Technical Data Sheet

HYPERTHERM™ 2399 NT High Density Polyethylene Resin

Overview

HYPERTHERM™ 2399 NT High Density Polyethylene Resin is a polyethylene resin with raised temperature capability produced using UNIPOL II process technology. This product is intended for use in piping systems where high temperatures and aggressive oxidation conditions exist. Suitable applications include hot and cold potable water.

Industrial Standards Compliance:

- ASTM D 3350: cell classification PE445574A
- Plastics Pipe Institute (PPI): TR-4
    - Natural Pipe - HYPERTHERM™ 2399 NT Bimodal Polyethylene Resin
        - ASTM PE4710 pipe grade - 1600 psi HDB @ 23°C
        - ASTM PE4710 pipe grade – 800 psi HDB @ 82.2°C
        - NSF International
        - NSF/ANSI Standard 14
        - NSF/ANS/CAN Standard 61
    - Natural Pipe - HYPERTHERM™ 2399 NT Bimodal Polyethylene Resin

Meets requirements of:

- ASTM F2769, F2623, & F1281

Additive

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

Properties[1]

Physical	Nominal Value	Unit (English)	Nominal Value	Unit (SI)	Test Method
Density (Natural)	0.950	g/cm^3	0.950	g/cm^3	ASTM[1] D1505
Base Density[2]	0.950	g/cm^3	0.950	g/cm^3	Dow Method
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	

1. ASTM: American Society for Testing and Materials
2. 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^3. Base density is the estimated density of the polymer if it did not contain any antiblock.

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

Properties (Cont.)

Mechanical	Nominal Value	Unit (English)	Nominal Value	Unit (SI)	Test Method
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[6] 13477
S-4[5] 32°F (0°C)	> 174	psi	> 12.0	bar	
Resistance to Rapid Crack Propagation, Tc					
S-4 @ 145 psi (10 bar)[5]	< 2	°F	< -17	°C	ISO 13477
Slow Crack Growth PENT - @ 2.4 MPa[3]					ASTM F1473
176°F (80°C)	> 12000	hr	> 12000	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
Additional Information					
Chlorine Resistance Level	5.00		5.00		ASTM F2023/ F2769
Extrusion					
Melt Temperature	380 to 450	°F	193 to 232	°C	
Extrusion Notes					

Fabrication Conditions:

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

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. Pipe diameter of 10 inch IPS (25.4 cm) and Standard Diameter Ratio (SDR) 11.
6. ISO: International Standardization Organization