

This 30% carbon fibre reinforced grade combines even higher stiffness, mechanical strength and creep resistance than KETRON PEEK-GF30 with an optimum wear resistance. Moreover, the carbon fibres provide 3.5 times higher thermal conductivity than virgin PEEK, dissipating heat from the bearing surface faster.

Physical properties (indicative values*)

| PROPERTIES | Test methods ISO/(IEC) | Units | VALUES |
|---|------------------------|-------------------|---------------------|
| Colour | — | — | black |
| Density | 1183 | g/cm ³ | 1.41 |
| Water absorption: | | | |
| - at saturation in air of 23°C / 50% RH | — | % | 0.14 |
| - at saturation in water of 23°C | — | % | 0.30 |
| Thermal Properties | | | |
| Melting temperature | — | °C | 340 |
| Thermal conductivity at 23°C | — | W/(K·m) | 0.92 |
| Coefficient of linear thermal expansion: | | | |
| - average value between 23 and 100°C | — | m/(m·K) | 25·10 ⁻⁶ |
| - average value between 23 and 150°C | — | m/(m·K) | 25·10 ⁻⁶ |
| - average value above 150°C | — | m/(m·K) | 55·10 ⁻⁶ |
| Temperature of deflection under load: | | | |
| - method A: 1.8 MPa | 75 | °C | 230 |
| Max. allowable service temperature in air: | | | |
| - for short periods (1) | — | °C | 310 |
| - continuously: for min. 20,000h (2) | — | °C | 250 |
| Flammability (3): | | | |
| - "Oxygen index" | 4589 | % | 40 |
| - according to UL 94 (1.5/3 mm thickness) | — | — | V-0/V-0 |
| Mechanical Properties at 23°C | | | |
| Tension test (4): | | | |
| - tensile stress at break (5) | 527 | MPa | 130 |
| - tensile strain at break (5) | 527 | % | 7 |
| - tensile modulus of elasticity (6) | 527 | MPa | 7,700 |
| Compression test (7): | | | |
| - compressive stress at 1% nominal strain (6) | 604 | MPa | 49 |
| - compressive stress at 2% nominal strain (6) | 604 | MPa | 97 |
| Charpy impact strength - Unnotched (8) | 179/1eU | kJ/m ² | 35 |
| Charpy impact strength - Notched | 179/1eA | kJ/m ² | 4 |
| Ball indentation hardness (9) | 2039-1 | N/mm ² | 325 |
| Rockwell hardness (9) | 2039-2 | | M 102 |
| Electrical Properties at 23°C | | | |
| Volume resistivity | (60093) | Ω·cm | < 10 ⁵ |

Legend

- (1) Only for short-time exposure (a few hours) in applications where no or only a very low load is applied to the material.
- (2) Temperature resistance over a period of min. 20,000 hours. After this period of time, there is a decrease in tensile strength of about 50% as compared with the original value. The temperature value given here is thus based on the thermal-oxidative degradation which takes place and causes a reduction in properties. Note however, that the maximum allowable service temperature depends in many cases essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.
- (3) These mostly estimated ratings, derived from raw material supplier data, are not intended to reflect hazards presented by the materials under actual fire conditions. There is no UL-yellow card available for KETRON PEEK-CA30 stock shapes.
- (4) Test specimens: Type 1 B.
- (5) Test speed: 5 mm/min.
- (6) Test speed: 1 mm/min.
- (7) Test specimens: cylinders Ø 12 x 30 mm.
- (8) Pendulum used: 4 J.
- (9) 10 mm thick test specimens.

This table is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. **However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.**

It has to be noted that KETRON PEEK-CA30 is a fibre reinforced, and consequently anisotropic material (properties differ when measured parallel and perpendicular to the extrusion direction).

Note: 1 g/cm³ = 1,000 kg/m³; 1 MPa = 1 N/mm²; 1 kV/mm = 1 MV/mm

Availability

Round Rods: Ø 6-80 mm - **Plates:** Thicknesses 5-60 mm - **Tubes:** O.D. 50-200 mm

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