Product Data

AvaSpire™
modified PEEK

AV-650

AvaSpire AV-650 is an unreinforced modified PEEK (polyetheretherketone) that offers improved ductility and impact strength relative to PEEK. It has been specifically formulated for applications requiring a balance of chemical resistance and mechanical strength along with good part aesthetics, bridging the performance gaps within the ultra polymers space. This material can be repeatedly exposed to harsh and prolonged steam sterilization cycles without significant loss of properties, and it is USP Class VI compliant. Plus, AvaSpire AV-650 generally offers improved part economics relative to unmodified PEEK resin.

Potential applications for Avaspire AV-650 include sterilizable medical and dental instruments, and structural components for a wide variety of industrial applications. AvaSpire AV-650 can be easily processed by typical injection molding and extrusion methods using standard equipment.

Typical Properties of AvaSpire AV-650 Resin

Property	ASTM Test Method	Typical Values[1] U.S. Customary Units Value	Units	SI Units Value	Units
Mechanical					
Tensile Strength	D 638	11.8	kpsi	81	MPa
Tensile Modulus	D 638	410	kpsi	2.8	GPa
Tensile Elongation at Yield	D 638	6.4	%	6.4	%
Tensile Elongation at Break	D 638	50-100	%	50-100	%
Flexural Strength	D 790	17.3	kpsi	119	MPa
Flexural Modulus	D 790	400	kpsi	2.8	GPa
Izod Impact, Notched	D 256	1.7	ft-lb/in	90	J/m
Izod Impact, Unnotched	D 4812	no break	ft-lb/in	no break	J/m
Thermal					
Deflection Temperature[2] at 264 psi (1.82 MPa)	D 648	379	°F	193	°C
Glass Transition Temperature	D 3417	316	°F	158	°C
Melting Point	D 3417	644	°F	340	°C
Coefficient Linear Thermal Expansion [3]	E 831	28	µin/in°F	50	µm/m°C
General and Fabrication					
Specific Gravity	D 792	1.30		1.30	
Water Absorption, 24 hours	D 570	0.2	%	0.2	%
Water Absorption, 30 days	D 570	0.5	%	0.5	%
Melt Flow, 400°C, 2.16 kg	D 1238	25	g/10 min	25	g/10 min

[1] Properties are typical of limited production and final specification ranges may vary.
[2] Measured on annealed specimens
[3] Measured in the flow direction over the temperature range of -50°C to 50°C

Solvay
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SOLVAY

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Drying

AvaSpire AV-650 resins must be dried completely prior to melt processing. Incomplete drying will result in defects in the formed part ranging from surface streaks to severe bubbling. Pellets can be dried on trays in a circulating air oven or in desiccating hopper dryer. Drying conditions recommended are 4 hours at 300°F (149°C) .

Injection Molding

AvaSpire AV-650 resins can be readily injection molded in most screw injection machines. A general purpose screw with a 2:1 to 3:1 compression ratio is recommended, as is minimum back pressure. Injection speeds should be as fast as possible, consistent with part appearance requirements. Mold temperatures in the range of 320°F to 375°F (160°C to 190°C) are suggested. Melt temperature should generally range from 690°F to 730°F (366°C to 388°C). Recommended barrel temperature settings are shown in the following table.

Caution: Exceeding 780°F (415°C) during processing may cause degradation.

Zone heater settings		
Zone	**Recommended Barrel Temperatures**	
	°F	**°C**
Rear (Feed)	670	354
Middle	690	365
Front	700	371
Nozzle	705	374

Standard Packaging and Labeling

AvaSpire AV-650 resin is packaged in polyethylene buckets, cardboard boxes, or multiwall bags depending upon the order size.

Individual packages will be plainly marked with the product number, the color, the lot number, and the net weight.

Product Safety and Emergency Service

For product safety information or a Material Safety Data Sheet on a product of Solvay Advanced Polymers

1 (800) 621-4557
1 (770) 772-8880 outside of U.S.

For information or help in an emergency such as a spill, leak, fire or explosion, call day or night:

Emergency Health Information

1 (800) 621-4590
1 (770) 772-5177 outside of U.S.

Emergency Spill Information

CHEMTREC 1 (800) 424-9300
1 (703) 527-3887 outside of U.S.
collect calls accepted

For Additional Information

Technical Service
1 (800) 621-4557

Customer Service
1 (800) 848-9744