

TECAPEEK® MT natural polyetheretherketone - Stock Shapes (rods, plates, tubes)

Chemical Designation

PEEK (Polyetheretherketone)

Colour

beige opaque

Density

1.31 g/cm³

Main features

- excellent chemical resistance
- very good stress cracking resistance
- high creep resistance
- hydrolysis and superheated steam resistant
- good machinability
- resistance against high energy radiation
- good slide and wear properties
- very good sterilisable

Target Industries

- food technology
- mechanical engineering
- pharmaceutical industry
- medical technology

| Mechanical properties | condition | value | unit | test method | comment |
|---------------------------------------|-----------------------------------|----------------------|--|----------------------|---|
| Modulus of elasticity (tensile test) | 1% Sec, 73 °F | 650,000 | psi | ASTM D 638 | (1) Data obtained from public source |
| Tensile strength at yield | @ 73 °F | 16,000 | psi | ASTM D 638 | (2) Injection molded specimen data obtained from public source |
| Tensile strength at break | @ 73 °F | 8,900 | psi | ASTM D 638 | (3) injection molded specimen, data obtained from public source |
| Elongation at yield (tensile test) | @ 73 °F | 4.9 | % | ASTM D 638 | |
| Elongation at break (tensile test) | @ 73 °F | 30 | % | ASTM D 638 | |
| Flexural strength | @ 73 °F | 26,000 | psi | ASTM D 790 | |
| Modulus of elasticity (flexural test) | @ 73 °F | 600,000 | psi | ASTM D 790 | |
| Compression strength | @ 73 °F 10% strain | 20,000 | psi | ASTM D 695 | |
| Compression modulus | @ 73 °F | 493,000 | psi | ASTM D 695 | 1) |
| Notched impact strength (Izod) | @ 73 °F | 0.95 | ft-lbs/in | ASTM D 256 | |
| Rockwell hardness | M Scale | 99 | | ASTM D 785 | |
| Coefficient of friction | @ 68 °F Static, 40 psi | 0.20 | | ASTM D 3702 | 2) |
| Coefficient of friction | @ 68 °F, Dynamic 40 psi 50 fpm | 0.25 | | ASTM D 3702 | 3) |
| Wear (K) factor | 40 psi, 50 fpm | 200 | *10 ⁻¹⁰ in ³ -min/ft-lb-hr | ASTM D 3702 | |
| Thermal properties | condition | value | unit | test method | comment |
| Melting temperature | | 633 | °F | - | (1) Injection molded specimen |
| Deflection temperature | @264 psi | 320 | °F | ASTM D 648 | 1) |
| Service temperature | Long Term | 480 | °F | - | 2) |
| Service temperature | short term | 572 | °F | - | 3) |
| Thermal expansion (CLTE) | < Tg, along flow | 2.5 | *10 ⁻⁵ in/in/°F | DIN EN ISO 11359-1;2 | 4) |
| Thermal conductivity | | 2.01 | BTU-in/hr-ft ² -°F | ISO 22007-4:2008 | 5) |
| Electrical properties | condition | value | unit | test method | comment |
| surface resistivity | | 1.0*10 ¹⁶ | Ω/square | ASTM D 257 | 1) |
| volume resistance | @ 73 °F | 4.9*10 ¹⁶ | Ω*cm | ASTM D 149 | 2) |
| Dielectric strength | 0.1" thick IEC 60243-1 | 630 | V/mil | - | 3) |
| Dissipation factor | @ 73 °F, 1 MHz | 0.003 | | DIN IEC 60250 | 4) |
| Dielectric constant | @ 73 °F, 1 kHz | 2.8 | | DIN IEC 60250 | 5) |
| Other properties | condition | value | unit | test method | comment |
| Limiting PV | | 69000 | psi-fpm | ASTM D 3702 | 1) |
| Moisture absorption | @ saturation, 73 °F | 0.45 | % | DIN EN ISO 62 | 2) |
| Moisture absorption | @ 24 hrs, 73 °F | 0.02 | % | ASTM D 570 | 3) |
| Flammability (UL94) | | V0 | | - | 3) |

→ Resin specification:
ASTM D4000-11 PEEK; MIL-P-46183 Ty. I
Shapes specification:
ASTM D6262-12 S-PAEK0111

→ TECAPEEK products are based on Victrex® PEEK polymer.

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