

ULTEM™ 1000F3SP resin

Polyether Imide
SABIC Innovative Plastics

Message:

ULTEM™ 1000F3SP powder is a RoHS compliant polyetherimide (PEI) powder offering a glass transition temperature (Tg) of 217°C. This FDA compliant powder is available in a spherical shape with an average particle size (D50) of 15 micron and a maximum particle size (D100) of 75 micron.

General Information			
Agency Ratings	FDA Unspecified Rating		
Forms	Powder		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.27	g/cm ³	ASTM D792
Apparent Density	0.78	g/cm ³	ASTM D1895
Melt Mass-Flow Rate (MFR) (337°C/6.6 kg)	9.0	g/10 min	ASTM D1238
Molding Shrinkage - Flow (3.20 mm)	0.50 to 0.70	%	Internal Method
Water Absorption			ASTM D570
24 hr	0.25	%	
Equilibrium, 23°C	1.3	%	
Mean Particle Size	15.0	µm	Internal Method
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (M-Scale)	109		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus ¹	3590	MPa	ASTM D638
Tensile Strength ² (Yield)	110	MPa	ASTM D638
Tensile Elongation ³			ASTM D638
Yield	7.0	%	
Break	60	%	
Flexural Modulus ⁴ (100 mm Span)	3310	MPa	ASTM D790
Flexural Strength ⁵ (Yield, 100 mm Span)	152	MPa	ASTM D790
Poisson's Ratio	0.36		ASTM D638
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	10.0	mg	ASTM D1044
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (23°C)	53	J/m	ASTM D256
Unnotched Izod Impact (23°C)	1300	J/m	ASTM D4812
Gardner Impact (23°C)	36.6	J	ASTM D3029
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed, 6.40 mm	210	°C	
1.8 MPa, Unannealed, 6.40 mm	201	°C	

Vicat Softening Temperature	219	°C	ASTM D1525 ⁶
CLTE			ASTM E831
Flow : -20 to 150°C	5.6E-5	cm/cm/°C	
Transverse : -20 to 150°C	5.4E-5	cm/cm/°C	
Thermal Conductivity	0.22	W/m/K	ASTM C177
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	1.0E+17	ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
1.60 mm, in Air	33	kV/mm	
1.60 mm, in Oil	28	kV/mm	
Dielectric Constant (1 kHz)	3.15		ASTM D150
Dissipation Factor			ASTM D150
1 kHz	1.3E-3		
2.45 GHz	2.5E-3		
Flammability	Nominal Value	Unit	Test Method
Oxygen Index	47	%	ASTM D2863
Injection	Nominal Value	Unit	
Drying Temperature	149	°C	
Drying Time	4.0 to 6.0	hr	
Drying Time, Maximum	24	hr	
Suggested Max Moisture	0.020	%	
Suggested Shot Size	40 to 60	%	
Rear Temperature	332 to 399	°C	
Middle Temperature	338 to 399	°C	
Front Temperature	343 to 399	°C	
Nozzle Temperature	343 to 399	°C	
Processing (Melt) Temp	349 to 399	°C	
Mold Temperature	135 to 163	°C	
Back Pressure	0.345 to 0.689	MPa	
Screw Speed	40 to 70	rpm	
Vent Depth	0.025 to 0.076	mm	
NOTE			
1.	5.0 mm/min		
2.	Type I, 5.0 mm/min		
3.	Type I, 5.0 mm/min		
4.	2.6 mm/min		
5.	2.6 mm/min		
6.	Rate B (120°C/h), Loading 2 (50 N)		

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