

Solvay Specialty Polymers AvaSpire® AV-621 CF30 Polyaryletherketone (PAEK), 30% Carbon Fiber

Category : Polymer , Thermoplastic , Polyketone , Polyaryletherketone (PAEK), Carbon Fiber Filled

Material Notes:

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. 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 Injection Molding Notes: Back Pressure: Minimum Information provided by Solvay Specialty Polymers.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-AvaSpire-AV-621-CF30-Polyaryletherketone-PAEK-30-Carbon-Fiber.php

Physical Properties	Metric	English	Comments
Density	1.42 g/cc	0.0513 lb/in ³	ASTM D792
Filler Content	30 %	30 %	Carbon Fiber
Water Absorption	0.10 % @Time 86400 sec	0.10 % @Time 24.0 hour	ISO 62
Viscosity	790000 cP @Shear Rate 1000 1/s, Temperature 400 Å°C	790000 cP @Shear Rate 1000 1/s, Temperature 752 Å°F	Melt Viscosity; ASTM D3835
Linear Mold Shrinkage, Flow	0.00 - 0.0020 cm/cm @Thickness 3.18 mm	0.00 - 0.0020 in/in @Thickness 0.125 in	
Linear Mold Shrinkage, Transverse	0.0090 - 0.011 cm/cm @Thickness 3.18 mm	0.0090 - 0.011 in/in @Thickness 0.125 in	ASTM D955
Melt Flow	1.0 g/10 min @Load 2.16 kg, Temperature 400 Å°C	1.0 g/10 min @Load 4.76 lb, Temperature 752 Å°F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	101	101	ASTM D785
Tensile Strength	181 MPa	26300 psi	5 mm/min; ASTM D638
Tensile Strength, Yield	196 MPa	28400 psi	5 mm/min, Type 1A; ISO 527-2

Elongation at Break Mechanical Properties	2.2 % Metric	2.2 % English	Type 1A, 5 mm/min; ISO 527-2 Comments
	2.2 %	2.2 %	5 mm/min; ASTM D638
Tensile Modulus	17.2 GPa	2490 ksi	5 mm/min; ASTM D638
	23.3 GPa	3380 ksi	1 mm/min, Type 1A; ISO 527-2
Flexural Strength	276 MPa	40000 psi	ASTM D790
	296 MPa	42900 psi	ISO 178
Flexural Modulus	15.1 GPa	2190 ksi	ASTM D790
	21.3 GPa	3090 ksi	ISO 178
Compressive Strength	152 MPa	22000 psi	ASTM D695
Shear Strength	91.0 MPa	13200 psi	ASTM D732
Izod Impact, Notched	0.690 J/cm	1.29 ft-lb/in	ASTM D256
Izod Impact, Unnotched	6.40 J/cm	12.0 ft-lb/in	ASTM D256
Izod Impact, Notched (ISO)	9.60 kJ/m ²	4.57 ft-lb/in ²	ISO 180
Izod Impact, Unnotched (ISO)	39.0 kJ/m ²	18.6 ft-lb/in ²	ISO 180

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	5.00 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ @Temperature -50.0 - 50.0 $\text{Å}^\circ\text{C}$	2.78 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ @Temperature -58.0 - 122 $\text{Å}^\circ\text{F}$	1
Specific Heat Capacity	1.35 J/g- $\text{Å}^\circ\text{C}$ @Temperature 50.0 $\text{Å}^\circ\text{C}$	0.323 BTU/lb- $\text{Å}^\circ\text{F}$ @Temperature 122 $\text{Å}^\circ\text{F}$	ASTM C351
	1.81 J/g- $\text{Å}^\circ\text{C}$ @Temperature 200 $\text{Å}^\circ\text{C}$	0.433 BTU/lb- $\text{Å}^\circ\text{F}$ @Temperature 392 $\text{Å}^\circ\text{F}$	ASTM C351
Thermal Conductivity	0.350 W/m-K	2.43 BTU-in/hr-ft ² - $\text{Å}^\circ\text{F}$	ASTM C177
Melting Point	340 $\text{Å}^\circ\text{C}$	644 $\text{Å}^\circ\text{F}$	ASTM D3418
Deflection Temperature at 1.8 MPa (264 psi)	210 $\text{Å}^\circ\text{C}$ @Thickness 3.20 mm	410 $\text{Å}^\circ\text{F}$ @Thickness 0.126 in	Annealed; ASTM D648
Glass Transition Temp, Tg	160 $\text{Å}^\circ\text{C}$	320 $\text{Å}^\circ\text{F}$	DSC

Processing Properties	Metric	English	Comments
Rear Barrel Temperature	366 Â°C	691 Â°F	
Middle Barrel Temperature	371 Â°C	700 Â°F	
Front Barrel Temperature	377 Â°C	711 Â°F	
Nozzle Temperature	382 Â°C	720 Â°F	
Melt Temperature	366 - 388 Â°C	691 - 730 Â°F	
Mold Temperature	149 - 177 Â°C	300 - 351 Â°F	
Drying Temperature	149 Â°C @Time 14400 sec	300 Â°F @Time 4.00 hour	

Descriptive Properties	Value	Comments
Availability	Africa & Middle East	
	Asia Pacific	
	Europe	
	Latin America	
	North America	
Color	Black	
Form	Pellets	
Injection Rate	Fast	
Processing Technique	Injection Molding; Machining; Profile Extrusion	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	

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