Technical Data Sheet

CONTINUUM™ DGDB-2490 NT Bimodal Polyethylene Resin

Overview

Industrial Standards Compliance:

- ASTM D 3350: cell classification
  - Natural - PE445576A
  - Black - PE445576C (See NOTES A & B)
- Plastics Pipe Institute (PPI): TR-4
  - Black Pipe - CONTINUUM™ DGDB-2490 BK 100 (See NOTES B)
  - ISO PE100 pipe grade - MRS 10 @ 20°C; CRS 10 @ 20°C, 100 yr; CRS 8 @ 40°C, 90 yr; CRS 6.3 @ 60°C, 11 yr
  - ASTM PE4710 pipe grade - 1600psi HDB and 1000 psi HDS @ 73°F and 1000psi HDB @140°F
  - NSF International
  - NSF/ANSI Standard 14
  - NSF/ANS/CAN Standard 61
  - Black Pipe - DGDB-2490 (See NOTES B)

Consult the regulations for complete details.

CONTINUUM™ DGDB-2490 NT Bimodal Polyethylene Resin is produced using UNIPOL™ II process technology. This product may be utilized for pipe applications where long-term hydrostatic strength combined with outstanding resistance to slow crack growth and rapid crack propagation is desired. Suitable applications include natural gas distribution pipes, industrial piping, mining, sewage, and municipal water service lines.

NOTES:

A. The first five numbers of the cell classification are based on natural resin. The last number and letter are based on black resin (natural resin plus 6.5% DFNF-0092).
B. Natural resin extruded under proper conditions with carbon black masterbatch DFNF-0092 (6.5%).

Additive

- Antiblock: No
- Slip: No
- Processing aid: No

Properties

Physical	Nominal Value	Unit (English)	Nominal Value	Unit (SI)	Test Method[1]
Density[2]	0.949	g/cm³	0.949	g/cm³	ASTM D792
	0.959	g/cm³	0.959	g/cm³	
Melt Index					ASTM D1238
190°C/2.16 kg	0.080	g/10 min	0.080	g/10 min	
190°C/21.6 kg	7.0	g/10 min	7.0	g/10 min	
Mechanical					
Tensile Strength[3] (Yield)	3600	psi			ASTM D638
Tensile Elongation[3] (Break)	740	%			ASTM D638
Flexural Modulus[3,4]	150000	psi			ASTM D790B
Hydrostatic Strength[2]					ASTM D1598
1798 psi (12.4 MPa) : 68°F (20°C)	> 100	hr			
798 psi (5.5 MPa) : 176°F (80°C)	> 1000	hr			
Resistance to Rapid Crack Propagation, Pc					
Calculated, Full Scale : 32°F (0°C)[5]	> 664	psi			ISO 13478
S-4 : 32°F (0°C)[6]	> 174	psi			ISO 13477
Resistance to Rapid Crack Propagation, Tc[7]	< 2	°F			ISO 13477
Slow Crack Growth PENT[8]	10000	hr			ASTM F1473
Impact					
Notched Izod Impact[8] (73°F (23°C))	9.1	ft-lb/in	490	J/m	ASTM D256A
Thermal					
Brittleness Temperature[8]	< -103	°F	< -75.0	°C	ASTM D746A
Extrusion					
Melt Temperature	380 to 440	°F	193 to 227	°C	
Thermal Stability	> 428	°F	> 220	°C	ASTM D3350
Extrusion Notes					

Fabrication Conditions:

- Screw Type: High quality HDPE (preferably barrier for complete melting)
- Melt Temperature Range: 380–440°F (193–225°C)

1. ASTM: American Society for Testing and Materials
   ISO: International Standardization Organization
2. Natural resin extruded under proper conditions with carbon black masterbatch DFNF-0092 (6.5%).
3. Compression molded parts prepared according to ASTM D 4703 Procedure C unless otherwise noted in the test method. Properties will vary with changes in molding conditions and aging time. Data generated based on ASTM F1473 at Dow facility. Pent data projected based on representative test samples and conditions.
4. Method I (3 point load)
5. Calculated value, determined by the equation in ISO 4437 based on S-4 test data. Pipe diameter of 10 inch IPS (25.4 cm) and Standard Diameter Ratio (SDR) 11.
6. Pipe diameter of 10 inch IPS (25.4 cm) and Standard Diameter Ratio (SDR) 11.
7. Natural resin extruded under proper conditions with carbon black masterbatch DFNF-0092 (6.5%). Pipe diameter of 10 inch IPS (25.4 cm) and Standard Diameter Ratio (SDR) 11.
8. Compression molded parts prepared according to ASTM D 4703 Procedure C unless otherwise noted in the test method. Properties will vary with changes in molding conditions and aging time.