

TECAPEEK black - Stock Shapes (rods, plates, tubes)

Chemical Designation

PEEK (Polyetheretherketone)

Colour

black opaque

Density

1.31 g/cm³

Main features

- good heat deflection temperature
- inherent flame retardant
- resistance against high energy radiation
- high strength
- good chemical resistance
- high creep resistance
- hydrolysis and superheated steam resistant

Target Industries

- chemical technology
- mechanical engineering
- electronics
- vacuum technology
- automotive industry
- aircraft and aerospace technology

| Mechanical properties | parameter | value | unit | norm | comment |
|---------------------------------------|-------------------------------|--------------------|----------------------------------|----------------------|---|
| Tensile strength | 50mm/min | 100 | MPa | DIN EN ISO 527-2 | (1) For tensile test: specimen type 1b |
| Modulus of elasticity (tensile test) | 1mm/min | 4100 | MPa | DIN EN ISO 527-2 | (2) For flexural test: support span 64mm, norm specimen. |
| Tensile strength at yield | 50mm/min | 100 | MPa | DIN EN ISO 527-2 | (3) Specimen 10x10x10mm |
| Elongation at yield (tensile test) | 50mm/min | 3 | % | DIN EN ISO 527-2 | (4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression. |
| Elongation at break (tensile test) | 50mm/min | 3 | % | DIN EN ISO 527-2 | (5) For Charpy test: support span 64mm, norm specimen. |
| Flexural strength | 2mm/min, 10 N | 171 | MPa | DIN EN ISO 178 | (2) |
| Modulus of elasticity (flexural test) | 2mm/min, 10 N | 4100 | MPa | DIN EN ISO 178 | |
| Compression strength | 1% / 2% / 5% 5mm/min, 10 N | 22/41/95 | MPa | EN ISO 604 | (3) |
| Compression modulus | 5mm/min, 10 N | 3300 | MPa | EN ISO 604 | (4) |
| Impact strength (Charpy) | max. 7,5J | 75 | kJ/m ² | DIN EN ISO 179-1eU | (5) |
| Shore hardness | D | 87 | | DIN EN ISO 868 | |
| Thermal properties | parameter | value | unit | norm | comment |
| Glass transition temperature | | 151 | °C | DIN EN ISO 11357 | (1) Found in public sources. |
| Melting temperature | | 341 | °C | DIN EN ISO 11357 | (2) Found in public sources. |
| Service temperature | short term | 300 | °C | | Individual testing regarding application conditions is mandatory. |
| 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 | | 0.30 | W/(K*m) | ISO 22007-4:2008 | |
| Electrical properties | parameter | value | unit | norm | comment |
| surface resistivity | | > 10 ¹² | Ω | - | (1) Due to the black colourant and moisture uptake of the material the electrical insulation properties cannot be 100% guaranteed, despite single measurements suggesting otherwise. |
| volume resistivity | | 10 ¹² | Ω*cm | DIN EN 61340-2-3 | (1) |
| Other properties | parameter | value | unit | norm | comment |
| Water absorption | 24h / 96h (23°C) | 0.02 / 0.03 | % | DIN EN ISO 62 | (1) Ø ca. 50mm, h=13mm |
| Resistance to hot water/ bases | | + | | - | (2) + good resistance |
| Resistance to weathering | | - | | - | (3) - poor resistance |
| Flammability (UL94) | corresponding to | V0 | | DIN IEC 60695-11-10; | (4) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory. |

→ TECAPEEK products may be based on Victrex® PEEK or Solvay KetaSpire® polymer

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