

Plexiglas UF3, UF4 & UF5 Product

PROPERTY	ASTM METHOD ²	UNITS	PLEXIGLAS G (Includes UF3 & UF4)	PLEXIGLAS MC (Includes UF5)
Thickness, nominal		in	0.118 & 0.236	0.118 & 0.236
Specific gravity	D792	N/A	1.19	1.19
OPTICAL				
Refractive index	D542	N/A	1.49	1.49
Light transmittance and haze "as received"	D1003			
Parallel		%	91*	91*
Total		%	92*	92*
Haze		%	1*	1*
After 5 years of outdoor exposure, Bristol, PA, 45° angle, facing south				
Parallel		%	90*	90*
Total		%	92*	92*
Haze		%	2*	3*
After 240 hours of artificial exposure, Carbon Arc Type, per ASTM G-23				
Parallel		%	90*	
Haze		%	2*	
Artificial weathering, fluorescent sunlamp with dew, 10 cycles, 240 hours of exposure	D1501 or Fed. Test Std. 406 6024			
Crazing			none	none
Warping			none	none
Instrumental measurement change in Yellowness Index after artificial weathering	D1925	N/A	1.0	0.8
Ultraviolet transmission, 320nm	Beckman DU-792	%	0	0
MECHANICAL				
Tensile strength (1/4 in. specimen – 0.2 in/min)	D638			
Maximum		psi	10,500	10,200
Rupture		psi	10,500	10,200
Elongation, maximum		%	4.9	4.5
Elongation, rupture		%	4.9	4.5
Modulus of elasticity		psi	450,000	450,000



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Poisson's ratio			.35	
Flexural strength (span depth ratio 16, 0.1 in/min)	D790			
Maximum		psi	16,000	15,000
Rupture		psi	16,000	15,000
Deflection, maximum		in	0.6	0.5
Deflection, rupture		in	0.6	0.5
Modulus of elasticity		psi	450,000	450,000
Compressive strength (0.05 in/min)	D695			
Maximum		psi	18,000	16,000
Modulus of Elasticity		psi	450,000	430,000
Compressive deformation under load	D621 Method A			
2,000 psi at 122°F for 24 hrs		%	0.2	0.3
4,000 psi at 122°F for 24 hrs (Conditioned 48 hrs at 122°F)		%	0.5	0.9
Shear strength	D732	psi	9,000	
Shear modulus		psi	167,000	
Impact strength	D256			
Charpy unnotched @73°F		ft-lb/ ½ in. x 1 in. sect.	7.0	7.0
Izod milled notch @73°F		ft-lb/in of notch	0.4	0.4
Rockwell Hardness	D785	–	M-100*	M-90*
Barcol number	R&	–	49	–
Resistance to stress Critical crazing stress	ARTC Mod. of MIL-P-6997			
Isopropyl alcohol		psi	2,100 ³	1,300
Toluene		psi	1,700 ³	1,200

THERMAL

Hot forming temperature		°F	290-360	275-350
Deflection temperature under (flexural) load 3.6°F/min-264 psi	D648	°F	205	200*
Maximum recommended continuous service temperature		°F	180-200	170-190



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Coefficient of thermal expansion	R&H P4A	in/in/° x 10 ⁵		
-40°F			2.8	2.7
-20			2.9	2.9
0			3.1	3.1
20			3.3	3.2
40			3.6	3.4
60			3.9	3.6
80			4.2	3.9
100			4.6	4.3
Coefficient of thermal conductivity	Cenco-Fitch	BT/ (hr)(sq ft)(°F/in)	1.3	1.3
Specific heat at 77°F		BTU/ (lb)(°F)	0.35	0.35
ELECTRICAL				
Dielectric strength, short time test	D149	volts/mill	500	500
Dielectric constant	D150		3.7	
60 Hz			3.3	3.7
1,000 Hz			2.5	3.3
1,000,000 Hz				2.5
Power factor	D150			
60 Hz			0.05	0.05
1,000 Hz			0.04	0.04
1,000,000 Hz			0.03	0.03
Loss factor				
60 Hz			0.19	0.19
1,000 Hz			0.13	0.13
1,000,000 Hz			0.08	0.07
Arc resistance	D495		No Tracking	No Tracking
Volume resistivity	D257	ohm-cm	6 x 10 ¹⁷	1 x 10 ¹⁸
Surface resistivity	D257	ohm/sq cm	2 x 10 ¹⁸	1 x 10 ¹⁷
MISCELLANEOUS				
Horizontal burning test avg.	D635	cm/min	2.8	2.5
Burning rate		(in/min)	(1.1*)	(1.0*)
Smoke density	D2843	%	4-10	4-10



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Flammability classification		UL 94	94HB	94HB
Water absorption, 24 hrs at 73°F	D570			
Weight loss on drying		%	0.1*	0.1*
Weight gain on immersion		%	0.2*	0.3*
Soluble matter lost		%	0.0*	0.0*
Water absorbed		%	0.2*	0.3*
Dimensional changes on immersion		%	0.0*	0.0*
Water absorption (weight gain) after immersion for:				
1 day		%	0.2*	–
2 days		%	0.3*	–
7 days		%	0.4*	–
28 days		%	0.8*	–
56 days		%	1.1*	–
84 days		%	1.3*	–
Humidity expansion, change in length on going from 20% to 90% Relative Humidity at equilibrium, 74°F		mils/in	3	–
Odor			None	None
Taste			None	None

*This value will change with thickness. The value given is for the thickness indicated in the column heading.

¹Values reported are averages and should not be used for specification purposes.

²Samples conditioned per ASTM D618, Procedure B, except where noted.

³The values are after the material has been heated for forming.

N/A = Not applicable

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