

Solvay Specialty Polymers AvaSpire® AV-651 GF30 Polyaryletherketone (PAEK), 30% Glass Fiber

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

Material Notes:

AvaSpire® AV-651 GF30 is a 30% glass fiber reinforced polyaryletherketone (PAEK) that has been specifically formulated to provide higher mechanical strength and stiffness than unfilled AV-651 resin. This resin offers chemical resistance nearly equivalent to glass fiber-reinforced PEEK in most chemicals, with a lower heat deflection temperature. Features: Autoclave Sterilizable; Biocompatible; E-beam Sterilizable; Ethylene Oxide Sterilizable; Fatigue Resistant; Flame Retardant; Good Chemical Resistance; Good Dimensional Stability; Good Sterilizability; Heat Sterilizable; High Heat Resistance; High Stiffness; High Strength; Radiation (Gamma) Resistant; Radiation Sterilizable; Radiotranslucent; Steam Resistant; Steam Sterilizable Uses: Aircraft Applications; Connectors; Dental Applications; Electrical/Electronic Applications; Film; Hospital Goods; Industrial Applications; Medical Devices; Medical/Healthcare Applications; Seals; Surgical Instruments Information provided by Solvay Specialty Polymers.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-AvaSpire-AV-651-GF30-Polyaryletherketone-PAEK-30-Glass-Fiber.php

Physical Properties	Metric	English	Comments
Density	1.52 g/cc	0.0549 lb/in ³	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 Å°C	410000 cP @Shear Rate 1000 1/s, Temperature 752 Å°F	Melt Viscosity; ASTM D3835
Linear Mold Shrinkage, Flow	0.0020 - 0.0040 cm/cm @Thickness 3.18 mm	0.0020 - 0.0040 in/in @Thickness 0.125 in	
Linear Mold Shrinkage, Transverse	0.013 - 0.015 cm/cm @Thickness 3.18 mm	0.013 - 0.015 in/in @Thickness 0.125 in	ASTM D955
Melt Flow	9.0 g/10 min @Load 2.16 kg, Temperature 400 Å°C	9.0 g/10 min @Load 4.76 lb, Temperature 752 Å°F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	101	101	ASTM D785
Tensile Strength	156 MPa	22600 psi	5 mm/min; ASTM D638
	162 MPa	23500 psi	

Tensile Strength, Yield Mechanical Properties	Metric @ Thickness 5.00 mm	English @ Thickness 0.197 in	5 mm/min, Type 1A; ISO 527-2 Comments
Elongation at Break	2.9 %	2.9 %	Type 1A, 5 mm/min; ISO 527-2
	2.9 %	2.9 %	5 mm/min; ASTM D638
Tensile Modulus	9.90 GPa	1440 ksi	5 mm/min; ASTM D638
	10.4 GPa	1510 ksi	ISO 527-2
Flexural Strength	228 MPa	33100 psi	ISO 178
	234 MPa	33900 psi	ASTM D790
Flexural Modulus	9.40 GPa	1360 ksi	ASTM D790
	9.70 GPa	1410 ksi	ISO 178
Compressive Strength	168 MPa	24400 psi	ASTM D695
Shear Strength	82.6 MPa	12000 psi	ASTM D732
Izod Impact, Notched	1.10 J/cm	2.06 ft-lb/in	ASTM D256
Izod Impact, Unnotched	9.60 J/cm	18.0 ft-lb/in	ASTM D256
Izod Impact, Notched (ISO)	12.0 kJ/m ²	5.71 ft-lb/in ²	ISO 180
Izod Impact, Unnotched (ISO)	64.0 kJ/m ²	30.5 ft-lb/in ²	ISO 180

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	17.0 Åµm/m-Å°C @Temperature -50.0 - 50.0 Å°C	9.44 Åµin/in-Å°F @Temperature -58.0 - 122 Å°F	1
Specific Heat Capacity	1.27 J/g-Å°C @Temperature 50.0 Å°C	0.304 BTU/lb-Å°F @Temperature 122 Å°F	ASTM C351
	1.65 J/g-Å°C @Temperature 200 Å°C	0.394 BTU/lb-Å°F @Temperature 392 Å°F	ASTM C351
Thermal Conductivity	0.300 W/m-K	2.08 BTU-in/hr-ftÅ²- Å°F	ASTM C177
Melting Point	345 Å°C	653 Å°F	ASTM D3418
Deflection Temperature at 1.8 MPa (264 psi)	213 Å°C	415 Å°F	Annealed; ASTM D648
Glass Transition Temp, Tg	158 Å°C	316 Å°F	DSC

Thermal Properties	V-1 Metric	V-1 English	Comments
	@Thickness 0.800 mm	@Thickness 0.0315 in	
	V-0	V-0	
	@Thickness 1.60 mm	@Thickness 0.0630 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.00e+17 ohm-cm	2.00e+17 ohm-cm	ASTM D257
Surface Resistance	>= 1.90e+17 ohm	>= 1.90e+17 ohm	ASTM D257
Dielectric Constant	3.58	3.58	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.61	3.61	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	3.63	3.63	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	17.0 kV/mm	432 kV/in	ASTM D149
	@Thickness 3.00 mm	@Thickness 0.118 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	
	0.0040	0.0040	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	371 Â°C	700 Â°F	
Front Barrel Temperature	377 Â°C	711 Â°F	
Nozzle Temperature	382 Â°C	720 Â°F	
Melt Temperature	366 - 388 Â°C	691 - 730 Â°F	
Mold Temperature	160 - 190 Â°C	320 - 374 Â°F	

Processing Properties	149 A°C Metric	300 A°F English	Comments
	@Time 14400 sec	@Time 4.00 hour	

Descriptive Properties	Value	Comments
Agency Ratings	ISO 10993; ISO 10993-Part 1	
Availability	Africa & Middle East	
	Asia Pacific	
	Europe	
	Latin America	
	North America	
Color	Beige; Black	
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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