

## Lupolen 4261 AG

### Polyethylene, High Density

#### Product Description

**Lupolen 4261 AG** is a high molecular weight high density polyethylene (HDPE). Typical customer applications include automotive fuel tank applications. It is supplied in pellets and is stabilized with antioxidants for the extrusion process. The product features an outstanding Environmental Stress Cracking Resistance (ESCR), good chemical resistance in combination with an excellent low temperature impact resistance. Typical processes include blow moulding and thermoforming.

**Lupolen 4261 AG** is not intended for use in medical and pharmaceutical applications. The product can not be used for food contact applications.

#### Product Characteristics

<b>Status</b>	Commercial: Active
<b>Test Method used</b>	ISO ASTM
<b>Availability</b>	Europe, North America, Asia-Pacific, Australia/NZ, Africa-Middle East, Latin America
<b>Processing Methods</b>	Extrusion Blow Molding, Extrusion Thermoforming
<b>Features</b>	Antioxidant, High ESCR (Environmental Stress Cracking Resistance), High Impact Resistance
<b>Typical Customer Applications</b>	Fuel Tanks

Typical Properties	Method	Value	Unit
<b>Physical</b>			
Density <i>Note: at 23°C</i>	ISO 1183	0.945	g/cm <sup>3</sup>
Bulk density	ISO 60	> 500	g/cm <sup>3</sup>
Melt flow rate (190/21,6)	ISO 1133	6	g/10 min
FNCT (3.5 MPa, 2% Arkopal N100, 80°C)	ISO 16770	80	h
<b>Mechanical</b>			
ESCR <i>Note: Method B</i>	ASTM D 1693	1000	h
Flexural modulus	ISO 178	1100	MPa
Tensile Impact Strength  <i>Note: -30 °C, notched, Method 1/A</i>	ISO 8256	170	kJ/m <sup>2</sup>
 <i>Note: +23 °C, notched, Method 1/A</i>		250	kJ/m <sup>2</sup>
Elongation at yield <i>Note: Method 2</i>	ISO 527	10	%
Tensile stress at yield <i>Note: Method 2</i>	ISO 527	24	MPa
Tensile modulus	ISO 527	900	MPa
<b>Thermal</b>			
Melting Temperature	ISO 3146	131	°C

Vicat softening temperature A/50	ISO 306	126	°C
Oxidation induction time (OIT) (200°C)	ISO 11357-6 / EN 728	50	min

## Additional Properties

Processing: Recommended melt temperatures: 180-240 °C.

## Notes

Typical properties; not to be construed as specifications.

## Further Information

### **Lupolen 4261 AG**

#### **Conveying:**

Conveying equipment should be designed to prevent production and accumulation of fines and dust particles that may be contained to a small extent in polymer materials. These particles can under certain conditions pose an explosion hazard. We recommend the conveying system used is equipped with adequate filters, is operated and maintained so that no leak develops and adequate electrical grounding exists at all times.

#### **Health and Safety:**

Workers should be protected from the possibility of skin or eye contact with molten polymer. Safety glasses are suggested as a minimum 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 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 vapors. Legislation on the control of emissions and pollution prevention must be observed. If the principles of sound manufacturing practice are adhered to and the place of work is well ventilated, no health hazards in processing the material have been reported.

The material 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. In burning the material generates considerable heat and may generate dense black smoke. Minor fires can be extinguished by water, developed fires should be extinguished by heavy foams forming an aqueous or polymeric film. For further information about safety in handling and processing please refer to the Material Safety Data Sheet (MSDS).

#### **Storage:**

The material is packed in 25 kg bags or in bulk containers protecting it from contamination. The resin is subjected to degradation by ultra-violet radiations or by high storage temperatures. Therefore the resin must be protected from direct sunlight, temperatures above 40°C and high atmospheric humidity during storage. The resin can be stored over a period of more than 6 months without significant changes in the specified properties, appropriate storage conditions provided. Higher storage temperatures reduce the storage time.

Further unfavorable storage conditions are large fluctuations in ambient temperature and high atmospheric humidity. These conditions may lead to moisture condensing inside the packaging. Under these circumstances, it is recommended to dry the material before use. Unfavorable storage conditions may also intensify the material's slight characteristic odour or may even affect the quality of the finished good. Thus overall it is recommended to not store the resin outside.

Due to the hygroscopic character of the carbon black pigments, black colored materials may pick up moisture even under appropriate storage conditions. If this is the case it is recommended to dry the material before processing. After a storage period of more than 3 months drying of such material is recommended as standard practice.

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. The data do not relieve the customer from his obligation to control the material upon arrival and to complain about faults. 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.

LyondellBasell markets this product through the following entities:

- Equistar Chemicals, LP
- Basell Sales & Marketing Company B.V.
- Basell Asia Pacific Limited
- Basell International Trading FZE
- LyondellBasell Australia Pty Ltd

For the contact details of the LyondellBasell company selling this product in your country, please visit <http://www.lyb.com/>.

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This product(s) may not be used in:

(i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I Medical Devices, without prior notification to Seller for each specific product and application; or

(ii) the manufacture of any of the following, without prior written approval by Seller for each specific product and application: (1) U.S. FDA Class II, Health Canada Class II or Class III, and/or European Union Class II Medical Devices; (2) film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned Medical Devices; (3) packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration; (4) tobacco related products and applications; (5) electronic cigarettes and similar devices; and (6) pressure pipe or fittings that are considered a part or component of a nuclear reactor.

(iii) Additionally, the product(s) may not be used in: (1) U.S. FDA Class III, Health Canada Class IV, and/or European Class III Medical Devices; (2) applications involving permanent implantation into the body; (3) life-sustaining medical applications; and (4) lead, asbestos or MTBE related applications.

All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

Users should review the applicable Safety Data Sheet before handling the product.

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