Technical Data Sheet

DOW™ LDPE 503B Low Density Polyethylene Resin

Description

DOW™ LDPE 503B Low Density Polyethylene Resin is an antiblock additive resin for liners, industrial and clarity.

Main Characteristics

- Optimum Gauge Range: 1.0–3.0 mil

Applications

- Liners, industrial and clarity

Complies with

- U.S. FDA 21 CFR 177.1520(c)2.2
- EU, No 10/2011
- Canadian HPFB No Objection (with limitations)

Consult the regulations for complete details.

Additive

- Antiblock: 1200 ppm
- Slip: 0 ppm
- Processing aid: No

Properties[1]

Physical	Nominal Value	Unit (English)	Nominal Value	Unit (SI)	Test Method[2]
Density	0.922	g/cm³	0.922	g/cm³	ASTM D792
Base Density[3]	0.922	g/cm³	0.922	g/cm³	Internal Method
Melt Index (190°C/2.16 kg)	1.9	g/10 min	1.9	g/10 min	ASTM D1238
Films					
Film Thickness - Tested	2	mil	51	µm	
Film Puncture Resistance (2.0 mil (51 pm))	34.0	ft-lb/in³	2.81	J/cm³	Internal Method
Film Toughness					ASTM D882
MD: 2.0 mil (51 µm)	2220	ft-lb/in³	184	J/cm³	
TD: 2.0 mil (51 µm)	2290	ft-lb/in³	180	J/cm³	
Tensile Strength					ASTM D882
MD: Yield, 2.0 mil (51 µm)	1740	psi	12.0	MPa	
TD: Yield, 2.0 mil (51 µm)	1780	psi	12.3	MPa	
MD: Break, 2.0 mil (51 µm)	3800	psi	24.8	MPa	
TD: Break, 2.0 mil (51 µm)	3010	psi	20.8	MPa	

1. Typical properties: these are not to be construed as specifications. Users should confirm results by their own tests.
2. ASTM: American Society for Testing and Materials
3. Base density is estimated using the assumption that every 1000 ppm of antiblock in the finished product raises the density of the polymer by 0.0006 g/cm³. Base density is the estimated density of the polymer if it did not contain any antiblock.

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Properties (Cont.)

Films	Nominal Value	Unit (English)	Nominal Value	Unit (SI)	Test Method
Tensile Elongation					ASTM D882
MD: Break, 2.0 mil (51 µm)	520	%	520	%	
TD: Break, 2.0 mil (51 µm)	720	%	720	%	
Dart Drop Impact (2.0 mil (51 pm))	100	g	100	g	ASTM D1709A
Elmendorf Tear Strength					ASTM D1922
MD: 2.0 mil (51 µm)	560	g	560	g	
TD: 2.0 mil (51 µm)	470	g	470	g	
Thermal					
Vicat Softening Temperature	198	°F	92.2	°C	ASTM D1525
Melting Temperature (DSC)	232	°F	111	°C	Internal Method
Optical					
Gloss (45°, 2.00 mil (50.8 pm))	70		70		ASTM D2457
Haze (2.00 mil (50.8 pm))	7.50	%	7.50	%	ASTM D1003
Extrusion					
Melt Temperature	422	°F	217	°C	
Extrusion Notes					

Fabrication Conditions for Blown Film:

- Screw Size: 2.5 in. (63.5 mm); 30:1 LID
- Screw Type: Single Flight Double Mix
- Die Gap: 40 mil (1.02 mm)
- Melt Temperature: 422°F (217°C)
- Output: 10 lb/hr/in. of die circumference
- Die Diameter: 6 in.
- Blow-up Ratio: 2.5:1
- Screw Speed: 92 rpm
- Frost Line Height: 30 in. (792 mm)

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c. use as a critical component in medical devices that support or sustain human life; or
d. use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.
e. use as an ingredient of a pharmaceutical injectable application.

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