

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

## Chemical Designation

PEEK (Polyetheretherketone)

## Colour

beige opaque

## Density

1.31 g/cm<sup>3</sup>

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
- hydrolysis and superheated steam resistant
- resistance against high energy radiation
- good slide and wear properties
- high toughness
- high creep resistance

## Target Industries

- semiconductor technology

| Mechanical properties                 | parameter                                   | value            | unit                             | norm                 | comment  |
|---------------------------------------|---|------------------|----------------------------------|----------------------|--|
| Tensile strength                      | 50mm/min                                    | 110              | 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                                    | 110              | MPa                              | DIN EN ISO 527-2     | (3) Specimen 10x10x10mm  |
| Elongation at yield (tensile test)    | 50mm/min                                    | 4                | %                                | DIN EN ISO 527-2     | (4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.                         |
| Elongation at break (tensile test)    | 50mm/min                                    | 50               | %                                | DIN EN ISO 527-2     | (5) For Charpy test: support span 64mm, norm specimen.   |
| Flexural strength                     | 2mm/min, 10 N                               | 160              | MPa                              | DIN EN ISO 178       | (2) n.b. = not broken  |
| Modulus of elasticity (flexural test) | 2mm/min, 10 N                               | 3900             | MPa                              | DIN EN ISO 178       | (6) Specimen in 4mm thickness  |
| Compression strength                  | 1% / 2%<br>5mm/min, 10 N                    | 15 / 34          | MPa                              | EN ISO 604           | (3)  |
| Compression modulus                   | 5mm/min, 10 N                               | 3200             | MPa                              | EN ISO 604           | (4)  |
| Impact strength (Charpy)              | max. 7,5J                                   | n.b.             | kJ/m <sup>2</sup>                | DIN EN ISO 179-1eU   | (5)  |
| Notched impact strength (Izod)        |   | 4                | kJ/m <sup>2</sup>                | DIN EN ISO 179-1eA   |  |
| Ball indentation hardness             |   | 240              | MPa                              | ISO 2039-1           | (6)  |
| Thermal properties                    | parameter                                   | value            | unit                             | norm                 | comment  |
| Glass transition temperature          |   | 151              | °C                               | DIN EN ISO 11357     | (1) Found in public sources. Individual testing regarding application conditions is mandatory. |
| Melting temperature                   |   | 340              | °C                               | DIN EN ISO 11357     |  |
| Heat distortion temperature           | HDT, Method A                               | 162              | °C                               | ISO-R 75 Method A    |  |
| Service temperature                   | short term                                  | 300              | °C                               |                      | (1)  |
| Service temperature                   | long term                                   | 260              | °C                               |                      |  |
| Thermal expansion (CLTE)              | 23-60°C, long.                              | 5                | 10 <sup>-5</sup> K <sup>-1</sup> | DIN EN ISO 11359-1;2 |  |
| Thermal expansion (CLTE)              | 23-100°C, long.                             | 6                | 10 <sup>-5</sup> K <sup>-1</sup> | DIN EN ISO 11359-1;2 |  |
| Thermal expansion (CLTE)              | 100-150°C, long.                            | 7                | 10 <sup>-5</sup> K <sup>-1</sup> | 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 <sup>15</sup> | Ω                                | -                    | (1) Specimen in 20mm thickness   |
| volume resistivity                    | Silver electrode, 23°C, 12% r.h.            | 10 <sup>15</sup> | 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) Ø ca. 50mm, h=13mm   |
| Resistance to hot water/ bases        |   | +                | -                                | -                    | (2) + good resistance  |
| Resistance to weathering              |   | -                | -                                | -                    | (3) - poor resistance  |

→ TECAPEEK products are based on Victrex® PEEK polymer.

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