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PREMIUM EXTRUSION AND RIGID PACKAGING RESINS

# Marlex® H516HP Polyethylene

**HIGH DENSITY POLYETHYLENE (HDPE)**

**This high performance PE4710 / PE100 rated bimodal HDPE, ethylene-hexene copolymer is tailored for the demanding requirements of pressure pipe applications that require:**

- Excellent long-term hoop strength
- Superb resistance to slow crack growth
- Exceptional resistance to rapid crack propagation
- Outstanding low-temperature toughness

**Typical applications for H516HP include:**

- Gas Distribution
- Energy piping systems

**When blended with an approved black or yellow concentrate, the material meets or exceeds these standards/classifications:**

- ASTM D3350, Cell Class PE445574C or E[6]
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- NSF Standard 14
- PPI designations PE4710 HDPE and PE100 HDPE[3]
- ASTM D4976 – PE 235
- NSF D2513 certified
- NSF CSA B137.4 certified

| Nominal Physical Properties[1] | English | SI | Method |
|---|---|---|---|
| **Density** | --- | 0.949 g/cm$^3$ | ASTM D1505 |
| **Flow Rate** (HLMI, 190 °C/21.6 kg) | --- | 8.0 g/10 min | ASTM D1238 |
| **Flexural Modulus**, 2 % Secant - 16:1 span:depth, 0.5 in/min | 140,000 psi | 965 MPa | ASTM D790 |
| **Tensile Strength at Yield**, 2 in/min, Type IV bar | 3,700 psi | 25.5 MPa | ASTM D638 |
| **Tensile Elongation at Break**, 2 in/min, Type IV bar | > 700 % | > 700 % | ASTM D638 |
| **PENT Slow Crack Growth** | > 10,000 h | > 10,000 h | ASTM F1473 |
| **Nominal Pipe Properties[2]** | **English** | **SI** | **Method** |
| **Hydrostatic Design Basis**, 73 °F (23 °C) | 1,600 psi | 11.0 MPa | ASTM D2837 |
| **Hydrostatic Design Basis**, 140 °F (60 °C) | 1,000 psi | 6.9 MPa | ASTM D2837 |
| **Minimum Required Strength**[3] | 1,450 psi | 10.0 MPa | ISO 9080 |
| **Rapid Crack Propagation Data:** | | | |
| Full Scale Critical Pressure, ***$P_c$FS***, 0 °C (32 °F)[4] | > 667 psi | > 46 bar | ISO 13478 |
| Critical Pressure, ***$P_c$S4***, 0 °C (32 °F)[4] | >174 psi | > 12 bar | ISO 13477 |
| Critical Temperature, ***$T_c$***, 5 bar (73 psi)[5] | < 2 °F | < -17 °C | ISO 13477 |
| **Notched Pipe Test**, 4.6 MPa (667 psi), 80 °C (176 °F) | > 500 h | > 500 h | ISO 13479 |

1. The nominal properties reported herein are typical of the product when blended with an approved color concentrate, except the density value which is representative of the natural resin, but do not reflect normal testing variance and therefore should not be used for specification purposes. Values are rounded. The physical properties were determined on compression-molded specimens that were prepared in accordance with Procedure C of ASTM D4703, Annex A1 or ASTM F1473.
2. The nominal pipe properties were determined on pipe extruded from a pellet blend of H516HP and an approved carbon black or yellow concentrate.
3. The natural, black, and yellow versions of H516HP have a minimum required strength of 1,450 psi or 10.0 MPa.
4. Data is based on S4 tests conducted on 12-inch SDR 11 pipe. Full Scale Critical Pressure is a calculated value, based on standard ISO equation.
5. Critical Temperature was determined from S4 test conducted on 2-inch SDR 11 pipe.
6. NSF Standard 61, NSF CSA B137.1, and ASTM D3350 CC3 chlorine resistance certified with an approved carbon black or yellow concentrate.

Revision Date: July, 2025

Before using this product, the user is advised and cautioned to make its own determination and assessment of the safety and suitability of the product for the specific use in question and is further advised against relying on the information contained herein as it may relate to any specific use or application. It is the ultimate responsibility of the user to ensure that the product is suited and the information is applicable to the user's specific application. Chevron Phillips Chemical Company LP does not make, and expressly disclaims, all warranties, including warranties of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, or allegedly arising from any usage of any trade or from any course of dealing in connection with the use of the information contained herein or the product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with the use of the information contained herein or the product itself. Further, information contained herein is given without reference to any intellectual property issues, as well as federal, state or local laws which may be encountered in the use thereof. Such questions should be investigated by the user.