THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

HDPE

High-Density Polyethylene

HDPE is a strong, durable, lightweight, and recyclable semi-crystalline thermoplastic. Made from ethylene (a monomer), HDPE is one of the most common plastics today. It can be found in packaging, food processing parts, kitchenware, outdoor furniture, signage, and marine components. It is resistant to moisture, bacteria, and odors. HDPE maintains rigidity in hot water, is chemically resistant, and easy to fabricate. Though HDPE has a large strength-to-density ratio – it is sensitive to stress cracking in suboptimal environments.

The Gund Company custom fabricates insulation materials to the exact specifications and drawings specified by our customers. We offer our customers the proper product for their specific application. A variety of dimensions and diameter sizes are available. Product colors vary according to material type.

		ISO/IEC			ASTM		
	PROPERTIES	Test Method	Units	Typical Values	Test Method	Units	Typical Values
PHYSICAL	Density		g/cm³	0.955	ASTM D792	lb/in³	0.03449
	Melt Flow at 190°C / 2.16 kg		g/10 min	0.25	ASTM D1238	g/10 min	-
	Polyethylene Classification		Group 2, Class 3, Grade 5		ASTM D4976	Group 2, Class 3, Grade 5	
THERMAL	Coefficient of Linear Thermal Expansion	ISO 11359	µm/m·°C	126	ASTM D696	µin/in·°F	70
	Decomposition Temperature	Union Carbide	°C	345	Union Carbide	°F	650
	Vicat Softening Point	ISO 306	°C	125	ASTM D1525	°F	257
	Heat Deflection Temperature (66 PSI)		°C	77	ASTM D648	°F	171
	Brittleness Temperature		°C	-84	ASTM D746	°F	<-120
	Glass Transition Temperature	Union Carbide	°C	-125	Union Carbide	°F	-193
	Continuous Use Temperature		°C	-73 to 82		°F	-100 to 180
	Thermal Conductivity	Private Test	W/m·K	0.35	Private Test	BTU·in/ft²·hr·°F	2.50
	Burn Rate		mm/min	25	ASTM D635	in/min	1
	Ignition Temperature: Flash Condition		°C	341	ASTM D1929	°F	645
	Ignition Temperature: Self-ignition Condition		°C	349	ASTM D1929	°F	660
	Flame Spread			98	E84 Tunnel Test		98
	Smoke Developed			350	E84 Tunnel Test		350
	Flammability: UL 94			HB			HB
MECHANICAL	Tensile Yield Strength		MPa	27.60	ASTM D638	PSI	4,000
	Elongation at Break		%	600	ASTM D828	%	600
	Tensile Impact Strength		KJ/m²	147	ASTM D1822	ft-lb/in²	70
	IZOD Impact Strength: Notched		J/m	159	ASTM D256	ft-lb/in	2.99
	Compressive Yield Strength		MPa	10.30	ASTM D695	PSI	1,500
	ESCR, condition A (10% Igepal) F_{50}		Hours	45	ASTM D1693	Hours	45
	ESCR, condition B (100% Igepal) F_{50}		Hours	35	ASTM D1693	Hours	35
	Shore Hardness: D Scale			64	ASTM D2240		64
	Flexural Modulus		MPa	1,379	ASTM D790	KSI	200
	Coefficient of Friction: Static			0.31	ASTM D1895		0.31
	Coefficient of Friction: Friction			0.22	ASTM D1895		0.22
ELECTRICAL	Dielectric Strength (Perp. in Oil)		kV/mm	20.10	ASTM D149	V/mil	510
	Dielectric Constant			2.35	ASTM D150		2.35
	Volume Resistivity	IEC 60093	Ohm-cm	$6 \cdot 10^{15}$	ASTM D257	Ohm-in	$2.3 \cdot 10^{15}$