AvaSpire® AV-630
polyaryletherketone

AvaSpire® AV-630 is an unreinforced polyaryletherketone (PAEK) developed as an alternative to low melt flow PEEK for the extrusion of ultra-thin films. Films with thicknesses as low as 0.2 mils (5 microns) can be successfully melt extruded out of AV-630 using conventional thermoplastics film extrusion equipment.

Films of AV-630 offer certain performance advantages over comparable PEEK film. These include improved toughness and ductility, a higher retention of mechanical integrity at temperatures above 150°C, better acceptance of adhesives and improved flame propagation resistance properties. Ultra-thin films (<15 microns thick) also exhibit a more flexible, less crinkly feel than that of PEEK films at comparable thicknesses.

Sub-mil thick films produced from AV-630 can be utilized in a wide range of industrial applications. Typical applications include capacitors, electrical insulation, flexible circuitry substrates, composite film layers, specialty laminates, moisture barriers, liners and aerospace films, such a thermal acoustical insulation blanket bagging materials.

- Natural: AvaSpire® AV-630 NT

General

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Features	• Chemical Resistant • Ductile • Fatigue Resistant • Flame Retardant	• Good Dimensional Stability • Good Impact Resistance • High Heat Resistance
Uses	• Aerospace Applications • Aircraft Applications • Electronic Insulation	• Film • Laminates • Liners
Agency Ratings	• ISO 10993	
RoHS Compliance	• Contact Manufacturer	
Appearance	• Natural Color	
Forms	• Pellets	
Processing Method	• Extrusion Blow Molding • Fiber (Spinning) Extrusion • Film Extrusion • Injection Blow Molding • Injection Molding	• Machining • Profile Extrusion • Thermoforming • Wire & Cable Extrusion

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.30		ASTM D792
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	7.0	g/10 min	ASTM D1238
Water Absorption (24 hr)	0.20	%	ASTM D570

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Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
-- [1]	3300	MPa	ASTM D638
--	3400	MPa	ISO 527-1/1A/1
Tensile Stress			
Yield	89.0	MPa	ISO 527-2/1A/50
-- [1]	92.0	MPa	ASTM D638
Tensile Elongation			
Yield [1]	6.0	%	ASTM D638
Yield	5.4	%	ISO 527-2/1A/50
Break [1]	50 to 80	%	ASTM D638
Break	50 to 80	%	ISO 527-2/1A/50
Flexural Modulus			
--	3200	MPa	ASTM D790
--	3300	MPa	ISO 178
Flexural Strength			
--	127	MPa	ASTM D790
--	128	MPa	ISO 178
Compressive Strength	110	MPa	ASTM D695
Shear Strength	79.0	MPa	ASTM D732

Impact	Typical Value	Unit	Test method
Notched Izod Impact			
--	91	J/m	ASTM D256
--	7.0	kJ/m²	ISO 180
Unnotched Izod Impact	No Break		ASTM D4812 ISO 180

Hardness	Typical Value	Unit	Test method
Rockwell Hardness (M-Scale)	92		ASTM D785

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load [2]			ASTM D648
1.8 MPa, Annealed, 3.20 mm	181	°C	
Glass Transition Temperature	158	°C	ASTM D3418
Peak Melting Temperature	340	°C	ASTM D3418
Specific Heat			DSC
50°C	1390	J/kg/°C	
200°C	1960	J/kg/°C	
Thermal Conductivity	0.23	W/m/K	ASTM E1530

Electrical	Typical Value	Unit	Test method
Surface Resistivity	> 1.9E+17	ohms	ASTM D257
Volume Resistivity	6.2E+17	ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
0.0600 mm, Amorphous Film	180	kV/mm	

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Flammability	Typical Value	Unit	Test method
Oxygen Index	38	%	ASTM D2863

Extrusion	Typical Value	Unit
Drying Temperature	149	°C
Drying Time	4.0	hr

Extrusion Notes

Drying:

- AvaSpire AV-630 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 150°C (300°F).

Notes

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

[1] 50 mm/min

[2] 2 hours at 200°C

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