

Solvay Specialty Polymers AvaSpire® AV-651 GF30 Polyaryletherketone (PAEK) (Unverified Data**)

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. These properties make it well suited for applications in healthcare, transportation, electronics, chemical processing and other industrial uses. - Beige: AvaSpire AV-651 GF30 BG 20 - Black: AvaSpire AV-651 GF30 BK 95 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-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.52 g/cc	1.52 g/cc	ASTM D792
Filler Content	30 %	30 %	Glass Fiber Reinforcement
Water Absorption	0.20 % @Time 86400 sec	0.20 % @Time 24.0 hour	ASTM D570
Viscosity	410000 cP @Shear Rate 1000 1/s, Temperature 400 °C	410000 cP @Shear Rate 1000 1/s, Temperature 752 °F	Melt; 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	5" x 0.5" x 0.125" bars; ASTM D955
Linear Mold Shrinkage, Transverse	0.013 - 0.015 cm/cm @Thickness 3.18 mm	0.013 - 0.015 in/in @Thickness 0.125 in	5" x 0.5" x 0.125" bars; ASTM D955
Melt Flow	9.0 g/10 min @Load 2.16 kg, Temperature 400 °C	9.0 g/10 min @Load 4.76 lb, Temperature 752 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	101	101	M-Scale; ASTM D785
Tensile Strength	156 MPa	22600 psi	5.0 mm/min; ASTM D638
Tensile Strength, Yield	162 MPa	23500 psi	5 nm; ISO 527-2/1A/5
Elongation at Break	2.9 %	2.9 %	5.0 mm/min; ASTM D638
	2.9 %	2.9 %	ISO 527-2/1A/5

Mechanical Properties	Metric	English	Comments
Tensile Modulus	9.90 GPa	1430 ksi	5.0 mm/min; ASTM D638
	10.4 GPa	1510 ksi	ISO 527-2/1A/1
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
	9.60 J/cm	18.0 ft-lb/in	ASTM D4812
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 µm/m-°C	9.44 µin/in-°F	TMA; ASTM E831
	@Temperature -50.0 - 50.0 °C	@Temperature -58.0 - 122 °F	
Specific Heat Capacity	1.27 J/g-°C	0.304 BTU/lb-°F	DSC
	@Temperature 50.0 °C	@Temperature 122 °F	
	1.65 J/g-°C	0.394 BTU/lb-°F	DSC
	@Temperature 200 °C	@Temperature 392 °F	
Thermal Conductivity	0.300 W/m-K	2.08 BTU-in/hr-ft ² -°F	ASTM E1530
Melting Point	345 °C	653 °F	Peak; ASTM D3418
Deflection Temperature at 1.8 MPa (264 psi)	213 °C	415 °F	Annealed; ASTM D648
Glass Transition Temp, Tg	158 °C	316 °F	ASTM D3418
Flammability, UL94	V-1	V-1	UL 94
	@Thickness 0.800 mm	@Thickness 0.0315 in	
	V-0	V-0	UL 94
	@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	
Dielectric Strength	@Frequency 60.0 Hz	@Frequency 60.0 Hz	ASTM D150
	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	0.0020	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 °C	689 °F	
Middle Barrel Temperature	371 °C	700 °F	
Front Barrel Temperature	377 °C	711 °F	
Nozzle Temperature	382 °C	720 °F	
Melt Temperature	366 - 388 °C	691 - 730 °F	
Mold Temperature	160 - 190 °C	320 - 374 °F	
Drying Temperature	149 °C	300 °F	
Dry Time	4.00 hour	4.00 hour	

Descriptive Properties	Value	Comments
Agency Ratings	ISO 10993	
	ISO 10993-Part 1	

Appearance Descriptive Properties	Beige Value	Comments
	Black	
Availability	Africa & Middle East	
	Asia Pacific	
	Europe	
	North America	
	South America	
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	
Forms	Pellets	
Generic	PAEK	
Injection Rate	Fast	

Descriptive Properties	Value	Comments
Processing Method	Injection Molding	
	Machining	
	Profile Extrusion	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	
Uses	Aircraft Applications	
	Connectors	
	Dental Applications	
	Electrical/Electronic Applications	
	Film	
	Hospital Goods	
	Industrial Applications	
	Medical Appliances	
	Medical/Healthcare Applications	
	Seals	
	Surgical Instruments	

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