INTREPID[™] 2499 NT

Bimodal Polyethylene Resin

The Dow Chemical Company

Message:

INTREPIDTM 2499 NT Bimodal Polyethylene Resin is a Polyethylene resin produced using UNIPOL II process technology. This product is intended for use in 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, and other industrial applications. Industrial Standards Compliance: ASTM D3350: cell classification: Natural - PE445574A CC0 Black - PE445574C CC3 (See NOTES) Plastics Pipe Institute (PPI): TR-4 Natural Pipe INTREPID[™] 2499 NT Bimodal Polyethylene Resin ASTM PE4710 pipe grade - 1600psi HDB @ 73 °F (23°C) ASTM PE4710 pipe grade - 800psi HDB @ 180 °F (82.2°C) Black Pipe INTREPID[™] 2499 BK Bimodal Polyethylene Resin ASTM PE4710 pipe grade - 1600psi HDB @ 73 °F (23°C) ASTM PE4710 pipe grade - 800psi HDB @ 180 °F (82.2°C) NSF International: Standard 14 and 61 Black Pipe INTREPID[™] 2499 Black (See NOTES) NOTES:

(1)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).

| General Information | | | |
|--|---------------------------|----------|-------------|
| Additive | Processing aid | | |
| Agency Ratings | ASTM D 3350 PE445574A | | |
| | ASTM PE4710 | | |
| | PPI TR-4 | | |
| | | | |
| Appearance | Natural color | | |
| Forms | Particle | | |
| Processing Method | Profile extrusion molding | | |
| Physical | Nominal Value | Unit | Test Method |
| Specific Gravity | | | ASTM D792 |
| natural color ¹ | 0.950 | g/cm³ | ASTM D792 |
| Black ² | 0.960 | g/cm³ | ASTM D792 |
| Melt Mass-Flow Rate (MFR) | | | ASTM D1238 |
| 190°C/2.16 kg | 0.10 | g/10 min | ASTM D1238 |
| 190°C/21.6 kg | 7.0 | g/10 min | ASTM D1238 |
| Mechanical | Nominal Value | Unit | Test Method |
| Tensile Strength ³ (Yield) | > 24.1 | MPa | ASTM D638 |
| Tensile Elongation ⁴ (Break) | > 500 | % | ASTM D638 |
| Flexural Modulus | 1050 | MPa | ASTM D790B |
| Slow crack propagation PENT-@ 2.4 MPa ⁵ | | | ASTM F1473 |
| 80°C | > 10000 | hr | ASTM F1473 |

| 90°C | > 6000 | hr | ASTM F1473 |
|---|---------------|------|-----------------|
| Thermal Stability | > 220 | °C | ASTM D3350 |
| Impact | Nominal Value | Unit | Test Method |
| Notched Izod Impact ⁶ (23°C) | 490 | J/m | ASTM D256A |
| Thermal | Nominal Value | Unit | Test Method |
| Brittleness Temperature ⁷ | < -75.0 | °C | ASTM D746A |
| | | | |
| Melting Temperature (DSC) | 132 | °C | Internal method |
| Extrusion instructions | 132 | ℃ | Internal method |

Fabrication Conditions:

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

| NOTE | |
|------|--------------------------------------|
| 1. | Natural resin |
| | Typical properties: these are not to |
| 2. | be construed as specifications. |
| | Compression molded parts |
| | prepared according to ASTM D |
| | 1928 Procedure C. Properties will |
| | vary with changes in molding |
| 3. | conditions and aging time. |
| | Compression molded parts |
| | prepared according to ASTM D |
| | 1928 Procedure C. Properties will |
| | vary with changes in molding |
| 4. | conditions and aging time. |
| | Compression molded parts |
| | prepared according to ASTM D |
| | 1928 Procedure C. Properties will |
| | vary with changes in molding |
| 5. | conditions and aging time. |
| | Compression molded parts |
| | prepared according to ASTM D |
| | 1928 Procedure C. Properties will |
| | vary with changes in molding |
| 6. | conditions and aging time. |
| | Compression molded parts |
| | prepared according to ASTM D |
| | 1928 Procedure C. Properties will |
| | vary with changes in molding |
| 7. | conditions and aging time. |
| | |

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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

