

TechResin[®] 2311

High Density Polyethylene (HDPE) Resin for Pressure Pipe Extrusion Applications

TechResin[®] 2311 is a high performance copolymer that is designed for the most demanding requirements of pressure pipe applications. It has good long-term hoop strength performance, very high melt strength, and outstanding toughness even at low temperatures.

TechResin[®] 2311 meets all requirements of ASTM D4976 – PE 235.

When blended with the approved color concentrates, TechResin[®] 2311 has a cell class of 345464C per ASTM D3350-05, is listed by PPI as a PE3608 material with HDB's of 1,600 psi @ 73°F and 800 psi @ 140°F and meets the requirements of NSF Standard 14/61 for use with potable water. TechResin[®] 2311 also qualifies as a PE3408 material under the old ASTM D3350-02a and PPI standards. TechResin[®] 2311 also qualifies as a PE80 material per ISO 9080.

Suggested Applications:

Potable Water; Oil and Gas Gathering and Distribution; Chemical, Industrial and Mining; Sewer

Nominal Physical Properties:

| PROPERTY* (Natural Resin) | ASTM TEST METHOD | ENGLISH | | SI | |
|-----------------------------------------------------------------------------------------------------|------------------|-----------|---------|-----------|-------|
| | | Unit | Value | Unit | Value |
| Density (Natural) (Black) | D1505 | g/cc | 0.944 | g/cc | 0.944 |
| | | | 0.955 | | 0.955 |
| Melt Index, Condition E, 190°C/2.16 kg (MI) Condition F, 190°C/21.6 kg (HLMI) | D1238 | g/10 min. | 0.11 | g/10 min. | 0.11 |
| | | | 12.0 | | 12.0 |
| Environmental Stress Crack Resistance (ESCR) Condition A, B, C (100% Igepal), F ₅₀ | D1693 | h | >1000 | h | >1000 |
| | | | | | |
| Tensile Yield Strength, @ Yield @ Break 2" (50 mm) per min. | D638 Type IV | psi. | 3200 | MPa | 22 |
| | | | 5000 | | 34 |
| Ultimate Elongation, 2" (50 mm) per min. | D638 Type IV | % | >500 | % | >500 |
| | | | | | |
| Flexural Modulus | D3350 D790 | psi. | 110,000 | MPa | 760 |
| | | | 140,000 | | 960 |
| Brittleness Temperature | D746 | °F | <-130 | °C | <-90 |
| Pent Slow Crack Growth | F1473 | h | 150 | h | 150 |

* Physical properties reported herein were determined on compression molded specimens prepared in accordance with Procedure C of ASTM D1928.

The nominal properties reported herein are typical of the product but do not reflect normal testing variance and therefore should not be used for specification purposes.

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