# Technical Data Sheet

## *Lupolen* 3010D

Low Density Polyethylene

### Product Description

*Lupolen* 3010 D is a non-additivated, low density polyethylene. It is characterized by a high melt strength leading to a good bubble stability during blown film extrusion.
LyondellBasell customers report that films made from *Lupolen* 3010 D exhibit a good shrinkage performance.
*Lupolen* 3010 D provides the option to produce films with good optical and mechanical properties.
It is delivered in pellet form.

This product is not intended for use in medical and pharmaceutical applications.

### Regulatory Status

For regulatory compliance information, see *Lupolen* 3010D Product Stewardship Bulletin (PSB) and Safety Data Sheet (SDS).

| | |
|---|---|
| **Status** | Commercial: Active |
| **Availability** | Europe |
| **Application** | Bags & Pouches; Bottles and Vials; Food Packaging Film; Shrink Film |
| **Market** | Flexible Packaging; Rigid Packaging |
| **Processing Method** | Blown Film; Extrusion Blow Molding |
| **Attribute** | Good Optical Properties; Good Processability; Good Toughness |

| Typical Properties | Nominal Value | Units | Test Method |
|---|---|---|---|
| **Physical** | | | |
| Melt Flow Rate, (190 °C/2.16 kg) | 0.25 | g/10 min | ISO 1133-1 |
| Density | 0.927 | g/cm³ | ISO 1183-1 |
| **Mechanical** | | | |
| Tensile Modulus | 300 | MPa | ISO 527-1, -2 |
| Tensile Stress at Yield | 13 | MPa | ISO 527-1, -2 |
| Environmental Stress Crack Resistance, $F_{10}$ (10% Igepal®, Cond B) | 15 | hr | ASTM D1693 |
| **Film** | | | |
| Dart Drop Impact Strength, F50 | 180 | g | ASTM D1709 |
| Tensile Strength | | | |
| MD | 30 | MPa | ISO 527-1, -3 |
| TD | 27 | MPa | ISO 527-1, -3 |
| Tensile Strain at Break | | | |
| MD | 250 | % | ISO 527-1, -3 |
| TD | 600 | % | ISO 527-1, -3 |
| Coefficient of Friction | >0.7 | | ISO 8295 |
| **Impact** | | | |
| Failure Energy | 5 | J/mm | DIN 53373 |
| **Thermal** | | | |
| Vicat Softening Temperature, (A/50) | 102 | °C | ISO 306 |



Manufacturer website: https://www.lyondellbasell.com/en/

| | | | |
|---|---|---|---|
| Peak Melting Point | 114 | °C | ISO 11357-3 |
| **Optical** | | | |
| Haze, (50 µm) | <7 | % | ASTM D1003 |
| Gloss | | | |
| (20°) | >35 | | ASTM D2457 |
| (60°) | >90 | | ASTM D2457 |
| **Additional Information** | | | |
| Test Specimen | Film | | |
| Film properties tested using 50 µm thickness blown film extruded at a melt temperature of 200°C and a blow-up ratio of 2.5:1. | | | |
| **Processing Parameters** | | | |
| Extrusion Temperature | 170-220 | °C | |
| Blown Film Extrusion | | | |

## Notes

These are typical property values not to be construed as specification limits.

## Processing Techniques

Users should determine the conditions necessary to obtain optimum product properties and suitability of the product for the intended application.

In cases where higher temperatures are required, please contact your appropriate technical contact for support.

## Further Information

### Health and Safety:

The resin is manufactured to the highest standards, but special requirements apply to certain applications such as food end-use contact and direct medical use. For specific information on regulatory compliance contact your local representative.

Workers should be protected from the possibility of skin or eye contact with molten polymer. Safety glasses are suggested as a minimal precaution to prevent mechanical or thermal injury to the eyes.

Molten polymer may be degraded if it is exposed to air during any of the processing and off-line operations. The products of degradation may have an unpleasant odor. In higher concentrations they may cause irritation of the mucus membranes. Fabrication areas should be ventilated to carry away fumes or vapours. Legislation on the control of emissions and pollution prevention should be observed.

The resin will burn when supplied with excess heat and oxygen. It should be handled and stored away from contact with direct flames and/or ignition sources. While burning, the resin contributes high heat and may generate a dense black smoke.

Recycled resins may have previously been used as packaging for, or may have otherwise been in contact with, hazardous goods. Converters are responsible for taking all necessary precautions to ensure that recycled resins are safe for continued use.

For further information about safety in handling and processing please refer to the Safety Data Sheet.

### Conveying:

Conveying equipment should be designed to prevent production and accumulation of fines and dust particles that are contained in polymer resins. These particles can under certain conditions pose an explosion hazard. Conveying systems should be grounded, equipped with adequate filters and regularly inspected for leaks.

**Storage:**
The resin is packed in 25 kg bags, octabins or bulk containers protecting it from contamination. If it is stored under certain conditions, i. e. if there are large fluctuations in ambient temperature and the atmospheric humidity is high, moisture may condense inside the packaging. Under these circumstances, it is recommended to dry the resin before use. Unfavorable storage conditions may also intensify the resin's slight characteristic odor.

Resin should be protected from direct sunlight, temperatures above 40°C and high atmospheric humidity during storage. Higher storage temperatures may reduce the storage time.

The information submitted is based on our current knowledge and experience. In view of the many factors that may affect processing and application, these data do not relieve processors of the responsibility of carrying out their own tests and experiments; neither do they imply any legally binding assurance of certain properties or of suitability for a specific purpose. This information does not remove the obligation of the customer to inspect the material on arrival and notify us of any faults immediately. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed.

## Company Information

For further information regarding the LyondellBasell company, please visit http://www.lyb.com/.

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