

PROPERTIES OF ENGINEERING PLASTICS AT A GLANCE

	ASTM	PTFE	UHMW-PE	NYLON 6	CAST NYLON	ACETAL DELTRIN	PP	HDPE	PVC
Specific gravity	D792	2.14-2.20	0.994	1.12-1.14	1.15-1.17	1.41	0.902-0.910	0.941-0.965	1.30-1.58
p. s. i. Tensile Strength	D638	2000-5000	2500-3500	11800-10000	11000-14000	8800	4300-5500	3100-5500	6000-7500
% Elongation	D638	200.0-400.0	500	100 -300	30-320	40-75	200.0-700.0	20-1300	40-80
p.s.i. Comprehensive strength	D695	1700	2400	13000	---	16000 (10% defl.)	5500-8000	2700-3600	8000-13000
Impact strength (1/2 x 1/2 in notched)	D256	3.0	No Break	10 ^a -3.0 ^b	0.8-30 (1/2X1/2 inbar)	1.0-1.5 (1/2X1/2 inbar)	0.5-2.2at (1/8X1/2 inbar)	0.5-20.0	0.4-20.0
Hardness Rockwell	D785	D50-D55 (Shore)	D60-D70 (Shore)	R119	R95-R120	M78-M80	80-110	D60-D70 (Shore)	65-85 (Shore)
10 ⁵ p.s.i. 73° F Flexural Modulus	D790	---	1.30-1.40	3.9 ^a -1.4 ^b	1.1-4.5 ^a 0.8-1.6 ^b	3.75	1.7-2.5	1.0-2.6	3-5
Coefficient of friction	---	0.04 0.1	0.03 0.08	0.37	0.35	0.18	0.3	0.08 0.18	0.45
-10 ⁴ cal sec cm ³ C cm Thermal conductivity	C177	6.0	11-12.4	5.8	---	5.5	2.8	11.0-12.4	3.5-5.0
Thermal expansion 105 per °C	D696	10.0	7.2	8.3	9.0	8.5	5.8-10.2	11.0-13.0	5.0-10.0
Resistance to heat °C (continuous)		260 °C	120 °C	80 °C 120 °C	121 °C 149 °C	80 °C 120 °C	110 °C	80 °C	65 °C 75 °C
Ω- cm(230 C50%) Volume resistivity	D257	10 ¹⁸	10 ¹⁶	10 ¹¹ -10 ¹⁴	---	10X10 ¹⁴	10 ¹⁶	10 ¹⁶	10 ¹⁶
1/8 in thickness volts mil Dielectric strength	D149	480	710	400	300-400	500 (90mil)	500-660	450-500	350-500
1KHz Dielectric constant	D150	2.1	2.25-2.35	3.7	3.7	3.7	2.2-2.6	2.30-2.35	3.0-3.8
1Khz Dissipation (power) factor	D150	0.0002	0.00021	0.02	0.02	0.0010 (40 mil)	0.0005 0.0018	0.0005	0.009-0.017
24hr.3.2 mm % Water absorption 24hr.3.2 thickness, %	D570	0.00	0.01	1.3-1.9	0.6-1.2	0.22	0.01-0.03	0.01	0.04-0.4
in min Burning rate	D635	---	---	---	---	1.0-1.1	0.75-0.82	1.00-1.04	---
Effect of weak acids	D543	NONE	Very resistant	Resistant	Resistant	Resistant to same			
Effect of strong acid	D543	NONE	Attacked Slowly by oxidizing acids	Attacked	Attacked	Attacked	Attacked slowly by oxidizing acids	Attacked slowly by oxidizing acids	NONE
Effect of Weak Alkalies	D543	NONE	Very Resistant	NONE	NONE	Attacked	NONE	Very Resistant	NONE
Effect of strong Alkalies	D543	NONE	Very Resistant	Resistant	Resistant	Attacked	Resistant	Very Resistant	NONE
Effect of organic solvents	D543	NONE	Resistant Below 80 °C	Resistant to common solvents	Resistant to common solvents	Excellent resistance to Practically all solvents	Resistant Below 80 °C	Resistant Below 80 °C	Resistant Alcohols aliphatic hydrocarbons and oils Soluble in ketones and esters swells in aromatic hydrocarbons

Data quoted are average values only & should not be used as specifications for designing specific applications.