

# KetaSpire® KT-880 GF20

## polyetheretherketone

KetaSpire® KT-880 GF20 is a high flow, 20% glass-fiber reinforced grade of polyetheretherketone (PEEK). This resin offers higher strength and stiffness properties relative to unreinforced KetaSpire® PEEK resin. The glass fiber content is optimized to provide a balance of strength and stiffness with toughness-related properties, such as impact resistance and elongation at break. This level of reinforcement also affords greater mechanical robustness in structural applications, particularly those with service temperatures approaching 240°C (464°F).

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.

#### General

Material Status	<ul> <li>Commercial: Active</li> </ul>	
Availability	<ul><li> Africa &amp; Middle East</li><li> Asia Pacific</li><li> Europe</li></ul>	<ul><li>Latin America</li><li>North America</li></ul>
Filler / Reinforcement	<ul> <li>Glass Fiber, 20% Filler by Weight</li> </ul>	
Features	<ul> <li>Autoclave Sterilizable</li> <li>Biocompatible</li> <li>Chemical Resistant</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 Sterilizabile</li> </ul>	<ul> <li>High Flow</li> <li>High Heat Resistance</li> <li>High Stiffness</li> <li>High Strength</li> <li>Radiation (Gamma) Resistant</li> <li>Radiation Sterilizable</li> <li>Radiotranslucent</li> <li>Steam Resistant</li> <li>Steam Sterilizable</li> </ul>
Uses	<ul> <li>Aircraft Applications</li> <li>Automotive Applications</li> <li>Connectors</li> <li>Dental Applications</li> <li>Electrical/Electronic Applications</li> <li>Film</li> <li>Hospital Goods</li> </ul>	<ul> <li>Industrial Applications</li> <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	• MIL P-46183 Type II Class 2	
RoHS Compliance	<ul> <li>Contact Manufacturer</li> </ul>	
Appearance	• Tan	
Forms	• Pellets	
Processing Method	<ul> <li>Injection Molding</li> </ul>	

Density         1.46 g/cm²         ISO 183           Melt Moss-Flow Rate (MFR) (400°C/2.16 kg)         18 g/lo min         ASTM D1238           Water Absorption (24 hr)         0.022 %         ISO 15512           Ash Content         20 %         ISO 3451-1           Mechanical         Typical Value Unit         Test method           Tensile Modulus         Test method	Physical	Typical Value	Unit	Test method
Water Absorption (24 hr)         0.022 %         ISO 15512           Ash Content         20 %         ISO 3451-1           Mechanical         Typical Value Unit         Test method           Tensile Modulus         8200 MPa         ASTM D638            8300 MPa         ISO 527-1           Tensile Strength         Break         152 MPa         ASTM D638           Break         162 MPa         ISO 527-2           Tensile Elongation         Break         3.7 %         ASTM D638           Break         3.5 %         ISO 527-2/IA/5           Flexural Modulus          7860 MPa         ASTM D790            7860 MPa         ASTM D790            254 MPa         ASTM D790            254 MPa         ASTM D790            254 MPa         ASTM D638           Impact         Typical Value Unit         Test method           <	Density	1.46	g/cm³	ISO 1183
Ash Content         20 %         ISO 3451-I           Mechanical         Typical Value Unit         Test method           Tensile Modulus          8200 MPa         ASTM D638            8300 MPa         ISO 527-I           Tensile Strength         152 MPa         ASTM D638           Break         162 MPa         ISO 527-2           Tensile Elongation         880 MPa         ASTM D638           Break         3.7 %         ASTM D638           Break         3.5 %         ISO 527-2/Ia/5           Flexural Modulus         -         7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength         -         254 MPa         ASTM D790            238 MPa         ISO 178           Modulus of Elasticity         -         8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         -         60 J/m         ASTM D256            60 J/m         ASTM D256	Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	18	g/10 min	ASTM D1238
Mechanical         Typical Value Unit         Test method           Tensile Modulus         -         8200 MPa         ASTM D638            8300 MPa         ISO 527-1           Tensile Strength         I52 MPa         ASTM D638           Break         152 MPa         ASTM D638           Break         152 MPa         ASTM D638           Break         3.7 %         ASTM D638           Break         3.5 %         ISO 527-2/Ia/5           Flexural Modulus         -         7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength         -         254 MPa         ASTM D790            238 MPa         ISO 179           Modulus of Elasticity         -         8.24 GPa         ISO 527            8.24 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         -         60 J/m         ASTM D256            60 J/m         ASTM D256            60 J/m         ASTM D258            60 J/m <td>Water Absorption (24 hr)</td> <td>0.022</td> <td>%</td> <td>ISO 15512</td>	Water Absorption (24 hr)	0.022	%	ISO 15512
Tensile Modulus            8200 MPa         ASTM D638            8300 MPa         ISO 527-1           Tensile Strength         I52 MPa         ASTM D638           Break         162 MPa         ISO 527-2           Tensile Elongation         Break         3.7 %         ASTM D638           Break         3.5 %         ISO 527-2/IA/5           Flexural Modulus         -         7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength         254 MPa         ASTM D790            238 MPa         ISO 178           Modulus of Elasticity         -         8.24 GPa         ISO 527            8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         -         60 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D481           Hardness         Typical Value Unit         Test method           Topical Value Unit         Test method	Ash Content	20	%	ISO 3451-1
Tensile Modulus            8200 MPa         ASTM D638            8300 MPa         ISO 527-1           Tensile Strength         I52 MPa         ASTM D638           Break         162 MPa         ISO 527-2           Tensile Elongation         Break         3.7 %         ASTM D638           Break         3.5 %         ISO 527-2/IA/5           Flexural Modulus         -         7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength         254 MPa         ASTM D790            238 MPa         ISO 178           Modulus of Elasticity         -         8.24 GPa         ISO 527            8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         -         60 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D481           Hardness         Typical Value Unit         Test method           Topical Value Unit         Test method	Mechanical	Typical Value	Unit	Test method
8200 MPa ASTM D638 and B300 MPa ISO 527-1 Tensile Strength Break 152 MPa ASTM D638 Break 162 MPa ISO 527-2 Tensile Elongation Break 3.7 % ASTM D638 Break 3.7 % ASTM D638 Break 3.5 % ISO 527-2/IA/5 Flexural Modulus 7860 MPa ASTM D790 Brexural MPa ISO 178 Flexural Strength 254 MPa ASTM D790 Brexural MPa ISO 178 Flexural Strength 254 MPa ASTM D790 Brexural MPa ISO 178 Modulus of Elasticity 258 MPa ASTM D790 Brexural MPa ISO 178 Modulus of Elasticity 8.24 GPa ISO 527 Brexural MPa ISO 178 Modulus of Elasticity 8.24 GPa ASTM D638 Impact Typical Value Unit Test method Charpy Unnotched Impact Strength 60 kJ/m² ISO 178 Notched Izod Impact 60 J/m ASTM D636 Unnotched Izod Impact Trength 770 J/m ASTM D4810 Brexural MPack 1790 J/		Typical value	OTILE	restriction
■ 8300 MPa         ISO 527-1           Tensile Strength           Break         152 MPa         ASTM D638           Break         162 MPa         ISO 527-2           Tensile Elongation           Break         3.7 %         ASTM D638           Break         3.5 %         ISO 527-2/IA/5           Flexural Modulus         Test MPa         ASTM D790            7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength         254 MPa         ASTM D790            238 MPa         ISO 178           Modulus of Elasticity         Secondary         ISO 178           Modulus of Elasticity         Secondary         ISO 178           Modulus of Elasticity         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 180           Unnotched Izod Impact         Typical Value Unit         Test method           Hardness         Typical Value Unit         Test method		8200	MPa	ΔSTM D638
Tensile Strength           Break         152 MPa         ASTM D638 Break         162 MPa         ASTM D638 ISO 527-2           Tensile Elongation         3.7 % ASTM D638 Break         3.7 % ISO 527-2/Ia/5         ASTM D638 Break         3.5 % ISO 527-2/Ia/5           Flexural Modulus          7860 MPa         ASTM D790 ASTM D790 ISO 178            7720 MPa         ISO 178           Flexural Strength          254 MPa         ASTM D790 ISO 178           Modulus of Elasticity          8.24 GPa         ISO 527 ISO 178           Modulus of Elasticity          8.34 GPa         ASTM D638 ISO 178           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact          6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method				
Break         152 MPa         ASTM D638 Break         Break         162 MPa         ASTM D638 ISO 527-2           Tensile Elongation         3.7 %         ASTM D638 Break         3.7 %         ASTM D638 ISO 527-2/Ia/5           Break         3.5 %         ISO 527-2/Ia/5           Flexural Modulus         -         7860 MPa         ASTM D790 ISO 178            7720 MPa         ISO 178           Flexural Strength         -         254 MPa         ASTM D790 ISO 178           Modulus of Elasticity         -         238 MPa         ISO 527 ISO 178           Modulus of Elasticity         -         8.24 GPa         ASTM D638 ISO 178           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         -         6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785	Tensile Strength		G	100 027 1
Break         162 MPa         ISO 527-2           Tensile Elongation         Seak         3.7 %         ASTM D638           Break         3.5 %         ISO 527-2/IA/5           Flexural Modulus         7860 MPa         ASTM D790            7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength         254 MPa         ASTM D790            258 MPa         ISO 179           Modulus of Elasticity         3.24 GPa         ISO 527            8.24 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         60 kJ/m²         ASTM D256            60 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Thermal         Typical Value Unit         Test method	_	152	MPa	ΔSTM D638
Tensile Elongation           Break         3.7 %         ASTM D638           Break         3.5 %         ISO 527-2/IA/5           Flexural Modulus          7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength         254 MPa         ASTM D790            238 MPa         ISO 179           Modulus of Elasticity          8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         60 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D256            6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Thermal         Typical Value Unit         Test method				
Break         3.7 %         ASTM D638 Break         Break         3.5 %         ISO 527-2/IA/5         Flexural Modulus         ISO 527-2/IA/5         Flexural Modulus         ISO 527-2/IA/5         Flexural Strength         T720 MPa         ASTM D790         ASTM D638         ASTM D790         ASTM D790         ASTM D790         ASTM D785         ASTM D4812         ASTM D4812         ASTM D4812         ASTM D785				
Break         3.5 %         ISO 527-2/1A/5           Flexural Modulus         7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength         324 MPa         ASTM D790            254 MPa         ASTM D790            238 MPa         ISO 178           Modulus of Elasticity         8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         60 kJ/m²         ISO 180            60 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method	_	3.7	%	ASTM D638
Flexural Modulus				
7860 MPa         ASTM D790            7720 MPa         ISO 178           Flexural Strength            254 MPa         ASTM D790            238 MPa         ISO 178           Modulus of Elasticity         Typical GPa         ISO 527            8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         60 J/m         ASTM D256            6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method	Flexural Modulus			, ,
Flexural Strength		7860	MPa	ASTM D790
Flexural Strength		7720	MPa	ISO 178
254 MPa         ASTM D790            238 MPa         ISO 178           Modulus of Elasticity         8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         60 J/m         ASTM D256            6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method	Flexural Strength			
Modulus of Elasticity            8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact          60 J/m         ASTM D256            6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method		254	МРа	ASTM D790
8.24 GPa         ISO 527            8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact          60 J/m         ASTM D256            6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method		238	MPa	ISO 178
8.34 GPa         ASTM D638           Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact          60 J/m         ASTM D256            6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method	Modulus of Elasticity			
Impact         Typical Value Unit         Test method           Charpy Unnotched Impact Strength         60 kJ/m²         ISO 179           Notched Izod Impact         60 J/m         ASTM D256            6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method		8.24	GPa	ISO 527
Charpy Unnotched Impact Strength 60 kJ/m² ISO 179  Notched Izod Impact  60 J/m ASTM D256  6.0 kJ/m² ISO 180  Unnotched Izod Impact 770 J/m ASTM D4812  Hardness Typical Value Unit Test method  Rockwell Hardness (M-Scale) 103 ASTM D785		8.34	GPa	ASTM D638
Charpy Unnotched Impact Strength 60 kJ/m² ISO 179  Notched Izod Impact  60 J/m ASTM D256  6.0 kJ/m² ISO 180  Unnotched Izod Impact 770 J/m ASTM D4812  Hardness Typical Value Unit Test method  Rockwell Hardness (M-Scale) 103 ASTM D785	Impact	Typical Value	Unit	Test method
Notched Izod Impact            60 J/m         ASTM D256            6.0 kJ/m²         ISO 180           Unnotched Izod Impact         770 J/m         ASTM D4812           Hardness         Typical Value Unit         Test method           Rockwell Hardness (M-Scale)         103         ASTM D785           Thermal         Typical Value Unit         Test method				
60 J/m ASTM D256 6.0 kJ/m² ISO 180 Unnotched Izod Impact 770 J/m ASTM D4812  Hardness Typical Value Unit Test method Rockwell Hardness (M-Scale) 103 ASTM D785  Thermal Typical Value Unit Test method				
6.0 kJ/m² ISO 180 Unnotched Izod Impact 770 J/m ASTM D4812  Hardness Typical Value Unit Test method Rockwell Hardness (M-Scale) 103 ASTM D785  Thermal Typical Value Unit Test method		60	J/m	ASTM D256
Unnotched Izod Impact 770 J/m ASTM D4812  Hardness Typical Value Unit Test method Rockwell Hardness (M-Scale) 103 ASTM D785  Thermal Typical Value Unit Test method				ISO 180
Rockwell Hardness (M-Scale) 103 ASTM D785  Thermal Typical Value Unit Test method	Unnotched Izod Impact	770	J/m	ASTM D4812
Rockwell Hardness (M-Scale) 103 ASTM D785  Thermal Typical Value Unit Test method	Hardness	Typical Value	Unit	Test method
Thermal Typical Value Unit Test method			Offic	
	noonin indianous (m. oodio)	100		7.011010700
Melting Temperature <sup>1</sup> 345 °C ISO 11357	Thermal	Typical Value	Unit	Test method
	Melting Temperature <sup>1</sup>	345	°C	ISO 11357

## KetaSpire® KT-880 GF20

### polyetheretherketone

Electrical	Typical Value Unit	Test method
Surface Resistivity	5.0E+15 ohms	ASTM D257
Volume Resistivity	7.0E+15 ohms·cm	ASTM D257
Dielectric Strength (3.00 mm)	16 kV/mm	ASTM D149
Dielectric Constant		ASTM D150
60 Hz	3.34	
1 kHz	3.35	
1 MHz	3.35	
Dissipation Factor		ASTM D150
60 Hz	2.0E-3	
1 kHz	1.0E-3	
1 MHz	4.0E-3	
Fill Analysis	Typical Value Unit	Test method
Melt Viscosity (400°C, 1000 sec^-1)	280 Pa·s	ASTM D3835
Injection	Typical Value Unit	
Drying Temperature	150 °C	
Drying Time	4.0 hr	
Rear Temperature	365 °C	
Middle Temperature	371 °C	
Front Temperature	377 °C	
Nozzle Temperature	382 °C	
Mold Temperature	177 to 204 °C	
Injection Rate	Fast	
Screw Compression Ratio	2.5:1.0 to 3.5:1.0	

#### **Notes**

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

## www.syensqo.com

Safety Data Sheets (SDS) are available by emailing us or contacting your sales representative. Always consult the appropriate SDS before using any of our products.

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<sup>&</sup>lt;sup>1</sup> DSC First heat