# Ketron® PEEK (CM)

# Polyetheretherketone

# Quadrant Engineering Plastic Products

#### Message:

Ketron PEEK grades offer chemical and hydrolysis resistance similar to PPS, but can operate at higher temperatures. Unreinforced, compression molded Ketron PEEK offers good wear resistance. It can be used continuously to 480°F (250°C) and in hot water or steam without permanent loss in physical properties. For hostile environments, PEEK is a high strength alternative to fluoropolymers. PEEK carries a V-O flammability rating and exhibits very low smoke and toxic gas emission when exposed to flame.

| General Information |                          |       |             |
|---------------------|--------------------------|-------|-------------|
| Features            | Acid Resistant           |       |             |
|                     | Alcohol Resistant        |       |             |
|                     | Alkali Resistant         |       |             |
|                     | Good Abrasion Resistance |       |             |
|                     | Good Chemical Resistance |       |             |
|                     | Good Thermal Stability   |       |             |
|                     | Good Wear Resistance     |       |             |
|                     | Hydrolysis Resistant     |       |             |
|                     | Hydrolytically Stable    |       |             |
|                     | Low Moisture Absorption  |       |             |
|                     | Solvent Resistant        |       |             |
|                     |                          |       |             |
| Uses                | Bearings                 |       |             |
|                     | Bushings                 |       |             |
|                     | General Purpose          |       |             |
|                     | Housings                 |       |             |
|                     | Pump Parts               |       |             |
|                     | Sealing Devices          |       |             |
|                     | Seals                    |       |             |
|                     | Valves/Valve Parts       |       |             |
|                     |                          |       |             |
| Agency Ratings      | FDA Unspecified Rating   |       |             |
| Forms               | Customizable Forms       |       |             |
|                     | Disc                     |       |             |
|                     | Preformed Parts          |       |             |
|                     | Rod                      |       |             |
|                     | Tubing                   |       |             |
|                     |                          |       |             |
| Processing Method   | Compression Molding      |       |             |
| Physical            | Nominal Value            | Unit  | Test Method |
| Specific Gravity    | 1.32                     | g/cm³ | ASTM D792   |

| Water Absorption  |  |   | ASTM D570  |
|---|--|---|--|
| 24 hr   | 0.15   | %   |  |
| Saturation  | 0.50   | %   |  |
| Hardness  | Nominal Value  | Unit  | Test Method  |
| Rockwell Hardness   |  |   | ASTM D785  |
| M-Scale   | 90   |   |  |
| R-Scale   | 125  |   |  |
| Durometer Hardness (Shore D)  | 85   |   | ASTM D2240   |
| Mechanical  | Nominal Value  | Unit  | Test Method  |
| Tensile Modulus   | 3100   | MPa   | ASTM D638  |
| Tensile Strength (Ultimate)   | 103  | MPa   | ASTM D638  |
| Tensile Elongation (Yield)  | 10   | %   | ASTM D638  |
| Flexural Modulus  | 4140   | MPa   | ASTM D790  |
| Flexural Strength (Yield)   | 172  | MPa   | ASTM D790  |
| Compressive Modulus   | 3100   | MPa   | ASTM D695  |
| Compressive Strength  | 117  | MPa   | ASTM D695  |
| Coefficient of Friction (vs. Steel - Static)  | 0.40   |   | Internal Method  |
| Wear Factor   | 710  | 10^-8 mm³/N·m   | ASTM D3702   |
| Impact  | Nominal Value  | Unit  | Test Method  |
| Notched Izod Impact   | 53   | J/m   | ASTM D256A   |
|   |  |   |  |
| Thermal   | Nominal Value  | Unit  | Test Method  |
| Thermal<br>Deflection Temperature Under Load (1.8   | Nominal Value  | Unit  | Test Method  |
| Thermal<br>Deflection Temperature Under Load (1.8<br>MPa, Unannealed)   | Nominal Value  | Unit<br>°C  | Test Method<br>ASTM D648   |
| Thermal   Deflection Temperature Under Load (1.8   MPa, Unannealed)   Maximum Use Temperature - Long Term,   Air  | Nominal Value  | Unit<br>℃   | Test Method<br>ASTM D648   |
| Thermal   Deflection Temperature Under Load (1.8   MPa, Unannealed)   Maximum Use Temperature - Long Term,   Air   Limiting Pressure Velocity <sup>1</sup>  | Nominal Value     160     249     0.438  | C<br>℃<br>MPa·m/s   | Test Method<br>ASTM D648<br>Internal Method  |
| Thermal   Deflection Temperature Under Load (1.8   MPa, Unannealed)   Maximum Use Temperature - Long Term,   Air   Limiting Pressure Velocity <sup>1</sup> Peak Crystallization Temperature (DSC)   | Nominal Value     160     249     0.438     340  | Unit<br>°C<br>°C<br>MPa·m/s<br>°C   | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418  |
| ThermalDeflection Temperature Under Load (1.8MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)  | Nominal Value     160     249     0.438     340     4.7E-5   | Unit<br>°C<br>°C<br>MPa·m/s<br>°C<br>cm/cm/°C   | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM E831   |
| ThermalDeflection Temperature Under Load (1.8MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal Conductivity  | Nominal Value     160     249     0.438     340     4.7E-5     0.25  | Unit<br>°C<br>°C<br>MPa·m/s<br>°C<br>cm/cm/°C<br>W/m/K  | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM E831<br>ASTM F433  |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectrical  | Nominal Value     160     249     0.438     340     4.7E-5     0.25     Nominal Value  | Unit<br>°C<br>°C<br>MPa·m/s<br>°C<br>cm/cm/°C<br>W/m/K<br>Unit  | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM E831<br>ASTM F433<br>Test Method   |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3   | Nominal Value     160     249     0.438     340     4.7E-5     0.25     Nominal Value     > 1.0E+13  | Unit<br>°C<br>°C<br>MPa·m/s<br>°C<br>C<br>C<br>cm/cm/°C<br>W/m/K<br>Unit<br>Unit                          | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM E831<br>ASTM F433<br>Test Method<br>Internal Method  |
| ThermalDeflection Temperature Under Load (1.8MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4  | Nominal Value     160     249     0.438     340     4.7E-5     0.25     Nominal Value     > 1.0E+13     19   | Unit   °C   °C   MPa·m/s   °C   C   W/m/K   Unit   ohms   kV/mm   | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM E831<br>ASTM F433<br>Test Method<br>Internal Method<br>ASTM D149   |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4Dielectric Constant (1 MHz)   | Nominal Value     160     249     0.438     340     4.7E-5     0.25     Nominal Value     > 1.0E+13     19     3.30  | Unit   °C   °C   MPa·m/s   °C   cm/cm/°C   W/m/K   Unit   ohms   kV/mm                                    | Test MethodASTM D648Internal MethodASTM D3418ASTM E831ASTM F433Test MethodInternal MethodASTM D149ASTM D150  |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4Dielectric Constant (1 MHz)Dissipation Factor (1 MHz)   | Nominal Value     160     249     0.438     340     4.7E-5     0.25     Nominal Value     > 1.0E+13     19     3.30     3.0E-3   | Unit<br>°C<br>°C<br>MPa·m/s<br>°C<br>cm/cm/°C<br>W/m/K<br>Unit<br>ohms<br>kV/mm                           | Test MethodASTM D648Internal MethodASTM D3418ASTM E831ASTM F433Test MethodInternal MethodASTM D149ASTM D150ASTM D150   |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4Dielectric Constant (1 MHz)Dissipation Factor (1 MHz)Flammability   | Nominal Value     160     249     0.438     340     4.7E-5     0.25     Nominal Value     > 1.0E+13     19     3.30     3.0E-3     Nominal Value                           | Unit<br>°C<br>°C<br>MPa·m/s<br>°C<br>C<br>cm/cm/°C<br>W/m/K<br>Unit<br>ohms<br>kV/mm<br>Unit              | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM E831<br>ASTM F433<br>Test Method<br>Internal Method<br>ASTM D149<br>ASTM D150<br>ASTM D150<br>Test Method                        |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4Dielectric Constant (1 MHz)Dissipation Factor (1 MHz)FlammabilityFlame Rating (3.18 mm, Estimated Rating)           | Nominal Value   160   249   0.438   340   4.7E-5   0.25   Nominal Value   > 1.0E+13   19   3.30   3.0E-3   Nominal Value   V-0   | Unit   °C   °C   MPa·m/s   °C   C   W/m/K   Unit   ohms   kV/mm   Unit                                    | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM D3418<br>ASTM E831<br>ASTM F433<br>Test Method<br>Internal Method<br>ASTM D149<br>ASTM D150<br>ASTM D150<br>Test Method<br>UL 94 |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4Dielectric Constant (1 MHz)Dissipation Factor (1 MHz)FlammabilityFlame Rating (3.18 mm, Estimated Rating)NOTE       | Nominal Value   160   249   0.438   340   4.7E-5   0.25   Nominal Value   > 1.0E+13   19   3.30   3.0E-3   Nominal Value   V-0   | Unit<br>°C<br>°C<br>MPa·m/s<br>°C<br>C<br>C<br>C<br>C<br>V/m/°C<br>W/m/K<br>Unit<br>Ohms<br>kV/mm<br>Unit | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM D3418<br>ASTM E831<br>ASTM F433<br>Test Method<br>Internal Method<br>ASTM D149<br>ASTM D150<br>ASTM D150<br>Test Method<br>UL 94 |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4Dielectric Constant (1 MHz)Dissipation Factor (1 MHz)FlammabilityFlame Rating (3.18 mm, Estimated Rating)NOTE1.     | Nominal Value   160   249   0.438   340   4.7E-5   0.25   Nominal Value   > 1.0E+13   19   3.30   3.0E-3   Nominal Value   V-0   4:1 safety factor                         | Unit   °C   °C   MPa·m/s   °C   Cm/cm/°C   W/m/K   Unit   ohms   kV/mm                                    | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM D3418<br>ASTM E831<br>ASTM F433<br>Test Method<br>Internal Method<br>ASTM D149<br>ASTM D150<br>ASTM D150<br>Test Method<br>UL 94 |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4Dielectric Constant (1 MHz)Dissipation Factor (1 MHz)FlammabilityFlame Rating (3.18 mm, Estimated Rating)NOTE1.2.   | Nominal Value   160   249   0.438   340   4.7E-5   0.25   Nominal Value   > 1.0E+13   19   3.30   3.0E-3   Nominal Value   V-0   4:1 safety factor   68°F                  | Unit   °C   °C   MPa·m/s   °C   cm/cm/°C   W/m/K   Unit   ohms   kV/mm                                    | Test MethodASTM D648Internal MethodASTM D3418ASTM D3418ASTM F433Test MethodInternal MethodASTM D149ASTM D150ASTM D150Test MethodUL 94  |
| ThermalDeflection Temperature Under Load (1.8<br>MPa, Unannealed)Maximum Use Temperature - Long Term,<br>AirLimiting Pressure Velocity 1Peak Crystallization Temperature (DSC)CLTE - Flow 2 (-40 to 149°C)Thermal ConductivityElectricalSurface Resistivity 3Dielectric Strength 4Dielectric Constant (1 MHz)Dissipation Factor (1 MHz)FlammabilityFlame Rating (3.18 mm, Estimated Rating)NOTE1.2.3. | Nominal Value   160   249   0.438   340   4.7E-5   0.25   Nominal Value   > 1.0E+13   19   3.30   3.0E-3   Nominal Value   V-0   4:1 safety factor   68°F   EOS/ESD S11.11 | Unit   °C   °C   MPa·m/s   °C   C   W/m/K   Unit   ohms   kV/mm   | Test Method<br>ASTM D648<br>Internal Method<br>ASTM D3418<br>ASTM D3418<br>ASTM E831<br>ASTM F433<br>Test Method<br>Internal Method<br>ASTM D149<br>ASTM D150<br>ASTM D150<br>Test Method<br>UL 94 |

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