



DOW™ LDPE 690 HEALTH+™ Low Density Polyethylene Resin

Overview DOW™ LDPE 690 HEALTH+™ is a Low Density Polyethylene barefoot resin designed for extrusion blow molding, injection blow molding, and blow-fill seal applications with good flexibility, moderate rigidity and good chemical resistance. It is also suitable for medical packaging films.

Main Characteristics:

- Good flexibility
- Good chemical resistance
- Good stiffness

Complies with:

- U.S. FDA 21CFR 177.1520 (c) 2.2
- USP Class VI
- Drug Master File Listing
- Canadian HPFB (No Objections)
- EU, No 10/2011
- Consult the regulations for complete details.

Additive • Antiblock: No • Slip: No • Processing Aid: No

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	0.920 g/cm ³	0.920 g/cm ³	ASTM D792
Base Density ¹	0.920 g/cm ³	0.920 g/cm ³	Dow Method
Melt Index (190°C/2.16 kg)	2.0 g/10 min	2.0 g/10 min	ASTM D1238
Films	Nominal Value (English)	Nominal Value (SI)	Test Method
Film Thickness - Tested	2 mil	51 µm	
Film Puncture Resistance (2.0 mil (51 µm))	35.0 ft·lb/in ³	2.90 J/cm ³	Dow Method
Film Toughness			ASTM D882
MD : 2.0 mil (51 µm)	1920 ft·lb/in ³	159 J/cm ³	
TD : 2.0 mil (51 µm)	2230 ft·lb/in ³	185 J/cm ³	
Secant Modulus			ASTM D882
2% Secant, MD : 2.0 mil (51 µm)	26200 psi	181 MPa	
2% Secant, TD : 2.0 mil (51 µm)	30000 psi	207 MPa	
Tensile Strength			ASTM D882
MD : Yield, 2.0 mil (51 µm)	1790 psi	12.3 MPa	
TD : Yield, 2.0 mil (51 µm)	1760 psi	12.1 MPa	
MD : Break, 2.0 mil (51 µm)	3600 psi	24.8 MPa	
TD : Break, 2.0 mil (51 µm)	3330 psi	23.0 MPa	
Tensile Elongation			ASTM D882
MD : Break, 2.0 mil (51 µm)	420 %	420 %	
TD : Break, 2.0 mil (51 µm)	670 %	670 %	
Dart Drop Impact (2.0 mil (51 µm))	150 g	150 g	ASTM D1709A
Elmendorf Tear Strength ²			ASTM D1922
MD : 2.0 mil (51 µm)	500 g	500 g	
TD : 2.0 mil (51 µm)	280 g	280 g	
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Vicat Softening Temperature	209 °F	98.3 °C	ASTM D1525
Melting Temperature (DSC)	233 °F	112 °C	Dow Method
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Gloss (45°, 2.00 mil (50.8 µm))	66	66	ASTM D2457
Haze (2.00 mil (50.8 µm))	7.60 %	7.60 %	ASTM D1003

Extrusion	Nominal Value (English)	Nominal Value (SI)
Melt Temperature	450 °F	232 °C

Extrusion Notes

Fabrication Conditions For Blown Film:

- Screw Size: 2.5in. (63.5mm); 30/1 ratio L/D
- Screw Type: Single Flight Double Mix
- Die Gap: 40mil (1.6 mm)
- Melt Temperature: 390°F (199°C)
- Output: 7 lb/hr/in. of die circumference
- Die Diameter: 6 in.
- Blow-Up Ratio: 2.5 to 1
- Screw Speed: 60 rpm
- Frost Line Height: 25 in. (635 mm)

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

¹ 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.

² Method B

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