# TECAFIL PEKK natural - 1.75 mm - Filament

**Chemical Designation**
PEKK (Polyetherketoneketone)

**Colour**
amber transparent

**Density**
1.27 g/cm$^3$ (*2)

**Main features**
- inherent flame retardant
- good dimensional stability
- high heat deflection temperature
- high thermal and mechanical capacity

**Target Industries**
- electronics
- automotive industry
- chemical technology
- mechanical engineering
- aircraft and aerospace technology

| General material information | parameter | value | unit | norm | | comment |
|---|---|---|---|---|---|---|
| Diameter | | 1,75 +/- 0,05 | mm | - | | (1) standard spool body<br>(2) do not dry spool >120°C<br>(3) Ø 1,75mm |
| Spool measurements | holder | Ø 52 | mm | - | | |
| Spool measurements | width | 55 | mm | - | | |
| Spool measurements | outer diameter | Ø 200 | mm | - | 1) | |
| Spool Material | | Polycarbonate | | - | 2) | |
| Filament Load per Spool | | 500 | g | - | | |
| Filament Length per Spool | | 155 | m | - | 3) | |

| Mechanical properties | parameter | value | unit | norm | | comment |
|---|---|---|---|---|---|---|
| Tensile strength | 5mm/min, Orientation XY | 86,3 | MPa | DIN EN ISO 527-2 | 1) | (1) (*5) , (*6)<br>(2) (*5) , (*6)<br>(3) (*5) , (*6)<br>(4) (*5) , (*6)<br>(5) (*5) , (*6)<br>(6) (*5) , (*6)<br>(7) (*5) , (*6)<br>(8) (*5) , (*6)<br>(9) (*5) , (*6)<br>(10) (*5) , (*6)<br>(11) (*5) , (*6)<br>(12) (*5) , (*6)<br>(13) (*1)<br>(14) (*1)<br>(15) (*1) |
| Tensile strength | 5mm/min, Orientation XZ | 89,5 | MPa | DIN EN ISO 527-2 | 2) | |
| Tensile strength | 5mm/min, Orientation ZX | 92,7 | MPa | DIN EN ISO 527-2 | 3) | |
| Modulus of elasticity (tensile test) | 5mm/min, Orientation XY | 2921,0 | MPa | DIN EN ISO 527-2 | 4) | |
| Modulus of elasticity (tensile test) | 5mm/min, Orientation XZ | 3041,0 | MPa | DIN EN ISO 527-2 | 5) | |
| Modulus of elasticity (tensile test) | 5mm/min, Orientation ZX | 2997,7 | MPa | DIN EN ISO 527-2 | 6) | |
| Elongation at yield (tensile test) | 5mm/min, Orientation XY | 5,4 | % | DIN EN ISO 527-2 | 7) | |
| Elongation at yield (tensile test) | 5mm/min, Orientation XZ | 5,4 | % | DIN EN ISO 527-2 | 8) | |
| Elongation at yield (tensile test) | 5mm/min, Orientation ZX | 4,6 | % | DIN EN ISO 527-2 | 9) | |
| Elongation at break (tensile test) | 5mm/min, Orientation XY | 95,6 | % | DIN EN ISO 527-2 | 10) | |
| Elongation at break (tensile test) | 5mm/min, Orientation XZ | 120,3 | % | DIN EN ISO 527-2 | 11) | |
| Elongation at break (tensile test) | 5mm/min, Orientation ZX | 79,2 | % | DIN EN ISO 527-2 | 12) | |
| Flexural strength | 2 mm/min, 10 N | 128,0 | MPa | DIN EN ISO 178 | 13) | |
| Modulus of elasticity (flexural test) | 2 mm/min, 10 N | 3000,0 | MPa | DIN EN ISO 178 | 14) | |
| Notched impact strength (Charpy) | max. 7,5J - 23°C | 5,0 | kJ/m$^2$ | DIN EN ISO 179-1eA | 15) | |

| Thermal properties | parameter | value | unit | norm | | comment |
|---|---|---|---|---|---|---|
| Glass transition temperature | | 160 | °C | ASTM D 3418 | 1) | (1) (*2)<br>(2) (*2)<br>(3) (*2)<br>(4) (*2)<br>(5) (*2)<br>(6) (*2) |
| Melting temperature | | 300 | °C | DIN EN ISO 11357 | 2) | |
| Deflection temperature | HDT-A | 139 | °C | ISO-R 75 Method A | 3) | |
| Service temperature | short term | 230 | °C | - | 4) | |
| Service temperature | long term | 200 | °C | - | 5) | |
| Thermal expansion (CLTE) | | - | $10^{-5}$ K$^{-1}$ | DIN EN ISO 11359-1;2 | 6) | |

| Other properties | parameter | value | unit | norm | | comment |
|---|---|---|---|---|---|---|
| Moisture absorption | | 0,6 | % | DIN EN ISO 62 | 1) | (1) (*2)<br>(2) (*2) |
| MVR | 380°C / 5kg | 35 | cm³/10 min | DIN EN ISO 1133 | 2) | |

| Processing parameter | parameter | value | unit | norm | | comment |
|---|---|---|---|---|---|---|
| Nozzle temperature | | 340 - 380 | °C | - | | (1) required |
| Max. melt temperature | | 410 | °C | - | | |
| Print bed temperature | | 140 - 160 | °C | - | | |
| Build chamber temperature | | 120 - 160 | °C | - | 1) | |
| Nozzle diameter | | 0,4 | mm | - | | |
| Print speed | | 30 - 40 | mm/s | - | | |
| Fan speed | | 0 | % | - | | |

| Predrying | parameter | value | unit | norm | | comment |
|---|---|---|---|---|---|---|
| Drying temperature | | 120 | °C | - | 1) | (1) (*4) |
| Drying time | | 8 | h | - | | |