



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)3.1a
- 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 ³	0.952 g/cm ³	ASTM D792
Base Density	0.952 g/cm ³	0.952 g/cm ³	Dow Method ¹
Melt Index (190°C/2.16 kg)	4.4 g/10 min	4.4 g/10 min	ASTM D1238
Environmental Stress-Cracking Resistance 122°F (50°C), 100% Igepal, F50	22.0 hr	22.0 hr	ASTM D1693 ²
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength			ASTM D638 ²
Yield	3900 psi	26.9 MPa	
Break	4500 psi	31.0 MPa	
Tensile Elongation			ASTM D638 ²
Yield	9.0 %	9.0 %	
Break	1200 %	1200 %	
Flexural Modulus - 2% Secant	160000 psi	1100 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))	8.00 ft-lb/in ³	0.662 J/cm ³	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	
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	

Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Impact Strength	40.0 ft·lb/in ²	84.1 kJ/m ²	ASTM D1822 ^{3, 2}
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Durometer Hardness (Shore D)	59	59	ASTM D2240 ²
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load 66 psi (0.45 MPa), Unannealed	162 °F	72.2 °C	ASTM D648 ²
Brittleness Temperature	< -105 °F	< -76.1 °C	ASTM D746 ²
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
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Gloss (45°, 1.00 mil (25.4 µm), Cast Film)	87	87	ASTM D2457
Haze (1.00 mil (25.4 µm), Cast Film)	3.0 %	3.0 %	ASTM D1003
Extrusion	Nominal Value (English)	Nominal Value (SI)	
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.

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

Product Stewardship

The Dow Chemical Company and its subsidiaries ("Dow") has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our Product Stewardship program rests with each and every individual involved with Dow products — from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Medical Applications Policy

NOTICE REGARDING MEDICAL APPLICATION RESTRICTIONS: Dow will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- long-term or permanent contact with internal bodily fluids or tissues. "Long-term" is contact which exceeds 72 continuous hours;
- use in cardiac prosthetic devices regardless of the length of time involved ("cardiac prosthetic devices" include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass-assisted devices);
- use as a critical component in medical devices that support or sustain human life; or
- use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted. Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use. **DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.**

Disclaimer

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligation or liability for the information in this document. **NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.**

NOTICE: If products are described as "experimental" or "developmental": (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Dow to change specifications and/or discontinue production; and (4) although Dow may from time to time provide samples of such products, Dow is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

Additional Information

North America		Europe/Middle East	+800-3694-6367
U.S. & Canada:	1-800-441-4369		+31-11567-2626
	1-989-832-1426	Italy:	+800-783-825
Mexico:	+1-800-441-4369		
Latin America		South Africa	+800-99-5078
Argentina:	+54-11-4319-0100		
Brazil:	+55-11-5188-9000		
Colombia:	+57-1-219-6000	Asia Pacific	+800-7776-7776
Mexico:	+52-55-5201-4700		+603-7965-5392

www.dowplastics.com

This document is intended for use within Asia Pacific, Latin America, North America

Published: 2003-10-30

© 2013 The Dow Chemical Company

