CHEMICAL COMPOSITION
Polythene is a polyolefine with the chemical formula (-CH2-CH2-)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
POLYTHENE TECHNICAL INFORMATION

RAW MATERIAL
Physical state
Odour
Relative Density
Melt Flow Index
Solubility in Water
Toxicity
Degradability

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 0.8 g/10min
None
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
None
Very low UV degradability

LDPE FILM
Tensile Strength
Approximately 25 N/mm²
Approximately 26 N/mm²
Dart Drop
Approximately 100g
Approximately 140g
Oxygen Permeability
6500-8500 cm³/sq. metre 24hrs atm
6500-8500 cm³/sq. metre 24hrs atm

LDPE SAFETY PROPERTIES
Decomposition Temp
Above 300 degrees Celsius
Above 360 degrees Celsius
Flash Point
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.

APPROPRIATE FOR MELT 1 & MELT 2

MATERIAL
Sabic
Alastian
Borealis
LDPE GRADE
LDPE 2102TN26
ALASTIAN PE LD 2-1
FT5230 / FT6244
ADDRESS FOR SUPPLIER DECLARATIONS
http://www.sabic-europe.com/products/-en/index.pl
http://www.alastian.com/portal/site/alastian/
http://www.borealisgroup.com/public/