

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

Chemical Designation

PEEK (Polyetheretherketone)

Colour

beige opaque

Density

1.31 g/cm³

Main features

- made exclusively from Victrex® resin
- excellent chemical resistance
- high thermal resistance
- good heat deflection temperature
- good machinability
- very good slide and wear properties
- hydrolysis and superheated steam resistant

Target Industries

- aircraft and aerospace technology
- food technology
- oil and gas industry
- chemical plant engineering
- semiconductor technology
- food engineering
- medical technology
- automotive industry
- process engineering
- mechanical engineering

| Mechanical properties | condition | value | 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) Data obtained from public source |
| Tensile strength at break | @ 73 °F | 16,000 psi | ASTM D 638 | 1) (3) injection molded specimen, data obtained from public source |
| Elongation at yield | @ 73 °F | 4.9 % | ASTM D 638 | (4) Injection molded specimen data obtained from public source |
| Elongation at break | @ 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 1% strain | 3,400 psi | - | |
| Compression strength | @ 73 °F 10% strain | 20,000 psi | ASTM D 695 | |
| Compression strength | @ 73 °F 5% strain | 16,000 psi | - | |
| Compression modulus | @ 73 °F | 493,000 psi | ASTM D 695 | 2) |
| 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, Dynamic 40 psi 50 fpm | .25 | ASTM D 3702 | 3) |
| Coefficient of friction | @ 68 °F Static , 40 psi | 0.20 | ASTM D 3702 | 4) |
| Wear (K) factor | 40 psi, 50 fpm | 200 *10 ⁻¹⁰ in ³ -min/ft-lb-hr | ASTM D 3702 | |
| Thermal properties | condition | value | test method | comment |
| Melting temperature | | 633 °F | - | (1) Injection molded specimen |
| Deflection temperature | @264 psi | 320 °F | ASTM D 648 | (2) Data obtained from public source |
| Service temperature | short term | 572 °F | - | (3) Injection molded specimen |
| Service temperature | Long Term | 480 °F | - | (4) Injection molded specimen from public source |
| 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) (5) Injection molded specimen from public source |
| Electrical properties | condition | value | test method | comment |
| surface resistivity | | 1.0*10 ¹⁶ Ω/square | ASTM D 257 | 1) (1) Injection molded specimen |
| Volume resistivity | @ 73 °F | 4.9*10 ¹⁶ Ω*cm | ASTM D 149 | 2) (2) Injection molded specimen |
| Dielectric strength | 0.1" thick IEC 60243-1 | 630 V/mil | - | 3) (3) Injection molded specimen |
| Dissipation factor | @ 73 °F, 1 MHz | 0.003 | DIN IEC 60250 | 4) (4) Injection molded specimen from public source |
| Dielectric constant | @ 73 °F, 1 kHz | 2.8 | DIN IEC 60250 | 5) (5) injection molded data from public source |
| Other properties | condition | value | test method | comment |
| Limiting PV | | 69000 psi-fpm | ASTM D 3702 | 1) (1) publicly sourced data |
| Moisture absorption | @ saturation, 73 °F | 0.45 % | DIN EN ISO 62 | 2) (2) injection molded data, publicly sourced data |
| Moisture absorption | @ 24 hrs, 73 °F | 0.02 % | ASTM D 570 | 3) 3 mm test specimen |
| Flammability | 3 mm | pass | FAR 25.853 | 3) (4) Injection molded specimen 3.0mm |

- 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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