

# KetaSpire® KT-820 SL45

## polyetheretherketone

KetaSpire® KT-820 SL45 is a PEEK based compound specifically designed to provide exceptionally low wear rates and good mechanical properties in

applications where an external lubricant is provided.

### General

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Additive	• Carbon Fiber + PTFE Lubricant	
Features	• Chemical Resistant • Fatigue Resistant • Flame Retardant	• Good Dimensional Stability • High Heat Resistance • Wear Resistant
Uses	• Automotive Applications • Bushings • Gears	• Oil/Gas Applications • Thrust Washer
RoHS Compliance	• RoHS Compliant	
Appearance	• Black	
Forms	• Pellets	
Processing Method	• Injection Molding • Machining	• Profile Extrusion

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.50		ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	2.0	g/10 min	ASTM D1238
Molding Shrinkage <sup>1</sup>			ASTM D955
Flow : 3.18 mm	0.0 to 0.20	%	
Across Flow : 3.18 mm	1.3 to 1.5	%	
Water Absorption (24 hr)	0.030	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
--	18300	MPa	ASTM D638
--	25300	MPa	ISO 527-1/1A/1
Tensile Stress			
Yield	197	MPa	ISO 527-2/1A/5
--	161	MPa	ASTM D638
Tensile Elongation			
Break <sup>2</sup>	1.5	%	ASTM D638
Break	1.5	%	ISO 527-2/1A/5

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Mechanical	Typical Value	Unit	Test method
Flexural Modulus			
--	16600	MPa	ASTM D790
--	24100	MPa	ISO 178
Flexural Strength			
--	265	MPa	ASTM D790
--	273	MPa	ISO 178
Compressive Strength	127	MPa	ASTM D695
Shear Strength	84.1	MPa	ASTM D732
Coefficient of Friction			
-- <sup>3</sup>	0.34		ASTM D1894
-- <sup>4</sup>	0.45		ASTM D3702
-- <sup>5</sup>	0.12		ASTM D1894
-- <sup>6</sup>	0.070		ASTM D3702

Impact	Typical Value	Unit	Test method
Notched Izod Impact			
--	69	J/m	ASTM D256
--	8.5	kJ/m <sup>2</sup>	ISO 180
Unnotched Izod Impact			
--	530	J/m	ASTM D4812
--	43	kJ/m <sup>2</sup>	ISO 180

Hardness	Typical Value	Unit	Test method
Rockwell Hardness (M-Scale)	90		ASTM D785

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Annealed	299	°C	
Glass Transition Temperature	152	°C	ASTM D3418
Peak Melting Temperature	342	°C	ASTM D3418
CLTE - Flow (-50 to 50°C)	1.7E-5	cm/cm/°C	ASTM E831
Specific Heat			DSC
50°C	1250	J/kg/°C	
200°C	1670	J/kg/°C	
Thermal Conductivity	0.36	W/m/K	ASTM E1530

Fill Analysis	Typical Value	Unit	Test method
Melt Viscosity <sup>1</sup> (400°C, 1000 sec <sup>-1</sup> )	380	Pa·s	ASTM D3835

Injection	Typical Value	Unit
Drying Temperature	149	°C
Drying Time	4.0	hr
Rear Temperature	366	°C
Middle Temperature	371	°C
Front Temperature	377	°C

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Injection	Typical Value	Unit
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	

### Injection Notes

Back Pressure: minimum

## Notes

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

<sup>1</sup> 5" x 0.5" x 0.125" bars

<sup>2</sup> 5.0 mm/min

<sup>3</sup> Dry conditions: 800 fpm and 31.25 psi (4.06 m/s and 215 kPa).

<sup>4</sup> Dry conditions: 200 fpm and 125 psi (1.02 m/s and 862 kPa). Not recommended at 50 fpm and 500 psi (0.25 m/s and 3447 kPa).

<sup>5</sup> Lubricated conditions: 75 fpm and 1000 psi (0.38 m/s and 6895 kPa)

<sup>6</sup> Lubricated conditions: 800 fpm and 750 psi (6.06 m/s and 5171 kPa)

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