static build up in the film for electrical packaging

Freezer Grade - EVA additive to prevent film cracking down to -30 degrees Centigrade

Outside Storage - UV additive to reduce degradation of the film when stored outside

Slip and Anti-block - Additional additive to match an exact film slip requirement

Linear Low Density Polythene - Blended to improve the strength characteristics of Polythene

...r bags, large clear bags, self seal bags, slider, printed grip bags, basic mailing bags, special mailing bags, c  
...le products, carrier bags, waste sacks, specialist bags, rolls of polythene, selsaers and shrinkers, useful ac  
...ful hangers and sticky tabs, pink tink antistatic self sealing bags, heaby duty bags, true metallic premium m  
...style bubble line paper envelopes, artist and florists clear polythene, pedal and swing bin liners, brown and

# POLYTHENE TECHNICAL INFORMATION

## RAW MATERIAL

Physical state

Odour

Relative Density

Melt Flow Index

Solubility in Water

Toxicity

Degradability

## LDPE FILM

Tensile Strength

Dart Drop

Oxygen Permeability

## MELT 2 FILM GRADE

Colourless, natural opaque solid at room temperature – softening point range at 83-98 Celsius – melting point range 104-115 Celsius

Weak paraffinic

Approximately 0.920 kg/cubic metre

Approximately 2 g/10min

Insoluble

None

Very low UV degradability

Approximately 25 N/mm<sup>2</sup>

Approximately 100g

6500-8500 cm<sup>3</sup>/sq. metre 24hrs atm

## MELT 1 SHRINK GRADE

Colourless, natural opaque solid at room temperature – softening point range at 83-98 Celsius – melting point range 104-115 Celsius

Weak paraffinic

Approximately 0.923 kg/cubic metre

Approximately 0.8 g/10min

Insoluble

None

Very low UV degradability

Approximately 26 N/mm<sup>2</sup>

Approximately 140g

6500-8500 cm<sup>3</sup>/sq. metre 24hrs atm

## LDPE SAFETY PROPERTIES

Decomposition Temp

Flash Point

Conditions to Avoid

Materials to Avoid

Hazardous Decomposition Products

Specific Hazards

## FIRE FIGHTING

Emergency Procedures

## APPROPRIATE FOR MELT 1 & MELT 2

Above 300 degrees Celsius

Above 360 degrees Celsius

Temperatures above 320 degrees Celsius or for long periods above 80 degrees Celsius

Strong oxidising agents

There is no degradation to unstable products under normal circumstances. Only at extreme temperatures will some degree of thermal degradation occur

The material is not classified as being a dangerous preparation. If inhaled, fines can cause mechanical irritation of the respiratory tract and eyes. It is unlikely to cause irritation to the skin, but if contact with molten material occurs, treat as for thermal burn

Use water spray to cool fire exposed surfaces and to protect personnel. Under oxygen lean conditions, carbon monoxide and irritating smoke may be produced.

## MATERIAL

## LDPE GRADE

## ADDRESS FOR SUPPLIER DECLARATIONS

Sabic

LDPE 2102TN26

[http://www.sabic-europe.com/products/\\_en/index.pl](http://www.sabic-europe.com/products/_en/index.pl)

Alastian

ALASTIAN PE LD 2-1

<http://www.alastian.com/portal/site/alastian/>

Borealis

FT5230 / FT6244

<http://www.borealisgroup.com/public/>