

HDPE Sign Board: Typical Properties

Property*	ASTM Test Method	Typical Values	
		English Units	Metric Units
Physical Properties			
Density	D1505	59.6 lbs/ft ³	0.955 g/cc
Melt Index, Condition 190 °C / 2.16 kg	D1238	-	0.25 g/10 min
Polyethylene Classification	D4976	Group 2, Class 3, Grade 5	Group 2, Class 3, Grade 5
Mechanical Properties			
Tensile Strength @ Yield	D638	4000 psi	27.6 MPa
Ultimate Elongation	D638	> 600%	> 600%
Tensile IMPact Strength	D1822	70 ft-lbf/in ²	147 KJ/m ²
Notched Izod IMPact Strength	D256	2.99 ft-lbf/in	159 J/m
Compressive Stress @Yield	D695	1,500 psi	10.3 MPa
ESCR, Condition A (10% Igepal), F ₅₀	D1693	45 hours	45 hours
ESCR, Condition B (100% Igepal),F ₅₀	D1693	35 hours	35 hours
Durometer Hardness	D2240	64 Shore D	64 Shore D
Flexural Modulus	D790	200,000 psi	1379 MPa
Coefficient of Friction, Static	D1894	0.31	0.31
Coefficient of Friction, Kinetic	D1894	0.22	0.22
Thermal Properties			
Coefficient of Linear Thermal Expansion	E831	7 X 10 ⁻⁵ in/in/°F	1.26 X 10 ⁻⁴ cm/cm/°C
Decomposition Temperature	Union Carbide	~ 650 °F	~ 345 °C
Vicat Softening Temperature	D1525	257 °F	125 °C
Heat Deflection Temperature @66 psi	D648	171 °F	77 °C
Brittleness Temperature	D746	< -120 °F	< -84 °C
Glass Transition Temperature	Union Carbide	-193 °F	-125 °C
Continuous Use Temperature	---	-100 °F to 180 °F	-73 °C to 82 °C
Thermal Conductivity	Private Test	2.5 Btu-in/h-ft ² -°F	.35 W/m-°K
Burn Rate	D635	1 in/min	25.4 mm/min
Ignition Temperature, Flash Conditions	D1929	645 °F	341 °C
Ignition Temperature, Self Ignition Conditions	D1929	660 °F	349 °C
Flame Spread	E84 Tunnel Test	98	98
Smoke Developed	E84 Tunnel Test	350	350
Fire Rating	Underwriters Labs	UL94HB	UL94HB
ElectricalProperties			
Dielectric Strength	D149	510 V/mil	20.1 KV/mm
Dielectric Constant	D150	2.35	2.35
Volume Resistivity	D257	> 2.3 X 10 ¹⁵ ohm-in	> 6 X 10 ¹⁵ ohm-cm

*The nominal properties reported herein are typical of the product but do not reflect normal testing variance and therefore should not be used for specification purposes.

Typical Properties reported herein were determined on compression molded samples prepared in accordance with Procedure C of ASTM D4703, Annex A1.