

TECAPEEK SX natural - Stock Shapes (rods, plates, tubes)

Chemical Designation

PEEK (Polyetheretherketone)

Colour

beige opaque

Density

1.31 g/cm³

The values in this data sheet are tested on a dimension outside of the standard reference dimension (rod Ø 40-60 mm).

Main features

- good heat deflection temperature
- good machinability
- inherent flame retardant
- resistance against high energy radiation
- good slide and wear properties
- very good chemical resistance
- high creep resistance
- hydrolysis and superheated steam resistant

Target Industries

- semiconductor technology

| Mechanical properties | parameter | value | unit | norm | comment |
|---------------------------------------|--|------------------|----------------------------------|----------------------|--|
| Tensile strength | 50mm/min | 116 | MPa | DIN EN ISO 527-2 | (1) For tensile test: specimen type 1b |
| Modulus of elasticity (tensile test) | 1mm/min | 4200 | MPa | DIN EN ISO 527-2 | 1) (2) For flexural test: support span 64mm, norm specimen. |
| Tensile strength at yield | 50mm/min | 116 | MPa | DIN EN ISO 527-2 | (3) Specimen 10x10x10mm |
| Elongation at yield (tensile test) | 50mm/min | 5 | % | DIN EN ISO 527-2 | (4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression. |
| Elongation at break (tensile test) | 50mm/min | 15 | % | DIN EN ISO 527-2 | (5) For Charpy test: support span 64mm, norm specimen. |
| Flexural strength | 2mm/min, 10 N | 175 | MPa | DIN EN ISO 178 | 2) n.b. = not broken |
| Modulus of elasticity (flexural test) | 2mm/min, 10 N | 4200 | MPa | DIN EN ISO 178 | |
| Compression strength | 1% / 2% / 5% 5mm/min, 10 N | 23 / 43 / 102 | MPa | EN ISO 604 | 3) |
| Compression modulus | 5mm/min, 10 N | 3400 | MPa | EN ISO 604 | 4) |
| Impact strength (Charpy) | max. 7,5J | n.b. | kJ/m ² | DIN EN ISO 179-1eU | 5) |
| Notched impact strength (Charpy) | max. 7,5J | 4 | kJ/m ² | DIN EN ISO 179-1eA | |
| Shore hardness | D | 89 | | DIN EN ISO 868 | |
| Thermal properties | parameter | value | unit | norm | comment |
| Glass transition temperature | | 150 | °C | DIN EN ISO 11357 | 1) (1) Found in public sources. |
| Melting temperature | | 341 | °C | DIN EN ISO 11357 | (2) Found in public sources. |
| Heat distortion temperature | HDT, Method A | 162 | °C | ISO-R 75 Method A | Individual testing regarding application conditions is mandatory. |
| Service temperature | short term | 300 | °C | | 2) |
| Service temperature | long term | 260 | °C | | |
| Thermal expansion (CLTE) | 23-60°C, long. | 5 | 10 ⁻⁵ K ⁻¹ | DIN EN ISO 11359-1;2 | |
| Thermal expansion (CLTE) | 23-100°C, long. | 5 | 10 ⁻⁵ K ⁻¹ | DIN EN ISO 11359-1;2 | |
| Thermal expansion (CLTE) | 100-150°C, long. | 7 | 10 ⁻⁵ K ⁻¹ | DIN EN ISO 11359-1;2 | |
| Specific heat | | 1.1 | J/(g*K) | ISO 22007-4:2008 | |
| Thermal conductivity | | 0.27 | W/(K*m) | ISO 22007-4:2008 | |
| Electrical properties | parameter | value | unit | norm | comment |
| surface resistivity | Silver electrode, 23°C, 12% r.h. | 10 ¹⁵ | Ω | - | 1) (1) Specimen in 20mm thickness |
| volume resistivity | Silver electrode, 23°C, 12% r.h. | 10 ¹⁵ | Ω*cm | - | (2) Specimen in 1mm thickness |
| Dielectric strength | 23°C, 50% r.h. | 73 | kV/mm | ISO 60243-1 | 2) |
| Resistance to tracking (CTI) | Platin electrode, 23°C, 50% r.h., solvent A | 125 | V | DIN EN 60112 | |
| Other properties | parameter | value | unit | norm | comment |
| Water absorption | 24h / 96h (23°C) | 0.02 / 0.03 | % | DIN EN ISO 62 | 1) (1) Ø ca. 50mm, h=13mm |
| Resistance to hot water/ bases | | + | - | - | 2) (2) + good resistance |
| Resistance to weathering | | - | - | - | 3) (3) - poor resistance |
| Flammability (UL94) | listed (value at 1.5mm) | V0 | | DIN IEC 60695-11-10; | |

→ TECAPEEK products are based on Victrex® PEEK polymer.

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