AvaSpire® AV-651 GF30
polyaryletherketone

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

General

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Filler / Reinforcement	• Glass Fiber, 30% 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 • Connectors • Dental Applications • Electrical/Electronic Applications • Film • Hospital Goods	• Industrial Applications • Medical Devices • Medical/Healthcare Applications • Seals • Surgical Instruments
Agency Ratings	• ISO 10993	
RoHS Compliance	• Contact Manufacturer	
Appearance	• Beige	• Black
Forms	• Pellets	
Processing Method	• Injection Molding • Machining	• Profile Extrusion

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Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.52		ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	9.0	g/10 min	ASTM D1238
Molding Shrinkage [1]			ASTM D955
Flow : 3.18 mm	0.20 to 0.40	%	
Across Flow : 3.18 mm	1.3 to 1.5	%	
Water Absorption (24 hr)	0.20	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
-- [2]	9900	MPa	ASTM D638
--	10400	MPa	ISO 527-1/1A/1
Tensile Stress			
Yield, 5.00 mm	162	MPa	ISO 527-2/1A/5
-- [2]	156	MPa	ASTM D638
Tensile Elongation			
Break [2]	2.9	%	ASTM D638
Break	2.9	%	ISO 527-2/1A/5
Flexural Modulus			
--	9400	MPa	ASTM D790
--	9700	MPa	ISO 178
Flexural Strength			
--	234	MPa	ASTM D790
--	228	MPa	ISO 178
Compressive Strength	168	MPa	ASTM D695
Shear Strength	82.6	MPa	ASTM D732

Impact	Typical Value	Unit	Test method
Notched Izod Impact			
--	110	J/m	ASTM D256
--	12	kJ/m²	ISO 180
Unnotched Izod Impact			
--	960	J/m	ASTM D4812
--	64	kJ/m²	ISO 180

Hardness	Typical Value	Unit	Test method
Rockwell Hardness (M-Scale)	101		ASTM D785

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Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Annealed	213	°C	
Glass Transition Temperature	158	°C	ASTM D3418
Peak Melting Temperature	345	°C	ASTM D3418
CLTE - Flow (-50 to 50°C)	1.7E-5	cm/cm/°C	ASTM E831
Specific Heat			DSC
50°C	1270	J/kg/°C	
200°C	1650	J/kg/°C	
Thermal Conductivity	0.30	W/m/K	ASTM E1530

Electrical	Typical Value	Unit	Test method
Surface Resistivity	> 1.9E+17	ohms	ASTM D257
Volume Resistivity	2.0E+17	ohms·cm	ASTM D257
Dielectric Strength (3.00 mm)	17	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	3.61		
1 kHz	3.63		
1 MHz	3.58		
Dissipation Factor			ASTM D150
60 Hz	2.0E-3		
1 kHz	0.0		
1 MHz	4.0E-3		

Flammability	Typical Value	Unit	Test method
Flame Rating (> 0.75 mm)	V-0		UL 94

Fill Analysis	Typical Value	Unit	Test method
Melt Viscosity (400°C, 1000 sec^-1)	410	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	

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Notes
Typical properties: these are not to be construed as specifications.
[1] 5" x 0.5" x 0.125" bars
[2] 5.0 mm/min

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