

# ALCUDIA® LDPE PE-003

Low Density Polyethylene  
REPSOL

# PROSPECTOR®

www.ulprospector.com

## Technical Data

### Product Description

ALCUDIA® PE003 is a low density polyethylene grade, produced by high pressure autoclave technology, suitable for blown or cast film applications. It is also used to make little containers by extrusion-blow moulding. This material offers easy processability and good balance of mechanical and optical properties. It does not contain any additives.

#### TYPICAL APPLICATIONS

- General packaging film and thin shrink film.
- Lamination to different substrates (paper, aluminium foil, etc), with or without adhesive.
- T Extrusion-blow moulding of up to 2 litres containers for contact with foodstuffs.

Recommended melt temperature range from 150 to 180°C. Processing conditions should be optimised for each production line.

ALCUDIA® PE-003 is a low density polyethylene developed for cross-linking by direct addition of organic peroxide or silanes. This grade has the following features: excellent processability, high cross-linking rate and smooth surface finish. This product does not contain additives, so antioxidant must be added. The nature and content of antioxidant ought to be treated carefully because of which should present minimum interference with the cross-linking reaction and ensure thermal stability.

#### TYPICAL APPLICATIONS

Insulation of low voltage cables.

The ALCUDIA® PE-003 processing conditions depend on the type of cable to be manufactured, kind of equipment used and cross-linking system. The use of filters and a break plate is recommended in order to increase pressure in the cylinder and to avoid contaminations that could decrease the final quality of the cable.

ALCUDIA® PE-003 meets the following standards: ISO 1872 PE KN 18D022; ASTM D 1248 I, A3 Grade E5.

### General

Material Status	• Commercial: Active
Literature <sup>1</sup>	• <a href="#">Technical Datasheet (English)</a> • <a href="#">Technical Datasheet (English)</a> • <a href="#">Technical Datasheet (English)</a>
Search for UL Yellow Card	• <a href="#">REPSOL</a>
Availability	• Europe • North America
Features	• Additive Free • Crosslinkable • Food Contact Acceptable • Good Optical Properties • Good Processability • Good Surface Finish
Uses	• Cast Film • Film • Laminates • Low Voltage Insulation • Packaging • Shrink Wrap • Wire & Cable Applications
Agency Ratings	• ASTM D 1248, I, Class A, Cat. 3, Grade E5 • EU Food Contact, Unspecified Rating • ISO 1872 PE KN 18D022
Forms	• Pellets
Processing Method	• Blown Film • Cast Film

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	0,920 g/cm <sup>3</sup>	0,920 g/cm <sup>3</sup>	ISO 1183
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	2.0 to 2.4 g/10 min	2.0 to 2.4 g/10 min	ISO 1133
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Stress (Break)	2030 psi	14.0 MPa	ISO 527-2
Tensile Strain (Break)	500 %	500 %	ISO 527-2
Coefficient of Friction Dynamic, Blown Film	> 0.50	> 0.50	ASTM D1894
Films	Nominal Value (English)	Nominal Value (SI)	Test Method
Film Thickness - Tested	1.2 mil	30 µm	



**ALCUDIA® LDPE PE-003**

Low Density Polyethylene

**REPSOL****PROSPECTOR®**

www.ulprospector.com

<b>Films</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
<b>Tensile Stress</b>			ISO 527-3
MD : Yield, 1.2 mil (30 µm), Blown Film	1450 psi	10.0 MPa	
TD : Yield, 1.2 mil (30 µm), Blown Film	1450 psi	10.0 MPa	
MD : 1.2 mil (30 µm), Blown Film	4210 psi	29.0 MPa	
TD : 1.2 mil (30 µm), Blown Film	2900 psi	20.0 MPa	
<b>Tensile Elongation</b>			ISO 527-3
MD : Break, 1.2 mil (30 µm), Blown Film	200 %	200 %	
TD : Break, 1.2 mil (30 µm), Blown Film	550 %	550 %	
<b>Dart Drop Impact</b>			ISO 7765-1
1.2 mil (30 µm), Blown Film	90 g	90 g	
<b>Elmendorf Tear Strength</b>			ISO 6383-2
MD : 1.2 mil (30 µm), Blown Film	0.67 lbf	3.0 N	
TD : 1.2 mil (30 µm), Blown Film	0.28 lbf	1.3 N	
<b>Thermal</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Vicat Softening Temperature	196 to 198 °F	91.0 to 92.0 °C	ISO 306/A
<b>Electrical</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Volume Resistivity (73°F (23°C))	> 1.0E+16 ohms·cm	> 1.0E+16 ohms·cm	ASTM D257
Electric Strength <sup>3</sup>	> 560 V/mil	> 22 kV/mm	EN 60243-1
Dielectric Constant (1 MHz)	2.30	2.30	ASTM D150
Dissipation Factor (1 MHz)	3.0E-4	3.0E-4	ASTM D150
<b>Optical</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Gloss (45°, 1.18 mil (30.0 µm), Blown Film)	60	60	ASTM D2457
Haze (1.18 mil (30.0 µm), Blown Film)	8.0 %	8.0 %	ASTM D1003

**Additional Information**

Film properties taken from 30µm film with a blow up ratio of 2.25:1 and a frost line height of 40cm.

<b>Extrusion</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>
Cylinder Zone 1 Temp.	266 °F	130 °C
Cylinder Zone 2 Temp.	302 °F	150 °C
Cylinder Zone 3 Temp.	356 °F	180 °C
Cylinder Zone 4 Temp.	392 °F	200 °C
Adapter Temperature	428 °F	220 °C
Melt Temperature	302 to 356 °F	150 to 180 °C
Die Temperature	428 °F	220 °C

**Notes**<sup>1</sup> These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.<sup>2</sup> Typical properties: these are not to be construed as specifications.<sup>3</sup> 50 Hz