CHEMICAL COMPOSITION

Polythene is a polyolefine with the chemical formula \((-\text{CH}_2\text{-CH}_2\-)_n\) 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 ant-blocking 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 slippy 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 slippy 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
POLYTHENE TECHNICAL INFORMATION

RAW MATERIAL
Physical state

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
- Very low UV degradability

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
- Very low UV degradability

LDPE FILM
Tensile Strength
- Approximately 25 N/mm2

Dart Drop
- Approximately 100g

Oxygen Permeability
- 6500-8500 cm3/sq. metre 24hrs atm

LDPE SAFETY PROPERTIES
Decomposition Temp
Above 300 degrees Celsius

Flash Point
Above 360 degrees Celsius

Conditions to Avoid
Temperatures above 320 degrees Celsius or for long periods above 80 degrees Celsius

Materials to Avoid
Strong oxidising agents

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

Specific Hazards
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

FIRE FIGHTING
Emergency Procedures
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

Alastian
ALASTIAN PE LD 2-1
http://www.alastian.com/portal/site/alastian/

Borealis
FT5230 / FT6244
http://www.borealisgroup.com/public/