

TYPICAL PROPERTIES OF POLYSTYRENE (PS)

ASTM or UL Test	Property	POLYMERS		COPOLYMERS		Glass Reinforced*
		General Purpose	Impact Modified	Crystal Clear	Impact Modified	
PHYSICAL						
D792	Specific gravity	1.04-10.9	1.03-1.10	1.08-1.10	1.05-10.8	1.13-1.22
D792	Specific volume (in ³ /lb)	26.0-25.6	28.1-25.2	—	—	—
D570	Water absorption , 24 h, 1/8-in thk (%)	0.03-0.10	0.05-0.60	0.1	0.1	0.08
MECHANICAL						
D638	Tensile strength (psi)	5,000-12,000	1,500-7,000	7,000-7,600	4,800-7,200	10,500-12,500
D638	Elongation (%)	0.5-2.0	2-60	1.4-1.7	2.0-20.0	1.3-2.0
D638	Tensile modulus (10 ⁵ psi)	4.0-6.0	1.4-5.0	4.4-4.7	2.8-4.2	6.3-10.0
D790	Flexural strength (psi)	8,000-17,000	3,000-12,000	12,000-12,600	8,500-12,200	12,200-19,700
D790	Flexural modulus (10 ⁵ psi)	4.0-4.7	1.5-4.6	4.6-4.9	3.2-4.5	5.5-9.8
D256	Impact strength , Izod (ft-lb/in of notch)	0.2-0.45	0.5-4.0	0.3-0.5	0.5-4.4	1.8-2.6
D785	Hardness , Rockwell M	65-80	10-90	108	80	101
THERMAL						
C177	Thermal conductivity (Btu-in/hr-ft ² -°F)	2.4-3.3	1.0-3.0	2.4-3.3	1.0-3.0	—
D696	Coefficient of thermal expansion (10 ⁻⁵ in/in-°F)	3.3-4.4	1.9	3.5-3.7	3.5-3.7	2.0-2.2
D648	Deflection temperature (°F)					
	At 264 psi	190-220	160-200	235-249	235-249	235-260
	At 66 psi	180-230	180-220	—	—	—
UL 94	Flammability rating †	HB	HB	HB	HB	HB
ELECTRICAL						
D149	Dielectric strength (V/mil)					
	Short time, 1/8-in thk	500-700	300-600	500-700	300-600	—
D150	Dielectric constant					
	At 1 kHz	2.40-2.65	2.4-4.5	—	—	—
D150	Dissipation factor					
	At 1 kHz	0.0001-0.0003	0.0004-0.0020	—	—	—
D257	Volume resistivity (ohm-cm)					
	At 73°F, 50% RH	10 ¹⁷ -10 ¹⁹	10 ¹⁶	—	—	—
D495	Arc resistance (s)	60-135	20-100	95	95	—
OPTICAL						
D542	Refractive index	1.60	—	1.59	—	—
D1003	Transmittance (%)	87-92	35-57	92	—	—

*10-20% †V-2, V-1, and V-0 grades are also available.