AvaSpire® AV-650 GF30

Polyaryletherketone

Solvay Specialty Polymers

Message:

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.
Beige: AvaSpire® AV-650 GF30 BG 20

General Information	
UL YellowCard	E140728-100211994
Filler / Reinforcement	Glass Fiber,30% Filler by Weight
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
Agency Ratings	FAA FAR 25.853a 3
RoHS Compliance	Contact Manufacturer
Appearance	Beige
Forms	Pellets
Processing Method	Injection Molding Machining Profile Extrusion

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.55	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	15	g/10 min	ASTM D1238
Molding Shrinkage [1]			ASTM D955
Flow : 3.18 mm	0.10 to 0.30	%	
Across Flow : 3.18 mm	0.80 to 1.0	%	

Water Absorption (24 hr)	0.20	%	ASTM D570
Water Absorption - 30 days	0.40	%	ASTM D570
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness (M-Scale)	100		ASTM D785
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus			
-- [2]	10100	MPa	ASTM D638
--	10500	MPa	ISO 527-2/1A/1
Tensile Stress			
Yield	165	MPa	ISO 527-2/1A/5
--	142	MPa	ASTM D638
Tensile Elongation			
Break [3]	2.6	%	ASTM D638
Break	2.6	%	ISO 527-2/1A/5
Flexural Modulus			
--	9000	MPa	ASTM D790
--	9800	MPa	ISO 178
Flexural Strength			
--	221	MPa	ASTM D790
--	240	MPa	ISO 178
Compressive Strength	163	MPa	ASTM D695
Shear Strength	80.8	MPa	ASTM D732
Impact	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact			
--	96	J/m	ASTM D256
--	13	kJ/m^2	ISO 180
Unnotched Izod Impact			
--	960	J/m	ASTM D4812
--	69	kJ/m^2	ISO 180
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load [4] (1.8 MPa, Annealed, 3.20 mm)	209	°C	ASTM D648
Glass Transition Temperature	158	°C	ASTM D3418
Peak Melting Temperature	340	°C	ASTM D3418
CLTE - Flow (-50 to 50°C)	1.9E-5	cm/cm/°C	ASTM E831
Specific Heat			DSC
50°C	1290	J/kg/°C	
200°C	1670	J/kg/°C	
Thermal Conductivity	0.29	W/m/K	ASTM E1530
Electrical	**Nominal Value**	**Unit**	**Test Method**
Dielectric Strength (3.00 mm)	14	kV/mm	ASTM D149
Dielectric Constant			ASTM D150

60 Hz	3.65		
1 kHz	3.66		
1 MHz	3.60		
Dissipation Factor			ASTM D150
60 Hz	2.0E-3		
1 kHz	0.0		
1 MHz	5.0E-3		
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating			UL 94
0.800 mm	V-0		
1.60 mm	V-0		
Fill Analysis	**Nominal Value**	**Unit**	**Test Method**
Melt Viscosity (400°C, 1000 sec^-1)	410	Pa·s	ASTM D3835
Injection	**Nominal Value**	**Unit**	
Drying Temperature	150	°C	
Drying Time	4.0	hr	
Rear Temperature	365	°C	
Middle Temperature	370	°C	
Front Temperature	375	°C	
Nozzle Temperature	380	°C	
Processing (Melt) Temp	365 to 390	°C	
Mold Temperature	150 to 180	°C	
Injection Rate	Fast		
Screw Compression Ratio	2.0:1.0 to 3.0:1.0		
NOTE			
1.	5" x 0.5" x 0.125" bars		
2.	5.0 mm/min		
3.	5.0 mm/min		
4.	2 hours at 200°C		

Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China


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