KetaSpire® KT-851
polyetheretherketone

KetaSpire® KT-851 resin is a depth-filtered grade of polyetheretherketone (PEEK) specially designed for use in extruded wire insulation coating. KT-851 offers the needed balance of properties and processability for applying thin insulation coatings onto copper or other conducting wire using a continuous extrusion process to achieve a robust insulation coating that is capable of withstanding the harsh use environments of many industrial applications.

KetaSpire® PEEK is produced to the highest industry standards and is characterized by a distinct combination of properties, which include excellent chemical resistance to organics, acids and bases, best in class fatigue resistance, excellent wear resistance, ease of melt processing and high purity.

The pellets are supplied with a very light dusting (0.01%) of calcium stearate to aid with conveying through single screw extruder-based processing equipment.

Natural: KetaSpire® KT-851 NT

General		
Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Additive	• Lubricant	
Features	• Chemical Resistant • Ductile • Fatigue Resistant • Flame Retardant	• Good Dimensional Stability • Good Impact Resistance • High Heat Resistance
Uses	• Electrical/Electronic Applications • Oil/Gas Applications	• Wire Jacketing
Agency Ratings	• ISO 10993	
RoHS Compliance	• Contact Manufacturer	
Appearance	• Natural Color	
Forms	• Pellets	
Processing Method	• Injection Molding • Machining	• Profile Extrusion

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.30		ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	10	g/10 min	ASTM D1238
Molding Shrinkage			ASTM D955
Flow	1.1 to 1.3	%	
Across Flow	1.3 to 1.5	%	
Water Absorption (24 hr)	0.10	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
-- [1]	3600	MPa	ASTM D638
--	3850	MPa	ISO 527-1/1A/1
Tensile Stress			
Yield	95.0	MPa	ISO 527-2/1A/50
--	96.0	MPa	ASTM D638
Tensile Elongation			
Yield [2]	5.2	%	ASTM D638
Yield	4.8	%	ISO 527-2/1A/50
Break [2]	20 to 30	%	ASTM D638
Break	20 to 30	%	ISO 527-2/1A/50
Flexural Modulus			
--	3900	MPa	ASTM D790
--	3620	MPa	ISO 178
Flexural Strength			
--	152	MPa	ASTM D790
--	112	MPa	ISO 178
Compressive Strength	121	MPa	ASTM D695
Shear Strength	91.5	MPa	ASTM D732

Impact	Typical Value	Unit	Test method
Notched Izod Impact			
--	69	J/m	ASTM D256
--	7.5	kJ/m²	ISO 180
Unnotched Izod Impact	No Break		ASTM D4812 ISO 180

Hardness	Typical Value	Unit	Test method
Rockwell Hardness (M-Scale)	97		ASTM D785
Durometer Hardness (Shore D, 1 sec)	88		ASTM D2240

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load [3]			ASTM D648
1.8 MPa, Annealed, 3.20 mm	157	°C	
Glass Transition Temperature	150	°C	ASTM D3418
Peak Melting Temperature	340	°C	ASTM D3418
CLTE - Flow (-50 to 50°C)	4.3E-5	cm/cm/°C	ASTM E831
Specific Heat			DSC
50°C	1350	J/kg/°C	
200°C	1950	J/kg/°C	
Thermal Conductivity	0.24	W/m/K	ASTM E831

Electrical	Typical Value	Unit	Test method
Surface Resistivity	> 1.9E+17	ohms	ASTM D257
Volume Resistivity	2.5E+17	ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
0.0500 mm, Amorphous Film	200	kV/mm	

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

Additional Information

Standard Packaging and Labeling

- KetaSpire resins are packaged in polyethylene buckets or cardboard boxes depending upon the order size. Individual packages will be plainly marked with the product, color, lot number, and net weight.

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	

Injection Notes

Drying

- KetaSpire resins must be dried completely prior to melt processing. Incomplete drying will result in defects in the formed part ranging from surface streaks to severe bubbling. Pellets can be dried on trays in a circulating air oven or in desiccating hopper dryer. Drying conditions recommended are 4 hours at 150°C (300°F) .

Injection Molding

- KetaSpire resins can be readily injection molded in most screw injection machines. A general purpose screw with a compression ratio in the range of 2.5 - 3.5 : 1 is recommended, as is minimum back pressure. Injection speeds should be as fast as possible, consistent with part appearance requirements. Mold temperatures in the range of 175°C to 205°C (350°F to 400°F) are suggested. Recommended starting point barrel temperatures are shown in the following table.

Notes

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

[1] 1.0 mm/min

[2] 50 mm/min

[3] 2 hours at 200°C

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