



# DOWLEX™ 2045 Polyethylene Resin

## Overview

- Linear Low Density Polyethylene
- For heavy duty film applications
- Complies with U.S. FDA 21 CFR 177.1520 (c) 3.2a.
- Canadian HPFB No Objection (With Limitations)
- 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 <sup>3</sup>	0.920 g/cm <sup>3</sup>	ASTM D792
Base Density <sup>1</sup>	0.920 g/cm <sup>3</sup>	0.920 g/cm <sup>3</sup>	Dow Method
Melt Index (190°C/2.16 kg)	1.0 g/10 min	1.0 g/10 min	ASTM D1238
Films	Nominal Value (English)	Nominal Value (SI)	Test Method
Film Puncture Resistance			Dow Method
0.80 mil (20 µm)	268 ft·lb/in <sup>3</sup>	22.2 J/cm <sup>3</sup>	
2.0 mil (51 µm)	235 ft·lb/in <sup>3</sup>	19.4 J/cm <sup>3</sup>	
Film Toughness			ASTM D882
MD : 0.80 mil (20 µm)	3860 ft·lb/in <sup>3</sup>	319 J/cm <sup>3</sup>	
MD : 2.0 mil (51 µm)	4180 ft·lb/in <sup>3</sup>	346 J/cm <sup>3</sup>	
TD : 0.80 mil (20 µm)	4300 ft·lb/in <sup>3</sup>	356 J/cm <sup>3</sup>	
TD : 2.0 mil (51 µm)	4240 ft·lb/in <sup>3</sup>	351 J/cm <sup>3</sup>	
Secant Modulus			ASTM D882
2% Secant, MD : 0.80 mil (20 µm)	30500 psi	210 MPa	
2% Secant, MD : 2.0 mil (51 µm)	28200 psi	194 MPa	
2% Secant, TD : 0.80 mil (20 µm)	33700 psi	232 MPa	
2% Secant, TD : 2.0 mil (51 µm)	33700 psi	233 MPa	
Tensile Strength			ASTM D882
MD : Yield, 0.80 mil (20 µm)	1710 psi	11.8 MPa	
MD : Yield, 2.0 mil (51 µm)	1580 psi	10.9 MPa	
TD : Yield, 0.80 mil (20 µm)	1750 psi	12.1 MPa	
TD : Yield, 2.0 mil (51 µm)	1780 psi	12.3 MPa	
MD : Break, 0.80 mil (20 µm)	9310 psi	64.2 MPa	
MD : Break, 2.0 mil (51 µm)	7990 psi	55.1 MPa	
TD : Break, 0.80 mil (20 µm)	7650 psi	52.7 MPa	
TD : Break, 2.0 mil (51 µm)	7220 psi	49.8 MPa	
Tensile Elongation			ASTM D882
MD : Break, 0.80 mil (20 µm)	640 %	640 %	
MD : Break, 2.0 mil (51 µm)	830 %	830 %	
TD : Break, 0.80 mil (20 µm)	880 %	880 %	
TD : Break, 2.0 mil (51 µm)	890 %	890 %	
Dart Drop Impact			ASTM D1709A
0.80 mil (20 µm)	150 g	150 g	
2.0 mil (51 µm)	290 g	290 g	
Elmendorf Tear Strength			ASTM D1922
MD : 0.80 mil (20 µm)	230 g	230 g	
MD : 2.0 mil (51 µm)	900 g	900 g	
TD : 0.80 mil (20 µm)	520 g	520 g	
TD : 2.0 mil (51 µm)	1200 g	1200 g	



Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Vicat Softening Temperature	226 °F	108 °C	ASTM D1525
Melting Temperature (DSC)	252 °F	122 °C	Dow Method
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Gloss			ASTM D2457
45°, 0.800 mil (20.3 µm)	63	63	
45°, 2.00 mil (50.8 µm)	60	60	
Haze			ASTM D1003
0.800 mil (20.3 µm)	9.00 %	9.00 %	
2.00 mil (50.8 µm)	10.0 %	10.0 %	

#### Extrusion Notes

Fabrication Conditions For Blown Film:

- Screw Size: 2.5 in. (63.5 mm); 30:1 L/D
- Screw Type: DSBII
- Die Gap: 70 mil (1.8 mm)
- Melt Temperature: 450°F (232°C)
- Output: 10 lb/hr/in. of die circumference
- Die Diameter: 6 in.
- Blow-Up Ratio: 2.5:1
- Screw Speed: 83 rpm

#### 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.

