



# DOW™ HDPE DMDA-8904 NT 7 High Density Polyethylene Resin

## Overview

- Injection molding
- For injection molded pails, industrial parts and other shipping containers
- Excellent impact strength, stress crack resistance and processability
- Very narrow molecular weight distribution

Complies with:

- U.S. FDA 21 CFR 177.1520 (c)3.2a
- Canadian HPFB No Objection
- EU, No 10/2011

Consult the regulations for complete details.

DOW DMDA-8904 NT 7 High Density Polyethylene (HDPE) Resin is produced via UNIPOL™ Process Technology from Dow and is intended for use in injection molding applications such as pails, industrial parts and other shipping containers. This resin has been designed to provide excellent processability for molders and to meet the rigorous performance characteristics of applications requiring stackability, environmental stress crack resistance and impact strength. 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	0.952 g/cm <sup>3</sup>	0.952 g/cm <sup>3</sup>	ASTM D792
Base Density <sup>1</sup>	0.952 g/cm <sup>3</sup>	0.952 g/cm <sup>3</sup>	Dow Method
Melt Index (190°C/2.16 kg)	4.4 g/10 min	4.4 g/10 min	ASTM D1238
Environmental Stress-Cracking Resistance (ESCR) <sup>2</sup> 122°F (50°C), 100% Igepal, F50	22.0 hr	22.0 hr	ASTM D1693
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength <sup>2</sup>			ASTM D638
Yield	3900 psi	26.9 MPa	
Break	4500 psi	31.0 MPa	
Tensile Elongation <sup>2</sup>			ASTM D638
Yield	9.0 %	9.0 %	
Break	1200 %	1200 %	
Flexural Modulus - 2% Secant <sup>2</sup>	160000 psi	1100 MPa	ASTM D790B
Films	Nominal Value (English)	Nominal Value (SI)	Test Method
Film Thickness - Tested	1 mil	25 µm	
Film Puncture Resistance (1.0 mil (25 µm))	8.00 ft·lb/in <sup>3</sup>	0.662 J/cm <sup>3</sup>	Dow Method
Secant Modulus			ASTM D882
2% Secant, MD : 1.0 mil (25 µm), Cast Film	81300 psi	560 MPa	
2% Secant, TD : 1.0 mil (25 µm), Cast Film	91700 psi	632 MPa	
Tensile Strength			ASTM D882
MD : Yield, 1.0 mil (25 µm), Cast Film	3510 psi	24.2 MPa	
TD : Yield, 1.0 mil (25 µm), Cast Film	3010 psi	20.7 MPa	
MD : Break, 1.0 mil (25 µm), Cast Film	6630 psi	45.7 MPa	
TD : Break, 1.0 mil (25 µm), Cast Film	5640 psi	38.9 MPa	
Tensile Elongation			ASTM D882
MD : Break, 1.0 mil (25 µm), Cast Film	690 %	690 %	
TD : Break, 1.0 mil (25 µm), Cast Film	940 %	940 %	
Dart Drop Impact			ASTM D1709A
1.0 mil (25 µm), Cast Film	28 g	28 g	

<b>Films</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Elmendorf Tear Strength			ASTM D1922
MD : 1.0 mil (25 µm), Cast Film	22 g	22 g	
TD : 1.0 mil (25 µm), Cast Film	160 g	160 g	
<b>Impact</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Tensile Impact Strength <sup>3, 2</sup>	40.0 ft-lb/in <sup>2</sup>	84.1 kJ/m <sup>2</sup>	ASTM D1822
<b>Hardness</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Durometer Hardness <sup>2</sup> (Shore D)	59	59	ASTM D2240
<b>Thermal</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Deflection Temperature Under Load <sup>2</sup>			ASTM D648
66 psi (0.45 MPa), Unannealed	162 °F	72.2 °C	
Brittleness Temperature <sup>2</sup>	< -105 °F	< -76.1 °C	ASTM D746
Vicat Softening Temperature	264 °F	129 °C	ASTM D1525
Melting Temperature (DSC)	268 °F	131 °C	Dow Method
Peak Crystallization Temperature (DSC)	246 °F	119 °C	Dow Method
<b>Optical</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Gloss (45°, 1.00 mil (25.4 µm), Cast Film)	87	87	ASTM D2457
Haze (1.00 mil (25.4 µm), Cast Film)	3.00 %	3.00 %	ASTM D1003
<b>Extrusion</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	
Melt Temperature	525 °F	274 °C	

#### **Extrusion Notes**

Fabrication Conditions For Cast Film:

- EGAN/Davis-Standard 5 layer cast line
- Melt Temperature: 525° F (261°C)
- Chill Roll (primary/secondary) Temperature: 70°F (21°C)
- Line Speed: 400 fpm (123 m/min)
- Output: 356 lb/hr
- Die width: 36 in. (914 mm)
- Die gap: 25 mil (.65 mm)
- Air gap: 3 in. (76 mm)

#### **Notes**

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

<sup>1</sup> 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/cm<sup>3</sup>. Base density is the estimated density of the polymer if it did not contain any antiblock.

<sup>2</sup> Molded and tested in accordance with ASTM D4976.

<sup>3</sup> Type S

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