AvaSpire® AV-651 GF50
polyaryletherketone

AvaSpire® AV-651 GF50 is a 50% chopped glass fiber-reinforced polyaryletherketone (PAEK) resin. It has been specifically formulated to provide exceptionally high strength and stiffness at elevated temperatures along with very strong chemical resistance to a broad range of harsh chemical environments encountered across a wide variety of industries and engineering applications. Typical potential applications for AV-651 GF50 include orthopedic and dental instruments, under-the-hood automotive parts, and parts in the chemical and oil and gas industries. This grade is easily injection moldable into precision molded parts.

Typical property data provided are based on a limited production history.

- Beige: AvaSpire® AV-651 GF50 BG 20
- Black: AvaSpire® AV-651 GF50 BK 95

General		
Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Filler / Reinforcement	• Glass Fiber, 50% Filler by Weight	
Features	• Autoclave Sterilizable • Biocompatible • Chemical Resistant • E-beam Sterilizable • Ethylene Oxide Sterilizable • Fatigue Resistant • Flame Retardant • 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 • Automotive Applications • Connectors • Dental Applications • Electrical/Electronic Applications • Hospital Goods	• Industrial Applications • Medical Devices • Medical/Healthcare Applications • Seals • Surgical Instruments
RoHS Compliance	• Contact Manufacturer	
Appearance	• Beige	• Black
Forms	• Pellets	
Processing Method	• Injection Molding • Machining	• Profile Extrusion

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.73		ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	5.0	g/10 min	ASTM D1238
Water Absorption (24 hr)	0.10	%	ASTM D570

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Mechanical	Typical Value	Unit	Test method
Tensile Modulus [1]	17900	MPa	ASTM D638
Tensile Strength [1]	199	MPa	ASTM D638
Tensile Elongation [1] (Break)	2.1	%	ASTM D638
Flexural Modulus	16500	MPa	ASTM D790
Flexural Strength	297	MPa	ASTM D790
Flexural Elongation (Break)	2.2	%	ASTM D790

Impact	Typical Value	Unit	Test method
Notched Izod Impact	110	J/m	ASTM D256
Unnotched Izod Impact	960	J/m	ASTM D4812

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Annealed, 3.20 mm	287	°C	
Glass Transition Temperature	158	°C	ASTM D3418
Peak Melting Temperature	340	°C	ASTM D3417

Fill Analysis	Typical Value	Unit	Test method
Melt Viscosity (400°C, 1000 sec^-1)	630	Pa·s	ASTM D3835

Injection	Typical Value	Unit
Drying Temperature	149	°C
Drying Time	4.0	hr
Rear Temperature	365	°C
Middle Temperature	371	°C
Front Temperature	377	°C
Nozzle Temperature	382	°C
Processing (Melt) Temp	366 to 388	°C
Mold Temperature	160 to 190	°C
Injection Rate	Fast	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	

Notes

Typical properties: these are not to be construed as specifications.

[1] 5.0 mm/min

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