Technical Information

CONTINUUM™ DGDA-2502 BK
High Density Polyethylene Resin

Overview

CONTINUUM™ DGDA-2502 BK 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, rapid crack propagation, and high melt strength is desired. Suitable applications include natural gas distribution pipes, large diameter industrial piping, mining, sewage, and municipal water service lines. DGDA-2502 BK has excellent processability for the full range of pipes sizes and wall thicknesses to include heavy wall pipe.

Industrial Standards Compliance:

ASTM D 3350: cell classification

- Natural - PE445574A CC0
- Black - PE445574C CC2 (see Notes A & B)

Plastics Pipe Institute (PPI): TR-4

- Natural Pipe - CONTINUUM™ DGDA-2502 NT
  - ASTM PE4710 pipe grade - 1600psi HDB,1000psi HDS @ 73°F, and 1000psi HDB @ 140°F
- Black Pipe - CONTINUUM DGDA-2502 BK (see Notes 1 & 2)
  - ISO PE100 Pipe grade - MRS 10 @ 20° C
  - ASTM PE4710 pipe grade - 1600psi HDB, 1000psi HDS @ 73°F, and 1000psi HDB @ 140°F

NSF International : Standard 14 & 61

- Natural Pipe - DGDA-2502 NT
- Black Pipe - DGDA-2502 BK (see Notes A & B)

Consult the regulations for complete details.

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: Yes

Physical	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Density					ASTM D792
Natural	0.949	g/cm³	0.949	g/cm³	
Black [1]	0.959	g/cm³	0.959	g/cm³	
Melt Index					ASTM D1238
190°C/2.16 kg	0.040	g/10 min	0.040	g/10 min	
190°C/21.6 kg	13	g/10 min	13	g/10 min	
Mechanical	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Tensile Strength [2]					ASTM D638
Yield	> 3500	psi	> 24.1	MPa	
Break	> 4660	psi	> 32.1	MPa	
Tensile Elongation [2]					ASTM D638
Yield	> 16	%	> 16	%	
Break	> 500	%	> 500	%	
Flexural Modulus [3, 2]	134000	psi	924	MPa	ASTM D790B
Resistance to Rapid Crack Propagation, Pc					
Calculated, Full Scale : 32°F (0°C) [4]	> 650	psi	> 44.8	bar	ISO 13478
S-4 (32ºF) [5]	> 174	psi	> 12.0	bar	ISO 13477
Resistance to Rapid Crack Propagation, Tc - S-4 (5 bar) [5]	30	°F	-1	°C	ISO 13477
Slow Crack Growth PENT - 2.4 MPa (176ºF) [2]	10000	hr	10000	hr	ASTM F1473

Hardness	Nominal Value (English)		Nominal Value (SI)		Test Method
Durometer Hardness (Shore D)	61		61		ASTM D2240
Thermal	**Nominal Value (English)**		**Nominal Value (SI)**		**Test Method**
Deflection Temperature Under Load					ASTM D648
66 psi (0.45 MPa), Unannealed	163	°F	72.8	°C	
Brittleness Temperature [2]	< -103	°F	< -75.0	°C	ASTM D746
Vicat Softening Temperature	261	°F	127	°C	ASTM D1525
Melting Temperature (DSC)	236	°F	113	°C	Dow Method
Thermal Stability	> 428	°F	> 220	°C	ASTM D3350

Notes

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

[1] Natural resin extruded under proper conditions with carbon black masterbatch DFNF-0092 BK (6.5%)

[2] 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.

[3] Method I (3 point load)

[4] 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 Ration (SDR) 11.

[5] Pipe diameter of 10 inch IPS (25.4 cm) and Standard Diameter Ratio (SDR) 11