## ALCUDIA® LDPE PE-003

## Low Density Polyethylene

REPSOL

## Message:

ALCUDIA® PE-003 is a low density polyethylene grade, produced by high pressure autoclave technology, suitable for blown or cast film applications. This material offers easy processability and good balance of mechanical and optical properties. It does not contain any additives. TYPICAL APPLICATIONS

General packaging film.

Lamination to different substrates (paper, aluminum foil, etc), with or without adhesive.

Thin shrink film

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 crosslinking by direct addition of organic peroxide or silanes. Because of its special molecular characteristics, this grade has the following features: excellent processability; high crosslinking rate; smooth surface finish. This product does not contain additives, so antioxidant must be added during extrusion for protection against thermal and shear degradation. The nature and content of antioxidant ought to be treated carefully because of which should present minimum interference with the crosslinking reaction and ensure thermal stability.

TYPICAL APPLICATIONS

Insulation of low voltage power cables.

The ALCUDIA® PE-003 processing conditions depend on the type of cable to be manufactured, kind of equipment used and crosslinking system. The use of filters and a break plate is recommended in order to increase pressure and homogeneity, (also to improve dispersion of pigment if it is incorporated). On manufacturing thick insulation, one should employ a lighter system of filters. Clearly it is important to use a screw, head and die of correct design in order to obtain a good finish.

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

General Information	
Features	Optical
	Workability, good
	Crosslinkable
	Compliance of Food Exposure
	No additive
	Excellent appearance
Uses	Packaging
	Films
	Laminate
	Low voltage insulation
	Wire and cable applications
	cast film
	Shrinkable film
Agency Ratings	ASTM D 1248, I, Class A, Cat. 3, Grade E5
	ISO 1872 PE KN 18D022
	European food contact, not rated
Forms	Particle
Processing Method	Blow film

Physical	Nominal Value	Unit	Test Method		
Density	0.920	g/cm³	ISO 1183		
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	2.0 - 2.4	g/10 min	ISO 1133		
Mechanical	Nominal Value	Unit	Test Method		
Tensile Stress (Break)	14.0	MPa	ISO 527-2		
Tensile Strain (Break)	500	%	ISO 527-2		
Coefficient of Friction (vs. Itself - Dynamic, Blown Film)	> 0.50		ASTM D1894		
Films	Nominal Value	Unit	Test Method		
Film Thickness - Tested	30	μm			
Tensile Stress			ISO 527-3		
MD: Yield, 30 µm, blown film	10.0	MPa	ISO 527-3		
TD: Yield, 30 µm, blown film	10.0	MPa	ISO 527-3		
MD: 30 µm, blown film	29.0	MPa	ISO 527-3		
TD: 30 µm, blown film	20.0	MPa	ISO 527-3		
Tensile Elongation			ISO 527-3		
MD: Broken, 30 µm, blown film	200	%	ISO 527-3		
TD: Broken, 30 μm, blown film	550	%	ISO 527-3		
Dart Drop Impact (30 µm, Blown Film)	90	g	ISO 7765-1		
Elmendorf Tear Strength			ISO 6383-2		
MD: 30 µm, blown film	3.0	Ν	ISO 6383-2		
TD: 30 µm, blown film	1.3	Ν	ISO 6383-2		
Thermal	Nominal Value	Unit	Test Method		
Vicat Softening Temperature	91.0 - 92.0	°C	ISO 306/A		
Electrical	Nominal Value	Unit	Test Method		
Volume Resistivity (23°C)	> 1.0E+16	ohms·cm	ASTM D257		
Dielectric Strength <sup>1</sup>	> 22	kV/mm	EN 60243-1		
Dielectric Constant (1 MHz)	2.30		ASTM D150		
Dissipation Factor (1 MHz)	3.0E-4		ASTM D150		
Optical	Nominal Value	Unit	Test Method		
Gloss (45°, 30.0 µm, Blown Film)	60		ASTM D2457		
Haze (30.0 µm, Blown Film)	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.					
Extrusion	Nominal Value	Unit			
Cylinder Zone 1 Temp.	130	°C			
Cylinder Zone 2 Temp.	150	°C			
Cylinder Zone 3 Temp.	180	°C			
Cylinder Zone 4 Temp.	200	°C			
Adapter Temperature	220	°C			

Melt Temperature	150 - 180	℃
Die Temperature	220	℃
NOTE		
1.	50 Hz	

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## Recommended distributors for this material

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