

AvaSpire® AV-750 GF40 polyaryletherketone

AvaSpire® AV-750 GF40 is a 40% glass reinforced polyaryletherketone (PAEK) designed to fill the marketplace need for a lower-priced PEEK (polyetheretherketone). This resin provides the typical chemical resistance expected of PEEK while maintaining excellent elevated temperature properties.

The price and performance of this resin will expand the opportunities for PEEK resins especially in the area of metal replacement for corrosion control.

- Natural: AvaSpire® AV-750 GF40 NT

General

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Filler / Reinforcement	• Glass Fiber, 40% Filler by Weight	
Features	• Chemical Resistant • Flame Retardant • Good Dimensional Stability	• High Heat Resistance • High Stiffness • High Strength
Uses	• Aircraft Applications • Electrical/Electronic Applications	• Metal Replacement • Seals
RoHS Compliance	• RoHS Compliant	
Appearance	• Natural Color	
Forms	• Pellets	
Processing Method	• Injection Molding • Machining	• Profile Extrusion

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.65		ASTM D792
Melt Mass-Flow Rate (MFR) ¹ (380°C/2.16 kg)	7.0	g/10 min	ASTM D1238
Molding Shrinkage ²			ASTM D955
Flow : 3.18 mm	0.10 to 0.30	%	
Across Flow : 3.18 mm	1.2 to 1.4	%	
Water Absorption (24 hr)	0.10	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
-- ³	15100	MPa	ASTM D638
--	16700	MPa	ISO 527-1/1A/1
Tensile Stress			
Yield, 5.00 mm	188	MPa	ISO 527-2/1A/5
-- ⁴	191	MPa	ASTM D638

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Mechanical	Typical Value	Unit	Test method
Tensile Elongation			
Break ³	1.8	%	ASTM D638
Break	1.8	%	ISO 527-2/1A/5
Flexural Modulus			
--	14800	MPa	ASTM D790
--	15400	MPa	ISO 178
Flexural Strength			
23°C	253	MPa	ASTM D790
250°C	54.0	MPa	ASTM D790
--	250	MPa	ISO 178
Compressive Strength	182	MPa	ASTM D695
Shear Strength	89.0	MPa	ASTM D732
Impact	Typical Value	Unit	Test method
Notched Izod Impact			
--	53	J/m	ASTM D256
--	8.5	kJ/m ²	ISO 180
Unnotched Izod Impact			
--	590	J/m	ASTM D4812
--	41	kJ/m ²	ISO 180
Hardness	Typical Value	Unit	Test method
Rockwell Hardness (M-Scale)	105		ASTM D785
Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Annealed	285	°C	
Glass Transition Temperature	150	°C	ASTM D3418
Peak Melting Temperature	345	°C	ASTM D3418
CLTE - Flow (-50 to 50°C)	1.5E-5	cm/cm/°C	ASTM E831
Specific Heat			DSC
50°C	1260	J/kg/°C	
200°C	1620	J/kg/°C	
Thermal Conductivity	0.31	W/m/K	ASTM E1530

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Electrical	Typical Value	Unit	Test method
Surface Resistivity	> 1.9E+17	ohms	ASTM D257
Volume Resistivity	1.8E+17	ohms·cm	ASTM D257
Dielectric Strength	19	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	3.68		
1 kHz	3.69		
1 MHz	3.66		
Dissipation Factor			ASTM D150
60 Hz	2.0E-3		
1 kHz	1.0E-3		
1 MHz	3.0E-3		

Flammability	Typical Value	Unit	Test method
Flame Rating			UL 94
0.8 mm	V-1		
1.6 mm	V-0		

Fill Analysis	Typical Value	Unit	Test method
Melt Viscosity (400°C, 1000 sec ⁻¹)	450	Pa·s	ASTM D3835

Injection	Typical Value	Unit
Drying Temperature	150 to 175	°C
Drying Time	2.5 to 4.0	hr
Processing (Melt) Temp	370 to 395	°C
Mold Temperature	175 to 210	°C
Back Pressure	0.138 to 0.345	MPa
Screw Speed	75	rpm
Screw Compression Ratio	2.0:1.0	

Notes

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

¹ Under normal molding conditions AvaSpire AV-750 GF40 has lower viscosity and higher flow than AV-650 GF30.

² 5" x 0.5" x 0.125" bars

³ 5.0 mm/min

⁴ 50 mm/min

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