



# THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

## UHMW Ultra High Molecular Weight Polyethylene

UHMW is a tough, wear-resistant engineered thermoplastic that combines an incredibly low coefficient of friction with outstanding impact strength. It is composed of a self-lubricating polymer with excellent chemical resistance and low moisture absorption all at elevated temperatures. UHMW is easy to machine - making it ideal for quick-turn prototyping and higher volume production. Because of its resiliency in wear applications, UHMW is suited for bearings, bushings, rollers, and other industrial environments. UHMW has an FDA-compliant composition.

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.

PROPERTIES	ISO/IEC			ASTM			
	Test Method	Units	Typical Values	Test Method	Units	Typical Values	
<b>PHYSICAL</b>	Density	ISO 1183-1	g/cm <sup>3</sup>	0.93		-	
	Specific Gravity			-	ASTM D792	0.93	
	Water Absorption: 24 hrs. in Water at 73°F	ISO 62	%	0.10	ASTM D570	%	-
	Water Absorption: Saturation in Water at 73°F		%	0.10	ASTM D570	%	-
	Wear Rate	ISO 7148-2	µm/km	8.00	QTM 55010	in <sup>3</sup> ·min/ft·lbs·hr·10 <sup>-10</sup>	-
	Coefficient of Friction: Dynamic	ISO 7148-2		0.15 - 0.20	QTM 55007		0.120
	Limiting PV at 100 FPM			-	QTM 55007	ft·lbs/in <sup>2</sup> ·min	3,000.0
Limiting PV at 0.1 / 1 (m/s)		MPa·m/s	0.08 / 0.05				
<b>THERMAL</b>	Melting Temperature: DSC, 10°C(50°F)/min	ISO 11357-1/-3	°C	135	ASTM D3418	°F	275
	Thermal Conductivity at 23°C (73°F)		W/m·K	0.40		BTU·in/ft <sup>2</sup> ·hr·°F	2.840
	CLTE (-40 to 150°C) (-40 to 300°F)			-	ASTM E831 (TMA)	µin/in·°F	110
	CLTE (23 to 100°C) (73°F to 210°F)		µm/m·°C	200.0			-
	Heat Deflection Temperature (264 PSI)	ISO 75-1/-2	°C	42.0	ASTM D648	°F	116.0
	Continuous Service Temperature in Air 20 hrs.		°C	80.00		°F	180.00
	Min. Service Temperature		°C	-200		°F	-
	Flammability: UL94 (3mm (1/8 in.))			HB			HB
Flammability: Oxygen Index	ISO 4589-1/-2	%	20				
<b>MECHANICAL</b>	Ultimate Tensile Strength	ISO 527-1/-2	MPa	19	ASTM D638	PSI	5,800
	Tensile Strain at Yield	ISO 527-1/-2	%	15.0	ASTM D638	%	-
	Tensile Strain at Break	ISO 527-1/-2	%	>50	ASTM D638	%	300
	Tensile Modulus of Elasticity	ISO 527-1/-2	GPa	750	ASTM D638	KSI	80
	Shear Strength			33.0	ASTM D732	PSI	4,800
	Compressive Stress: 1 / 2 / 5 % nominal strain	ISO 604	MPa	6.5 / 10.5 / 17			-
	Compressive Strength			-	ASTM D695	PSI	3,000
	Charpy Impact Strength: Unnotched	ISO 179-1/1eU	kJ/m <sup>2</sup>	NB			-
	Charpy Impact Strength: Notched	ISO 179-1/1eA	kJ/m <sup>2</sup>	115P			-
	Charpy Impact Strength: Double 14° Notched	ISO 21304-2	kJ/m <sup>2</sup>	170			-
	IZOD Impact Strength: Double Notched			-	ASTM D256	ft·lb/in	47.60
	Flexural Strength	ISO 178	MPa	17	ASTM D790	PSI	3,500
	Flexural Modulus	ISO 178	GPa	-	ASTM D790	KSI	87.00
Volume Loss Wear Test "Sand-Slurry"	ISO 2039-2		100.00			-	
Shore Hardness: D Scale	ISO 868		60	ASTM D2240		66	
<b>ELECTRICAL</b>	Dielectric Strength	IEC 60243-1	kV/mm	45.00	ASTM D149	V/mil	1,150
	Volume Resistivity	IEC 62631-3-1	Ohm·cm	10 <sup>13</sup>	ASTM D257	Ohm·cm	-
	Surface Resistivity			-	ANSI/ESDSTM 11.11	Ohms/sq	10 <sup>14</sup>
	Dielectric Constant at 1 MHz	IEC 62631-2-1		3.00	ASTM D150		2.30
	Dissipation Factor at 1 MHz	IEC 62631-2-1		-	ASTM D150		0.0

The data supplied are typical values. They are not to be considered specification values. All of the information, suggestions, and recommendations about these properties and uses of the products herein are based on tests and data believed to be accurate; however, the final determination regarding the suitability of any material described herein for the contemplated application, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. There is no warranty - expressed or implied - including, without limitation, warranties of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.