

POLYTEC 1000 UHMW

POLYTEC 1000 UHMW polyethylene is a high density and ultra high molecular weight. Pressed between their excellent mechanical properties, we note a high abrasion resistance, great impact resistance and a very low coefficient of friction, even at low temperatures.

This product is intended for applications such as applications demands stringent mechanical, chemical and thermal properties.

| PROPERTIES | UNITS | TEST METHODS | VALUES |
|---|-------------------|----------------|------------------------|
| Propiedades | | | |
| Densisty | g/cm ³ | ISO 1183-1 | 0.93 |
| Water absortion at saturation in water of 23°C | % | - | <0.01 |
| Mechanical Properties at 23°C | | | |
| Tensile stress at yield | MPa | ISO 527-2 | 27.5 |
| Tensile strain at break | MPa | ISO 527-2 | 21 |
| Elongation at strength | % | ISO 527-2 | 8.4 |
| Elongation at break | % | ISO 527-2 | 460 |
| Tensile modulus of elasticity | MPa | ISO 527-2 | 750 |
| Compressive stress at 1/2/5 % nominal strain | MPa | ISO 604 | 6.5 /10.5 /17 |
| Flexural strength | MPa | ISO 178 | 17 |
| Charpy impact strength-unnotched | KJ/m ² | ISO 179-1 | No break |
| Charpy impact strength- notched | KJ/m ² | ISO 179-1 | 98P |
| Ball indentation hardness | N/mm ² | ISO 2039-1 | 33 |
| Shore hardness D (15s) | - | ISO 868 | 62 |
| Relative weight loss during a wear test in "sand/water- slurry" | - | ISO 15527 | 100 |
| Thermal Properties | | | |
| Melting temperature (DSC, 10°C/min) | °C | ISO 11357-1/-3 | 135 |
| Thermal conductivity at 23°C | W/(K.m) | - | 0.40 |
| Average coefficient of linear thermal expansion between 23 and 100 °C | m/(m.K) | - | 200 x 10 ⁻⁶ |
| Temperature of deflection under load: method A:1.8 MPa | °C | ISO 75-1/-2 | 42 |

| | | | |
|---|------------------|---------------|------------|
| Vicat softening temperature- VST/B50 | °C | ISO 306 | 80 |
| Max. allowable service temperature in air for short periods | °C | - | 120 |
| Max. allowable service temperature in air continuously for 20,000 h | °C | - | 80 |
| Min. Service temperature | °C | - | -200 |
| Oxygen Index for flammability | % | ISO 4589-1/-2 | <20 |
| Electrical Properties at 23°C | | | |
| Electric strength | kV/mm | IEC 60243-1 | 45 |
| Volume resistivity | $\Omega \cdot m$ | IEC 60093 | $>10^{14}$ |
| Surface resistivity | - | IEC 60093 | $>10^{12}$ |
| Relative permittivity at 100 Hz | | IEC 60250 | 2.1 |
| Relative permittivity at 1 MHz | - | IEC 60250 | 3.0 |
| Dielectric dissipation factor tan at 100 Hz | - | IEC 60250 | 0.0004 |
| Dielectric dissipation factor tan at 1 MHz | - | IEC 60250 | 0.0010 |
| Comparative tracking index (CTI) | - | IEC 60112 | 600 |

Note: 1g/cm³ = 1,000 kg/m³; 1Mpa= 1N/mm² ; 1kV/mm = 1MV/m

* These data are very useful for the choice of material. The data listed here are indicative values and should not be used to establish specification limits of the material. From these values may not be deducted a legally binding of security of certain properties or the suitability for a particular application.