

# Typical Property Comparison Chart



PROPERTY	SPECIFIC GRAVITY 73° F	TENSILE STRENGTH 73° F	TENSILE MODULUS OF ELASTICITY 73° F	TENSILE ELONGATION 73° F	FLEXURAL STRENGTH 73° F	FLEXURAL MODULUS OF ELASTICITY 73° F	COMPRESSIVE STRENGTH 10% deformation 73° F	MATERIALS	HARDNESS Rockwell 73° F	IZOD IMPACT (notched) 73°F	COEFFICIENT OF FRICTION	COEFFICIENT OF LINEAR THERMAL EXPANSION	HEAT DEFLECTION TEMPERATURE 66psi / 264psi	MAX CONTINUOUS SERVICE TEMPERATURE IN AIR	DIELECTRIC STRENGTH Short Term	WATER ABSORPTION Immersion 24 Hours	
UNITS		psi	psi	%	psi	psi	psi		scale as noted	ft-lbs/in		in/in/°F x10 <sup>5</sup>	66psi °F 264psi	°F	V/mil	%	
ASTM TEST	D-792	D-638	D-638	D-638	D-790	D-790	D-695		D-785	D-256	Dynamic	D-696	D-648		D-149	D-570	
<b>AMORPHOUS THERMOPLASTICS</b>	ABS	1.04	4,100	294,000	32	9,100	304,000	-	ABS	R102	7.7	-	5.6	200 177	160	-	0.30
	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
	KYDEX <sup>®</sup> 100	1.35	6,100	317,500	160	9,100	335,000	-	KYDEX <sup>®</sup> 100	R94	18.0	-	4.2	- 173	-	514	0.05-0.08
	NORYL <sup>®</sup> (Modified PPO)	1.08	9,600	350,000	25	14,400	370,000	-	NORYL <sup>®</sup> (Modified PPO)	R119	3.5	-	3.3	279 254	220	500	0.07
	PETG	1.27	7,700	320,000	210	11,200	310,000	-	PETG	R115	1.7	-	3.8	164 157	-	410	0.20
	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
	POLYSTYRENE (High Impact)	1.04	3,500	270,000	52	7,000	310,000	-	POLYSTYRENE (High Impact)	L68	2.0	-	4.5	- 185	-	-	-
	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
	PVC (Rigid)	1.42	7,500	411,000	-	12,800	481,000	-	PVC (Rigid)	R115	1.0	-	3.2	- 158	140	544	0.06
	RADEL R <sup>®</sup>	1.29	10,100	340,000	60-120	13,200	350,000	14,350	RADEL R <sup>®</sup>	R123	13	-	3.1	- 405	392	360	0.37
ULTEM <sup>®</sup>	1.27	15,200	430,000	60	22,000	480,000	21,900	ULTEM <sup>®</sup>	M109	1.0	-	3.1	410 392	338	830	0.25	
<b>SEMICRYSTALLINE THERMOPLASTICS</b>	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
	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
	HDPE	0.96	4,000	-	600	-	200,000	-	HDPE	-	-	-	7.0	172 -	-	-	0.10
	LDPE	0.92	1,400	-	500	-	30,000	-	LDPE	-	no break	-	-	122 -	-	-	0.10
	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
	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
	PBT	1.30	8,690	416,000	300	12,000	330,000	-	PBT	M72	1.5	0.25	-	310 130	245	400	0.08
	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
	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
	PP (Homopolymer)	0.91	5,400	-	-	-	225,000	-	PP (Homopolymer)	R92	1.2	-	-	210 -	-	-	slight
	PP (Copolymer)	0.90	3,800	-	-	-	215,000	-	PP (Copolymer)	R92	12.5	-	-	190 -	-	-	slight
	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
	PTFE	2.15	1,500-3,000	-	100-200	-	72,000	-	PTFE	-	3.5	0.10	5.5	250 -	500	400-500	<0.01
	PVDF	1.78	7,800	350,000	35	10,750	310,000	-	PVDF (Homopolymer)	R100	3.0	-	7.1	300 235	-	280	0.02
UHMW-PE	0.93	3,100	-	350	-	110,000	-	UHMW-PE	-	18.0 <sup>1</sup>	0.10-0.20	11.1	- -	180	-	slight	
<b>IMIDIZED MATERIALS</b>	POLYAMIDE-IMIDE	1.41	21,000	-	15	33,000	711,000	-	POLYAMIDE-IMIDE	M119	2.3	-	1.7	- 532	500	600	0.30
	POLYIMIDE VESPEL <sup>®</sup> SP-1	1.43	12,500 <sup>2</sup>	-	7.5 <sup>2</sup>	16,000	450,000	19,300	POLYIMIDE VESPEL <sup>®</sup> SP-1	E45-60	0.8	0.29 <sup>3</sup>	3.0	- ~ 680	-	560	0.24
	POLYIMIDE VESPEL <sup>®</sup> SP-21	1.51	9,500 <sup>2</sup>	-	4.5 <sup>2</sup>	16,000	550,000	19,300	POLYIMIDE VESPEL <sup>®</sup> SP-21	E25-45	0.8	0.24 <sup>3</sup>	2.7	- ~ 680	-	-	0.19
	POLYIMIDE VESPEL <sup>®</sup> SP-22	1.65	7,500 <sup>2</sup>	-	3.0 <sup>2</sup>	13,000	700,000	16,300	POLYIMIDE VESPEL <sup>®</sup> SP-22	E5-25	-	0.20 <sup>3</sup>	2.1	- -	-	-	0.14
	POLYIMIDE VESPEL <sup>®</sup> SP-211	1.55	6,500 <sup>2</sup>	-	3.5 <sup>2</sup>	10,000	450,000	14,800	POLYIMIDE VESPEL <sup>®</sup> SP-211	E1-20	-	0.12 <sup>3</sup>	3.0	- -	-	-	0.21
	POLYIMIDE VESPEL <sup>®</sup> SP-3	1.60	8,200 <sup>2</sup>	-	4.0 <sup>2</sup>	11,000	475,000	18,500	POLYIMIDE VESPEL <sup>®</sup> SP-3	E40-55	0.4	0.25 <sup>3</sup>	2.9	- -	-	-	0.23
<b>THERMOSET COMPOSITES</b>	XX (Paper Phenolic)	1.35	11,500	-	-	17,000	-	25,000	XX (Paper Phenolic)	M95	0.4	-	-	- -	266	-	-
	CE (Canvas Phenolic)	1.37	9,000	-	-	15,000	1,500,000	34,000	CE (Canvas Phenolic)	M100	1.5	-	-	- -	257	-	-
	LE (Linen Phenolic)	1.34	9,000	-	-	16,000	1,200,000	36,000	LE (Linen Phenolic)	M100	1.1	-	-	- -	257	-	-
	FR-4 (Glass Epoxy)	1.80	38,000	-	-	60,000	2,400,000	55,000	FR-4 (Glass Epoxy)	M110	-	-	-	- -	284	-	-
	G7 (Glass Silicone)	1.66	34,600	-	-	36,000	-	35,800	G7 (Glass Silicone)	M96	-	-	-	- -	428	-	-

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

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