# TECAPEEK RP natural - Stock Shapes (rods, plates, tubes)

### Chemical Designation
PEEK (Polyetheretherketone)

### Colour
beige opaque

### Density
1.31 g/cm$^3$

This data sheet is only for development purposes and can be changed without prior notice. The commercialisation of the product is not guaranteed.

### Main features
- from reprocessed by-products/ production residues with optimized PCF
- inherent flame retardant
- good heat deflection temperature
- good machinability
- resistance against high energy radiation
- very good chemical resistance
- high creep resistance
- hydrolysis and superheated steam resistant

### Target Industries
- chemical technology
- mechanical engineering
- electronics
- energy industry
- oil and gas industry
- aircraft and aerospace technology
- automotive industry
- semiconductor technology
- vacuum technology

| Mechanical properties | condition | value | unit | test method | | comment |
|---|---|---|---|---|---|---|
| Tensile strength | 50mm/min | 109 | MPa | DIN EN ISO 527-2 | | (1) For tensile test: specimen type 1b<br>(2) For flexural test: support span 64mm, norm specimen.<br>(3) Specimen 10x10x10mm<br>(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.<br>(5) For Charpy test: support span 64mm, norm specimen.<br>n.b. = not broken |
| Modulus of elasticity (tensile test) | 1mm/min | 4200 | MPa | DIN EN ISO 527-2 | 1) | |
| Tensile strength at yield | 50mm/min | 109 | MPa | DIN EN ISO 527-2 | | |
| Elongation at yield (tensile test) | 50mm/min | 5 | % | DIN EN ISO 527-2 | | |
| Elongation at break (tensile test) | 50mm/min | 15 | % | DIN EN ISO 527-2 | | |
| Flexural strength | 2mm/min, 10 N | 175 | MPa | DIN EN ISO 178 | 2) | |
| 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 | condition | value | unit | test method | | comment |
|---|---|---|---|---|---|---|
| Glass transition temperature | | 150 | °C | DIN EN ISO 11357 | 1) | (1) Found in public sources.<br>(2) Found in public sources. Individual testing regarding application conditions is mandatory. |
| Melting temperature | | 341 | °C | DIN EN ISO 11357 | | |
| Heat distortion temperature | HDT, Method A | 162 | °C | ISO-R 75 Method A | | |
| 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 | condition | value | unit | test method | | comment |
|---|---|---|---|---|---|---|
| surface resistivity | Silver electrode, 23°C, 12% r.h. | $10^{15}$ | Ω | - | 1) | (1) Specimen in 20mm thickness<br>(2) Specimen in 1mm thickness |
| volume resistivity | Silver electrode, 23°C, 12% r.h. | $10^{15}$ | Ω*cm | DIN IEC 60093 | | |
| 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 | condition | value | unit | test method | | comment |
|---|---|---|---|---|---|---|
| Water absorption | 24h / 96h (23°C) | 0.02 / 0.03 | % | DIN EN ISO 62 | 1) | (1) Ø ca. 50mm, h=13mm<br>(2) + good resistance<br>(3) - poor resistance |
| Resistance to hot water/ bases | | + | | - | 2) | |
| Resistance to weathering | | - | | - | 3) | |
| Flammability (UL94) | listed (value at 1.5mm) | V0 | | DIN IEC 60695-11-10; | | |

- TECAPEEK products may be based on Victrex® PEEK or Syensqo KetaSpire® polymer

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