

Ketron™ CM CA30 PEEK



Poly-ether-ether-ketone

Ketron™ CM CA30 PEEK is a compression-molded, 30% carbon fiber-reinforced polyetheretherketone that exhibits outstanding impact, corrosion, chemical and wear resistance. With a significantly reduced thermal expansion, optimum load-carrying capabilities and high thermal conductivity rates, Ketron™ CM CA30 PEEK components are often favored for their ability to extend part life and rapidly dissipate heat in bearing applications. Ketron™ CM CA30 PEEK shapes also excel in large parts applications, where high strength and stiffness are required.

|                           | ISO*                                                                   |                    |          |                   | ASTM*              |                                     |                   |       |
|---------------------------|------------------------------------------------------------------------|--------------------|----------|-------------------|--------------------|-------------------------------------|-------------------|-------|
|                           |                                                                        | Test methods       | Units    | Indicative values | Test methods       | Units                               | Indicative values |       |
| Thermal properties (1)    | Melting temperature (DSC, 10°C (50°F) / min)                           | ISO 11357-1/-3     | °C       |                   | ASTM D3418         | °F                                  | 644               |       |
|                           | Glass transition temperature (DMA- Tan δ) (2)                          |                    | °C       |                   |                    | °F                                  |                   |       |
|                           | Thermal conductivity at 23°C (73°F)                                    |                    | W/(K.m)  |                   |                    | BTU in./hr. ft² .°F)                | 6.37              |       |
|                           | Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F) |                    |          |                   | ASTM E-831 (TMA)   | µin./in./°F                         | 23                |       |
|                           | Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)  |                    | µm/(m.K) |                   |                    |                                     |                   |       |
|                           | Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)  |                    | µm/(m.K) |                   |                    |                                     |                   |       |
|                           | Coefficient of linear thermal expansion (>150°C) (> 300°F)             |                    | µm/(m.K) |                   |                    |                                     |                   |       |
|                           | Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)               | ISO 75-1/-2        | °C       |                   | ASTM D648          | °F                                  | 450               |       |
|                           | Continuous allowable service temperature in air (20.000 hrs) (3)       |                    | °C       |                   |                    |                                     |                   |       |
|                           | Min. service temperature (4)                                           |                    | °C       |                   |                    |                                     |                   |       |
| Mechanical Properties (6) | Flammability: UL 94 (3 mm (1/8 in.)) (5)                               |                    |          | V-0               |                    | °F                                  | 480               |       |
|                           | Flammability: Oxygen Index                                             | ISO 4589-1/-2      | %        |                   |                    |                                     | V-0               |       |
|                           | Tensile strength                                                       | ISO 527-1/-2 (7)   | MPa      |                   | ASTM D638 (8)      | PSI                                 | 16,000            |       |
|                           | Tensile strain (elongation) at yield                                   | ISO 527-1/-2 (7)   | %        |                   | ASTM D638 (8)      | %                                   |                   |       |
|                           | Tensile strain (elongation) at break                                   | ISO 527-1/-2 (7)   | %        |                   | ASTM D638 (8)      | %                                   | 3                 |       |
|                           | Tensile modulus of elasticity                                          | ISO 527-1/-2 (9)   | MPa      |                   | ASTM D638 (8)      | KSI                                 | 1,400             |       |
|                           | Shear Strength                                                         | ASTM D732          | MPa      | 76                | ASTM D732          | PSI                                 | 11,000            |       |
|                           | Compressive stress at 1 / 2 / 5 % nominal strain                       | ISO 604 (10)       | MPa      |                   |                    |                                     |                   |       |
|                           | Compressive strength                                                   |                    |          |                   | ASTM D695 (11)     | PSI                                 | 28,000            |       |
|                           | Charpy impact strength - unnotched                                     | ISO 179-1/1eU      | kJ/m²    |                   |                    |                                     |                   |       |
|                           | Charpy impact strength - notched                                       | ISO 179-1/1eA      | kJ/m²    |                   |                    |                                     |                   |       |
|                           | Izod Impact notched                                                    |                    |          |                   |                    |                                     |                   |       |
|                           | Flexural strength                                                      | ISO 178 (12)       | MPa      |                   | ASTM D256          | ft.lb./in                           | 1.4               |       |
|                           | Flexural modulus of elasticity                                         | ISO 178 (12)       | MPa      |                   | ASTM D790 (13)     | PSI                                 | 23,000            |       |
|                           | Rockwell M hardness (14)                                               | ISO 2039-2         |          |                   | ASTM D790          | KSI                                 | 1,000             |       |
|                           | Rockwell R hardness (14)                                               | ISO 2039-2         |          |                   | ASTM D785          |                                     | 108               |       |
| Electrical Properties     |                                                                        |                    |          |                   | ASTM D785          |                                     | 125               |       |
|                           | Electric strength                                                      | IEC 60243-1 (15)   | kV/mm    |                   | ASTM D149          | Volts/mil                           |                   |       |
|                           | Volume resistivity                                                     | IEC 62631-3-1      | Ohm.cm   |                   | ASTM D257          | Ohm.cm                              |                   |       |
|                           | Surface resistivity                                                    | ANSI/ESD STM 11.11 | Ohm      |                   | ANSI/ESD STM 11.11 | Ohm                                 |                   |       |
|                           | Dielectric constant at 1 MHz                                           | IEC 62631-2-1      |          |                   | ASTM D150          |                                     |                   |       |
| Miscellaneous             | Dissipation factor at 1MHz                                             | IEC 62631-2-1      |          |                   | ASTM D150          |                                     |                   |       |
|                           | Color                                                                  |                    |          | Black             |                    |                                     |                   | Black |
|                           | Density                                                                | ISO 1183-1         | g/cm³    |                   |                    |                                     |                   |       |
|                           | Specific Gravity                                                       |                    |          |                   | ASTM D792          |                                     | 1.42              |       |
|                           | Water absorption after 24h immersion in water of 23 °C (73°F)          | ISO 62 (16)        | %        |                   | ASTM D570 (17)     | %                                   | 0.15              |       |
|                           | Water absorption at saturation in water of 23 °C (73°F)                |                    | %        |                   | ASTM D570 (17)     | %                                   | 0.5               |       |
|                           | Wear rate                                                              | ISO 7148-2 (18)    | µm/km    |                   | QTM 55010 (19)     | in³.min/ft.lbs.hrX10 <sup>-10</sup> | 102               |       |
|                           | Dynamic Coefficient of Friction (-)                                    | ISO 7148-2 (18)    |          | -                 | QTM 55007 (20)     |                                     | 0.24              |       |
|                           | Limiting PV at 100 FPM (safety factor 4)                               |                    |          |                   | QTM 55007 (21)     | ft.lbs/in².min                      | 17,000            |       |
|                           | Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings                 |                    | MPa.m/s  |                   |                    |                                     |                   |       |
|                           | Limiting PV at 0.5 m/s cylindrical sleeve bearings                     | QTM 55007 (21)     | MPa.m/s  |                   |                    |                                     |                   |       |
|                           | Chemical Resistance                                                    |                    |          |                   |                    |                                     |                   |       |

Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m NYP: there is no yield point