

Typical Property Comparison Chart

pg. #	PROPERTY	SPECIFIC GRAVITY	TENSILE STRENGTH	TENSILE MODULUS OF ELASTICITY	TENSILE ELONGATION	FLEXURAL STRENGTH	FLEXURAL MODULUS OF ELASTICITY	COMPRESSIVE STRENGTH	MATERIALS	HARDNESS	IZOD IMPACT	COEFFICIENT OF FRICTION	COEFFICIENT OF LINEAR THERMAL EXPANSION	HEAT DEFLECTION TEMPERATURE	MAX CONTINUOUS SERVICE TEMPERATURE IN AIR	DIELECTRIC STRENGTH	WATER ABSORPTION	
		73° F	73° F	73° F	73° F	73° F	73° F	10% deformation 73° F		Rockwell 73° F	(notched) 73°F		66psi / 264psi	°F	Short Term	Immersion 24 Hours		
UNITS	UNITS	psi	psi	psi	%	psi	psi	psi		scale as noted	ft-lbs /in	Dynamic	in/in/°F x10 ⁻⁵	66psi °F 264psi	°F	V/mil	%	
ASTM TEST	ASTM TEST	D-792	D-638	D-638	D-638	D-790	D-790	D-695		D-785	D-256		D-696	D-648		D-149	D-570	
AMORPHOUS THERMOPLASTICS	6-7	ABS	1.04	4,100	294,000	32	9,100	304,000	-	ABS	R102	7.7	-	5.6	200 177	160	-	0.30
	10-11	ACRYLIC (Continuously Processed)	1.19	10,000	400,000	4.5	17,000	480,000	17,000	ACRYLIC (Continuously Processed)	M93	0.4	-	4.0	- 195	160	430	0.20
	12-13	KYDEX® 100	1.35	6,100	317,500	160	9,100	335,000	-	KYDEX® 100	R94	18.0	-	4.2	- 173	-	514	0.05-0.08
	14-15	NORYL® (Modified PPO)	1.08	9,600	350,000	25	14,400	370,000	-	NORYL® (Modified PPO)	R119	3.5	-	3.3	279 254	220	500	0.07
	26-27	PETG	1.27	7,700	320,000	210	11,200	310,000	-	PETG	R115	1.7	-	3.8	164 157	-	410	0.20
	28-29	POLYCARBONATE	1.20	9,500	345,000	135	13,500	345,000	12,500	POLYCARBONATE	M70, R118	12.0-16.0	-	3.8	280 270	240	380	0.15
	28-29	POLYCARBONATE (20% Glass Filled)	1.35	16,000	860,000	5	19,000	800,000	-	POLYCARBONATE (20% Glass Filled)	M91, R122	2.0	-	1.5	300 295	248	-	0.16
	36-37	POLYSTYRENE (High Impact)	1.04	3,500	270,000	52	7,000	310,000	-	POLYSTYRENE (High Impact)	L68	2.0	-	4.5	- 185	-	-	-
	38-39	POLYSULFONE	1.24	10,200	360,000	50-100	15,400	390,000	13,900	POLYSULFONE	M69, R120	1.3	-	3.1	358 345	285	425	0.30
	46-47	PVC (Rigid)	1.42	7,500	411,000	-	12,800	481,000	-	PVC (Rigid)	R115	1.0	-	3.2	- 158	140	544	0.06
	50-51	RADEL R®	1.29	10,100	340,000	60-120	13,200	350,000	14,350	RADEL R®	R123	13	-	3.1	- 405	392	360	0.37
54-55	ULTEM®	1.27	15,200	430,000	60	22,000	480,000	21,900	ULTEM®	M109	1.0	-	3.1	410 392	338	830	0.25	
54-55	ULTEM® (30% Glass Filled)	1.51	24,500	1,300,000	13	33,000	1,300,000	-	ULTEM® (30% Glass Filled)	M114	1.6	-	1.1	414 410	356	770	0.16	
SEMICRYSTALLINE THERMOPLASTICS	8-9	ACETAL (Copolymer)	1.41	9,800	430,000	75	13,000	370,000	-	ACETAL (Copolymer)	M80	1.0	0.21	6.1	316 230	195	500	0.20
	8-9	ACETAL (Homopolymer)	1.42	10,000	450,000	75	14,300	420,000	-	ACETAL (Copolymer)	M80	1.0	0.21	6.1	316 230	195	500	0.20
	30, 32	HDPE	0.96	4,000	-	600	-	200,000	-	HDPE	-	-	-	7.0	172 -	-	-	0.10
	30-31	LDPE	0.92	1,400	-	500	-	30,000	-	LDPE	-	no break	-	-	122 -	-	-	0.10
	16-17	NYLON (6 Cast)	1.15-1.17	10,000-13,500	400,000-550,000	20-55	15,500-17,500	420,000-500,000	-	NYLON (6 Cast)	R115-125	0.7-0.9	0.22	5.0	400-430 200-400	230	500-600	0.60-1.20
	16-17	NYLON (6/6 Extruded)	1.14	12,400	470,000	90	17,000	410,000	-	NYLON (6/6 Extruded)	M80, R121	1.2	0.28	4.5	- 194	210	300-400	1.20
	20-21	PBT	1.30	8,690	416,000	300	12,000	330,000	-	PBT	M72	1.5	0.25	-	310 130	245	400	0.08
	22-23	PEEK	1.32	14,000	490,000	60	24,600	590,000	-	PEEK	M99, R126	1.6	0.25	2.6	- 306	480	480	0.50
	24-25	PET (Semicrystalline)	1.38	11,500	400,000	70	15,000	400,000	-	PET (Semicrystalline)	R117	0.7	0.25	3.9	240 175	230	400	0.10
	34-35	PP (Homopolymer)	0.91	5,400	-	-	-	225,000	-	PP (Homopolymer)	R92	1.2	-	-	210 -	-	-	slight
	34-35	PP (Copolymer)	0.90	3,800	-	-	-	215,000	-	PP (Copolymer)	R92	12.5	-	-	190 -	-	-	slight
	42-43	PPS	1.35	12,500	480,000	4	21,000	600,000	-	PPS	M93	0.5	0.24	4.0	400 220	338	450	0.02
	44-45	PTFE	2.15	1,500-3,000	-	100-200	-	72,000	-	PTFE	-	3.5	0.10	5.5	250 -	500	400-500	<0.01
	48-49	PVDF (Homopolymer)	1.78	7,800	350,000	35	10,750	310,000	-	PVDF (Homopolymer)	R100	3.0	-	7.1	300 235	-	280	0.02
30, 33	UHMW-PE	0.93	3,100	-	350	-	110,000	-	UHMW-PE	-	18.0 ¹	0.10-0.20	11.1	- -	180	-	slight	
IMIDIZED MATERIALS	18-19	POLYAMIDE-IMIDE (TECATOR® 2154)	1.41	21,000	-	15	33,000	711,000	-	POLYAMIDE-IMIDE	M119	2.3	-	1.7	- 532	500	600	0.30
	56-57	POLYIMIDE (VESPEL® SP-1)	1.43	12,500 ²	-	7.5 ²	16,000	450,000	19,300	POLYIMIDE (VESPEL® SP-1)	E45-60	0.8	0.29 ³	3.0	- ~ 680	-	560	0.24
	56-57	POLYIMIDE (VESPEL® SP-21)	1.51	9,500 ²	-	4.5 ²	16,000	550,000	19,300	POLYIMIDE (VESPEL® SP-21)	E25-45	0.8	0.24 ³	2.7	- ~ 680	-	-	0.19
	56-57	POLYIMIDE (VESPEL® SP-22)	1.65	7,500 ²	-	3.0 ²	13,000	700,000	16,300	POLYIMIDE (VESPEL® SP-22)	E5-25	-	0.20 ³	2.1	- -	-	-	0.14
	56-57	POLYIMIDE (VESPEL® SP-211)	1.55	6,500 ²	-	3.5 ²	10,000	450,000	14,800	POLYIMIDE (VESPEL® SP-211)	E1-20	-	0.12 ³	3.0	- -	-	-	0.21
	56-57	POLYIMIDE (VESPEL® SP-3)	1.60	8,200 ²	-	4.0 ²	11,000	475,000	18,500	POLYIMIDE (VESPEL® SP-3)	E40-55	0.4	0.25 ³	2.9	- -	-	-	0.23
THERMOSET COMPOSITES	52-53	XX (Paper Phenolic)	1.35	11,500	-	-	17,000	-	25,000	XX (Paper Phenolic)	M95	0.4	-	-	-	266	-	-
	52-53	CE (Canvas Phenolic)	1.37	9,000	-	-	15,000	1,500,000	34,000	CE (Canvas Phenolic)	M100	1.5	-	-	-	257	-	-
	52-53	LE (Linen Phenolic)	1.34	9,000	-	-	16,000	1,200,000	36,000	LE (Linen Phenolic)	M100	1.1	-	-	-	257	-	-
	52-53	FR-4 (Glass Epoxy)	1.80	38,000	-	-	60,000	2,400,000	55,000	FR-4 (Glass Epoxy)	M110	-	-	-	-	284	-	-
	52-53	G7 (Glass Silicone)	1.66	34,600	-	-	36,000	-	35,800	G7 (Glass Silicone)	M96	-	-	-	-	428	-	-

¹Double-15° notch, ²Tensile Specimens per D1708, ³D-3702, Steady State in Air, vs Steel, PV 25kpsi-1pm

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