KetaSpire® KT-851 NL

Polyetheretherketone

Solvay Specialty Polymers

Message:

KetaSpire® KT-851 NL resin is a depth-filtered grade of polyetheretherketone (PEEK) supplied in non-lubricated, natural-color pellet form and is specially designed for use in extruded wire insulation coating. KT-851 NL 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.
A lubricated form of this resin is available as KT-851 in natural color (NT). The pellets in the lubricated versions are supplied with a very light dusting (0.01%) of calcium stearate to aid with conveying through single screw extruder-based processing equipment.

General Information	
Additive	Lubricant
Features	Good dimensional stability Impact resistance, good Good chemical resistance Fatigue resistance Heat resistance, high ductility Flame retardancy
Uses	Electrical/Electronic Applications Wire sheath Oil/Gas Supplies
RoHS Compliance	Contact manufacturer
Appearance	Natural color
Forms	Particle
Processing Method	Machining Profile extrusion molding Injection molding

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.30	g/cm³	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 - 1.3	%	ASTM D955
Transverse flow	1.3 - 1.5	%	ASTM D955
Water Absorption (24 hr)	0.10	%	ASTM D570

Hardness	Nominal Value	Unit	Test Method

Rockwell Hardness (M-Scale)	97		ASTM D785
Durometer Hardness (Shore D, 1 sec)	88		ASTM D2240
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus			
-- [1]	3600	MPa	ASTM D638
--	3850	MPa	ISO 527-2/1A/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
Fracture [3]	20 - 30	%	ASTM D638
Fracture	20 - 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	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact			
--	69	J/m	ASTM D256
--	7.5	kJ/m^2	ISO 180
Unnotched Izod Impact	No Break		ASTM D4812, ISO 180
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load [4] (1.8 MPa, Annealed, 3.20 mm)	157	°C	ASTM D648
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	DSC
200°C	1950	J/kg/°C	DSC
Thermal Conductivity	0.24	W/m/K	ASTM E831
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity	> 1.9E+17	ohms	ASTM D257
Volume Resistivity	2.5E+17	ohms·cm	ASTM D257
Dielectric Strength (0.0500mm, amorphous film)	200	kV/mm	ASTM D149
Fill Analysis	**Nominal 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	Nominal 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 - 205	°C
Injection Rate	Fast	
Screw Compression Ratio	2.5:1.0 - 3.5:1.0	

Injection instructions

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.

NOTE	
1.	1.0 mm/min
2.	50 mm/min
3.	50 mm/min
4.	200°C,2 hours

Recommended distributors for this material

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