

KetaSpire® KT-880

polyetheretherketone

KetaSpire KT-880 is a high flow grade of unreinforced polyetheretherketone (PEEK) supplied in pellet form. KetaSpire PEEK is produced to the highest industry standards and is characterized by a distinct combination of properties, which include excellent wear resistance, best-in-class fatigue resistance, ease of melt processing, high purity and excellent chemical resistance to organics, acids and bases.

These properties make it well-suited for applications in healthcare, transportation, electronics, chemical processing and other industrial uses. KetaSpire KT-880 NT can be easily

processed using typical injection molding processes. This resin is also available as KT-880P in a natural-color coarse powder form for compounding.

Pellets of KT-880 are supplied lightly dusted with the lubricant calcium stearate (0.01% level) to aid with pellet conveyance in plastication screws. The equivalent unlubricated natural color grade of low flow KetaSpire is available as KT-880 NL.

- Black: KT-880 BK 95
- Natural: KT-880 NT

General

| | | | |
|-------------------|--|--|--|
| Material Status | • Commercial: Active | | |
| Availability | • Africa & Middle East • Asia Pacific | • Europe • North America | • South America |
| Features | • Autoclave Sterilizable • Biocompatible • Ductile • E-beam Sterilizable • Ethylene Oxide Sterilizable • Fatigue Resistant • Flame Retardant | • Good Chemical Resistance • Good Dimensional Stability • Good Impact Resistance • Good Sterilizability • Heat Sterilizable • High Flow • High Heat Resistance | • Radiation (Gamma) Resistant • Radiation Sterilizable • Radiotranslucent • Steam Resistant • Steam Sterilizable |
| Uses | • Aircraft Applications • Connectors • Dental Applications • Electrical/Electronic Applications • Film | • Hospital Goods • Industrial Applications • Medical Appliances • Medical/Healthcare Applications • Oil/Gas Applications | • Pump Parts • Seals • Surgical Instruments |
| Agency Ratings | • ISO 10993 | • ISO 10993-Part 1 | |
| RoHS Compliance | • RoHS Compliant | | |
| Appearance | • Black | • Natural Color | |
| Forms | • Pellets ¹ | | |
| Processing Method | • Extrusion Blow Molding • Fiber (Spinning) Extrusion • Film Extrusion | • Injection Molding • Machining • Profile Extrusion | • Thermoforming • Wire & Cable Extrusion |

Physical

| | Typical Value | Unit | Test Method |
|---|---------------|-------------------|-------------|
| Specific Gravity | 1.30 | g/cm ³ | ASTM D792 |
| Melt Mass-Flow Rate (MFR) (400°C/2.16 kg) | 36 | g/10 min | ASTM D1238 |
| Molding Shrinkage ² | | | ASTM D955 |
| Flow: 0.318 mm | 1.4 to 1.6 | % | |
| Across Flow: 3.18 mm | 1.5 to 1.7 | % | |
| Water Absorption (24 hr) | 0.10 | % | ASTM D570 |

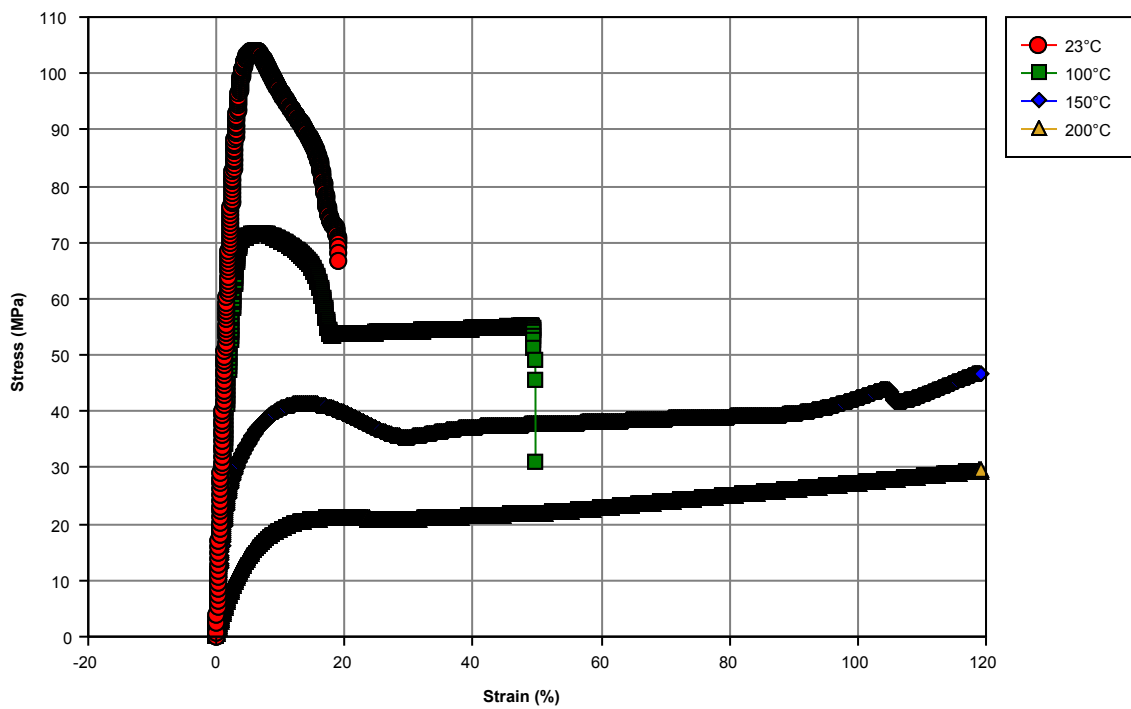
Mechanical

| | Typical Value | Unit | Test Method |
|-----------------|---------------|------|----------------|
| Tensile Modulus | | | |
| -- ³ | 3700 | MPa | ASTM D638 |
| -- | 4000 | MPa | ISO 527-2/1A/1 |

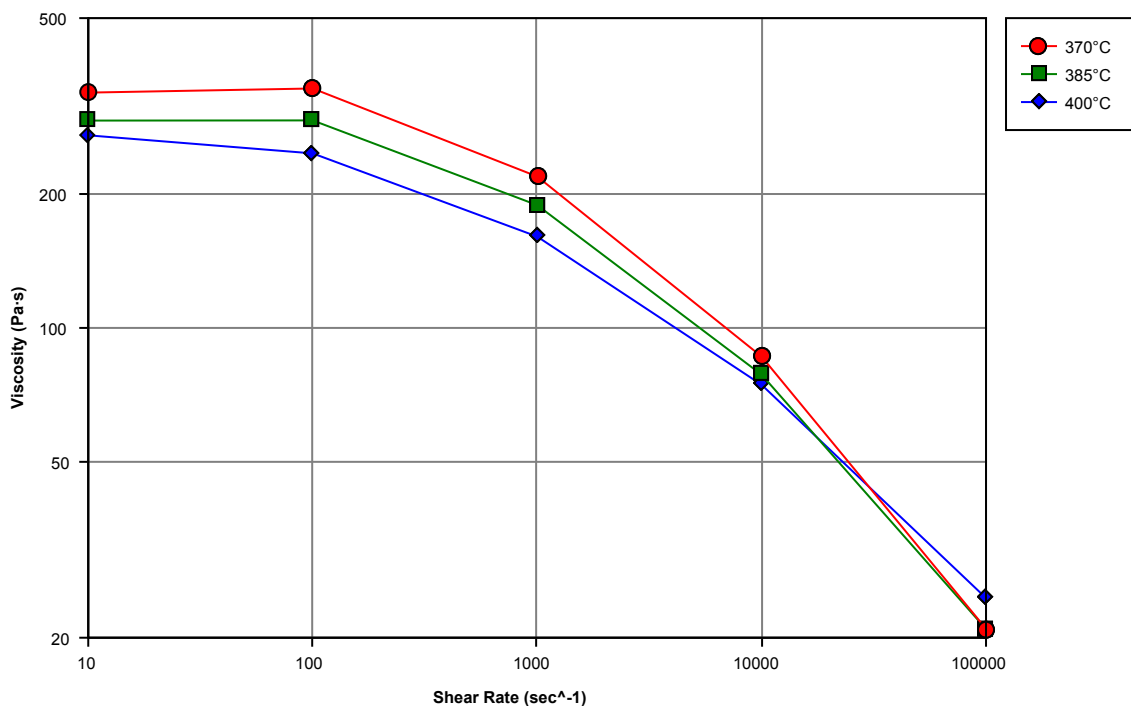
| Mechanical | Typical Value | Unit | Test Method |
|---|---------------|-------------------|-----------------------|
| Tensile Stress | | | |
| Yield | 102 | MPa | ISO 527-2/1A/50 |
| -- ⁴ | 100 | MPa | ASTM D638 |
| Tensile Elongation | | | |
| Yield ⁵ | 5.2 | % | ASTM D638 |
| Yield | 5.0 | % | ISO 527-2/1A/50 |
| Break ⁵ | 10 to 20 | % | ASTM D638 |
| Break | 10 to 20 | % | ISO 527-2/1A/50 |
| Flexural Modulus | | | |
| -- | 3800 | MPa | ASTM D790 |
| -- | 3900 | MPa | ISO 178 |
| Flexural Strength | | | |
| -- | 153 | MPa | ASTM D790 |
| -- | 134 | MPa | ISO 178 |
| Compressive Strength | 123 | MPa | ASTM D695 |
| Shear Strength | 95.1 | MPa | ASTM D732 |
| Poisson's Ratio | 0.37 | | ASTM E132 |
| Impact | Typical Value | Unit | Test Method |
| Notched Izod Impact | | | |
| -- | 53 | J/m | ASTM D256 |
| -- | 4.9 | kJ/m ² | ISO 180 |
| Unnotched Izod Impact | No Break | | ASTM D4812 ISO 180 |
| Hardness | Typical Value | Unit | Test Method |
| Rockwell Hardness (M-Scale) | 102 | | ASTM D785 |
| Thermal | Typical Value | Unit | Test Method |
| Deflection Temperature Under Load | | | ASTM D648 |
| 1.8 MPa, Annealed | 160 | °C | |
| Glass Transition Temperature (DSC) | 147 | °C | ASTM D3418 |
| Peak Melting Temperature | 343 | °C | ASTM D3418 |
| CLTE - Flow (-50 to 50°C) | 0.000050 | cm/cm/°C | ASTM E831 |
| Specific Heat | | | DSC |
| 50°C | 1330 | J/kg/°C | |
| 200°C | 1930 | J/kg/°C | |
| Thermal Conductivity | 0.25 | W/m/K | ASTM E1530 |
| Electrical | Typical Value | Unit | Test Method |
| Surface Resistivity | > 1.9E+17 | ohm | ASTM D257 |
| Volume Resistivity | 3.8E+17 | ohm·cm | ASTM D257 |
| Dielectric Strength (3.00 mm) | 15 | kV/mm | ASTM D149 |
| Dielectric Constant | | | ASTM D150 |
| 60 Hz | 3.10 | | |
| 1 kHz | 3.01 | | |
| 1 MHz | 3.07 | | |
| Dissipation Factor | | | ASTM D150 |
| 60 Hz | 0.0010 | | |
| 1 kHz | 0.0010 | | |
| 1 MHz | 0.0030 | | |
| Fill Analysis | Typical Value | Unit | Test Method |
| Melt Viscosity (400°C, 1000 sec ⁻¹) | 150 | Pa·s | ASTM D3835 |

| Injection | Typical Value | Unit |
|-------------------------|--------------------|------|
| Drying Temperature | 150 | °C |
| Drying Time | 4.0 | hr |
| Rear Temperature | 355 | °C |
| Middle Temperature | 365 | °C |
| Front Temperature | 370 | °C |
| Nozzle Temperature | 375 | °C |
| Mold Temperature | 175 to 205 | °C |
| Injection Rate | Fast | |
| Screw Compression Ratio | 2.5:1.0 to 3.5:1.0 | |

Isothermal Stress vs. Strain (ISO 11403-1)



Viscosity vs. Shear Rate (ISO 11403-2)



Notes

Typical properties: these are not to be construed as specifications.

¹ Pellets are supplied lightly dusted with the lubricant calcium stearate (0.01% level). For non-lubricated, natural color grade, order KT-880 NL.

² 5" x 0.5" x 0.125"

³ 1.0 mm/min

⁴ 51 mm/min

⁵ 50 mm/min

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