

TABLE OF PROPERTIES FOR THERMOPLASTIC MATERIALS

PROPERTIES	A.S.T.M. Test Method	A.B.S.	ACETAL	ACRYLIC	FLUOROPOLYMERS				NYLON				PHENYLENE OXIDE (NORYL)	POLYCARBONATE	POLYESTER (PET)	POLYETHERIMIDE ULTEMA	POLYSULFONE UDEL	POLYETHYLENE			POLYPROPYLENE	POLYSTYRENE HI-IMPACT	POLYVINYLCHLORIDE
					PTEE	FEP	TYPE 6	TYPE 66	TYPE 612	CAST TYPE 6	LOW DENSITY	HIGH DENSITY						UHMW					
Specific Gravity	D792	1.02	1.42	1.18	2.14-2.20	2.12	1.12-1.14	1.14-1.1	1.06	1.15	1.06	1.40	1.25	1.31	1.34	1.24	.910	.941	.955	.902	1.06	1.32	
Water Absorption Method A	D570	0.3	0.25	0.3	>0.01	<0.01	2.9	1.24	0.25	—	.07	0.4	0.12	0.08	0.28	0.3	—	—	—	.03	.07	.02	
Tensile strength at yield, 1000 psi	D638	6.0	10	9.6	1.0	3-4	9.4	12	8.8	11-14	9.6	7.5	10.1	7.5	16.6	10.2	1.0-2.3	4.0	6.8	4.5	2.9	6.3	
Elongation at yield, %	D638	2.5	75	4.0	2	300	25	>150	7	10	60	—	8	300 AT BREAK	4.0	—	—	—	450	12	—	—	
Elastic Modulus in Tension, 10 ⁴ psi	D638	4.0	4.5	4.1	0.58	—	—	4.4	—	3.5-4.5	3.55	—	3.2	—	3.2	3.6	0.17-0.35	0.8-1.5	1.3	1.75	2.75	4.1	
Flexural Strength at yield, 1000 psi	D790	12.9	14.3	15.0	—	NO BREAK	NO YIELD	16	NO YIELD	16-17.5	13.5	—	13.2	12.0	28.0	15.4	—	—	—	—	5.3	12.4	
Elastic modulus in flexure, 10 ⁴ psi	D790	4.4	3.8	4.4	0.5-0.9	9.5	1.50	4.1	2.95	—	3.60	6.64	3.2	3.4	6.5	3.9	0.20	0.45	1.1	1.9	—	4.85	
Compressive strength at yield, 100 psi	D695	11.2	5.2	14.5	1.2	2.2	—	—	—	—	16.4	3.2	11.0	13.0	22.5	—	—	2.4	2.6	—	—	—	
Elastic modulus in compression, 10 ⁴ psi	D695	2.3	—	4.0	0.6-0.9	—	—	—	—	—	—	4.0	—	—	—	—	—	—	—	—	—	—	
Rockwell Hardness (Method A)	D785	R96	R120	M89	D50	D55	R104	88	R114	R112	R119	M119	73	R117	M114	R120	D-41	D60	R64	R85	L65	R111	
Izod impact strength, ft-lb/in. notch 1/8 in. specimen	D256	10.0	2.3	0.4	3.0	NO BREAK	2.2	1.2	1.5	—	5.0	2.5	15.0	1.0	1.1	1.3	—	—	NO BREAK	0.9	2.0	>5	
Deflrm. under load (2000 psi: 1.22 Ft. %)	D621	0.15	0.5	0.3	—	—	—	0.8	1.6	0.5-1.0	0.30	—	—	—	—	—	—	—	—	—	—	—	
Deflection temperature, F at 65 psi fiber stress	D648	180	342	185	250	188	340	450	356	400	279	500	280	310	410	325	—	—	—	210	185	140	
Max. recommended service Temp., F intermittent use	—	220	230	185	—	450	—	—	—	—	220	250	—	—	—	—	—	—	—	—	—	—	
Max. recommended service Temp., F continuous use	—	180	200	145	500	400	175	270	290	200-225	220	400	240	—	338	—	110	140	163	160	—	—	
Coeff. of Linear Thermal Expansion, F	D696	5.7 x 10 ⁻⁵	5.8 x 10 ⁻⁵	4.5 x 10 ⁻⁵	5.5 x 10 ⁻⁵	6.5 x 10 ⁻⁵	4 x 10 ⁻⁵	4.5 x 10 ⁻⁵	5 x 10 ⁻⁵	5.0 x 10 ⁻⁵	3.3	1.8 x 10 ⁻⁵	37.5 x 10 ⁻⁵	7.1	1.8 x 10 ⁻⁵	3.1 x 10 ⁻⁵	—	—	—	—	—	3.5 x 10 ⁻⁵	
Underwriters' Lab Rating (Subj: 94)	—	HB	HB	HB	V-0	V-0	HB	V-2	V-2	—	V-1	VEO	VO	HB	V-0	V-2	—	—	—	HB	HB	HB	
Dielectric strength, v./mil, short time	D149	357 (1/4)	500	500	400-600	500-600	—	555	550	500	550	600	400	590	620	425	450	500	900	600	—	600	
Dielectric constant at 60 Hertz	D150	30-50	3.7	3.7	2.1	2.1	7.2	4.0	4.0	3.7	2.65	—	2.96	3.3	—	3.07	—	—	2.3	—	—	3.9	
Dielectric constant at 1 Megahertz	D150	2.8-3.8	3.7	2.3	2.1	2.1	3.7	3.5	3.5	3.7	2.64	—	2.96	3.1	—	.002	—	—	—	2.3	—	—	
Dissipation factor, at 60 Hertz	D150	.004-.034	—	.04	.0002	.0001	—	0.02	.02	—	.0004	—	0.0006	0.002	.0013	.0008	—	—	—	—	—	—	
Dissipation factor, at 1 Megahertz	D150	.006-.011	.005	.03	.0002	.0007	0.12	0.03	.02	—	.0009	—	0.0090	0.02	.0025	.0034	—	—	—	.0003	—	—	
Volume resistivity, ohm-cm	D257	10 ¹² -10 ¹⁶	10 ¹⁶	10 ¹⁶	>10 ¹⁶	>10 ¹⁶	10 ¹²	10 ¹⁶	10 ¹⁶	—	10 ¹⁷	1.2 x 10 ¹⁷	10 ¹⁶	4.0 x 10 ¹⁶	6.7 x 10 ¹⁷	5 x 10 ¹⁶	—	—	10 ¹⁶	10 ¹⁷	—	—	
Arc resistance (SS Electrical), sec.	D495	97 (1/4)	220	NO Tracking	>300	>180	—	123	—	—	75	—	30-70	184	128	122	—	—	—	—	—	—	

These values are representative of those obtained under standard ASTM conditions and should not be used to design parts which function under different conditions.

