Technical Data Sheet

INTREPID™ 2499 NT Bimodal Polyethylene Resin

Overview

INTREPID™ 2499 NT Bimodal Polyethylene Resin is a polyethylene resin produced with raised temperature capability (PE-RT) using UNIPOL™ II process technology. This product is intended for use in municipal and industrial piping systems where extreme conditions such as high temperatures, aggressive chemicals, hydrocarbons, or highly oxidative conditions exist. Suitable uses include oil and gas field pipelines, gas distribution pipelines, mining pipelines, district heating systems, municipal water distribution and other industrial applications.

Industrial Standards Compliance:

- ASTM D3350: cell classification:
  - Natural - PE445574A CCO
  - Black - PE445574C CC3 (See Notes A and B)
- Plastics Pipe Institute (PPI): TR-4
  - Natural Pipe INTREPID™ 2499 NT Bimodal Polyethylene Resin
  - ASTM PE4710 pipe grade - 1600 psi HDB @ 73°F (23°C)
  - ASTM PE4710 pipe grade - 800 psi HDB @ 180°F (82.2°C)
  - Black Pipe INTREPID™ 2499 BK Bimodal Polyethylene Resin (See Note B)
  - ASTM PE4710 pipe grade - 1600 psi HDB @ 73°F (23°C)
  - ASTM PE4710 pipe grade – 800 psi HDB @ 180°F (82.2°C)
  - NSF International
  - NSF/ANSI Standard 14
  - NSF/ANS/CAN Standard 61
  - Natural Pipe INTREPID™ 2499 NT Bimodal Polyethylene Resin
  - Black Pipe INTREPID™ 2499 BK Bimodal Polyethylene Resin (See Note B)

NOTES:

A. The first 5 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 BK (6.5%)

Additive

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

Properties

Physical	Nominal Value	Unit (English)	Nominal Value	Unit (SI)	Test Method[1]
Density					ASTM D792
Natural	0.950	g/cm^3	0.950	g/cm^3	
Black[2]	0.960	g/cm^3	0.960	g/cm^3	
Melt Index					ASTM D1238
190°C/2.16 kg	0.10	g/10 min	0.10	g/10 min	
190°C/21.6 kg	7.0	g/10 min	7.0	g/10 min	
Mechanical					
Tensile Strength[3] (Yield)	> 3500	psi	> 24.1	MPa	ASTM D638
Tensile Elongation[3] (Break)	> 500	%	> 500	%	ASTM D638
Flexural Modulus[3,4]	152000	psi	1050	MPa	ASTM D790B
Resistance to Rapid Crack Propagation, Pc					ISO 13478
Full Scale : 32°F (0°C)[5]	> 663	psi	> 45.7	bar	
S-4 : 32°F (0°C)[6]	> 174	psi	> 12.0	bar	
Resistance to Rapid Crack Propagation, Tc					ISO 13478
S-4[5] 32°F (0°C)	< 1	°F	< -17	°C	
Slow Crack Growth PENT - @ 2.4 MPa[3]					ASTM F1473
176°F (80°C)	10000	hr	10000	hr	
194°F (90°C)	6000	hr	6000	hr	
Impact					
Notched Izod Impact[3] (73°F (23°C))	9.1	ft-lb/in	490	J/m	ASTM D256A
Thermal					
Brittleness Temperature[3]	< -103	°F	< -75.0	°C	ASTM D746A
Melting Temperature (DSC)	269	°F	132	°C	Dow Method
Thermal Stability	> 428	°F	> 220	°C	ASTM D3350
Extrusion Notes					

Fabrication Conditions:

- Screw Type: High quality HDPE barrier with mixing
- Melt Temperature Range: 380–450°F (193–232°C)

1. ASTM: American Society for Testing and Materials
   ISO: International Standardization Organization
2. Natural resin extruded under normal conditions with carbon black masterbatch DFNF-0092 (6.5%)
3. Compression molded parts prepared according to ASTM D 1928 Procedure C. Properties will vary with changes in molding conditions and aging time.
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.

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

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