



DOW™ HDPE DMDA-8007 NT 7 High Density Polyethylene Resin

Overview

- 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.

Additive

- Antiblock: No
- Slip: No
- Processing Aid: No

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	0.965 g/cm ³	0.965 g/cm ³	ASTM D792
Base Density	0.965 g/cm ³	0.965 g/cm ³	Dow Method ¹
Melt Index			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			ASTM D1693 ²
122°F (50°C), 100% Igepal, F50	2.00 hr	2.00 hr	
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength			ASTM D638 ²
Yield	4500 psi	31.0 MPa	
Break	2600 psi	17.9 MPa	
Tensile Elongation			ASTM D638 ²
Yield	6.0 %	6.0 %	
Break	350 %	350 %	
Flexural Modulus - 2% Secant	205000 psi	1410 MPa	ASTM D790B ²
Films	Nominal Value (English)	Nominal Value (SI)	Test Method
Film Thickness - Tested	1.0 mil	25 µm	
Film Puncture Resistance (1.0 mil (25 µm))	7.00 ft·lb/in ³	0.579 J/cm ³	Dow 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	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Impact Strength	80.0 ft·lb/in ²	168 kJ/m ²	ASTM D1822 ^{3, 2}

Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Durometer Hardness (Shore D)	61	61	ASTM D2240 ²
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load 66 psi (0.45 MPa), Unannealed	183 °F	83.9 °C	ASTM D648 ²
Brittleness Temperature	< -105 °F	< -76.1 °C	ASTM D746 ²
Vicat Softening Temperature	268 °F	131 °C	ASTM D1525
Melting Temperature (DSC)	271 °F	133 °C	Dow Method
Peak Crystallization Temperature (DSC)	248 °F	120 °C	Dow Method
Optical	Nominal Value (English)	Nominal 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)	8.0 %	8.0 %	ASTM D1003
Extrusion	Nominal Value (English)	Nominal Value (SI)	
Melt Temperature	500 °F	260 °C	

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

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 Molded and tested in accordance with ASTM D4976.

³ Type S

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