This 30% carbon fibre reinforced grade combines even higher stiffness, mechanical strength and creep resistance than Ketron® GF30 PEEK with an optimum wear resistance. Moreover, compared with unreinforced PEEK, the carbon fibres considerably reduce thermal expansion and provide 3.5 times higher thermal conductivity – dissipating heat from the bearing surface faster, improving bearing life and pressure-velocity capabilities.

**Physical properties (indicative values *)**

**PROPERTIES** | **VALUES**
--- | ---
**Density** | ISO 1183-1 g/cm³ 1.4
**Water absorption:** | - after 24 immersion in water of 23 °C (1) ISO 62 % 0.05 - at saturation in water of 23 °C % 0.35
**Thermal Properties (2)** | - Melting temperature (DSC, 10 °C/min) ISO 11357-1/3 °C 340 - Glass transition temperature (DSC, 20 °C/min) - (3) ISO 11357-1/3 °C - 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 x 10⁻⁶ - average value between 23 and 150 °C m/(m.K) 25 x 10⁻⁶ - average value above 150 °C m/(m.K) 55 x 10⁻⁶ - Temperature of deflection under load: - method A: 1.8 MPa ISO 75-1/2 °C 260 - Max. allowable service temperature in air: - continuously: for min. 20,000 h (4) °C 250 - Min. service temperature (5) °C -20 -Flammability (6): - according to UL 94 (3 mm thickness) - V-0

**Mechanical Properties at 23 °C (7)**

**Tensile tests:** | **VALUES**
--- | ---
- tensile strength (9) ISO 527-1/2 MPa 144 - tensile strain at yield(9) ISO 527-1/2 % - - tensile strain at break (9) ISO 527-1/2 % 3.5 - tensile modulus of elasticity (10) ISO 527-1/2 MPa 9200 - compression test (11): - compressive stress at 1 / 2.5 % nominal strain (10) ISO 604 MPa 69 / 125 / 170 - flexural test (12): - flexural strength ISO 178 MPa 220 - flexural modulus of elasticity ISO 178 MPa -

**Compression test (13):** | **VALUES**
--- | ---
- Charpy impact strength - unnotched (13) ISO 179-1/4/5 kJ/m² 50 - Charpy impact strength - notched ISO 179-1/4/5 kJ/m² 5 - Rockwell hardness (14) ISO 2039-2 102

**Dynamic Coefficient of Friction (15)** | **VALUES**
--- | ---
ISO 1748-2 (15) - 0.2 - 0.3 - ISO 1748-2 (15) μm/km 2

**Electrical Properties at 23 °C**

**Electric strength (16)** | **VALUES**
--- | ---
IEC 60243-1 kV/mm 40 x 10⁻⁶

**Volume resistivity** | IEC 60093 Ohm.cm <10⁵ E

**Surface resistivity** | ANS/ESSD STM 11.11 Ohm/m² <10⁵ B

**Relative permittivity**: - at 1 MHz IEC 60250 40 - Delectric dissipation factor tan δ: - at 1 MHz IEC 60250 0.05

**Poly-ether-ether-ketone**

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

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**This product data sheet and any data and specifications presented on our website shall provide promotional and general information about the Engineering Plastic Products (the “Products”) manufactured and offered by Mitsubishi Chemical Advanced Materials and shall serve as a preliminary guide. All data and descriptions relating to the Products are of an indicative nature only. Neither this data sheet nor any data and specifications presented on our website shall create or be implied to create any legal or contractual obligation.**

**Any illustration of the possible fields of application of the Products shall merely demonstrate the potential of these Products, but any such description does not constitute any kind of covenant whatsoever.**

**Legends:**

1) According to method 1 of ISO 62 and done on discs Ø 50 mm x 3 mm.
2) The figures given for these properties are for the most part derived from raw material supplier data and other publications.
3) Values for this property are only given here for amorphous materials and for materials that do not show a melting temperature (PBI, PAI, PI).
4) Temperature resistance over a period of min. 20,000 hours. After this period of time, there is a decrease in tensile strength – measured at 23 °C – 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.
5) Impact strength decreasing with decreasing temperature, the minimum allowable service temperature is practically mainly determined by the extent to which the material is subjected to impact. The value given here is based on unfavourable impact conditions and may consequently not be considered as the absolute practical limit.
6) These estimated ratings, derived from raw material supplier data and other publications, are not intended to reflect hazards presented by the material under actual fire conditions. There is no “UL File Number” available for these stock shapes.
7) Most of the figures given for these mechanical properties of the materials are average values of tests run on dry test specimens machined either out of plate 15-20 mm thick or not diameter 40-50mm, the test specimens were then taken from the stock shape with their length in longitudinal direction (parallel to the extrusion direction).
8) Test specimens: Type 1 B
9) Test speed: either 5 or 50 mm/min [chosen acc. to ISO 10350-1 as a function of the ductile behaviour of the material (tough or brittle)]
10) Test speed: 1 mm/min.
11) Test specimens: cylinders Ø 8 mm x 16 mm
12) Test specimens: bars 4 mm (thickness) x 10 mm x 80 mm ; test speed: 2 mm/min ; span: 64 mm.
13) Pendulum used: 4 J.
14) Measured on 10 mm thick test specimens.
15) Test procedure similar to Test Method A: “Pin-on-disk” as described in ISO 7148-4; Load 3MPa, sliding velocity= 0.35 m/s, mating plate steel RA= 0.7-0.9 µm, tested at 23°C, 50%RH.
16) Electrode configuration: Ø 25 mm / Ø 75 mm coaxial cylinders; in transformer oil according to IEC 60526 ; 1 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 not used alone as the basis of design.

It has to be noted that reinforced and filled material shows an anisotropic behaviour (properties differ when measured parallel and perpendicular to the manufacturing direction).