



DOW™ HDPE DMDA-8007 NT 7

The Dow Chemical Company - High Density Polyethylene Resin

Tuesday, January 28, 2020

General Information

Product Description

- Excellent stiffness/modulus
- Excellent warp resistance
- Molded parts have high gloss, low odor
- For injection molded crates, cases, totes, and other parts needing high modulus
- Complies with U.S. FDA 21 CFR 177.1520 (c)2.2
- Complies with Canadian HPFB No Objection
- Complies with EU, No 10/2011
- Consult the regulations for complete details.

DOW DMDA-8007 NT 7 High Density Polyethylene (HDPE) Resin is a narrow molecular weight distribution high density homopolymer designed to offer excellent stiffness, low warpage, good/acceptable toughness, and good moldability. This resin is ideally suited for injection molded crates, cases, trays, tote bins, and other objects requiring high rigidity. This resin is also suitable for cast film extrusion processing.

General

Material Status	• Commercial: Active		
Regional Availability	• Asia Pacific	• Latin America	• North America
Additive	• Antiblock: No	• Processing Aid: No	• Slip: No
Agency Ratings	• EU No 10/2011	• FDA 21 CFR 177.1520(c) 2.2	• HPFB (Canada) No Objection
Forms	• Pellets		
Processing Method	• Cast Film	• Injection Molding	

ASTM & ISO Properties ¹

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density / Specific Gravity	0.967	0.967	ASTM D792
Melt Mass-Flow Rate (MFR)			ASTM D1238
190°C/2.16 kg	8.3 g/10 min	8.3 g/10 min	
190°C/21.6 kg	180 g/10 min	180 g/10 min	
Environmental Stress-Cracking Resistance (ESCR) ²			ASTM D1693
122°F (50°C), 100% Igepal, F50	2.00 hr	2.00 hr	
Mechanical	Typical Value (English)	Typical Value (SI)	Test Method
Tensile Strength ²			ASTM D638
Yield	4500 psi	31.0 MPa	
Break	2600 psi	17.9 MPa	
Tensile Elongation ²			ASTM D638
Yield	6.0 %	6.0 %	
Break	350 %	350 %	
Flexural Modulus - 2% Secant ²	205000 psi	1410 MPa	ASTM D790B
Films	Typical Value (English)	Typical Value (SI)	Test Method
Film Thickness - Tested	1 mil	25 µm	
Film Puncture Resistance (1.0 mil (25 µm))	7.00 ft-lb/in ³	0.579 J/cm ³	Internal Method

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Films	Typical Value (English)	Typical Value (SI)	Test Method
Secant Modulus			ASTM D882
2% Secant, MD : 1.0 mil (25 µm), Cast Film	116000 psi	798 MPa	
2% Secant, TD : 1.0 mil (25 µm), Cast Film	136000 psi	935 MPa	
Tensile Strength			ASTM D882
MD : Yield, 1.0 mil (25 µm), Cast Film	2950 psi	20.4 MPa	
TD : Yield, 1.0 mil (25 µm), Cast Film	3240 psi	22.4 MPa	
Tensile Elongation			ASTM D882
MD : Break, 1.0 mil (25 µm), Cast Film	670 %	670 %	
TD : Break, 1.0 mil (25 µm), Cast Film	490 %	490 %	
Dart Drop Impact			ASTM D1709A
1.0 mil (25 µm), Cast Film	24 g	24 g	
Elmendorf Tear Strength			ASTM D1922
MD : 1.0 mil (25 µm), Cast Film	36 g	36 g	
TD : 1.0 mil (25 µm), Cast Film	160 g	160 g	
Impact	Typical Value (English)	Typical Value (SI)	Test Method
Tensile Impact Strength ^{3,2}	80.0 ft-lb/in ²	168 kJ/m ²	ASTM D1822
Hardness	Typical Value (English)	Typical Value (SI)	Test Method
Durometer Hardness ² (Shore D)	61	61	ASTM D2240
Thermal	Typical Value (English)	Typical Value (SI)	Test Method
Deflection Temperature Under Load ²			ASTM D648
66 psi (0.45 MPa), Unannealed	183 °F	83.9 °C	
Brittleness Temperature ²	< -105 °F	< -76.1 °C	ASTM D746
Vicat Softening Temperature	268 °F	131 °C	ASTM D1525
Melting Temperature (DSC)	271 °F	133 °C	Internal Method
Peak Crystallization Temperature (DSC)	248 °F	120 °C	Internal Method
Optical	Typical Value (English)	Typical Value (SI)	Test Method
Gloss (45°, 1.00 mil (25.4 µm), Cast Film)	75	75	ASTM D2457
Haze (1.00 mil (25.4 µm), Cast Film)	8.00 %	8.00 %	ASTM D1003
Processing Information			
Extrusion	Typical Value (English)	Typical Value (SI)	
Melt Temperature	500 °F	260 °C	

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Extrusion Notes

Fabrication Conditions For Cast Film:

- Screw A, Size: 2 in. (51 mm); 30:1 L/D
 - Screw Speed: 39 rpm
- Screw B, Size: 2.5 in. (63.5 mm); 30:1 L/D
 - Screw Speed: 39 rpm
- Screw C, Size: 2.5 in. (63.5 mm); 30:1 L/D
 - Screw Speed: 39 rpm
- Screw D, Size: 2.5 in. (63.5 mm); 30:1 L/D
 - Screw Speed: 39 rpm
- Screw E, Size: 2 in. (51 mm); 30:1 L/D
 - Screw Speed: 39 rpm
- Screw Type: DSB II
- Melt Temperature: 500°F (261°C)
- Chill Roll Temperature: 70°F (21°C)
- Line Speed: 400 fpm (123 m/min)
- Output: 426 lb/hr
- Die width: 36 in. (914 mm)
- Die gap: 25 mil (0.6 mm)

Notes

¹ Typical properties: these are not to be construed as specifications.

² Molded and tested in accordance with ASTM D4976.

³ Type S