

# 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 high flow KetaSpire® is available as KT-880 NL.

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

### General

Material Status	• Commercial: Active	
Availability	<ul style="list-style-type: none"> <li>• Africa &amp; Middle East</li> <li>• Asia Pacific</li> <li>• Europe</li> </ul>	<ul style="list-style-type: none"> <li>• Latin America</li> <li>• North America</li> </ul>
Features	<ul style="list-style-type: none"> <li>• Autoclave Sterilizable</li> <li>• Biocompatible</li> <li>• Chemical Resistant</li> <li>• Ductile</li> <li>• E-beam Sterilizable</li> <li>• Ethylene Oxide Sterilizable</li> <li>• Fatigue Resistant</li> <li>• Flame Retardant</li> <li>• Good Dimensional Stability</li> <li>• Good Impact Resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Good Sterilizability</li> <li>• Heat Sterilizable</li> <li>• High Flow</li> <li>• High Heat Resistance</li> <li>• Radiation (Gamma) Resistant</li> <li>• Radiation Sterilizable</li> <li>• Radiotranslucent</li> <li>• Steam Resistant</li> <li>• Steam Sterilizable</li> </ul>
Uses	<ul style="list-style-type: none"> <li>• Aircraft Applications</li> <li>• Connectors</li> <li>• Dental Applications</li> <li>• Electrical/Electronic Applications</li> <li>• Film</li> <li>• Hospital Goods</li> <li>• Industrial Applications</li> </ul>	<ul style="list-style-type: none"> <li>• Medical Devices</li> <li>• Medical/Healthcare Applications</li> <li>• Oil/Gas Applications</li> <li>• Pump Parts</li> <li>• Seals</li> <li>• Surgical Instruments</li> </ul>
Agency Ratings	<ul style="list-style-type: none"> <li>• ISO 10993</li> <li>• MIL P-46183 Type I</li> </ul>	<ul style="list-style-type: none"> <li>• NSF STD-51<sup>1</sup></li> <li>• USP Class VI<sup>2</sup></li> </ul>
RoHS Compliance	• RoHS Compliant	
Appearance	• Black	• Natural Color
Forms	• Pellets <sup>3</sup>	
Processing Method	<ul style="list-style-type: none"> <li>• Extrusion Blow Molding</li> <li>• Fiber (Spinning) Extrusion</li> <li>• Film Extrusion</li> <li>• Injection Molding</li> </ul>	<ul style="list-style-type: none"> <li>• Machining</li> <li>• Profile Extrusion</li> <li>• Thermoforming</li> <li>• Wire &amp; Cable Extrusion</li> </ul>

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Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.30		ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	36	g/10 min	ASTM D1238
Molding Shrinkage <sup>4</sup>			ASTM D955
Flow	1.4 to 1.6	%	
Across Flow	1.5 to 1.7	%	
Water Absorption (24 hr)	0.10	%	ASTM D570
Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
-- <sup>5</sup>	3700	MPa	ASTM D638
--	4000	MPa	ISO 527-2/1A/1
Tensile Stress			
Yield	102	MPa	ISO 527-2/1A/50
-- <sup>6</sup>	100	MPa	ASTM D638
Tensile Elongation			
Yield <sup>7</sup>	5.2	%	ASTM D638
Yield	5.0	%	ISO 527-2/1A/50
Break <sup>7</sup>	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 <sup>2</sup>	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	147	°C	ASTM D3418
Peak Melting Temperature	343	°C	ASTM D3418
CLTE - Flow (-50 to 50°C)	5.0E-5	cm/cm/°C	ASTM E831
Specific Heat			DSC
50°C	1330	J/kg/°C	
200°C	1930	J/kg/°C	

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Thermal	Typical Value	Unit	Test method
Thermal Conductivity	0.25	W/m/K	ASTM E1530
Electrical	Typical Value	Unit	Test method
Surface Resistivity	> 1.9E+17	ohms	ASTM D257
Volume Resistivity	3.8E+17	ohms·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	1.0E-3		
1 kHz	1.0E-3		
1 MHz	3.0E-3		
Flammability	Typical Value	Unit	Test method
Flame Rating (> 3.0 mm, Natural)	V-0		UL 94
Fill Analysis	Typical Value	Unit	Test method
Melt Viscosity (400°C, 1000 sec <sup>-1</sup> )	150	Pa·s	ASTM D3835

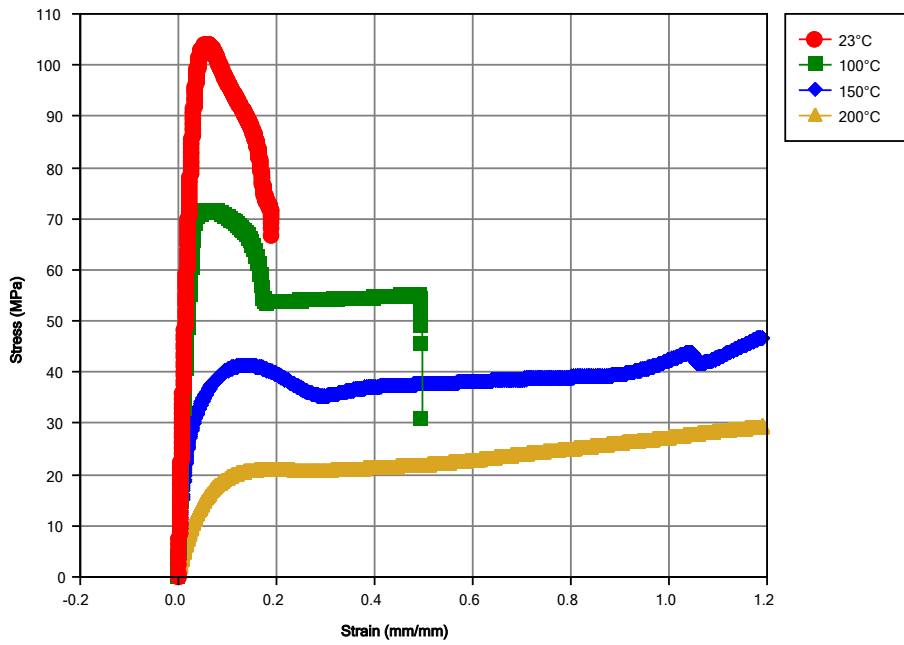
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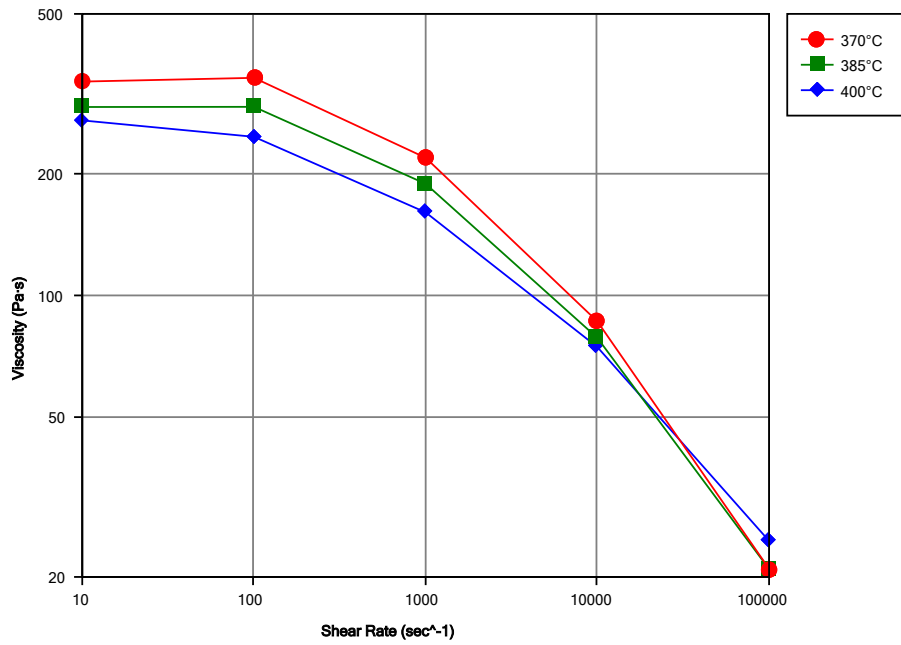
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Injection	Typical Value	Unit
Drying Temperature	150	°C
Drying Time	4.0	hr
Rear Temperature	355	°C
Middle Temperature	365	°C
Front Temperature	370	°C
Nozzle Temperature	375	°C
Mold Temperature	175 to 205	°C
Injection Rate	Fast	
Screw Compression Ratio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

Isothermal Stress vs. Strain (ISO 11403-1)



Viscosity vs. Shear Rate (ISO 11403-2)



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## Notes

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

<sup>1</sup> Only KT-880 NT has been NSF STD-51 certified.

<sup>2</sup> KT-880 NT only

<sup>3</sup> Pellets are supplied lightly dusted with the lubricant calcium stearate (0.01% level). For non-lubricated, natural color grade, order KT-880 NL.

<sup>4</sup> 5" x 0.5" x 0.125" (127 x 12.7 x 3.18mm)

<sup>5</sup> 1.0 mm/min

<sup>6</sup> 51 mm/min

<sup>7</sup> 50 mm/min

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**[www.solvay.com](http://www.solvay.com)**

[SpecialtyPolymers.EMEA@solvay.com](mailto:SpecialtyPolymers.EMEA@solvay.com) | Europe, Middle East and Africa

[SpecialtyPolymers.Americas@solvay.com](mailto:SpecialtyPolymers.Americas@solvay.com) | Americas

[SpecialtyPolymers.Asia@solvay.com](mailto:SpecialtyPolymers.Asia@solvay.com) | Asia and Australia

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