

Solvay Specialty Polymers AvaSpire® AV-651 Polyaryletherketone (PAEK) (Unverified Data**)

Category : Polymer , Thermoplastic , Polyketone

Material Notes:

AvaSpire AV-651 is an unreinforced polyaryletherketone (PAEK) that offers more ductility and impact strength than PEEK, with higher chemical and environmental stress cracking resistance than AvaSpire AV-650. It has been specifically formulated for applications requiring a balance of chemical resistance and mechanical strength along with good part aesthetics, bridging the performance gaps within the ultra polymers space. These properties make it well-suited for applications in healthcare, transportation, electronics, chemical processing and other industrial uses. AvaSpire AV-651 can be easily processed by typical injection molding and extrusion methods using conventional processing equipment. - Natural: AvaSpire AV-651 NT - Beige: AvaSpire AV-651 BG 15
Information provided by Solvay Specialty Polymers.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-AvaSpire-AV-651-Polyaryletherketone-PAEK-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.29 g/cc	1.29 g/cc	ASTM D792
Water Absorption	0.20 %	0.20 %	ASTM D570
	@Time 86400 sec	@Time 24.0 hour	
Viscosity	240000 cP	240000 cP	Melt; ASTM D3835
	@Shear Rate 1000 1/s, Temperature 400 °C	@Shear Rate 1000 1/s, Temperature 752 °F	
Linear Mold Shrinkage, Flow	0.0070 - 0.0090 cm/cm	0.0070 - 0.0090 in/in	5" x 0.5" x 0.125"; ASTM D955
	@Thickness 3.18 mm	@Thickness 0.125 in	
Linear Mold Shrinkage, Transverse	0.010 - 0.012 cm/cm	0.010 - 0.012 in/in	5" x 0.5" x 0.125"; ASTM D955
	@Thickness 3.18 mm	@Thickness 0.125 in	
Melt Flow	25 g/10 min	25 g/10 min	ASTM D1238
	@Load 2.16 kg, Temperature 400 °C	@Load 4.76 lb, Temperature 752 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	94	94	M-Scale; ASTM D785
Tensile Strength	87.0 MPa	12600 psi	50 mm/min; ASTM D638
Tensile Strength, Yield	89.0 MPa	12900 psi	ISO 527-2/1A/50
Elongation at Break	>= 40 %	>= 40 %	50 mm/min; ASTM D638
	>= 40 %	>= 40 %	

Elongation at Yield Mechanical Properties	5.7% Metric	5.7% English	ISO 527-2/1A/50 Comments
	6.2 %	6.2 %	50 mm/min; ASTM D638
Tensile Modulus	3.00 GPa	435 ksi	50 mm/min; ASTM D638
	3.20 GPa	464 ksi	ISO 527-2/1A/1
Flexural Strength	124 MPa	18000 psi	ASTM D790
	127 MPa	18400 psi	ISO 178
Flexural Modulus	3.10 GPa	450 ksi	ASTM D790
	3.20 GPa	464 ksi	ISO 178
Compressive Strength	112 MPa	16200 psi	ASTM D695
Shear Strength	78.0 MPa	11300 psi	ASTM D732
Izod Impact, Notched	0.690 J/cm	1.29 ft-lb/in	ASTM D256
	NB	NB	ASTM D256
Izod Impact, Notched (ISO)	6.60 kJ/m ²	3.14 ft-lb/in ²	ISO 180
Izod Impact, Unnotched (ISO)	NB	NB	ISO 180

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	47.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature -50.0 - 50.0 $^{\circ}\text{C}$	26.1 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature -58.0 - 122 $^{\circ}\text{F}$	TMA; ASTM E831
Specific Heat Capacity	1.31 J/g- $^{\circ}\text{C}$ @Temperature 50.0 $^{\circ}\text{C}$	0.313 BTU/lb- $^{\circ}\text{F}$ @Temperature 122 $^{\circ}\text{F}$	DSC
	1.82 J/g- $^{\circ}\text{C}$ @Temperature 200 $^{\circ}\text{C}$	0.435 BTU/lb- $^{\circ}\text{F}$ @Temperature 392 $^{\circ}\text{F}$	DSC
Thermal Conductivity	0.240 W/m-K	1.67 BTU-in/hr-ft ² - $^{\circ}\text{F}$	ASTM E1530
Melting Point	345 $^{\circ}\text{C}$	653 $^{\circ}\text{F}$	Peak; ASTM D3418
Deflection Temperature at 1.8 MPa (264 psi)	190 $^{\circ}\text{C}$ @Thickness 3.20 mm	374 $^{\circ}\text{F}$ @Thickness 0.126 in	Annealed; 2 hours at 200 $^{\circ}\text{C}$; ASTM D648
Glass Transition Temp, Tg	158 $^{\circ}\text{C}$	316 $^{\circ}\text{F}$	ASTM D3418
Flammability, UL94	V-0 @Thickness 0.800 mm	V-0 @Thickness 0.0315 in	UL 94

Thermal Properties	V-g Metric	V-g English	Comments
	@Thickness 1.60 mm	@Thickness 0.0630 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	5.00e+17 ohm-cm	5.00e+17 ohm-cm	ASTM D257
Surface Resistance	>= 1.90e+17 ohm	>= 1.90e+17 ohm	ASTM D257
Dielectric Constant	3.1	3.1	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.1	3.1	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	3.12	3.12	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	16.0 kV/mm	406 kV/in	ASTM D149
	@Thickness 3.00 mm	@Thickness 0.118 in	
Dissipation Factor	0.0010	0.0010	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.0010	0.0010	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.0040	0.0040	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Processing Properties	Metric	English	Comments
Rear Barrel Temperature	355 °C	671 °F	
Middle Barrel Temperature	365 °C	689 °F	
Front Barrel Temperature	370 °C	698 °F	
Nozzle Temperature	375 °C	707 °F	
Melt Temperature	365 - 390 °C	689 - 734 °F	
Mold Temperature	150 - 180 °C	302 - 356 °F	
Drying Temperature	150 °C	302 °F	
Dry Time	4.00 hour	4.00 hour	

Descriptive Properties	Value	Comments
Agency Ratings	ISO 10993	
	ISO 10993-Part 1	
Appearance	Beige	
	Natural Color	
Availability	Africa & Middle East	
	Asia Pacific	
	Europe	
	North America	
	South America	
Features	Autoclave Sterilizable	
	Biocompatible	
	Ductile	
	E-beam Sterilizable	
	Ethylene Oxide Sterilizable	
	Fatigue Resistant	
	Flame Retardant	
	Good Chemical Resistance	
	Good Dimensional Stability	
	Good Impact Resistance	
	Good Sterilizability	
	Heat Sterilizable	
	High Heat Resistance	
	Radiation (Gamma) Resistant	
	Radiation Sterilizable	
	Radiotranslucent	
	Steam Resistant	
	Steam Sterilizable	

Descriptive Properties	Value	Comments
Generic	PAEK	
Injection Rate	Fast	
Processing Method	Extrusion Blow Molding	
	Fiber (Spinning) Extrusion	
	Film Extrusion	
	Injection Blow Molding	
	Injection Molding	
	Machining	
	Profile Extrusion	
	Thermoforming	
	Wire & Cable Extrusion	
RoHS Compliance	RoHS Compliant	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	
Uses	Aerospace Applications	
	Aircraft Applications	
	Bearings	
	Dental Applications	
	Film	
	Hospital Goods	
	Industrial Applications	
	Medical Appliances	
	Medical/Healthcare Applications	
	Oil/Gas Applications	
	Pump Parts	
	Seals	
	Surgical Instruments	

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