Product Data

UDEL®
polysulfone

GF-110, GF-120, GF-130

Udel GF-110, GF-120, and GF-130 resins are glass fiber reinforced polysulfone compounds. Glass fiber substantially increases the rigidity, tensile strength, creep resistance, dimensional stability and chemical resistance of the polysulfone resin. The high performance properties and attractive price make these resins particularly effective alternatives to metals in many engineering applications.

Udel GF-110, GF-120, and GF-130 resins can be fabricated in conventional injection molding equipment. These resins are available in natural (opaque gray) or black colors.

Typical Properties of Udel GF-110, GF-120, and GF-130 Resins

	ASTM	Typical Values (1)							
	Test	U.S. Customary Units				SI Units			
Property	Method	GF-110	GF-120	GF-130	Units	GF-110	GF-120	GF-130	Units
Mechanical									
Tensile Strength	D 638	11.3	14.0	15.6	kpsi	78	97	108	MPa
Tensile Elongation	D 638	4	3	2	%	4	3	2	%
Tensile Modulus	D 638	540	870	1,260	kpsi	3.7	6.0	8.7	GPa
Flexural Strength	D 790	18.5	21.5	22.4	kpsi	128	148	154	MPa
Flexural Modulus	D 790	550	800	1,100	kpsi	3.8	5.5	7.6	GPa
Notched Izod	D 256	0.9	1.0	1.3	ft-lbs/in	48	53	69	J/m
Tensile Impact	D 1822	48	52	54	ft-lbs/in	100	110	109	kJ/m^2
Thermal									
Deflection Temperature at 264 psi (1.8 MPa)	D 648	354	356	358	°F	179	180	181	°C
Flammability Rating (2) at thickness	UL 94	HB	HB	V0	0.125 in	HB	HB	V0	3.2 mm
Electrical									
Dielectric Strength	D 149	475	475	475	volts/mil	19	19	19	kV/mm
Volume Resistivity	D 257	$3x10^{16}$	$2x10^{16}$	$2x10^{16}$	ohm-cm	$3x10^{16}$	$2x10^{16}$	$2x10^{16}$	ohm-cm
Dielectric Constant	D150								
60 Hz		3.18	3.31	3.48		3.18	3.31	3.48	
10^6 Hz		3.15	3.28	3.47		3.15	3.28	3.47	
Dissipation Factor	D 150								
60 Hz		0.0007	0.0008	0.0007		0.0007	0.0008	0.0007	
10^6 Hz		0.0060	0.0060	0.0050		0.0060	0.0060	0.0050	
General									
Specific Gravity	D 1505	1.33	1.40	1.49		1.33	1.40	1.49	
Melt Flow, 343°C, 2.16 kg	D 1238	6.5	6.5	6.5	g/10 min	6.5	6.5	6.5	g/10 min
Mold Shrinkage	D 955	0.4	0.3	0.2	%	0.4	0.3	0.2	%

(1) Actual properties of individual batches will vary within specification limits.

(2) These flammability ratings are not intended to reflect hazards presented by these or any material under actual fire conditions.

SOLVAY
Advanced Polymers

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Drying

Udel GF-110, GF-120 and GF-130 resins must be dried prior to fabrication, either in a dehumidifier hopper dryer or a circulating hot air oven. If a drier is used, air temperatures at the inlet should be 300° to 325°F (149° to 163°C), with outlet temperatures not less than 250°F (121°C). Residence time should be at least 3 to 4 hours.

If drying in an air oven, a pellet bed depth not greater than 2" (5 cm) is recommended, using a temperature of 300° to 325°F (149° to 163°C) and a residence time of at least 3 to 4 hours.

Dried resin should be handled carefully to prevent resorption of moisture from the atmosphere by using dry containers and covered hoppers.

Injection Molding

Udel GF-110, GF-120, and GF-130 resins can be readily injection molded in most screw injection machines. Stock temperature requirements will generally range from 650° to 750°F (343° to 399°C), depending on the mold design and the type of equipment being used. A general purpose, 2:1 compression screw is recommended, with back pressures of 50-100 psi (0.3 to 0.7 MPa). Injection speeds should be as fast as possible consistent with part appearance requirements. Mold temperatures of at least 250°F (121°C) are suggested, and as high as 300° to 325°F (149° to 163°C) for long-flow or thin-walled parts or where low residual stresses are required.

Standard Packaging and Labeling

Udel GF-110, GF-120, and GF-130 resins are packaged in foil lined, multiwall paper bags containing 55.115 pounds (25 kg) of material. Special packaging can be supplied upon request. 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