

## Solvay Specialty Polymers AvaSpire® AV-650 GF30 Polyaryletherketone (PAEK), 30% Glass Fiber

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. Features: Fatigue Resistant; Flame Retardant; Good Chemical Resistance; Good Dimensional Stability; High Heat Resistance; High Stiffness; High Strength Uses: Medical/Healthcare Applications; Oil/Gas Applications; Power/Other Tools Additional Properties: Water Absorption - ASTM D570 0.40 % 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-30-Glass-Fiber.php](http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-AvaSpire-AV-650-GF30-Polyaryletherketone-PAEK-30-Glass-Fiber.php)

Physical Properties	Metric	English	Comments
Density	1.55 g/cc	0.0560 lb/in <sup>3</sup>	ASTM D792
Filler Content	30 %	30 %	Glass Fiber
Water Absorption	0.20 % @Time 86400 sec	0.20 % @Time 24.0 hour	ISO 62
Viscosity	410000 cP @Shear Rate 1000 1/s, Temperature 400 °C	410000 cP @Shear Rate 1000 1/s, Temperature 752 °F	Melt Viscosity; ASTM D3835
Linear Mold Shrinkage, Flow	0.0010 - 0.0030 cm/cm @Thickness 3.18 mm	0.0010 - 0.0030 in/in @Thickness 0.125 in	
Linear Mold Shrinkage, Transverse	0.0080 - 0.010 cm/cm @Thickness 3.18 mm	0.0080 - 0.010 in/in @Thickness 0.125 in	ASTM D955
Melt Flow	15 g/10 min @Load 2.16 kg, Temperature 400 °C	15 g/10 min @Load 4.76 lb, Temperature 752 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	100	100	ASTM D785
Tensile Strength	142 MPa	20600 psi	ASTM D638

Tensile Strength, Yield Mechanical Properties	165 MPa Metric	23900 psi English	5 mm/min, Type 1A; ISO 527-2 Comments
Elongation at Break	2.6 %	2.6 %	Type 1A, 5 mm/min; ISO 527-2
	2.6 %	2.6 %	5 mm/min; ASTM D638
Tensile Modulus	10.1 GPa	1460 ksi	ASTM D638
	10.5 GPa	1520 ksi	ISO 527-2
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
Izod Impact, Unnotched	9.60 J/cm	18.0 ft-lb/in	ASTM D256
Izod Impact, Notched (ISO)	13.0 kJ/m <sup>2</sup>	6.19 ft-lb/in <sup>2</sup>	ISO 180
Izod Impact, Unnotched (ISO)	69.0 kJ/m <sup>2</sup>	32.8 ft-lb/in <sup>2</sup>	ISO 180

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	19.0 Åµm/m-Å°C @Temperature -50.0 - 50.0 Å°C	10.6 Åµin/in-Å°F @Temperature -58.0 - 122 Å°F	1
Specific Heat Capacity	1.29 J/g-Å°C @Temperature 50.0 Å°C	0.308 BTU/lb-Å°F @Temperature 122 Å°F	ASTM C351
	1.67 J/g-Å°C @Temperature 200 Å°C	0.399 BTU/lb-Å°F @Temperature 392 Å°F	ASTM C351
Thermal Conductivity	0.290 W/m-K	2.01 BTU-in/hr-ftÅ²- Å°F	ASTM C177
Melting Point	340 Å°C	644 Å°F	ASTM D3418
Deflection Temperature at 1.8 MPa (264 psi)	209 Å°C @Thickness 3.20 mm	408 Å°F @Thickness 0.126 in	Annealed; ASTM D648
Glass Transition Temp, Tg	158 Å°C	316 Å°F	DSC

Thermal Properties	V-0 Metric	V-0 English	Comments
Flammability, UL94	@Thickness 0.800 - 1.60 mm	@Thickness 0.0315 - 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
	3.66	3.66	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	14.0 kV/mm	356 kV/in	ASTM D149
	@Thickness 3.18 mm	@Thickness 0.125 in	
Dissipation Factor	0.00	0.00	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	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 Â°C	689 Â°F	
Middle Barrel Temperature	370 Â°C	698 Â°F	
Front Barrel Temperature	375 Â°C	707 Â°F	
Nozzle Temperature	380 Â°C	716 Â°F	
Melt Temperature	365 - 390 Â°C	689 - 734 Â°F	
Mold Temperature	150 - 180 Â°C	302 - 356 Â°F	
Drying Temperature	150 Â°C	302 Â°F	
	@Time 14400 sec	@Time 4.00 hour	

Descriptive Properties	Value	Comments
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Agency Rating Descriptive Properties	FAA FAR 25.853a Value	Comments
Availability	Africa & Middle East	
	Asia Pacific	
	Europe	
	Latin America	
	North America	
Color	Beige	
Form	Pellets	
Injection Rate	Fast	
Processing Technique	Injection Molding; Machining; Profile Extrusion	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	

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