

# AvaSpire® AV-621 CF30

## polyaryletherketone

AvaSpire® AV-621 CF30 is a 30% carbon fiber reinforced version of AvaSpire® AV-621. It offers better dimensional stability and warp resistance than 30% carbon fiber reinforced PEEK. The AV-621 CF30 grade offers the highest strength, stiffness, and fatigue resistance of any AV-621 based grade. Furthermore, this resin generally retains most of the desirable ultra-performance attributes of carbon fiber reinforced PEEK including chemical resistance, fatigue resistance, and long term thermal oxidative stability.

across a number of industries, including healthcare, transportation, electronics, and chemical processing.

This resin can be easily melt processed by injection molding using standard equipment. The melt processing behavior of AV-621 CF30 is very similar to that of 30% CF reinforced PEEK. The lower melt flow of AV-621 CF30 is well suited for extrusion applications while offering a similar property profile to AV-651 CF30.

The excellent balance of properties of AV-621 CF30 makes this grade well suited for a broad range of applications

### General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Filler / Reinforcement	• Carbon 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	• Pump Parts	• Seals
RoHS Compliance	• Contact Manufacturer		
Appearance	• Black		
Forms	• Pellets		
Processing Method	• Injection Molding	• Machining	• Profile Extrusion

### Physical

	Typical Value	Unit	Test method
Specific Gravity	1.42		ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	1.0	g/10 min	ASTM D1238
Molding Shrinkage <sup>1</sup>			ASTM D955
Flow : 3.18 mm	0.0 to 0.20	%	
Across Flow : 3.18 mm	0.90 to 1.1	%	
Water Absorption (24 hr)	0.10	%	ASTM D570

### Mechanical

	Typical Value	Unit	Test method
Tensile Modulus			
-- <sup>2</sup>	17200	MPa	ASTM D638
--	23300	MPa	ISO 527-2/1A/1
Tensile Stress			
Yield	196	MPa	ISO 527-2/1A/5
-- <sup>2</sup>	181	MPa	ASTM D638

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<b>Mechanical</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test method</b>
Tensile Elongation			
Break <sup>2</sup>	2.2	%	ASTM D638
Break	2.2	%	ISO 527-2/1A/5
Flexural Modulus			
--	15100	MPa	ASTM D790
--	21300	MPa	ISO 178
Flexural Strength			
--	276	MPa	ASTM D790
--	296	MPa	ISO 178
Compressive Strength	152	MPa	ASTM D695
Shear Strength	91.0	MPa	ASTM D732
<b>Impact</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test method</b>
Notched Izod Impact			
--	69	J/m	ASTM D256
--	9.6	kJ/m <sup>2</sup>	ISO 180
Unnotched Izod Impact			
--	640	J/m	ASTM D4812
--	39	kJ/m <sup>2</sup>	ISO 180
<b>Hardness</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test method</b>
Rockwell Hardness (M-Scale)	101		ASTM D785
<b>Thermal</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test method</b>
Deflection Temperature Under Load <sup>3</sup>			ASTM D648
1.8 MPa, Annealed, 3.20 mm	210	°C	
Glass Transition Temperature	160	°C	ASTM D3418
Peak Melting Temperature	340	°C	ASTM D3418
CLTE - Flow (-50 to 50°C)	5.0E-6	cm/cm/°C	ASTM E831
Specific Heat			DSC
50°C	1350	J/kg/°C	
200°C	1810	J/kg/°C	
Thermal Conductivity	0.35	W/m/K	ASTM E1530
<b>Fill Analysis</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test method</b>
Melt Viscosity (400°C, 1000 sec <sup>-1</sup> )	790	Pa·s	ASTM D3835
<b>Injection</b>	<b>Typical Value</b>	<b>Unit</b>	
Drying Temperature	149	°C	
Drying Time	4.0	hr	
Rear Temperature	366	°C	
Middle Temperature	371	°C	
Front Temperature	377	°C	
Nozzle Temperature	382	°C	
Processing (Melt) Temp	366 to 388	°C	
Mold Temperature	149 to 177	°C	
Injection Rate	Fast		
Screw Compression Ratio	2.0:1.0 to 3.0:1.0		

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## Injection Notes

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Back Pressure: Minimum

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### Notes

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

<sup>1</sup> 5" x 0.5" x 0.125" bars

<sup>2</sup> 5.0 mm/min

<sup>3</sup> 2 hours at 200°C

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