ULTEM™ RESIN 1000F3SP

DESCRIPTION

ULTEM 1000F3SP Resin is an unreinforced amorphous polyetherimide (PEI) powder. This powder is available with an average particle size (D50) of 15 micron and a maximum particle size (D100) of 75 micron. It may offer a high glass transition temperature (Tg) of 217°C. Features are excellent mechanical, electrical and dimensional properties up to high temperatures. The material may offer very good chemical resistance for an amorphous material and is inherently flame retardant. The material is RoHS compliant. The base material is transparent amber colored once processed.

This material is food contact compliant in most jurisdictions – exceptions may exist, request a declaration for details

GENERAL INFORMATION	
Features	Flame Retardant, Chemical Resistance, Hydrolytic Stability, Low Smoke and Toxicity, Amorphous, Food contact, Non halogenated flame retardant, Creep resistant, Dimensional stability, High stiffness/Strength, High temperature resistance, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyetherimide (PEI)
Processing Techniques	Sintering, Powder Coating, Impregnation (composites)

INDUSTRY	SUB INDUSTRY
Automotive	Heavy Truck, Automotive Under the Hood, Aerospace, Motorcycle, Recreational/Specialty Vehicles
Building and Construction	Building Component
Consumer	Personal Accessory, Home Appliances, Commercial Appliance, Furniture
Electrical and Electronics	Energy Management, Drone Solutions, Mobile Phone - Computer - Tablets, Circuit Boards/Additives, Lighting, Printer Copier, Speaker - Earphone, Wireless Communication
Industrial	Electrical, Material Handling, Industrial General, Eyewear
Mass Transportation	Rail
Packaging	Industrial Packaging

TYPICAL PROPERTY VALUES

Revision 20260512

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yield, 50 mm/min	110	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6	%	ISO 527
Tensile Strain, break, 50 mm/min	50	%	ISO 527
Tensile Modulus, 1 mm/min	3200	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	160	MPa	ISO 178
Flexural Modulus, 2 mm/min	3300	MPa	ISO 178
Ball Indentation Hardness, H358/30	140	MPa	ISO 2039-1
Hardness, Rockwell M	106	-	ISO 2039-2
Tensile Stress, yld, Type I, 50 mm/min	115	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	7	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	60	%	ASTM D638
Tensile Stress, yld, Type I, 5 mm/min	110	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	7	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	60	%	ASTM D638

© 2026 Copyright by SABIC. All rights reserved

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Tensile Modulus, 5 mm/min	3350	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	165	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3200	MPa	ASTM D790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	160	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	3400	MPa	ASTM D790
Hardness, Rockwell M	109	-	ASTM D785
Taber Abrasion, CS-17, 1 kg	10	mg/1000cy	ASTM D1044
IMPACT [1]			
Izod Impact, Unnotched			
80*10*4 +23°C	NB	kJ/m²	ISO 180/1U
80*10*4 -30°C	NB	kJ/m²	ISO 180/1U
23°C	1800	J/m	ASTM D4812
-30°C	1540	J/m	ASTM D4812
Izod impact, notched			
80*10*4 +23°C	6	kJ/m²	ISO 180/1A
80*10*4 -30°C	6	kJ/m²	ISO 180/1A
23°C	53	J/m	ASTM D256
-30°C	50	J/m	ASTM D256
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m²	ISO 179/1eA
Izod Impact, Reverse Notched, 3.2 mm	1335	J/m	ASTM D256
Gardner, 23°C	36	J	ASTM D3029
THERMAL [1]			
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	209	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	192	°C	ISO 75/Af
Vicat Softening Temp, Rate A/50	215	°C	ISO 306
Vicat Softening Temp, Rate B/50	211	°C	ISO 306
Vicat Softening Temp, Rate B/120	212	°C	ISO 306
CTE, -40°C to 150°C, flow	5.2E-05	1/°C	ISO 11359-2
CTE, -40°C to 150°C, xflow	5.2E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASS	-	IEC 60695-10-2
Thermal Conductivity	0.22	W/m·°C	ISO 8302
HDT, 0.45 MPa, 6.4 mm, unannealed	210	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	201	°C	ASTM D648
HDT, 0.45 MPa, 3.2 mm, unannealed	207	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	190	°C	ASTM D648
Vicat Softening Temp, Rate B/50	211	°C	ASTM D1525
CTE, -20°C to 150°C, flow	5.6E-05	1/°C	ASTM E831
CTE, -20°C to 150°C, xflow	5.4E-05	1/°C	ASTM E831
Thermal Conductivity	0.22	W/m·°C	ASTM C177
PHYSICAL [1]			
Density	1.27	g/cm³	ISO 1183
Moisture Absorption, (23°C/50% RH/24hrs)	0.2	%	ISO 62-4
Moisture Absorption, (23°C/50% RH/Equilibrium)	0.7	%	ISO 62-4
Water Absorption, (23°C/24hrs)	0.25	%	ISO 62-1

© 2026 Copyright by SABIC. All rights reserved

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Water Absorption, (23°C/saturated)	1.25	%	ISO 62-1
Melt Volume Rate			
360°C/5.0 kg	13	cm³/10 min	ISO 1133
Mean Resin Particle Size	15	micrometer	SABIC method
Bulk Density	780	kg/m³	ISO 1183
Specific Gravity	1.27	-	ASTM D792
Water Absorption, (23°C/24hrs)	0.25	%	ASTM D570
Water Absorption, (23°C/Saturated)	1.25	%	ASTM D570
Melt Flow Rate			
337°C/6.6 kgf	9	g/10 min	ASTM D1238
Poisson's Ratio	0.36	-	ASTM E132
ELECTRICAL [1]			
Volume Resistivity	1.E+15	Ω.cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ω	IEC 60093
Dielectric Strength, in oil, 0.8 mm	33	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	25	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.9	-	IEC 60250
Dissipation Factor [2]			
at 1.1 GHz	0.0012	-	-
at 5 GHz	0.0024	-	-
at 10 GHz	0.0027	-	-
Relative Permittivity, 50/60 Hz	2.9	-	IEC 60250
Dielectric Constant [2]			
at 1.1 GHz	3.01	-	-
at 5 GHz	3.02	-	-
at 10 GHz	3.02	-	-
Comparative Tracking Index [3]	150	V	IEC 60112
Comparative Tracking Index, M [3]	100	V	IEC 60112
Volume Resistivity	1.E+17	Ω.cm	ASTM D257
Dielectric Strength, in air, 1.6 mm	32.7	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	28.0	kV/mm	ASTM D149
Dielectric Strength, in oil, 3.2 mm	19.7	kV/mm	ASTM D149
Relative Permittivity, 100 Hz	3.15	-	ASTM D150
Relative Permittivity, 1 kHz	3.15	-	ASTM D150

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

(2) Based on SPDR testing technique on dry as molded specimens.

(3) Value shown here is based on internal measurement.

DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.

© 2026 Copyright by SABIC. All rights reserved