

Solvay Specialty Polymers AvaSpire® AV-650 GF30 Polyaryletherketone (PAEK) (Unverified Data**)

Category : Polymer , Thermoplastic , Polyketone , Polyaryletherketone (PAEK), Glass Fiber Filled

Material Notes:

AvaSpire AV-650 GF30 is a 30% glass fiber-reinforced polyaryletherketone (PAEK) that has been specifically formulated to provide a high degree of chemical resistance and higher mechanical strength and stiffness than unfilled AV-650 resin. This material can be repeatedly exposed to harsh chemicals and prolonged steam sterilization cycles without any significant loss of properties. Potential applications for this resin include orthopedic and dental instruments, surgical power tool battery housings and other devices and components requiring a combination of high temperature performance and high environmental resistance. AvaSpire AV-650 GF30 can be easily processed by typical injection molding and extrusion methods using standard equipment. - Beige: AvaSpire AV-650 GF30 BG 20 Information provided by Solvay Specialty Polymers.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-AvaSpire-AV-650-GF30-Polyaryletherketone-PAEK-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.55 g/cc	1.55 g/cc	ASTM D792
Filler Content	30 %	30 %	Glass Fiber Reinforcement
Water Absorption	0.40 %	0.40 %	30 days; ASTM D570
	0.20 %	0.20 %	ASTM D570
	@Time 86400 sec	@Time 24.0 hour	
Viscosity	410000 cP	410000 cP	Melt; ASTM D3835
	@Shear Rate 1000 1/s, Temperature 400 °C	@Shear Rate 1000 1/s, Temperature 752 °F	
Linear Mold Shrinkage, Flow	0.0010 - 0.0030 cm/cm	0.0010 - 0.0030 in/in	5" x 0.5" x 0.125" bars; ASTM D955
	@Thickness 3.18 mm	@Thickness 0.125 in	
Linear Mold Shrinkage, Transverse	0.0080 - 0.010 cm/cm	0.0080 - 0.010 in/in	5" x 0.5" x 0.125" bars; ASTM D955
	@Thickness 3.18 mm	@Thickness 0.125 in	
Melt Flow	15 g/10 min	15 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	100	100	M-Scale; ASTM D785
Tensile Strength	142 MPa	20600 psi	ASTM D638

Tensile Strength, Yield Mechanical Properties	165 MPa Metric	23900 psi English	ISO 527-2/1A/5 Comments
Elongation at Break	2.6 %	2.6 %	5.0 mm/min; ASTM D638
	2.6 %	2.6 %	ISO 527-2/1A/5
Tensile Modulus	10.1 GPa	1460 ksi	5.0 mm/min; ASTM D638
	10.5 GPa	1520 ksi	ISO 527-2/1A/1
Flexural Strength	221 MPa	32100 psi	ASTM D790
	240 MPa	34800 psi	ISO 178
Flexural Modulus	9.00 GPa	1310 ksi	ASTM D790
	9.80 GPa	1420 ksi	ISO 178
Compressive Strength	163 MPa	23600 psi	ASTM D695
Shear Strength	80.8 MPa	11700 psi	ASTM D732
Izod Impact, Notched	0.960 J/cm	1.80 ft-lb/in	ASTM D256
	9.60 J/cm	18.0 ft-lb/in	ASTM D4812
Izod Impact, Notched (ISO)	13.0 kJ/m ²	6.19 ft-lb/in ²	ISO 180
Izod Impact, Unnotched (ISO)	69.0 kJ/m ²	32.8 ft-lb/in ²	ISO 180

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	19.0 µm/m-°C @Temperature -50.0 - 50.0 °C	10.6 µin/in-°F @Temperature -58.0 - 122 °F	TMA; ASTM E831
Specific Heat Capacity	1.29 J/g-°C @Temperature 50.0 °C	0.308 BTU/lb-°F @Temperature 122 °F	DSC
	1.67 J/g-°C @Temperature 200 °C	0.399 BTU/lb-°F @Temperature 392 °F	DSC
Thermal Conductivity	0.290 W/m-K	2.01 BTU-in/hr-ft ² -°F	ASTM E1530
Melting Point	340 °C	644 °F	Peak; ASTM D3418
Deflection Temperature at 1.8 MPa (264 psi)	209 °C @Thickness 3.20 mm	408 °F @Thickness 0.126 in	Annealed; 2 hours at 200°C; ASTM D648
Glass Transition Temp, Tg	158 °C	316 °F	ASTM D3418
	V-0	V-0	

Thermal Properties	Metric	English	Comments
	V-0	V-0	UL 94
	@Thickness 1.60 mm	@Thickness 0.0630 in	

Electrical Properties	Metric	English	Comments
Dielectric Constant	3.6	3.6	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.65	3.65	
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	ASTM D150
Dielectric Strength	3.66	3.66	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	14.0 kV/mm	356 kV/in	
	@Thickness 3.00 mm	@Thickness 0.118 in	ASTM D149
Dissipation Factor	0.0020	0.0020	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.0050	0.0050	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Processing Properties	Metric	English	Comments
Rear Barrel Temperature	365 °C	689 °F	
Middle Barrel Temperature	370 °C	698 °F	
Front Barrel Temperature	375 °C	707 °F	
Nozzle Temperature	380 °C	716 °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
Appearance	Beige	

Availability Descriptive Properties	Africa & Middle East Value	Comments
	Asia Pacific	
	Europe	
	North America	
	South America	
Features	Fatigue Resistant	
	Flame Retardant	
	Good Chemical Resistance	
	Good Dimensional Stability	
	High Heat Resistance	
	High Stiffness	
	High Strength	
Forms	Pellets	
Generic	PAEK	
Injection Rate	Fast	
Processing Method	Injection Molding	
	Machining	
	Profile Extrusion	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	
Uses	Medical/Healthcare Applications	
	Oil/Gas Applications	
	Power/Other Tools	

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