



THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

Polyetherimide (PEI) Series

Polymer Structure Performance

PEI (Polyetherimide) is a thermoplastic and a member of the imide family (containing the O=C-N-C=O group). It is priced lower than PK. Other members of the Imide families are PAI (Polyamideimide) and BMI or Poly-BMI (Bismaleimide). PEI is also related to PEEK (Poly ether ether ketone). Ultem and Tempalux are commercial grades. PEI is excellent for applications that require consistent dielectric properties over a wide frequency range, including reusable medical devices, analytical instruments, semiconductors, and electrical insulation. It offers superior flame, heat, and chemical resistance while holding high rigidity, strength, and dimensional stability.

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	Unfilled	Flame Resistant	Test Method	Units	Unfilled	Flame Resistant
PHYSICAL	Density	ISO 1183-1	g/cm ³	1.27		lb/in ³		
	Specific Gravity				ASTM D792		1.28	1.51
	Water Absorption: 24 hrs. in water @ 73°F	ISO 62	%	0.19	ASTM D 570	%	0.25	0.18
	Water Absorption: Saturation in water @ 73°F		%	1.30	ASTM D 570	%	1.25	0.90
	Wear Rate	ISO 7148-2	µm/km	1,325	QTM 55010	in ³ .min/ft.lbs.hr*10 ⁻¹⁰	2,900	
	Dynamic Coefficient of Friction (-)	ISO 7148-2		0.3 - 0.4	QTM 55007		0.42	
	Limiting PV at 100 FPM		MPa.m/s		QTM 55007	ft.lbs/in ² .min	1,875	
Limiting PV at 0.1 / 1 (m/s)		MPa.m/s						
THERMAL	Melting Temperature (DSC, 10°C(50°F)/min)	ISO 11357-1/-3	°C		ASTM D 3418	°F		
	Glass Transition Temperature (DMA- Tanδ)		°C	215		°F	410	410
	Thermal Conductivity at 23°C (73°F)		W/m-K	0.24		BTU-in/ft ² .hr.°F	1.23	1.56
	CLTE (-40 to 150°C) (-40 to 300°F)				ASTM E 831 (TMA)	µin/in-°F	31	11
	CLTE (23 to 100°C) (73°F to 210°F)		µm/m-°K	50				
	CLTE (23 to 150°C) (73°F to 300°F)		µm/m-°K	50				
	CLTE (>150°C) (>300°F)		µm/m-°K	60				
	Heat Deflection Temperature (264 PSI)	ISO 75-1/-2	°C	195	ASTM D 648	°F	400	410
	Continuous Service Temperature in Air 20 hrs.		°C	170	UL 94	°F	340	340
	Min. Service Temperature		°C	-50		°F		
Flammability: UL94 (3 mm (1/8 in.))			V-0			V-0	V-0	
Flammability: Oxygen Index	ISO 4589-1/-2	%	47					
MECHANICAL	Ultimate Tensile Strength	ISO 527-1/-2		129	ASTM D 638	PSI	17,000	17,000
	Tensile Strain at Yield	ISO 527-1/-2		7.0	ASTM D 638	%	6.9	
	Tensile Strain at Break	ISO 527-1/-2	MPa	13.0	ASTM D 638	%	32	3
	Tensile Modulus of Elasticity	ISO 527-1/-2	%	3,500	ASTM D 638	KSI	500	800
	Shear Strength		%	97.0	ASTM D 732	PSI	14,000	14,000
	Compressive Stress: 1 / 2 / 5 % nominal strain	ISO 604	GPa	31 / 61 / 137				
	Compressive Strength				ASTM D 695	PSI	22,000	32,000
	Charpy Impact Strength - Unnotched	ISO 179-1/1eU	MPa	NB				
	Charpy Impact Strength - Notched	ISO 179-1/1eA		3.50				
	IZOD Impact - Notched	ISO 180	kJ/m ²		ASTM D 256	ft-lb/in	0.50	1.00
	Flexural Strength	ISO 178	kJ/m ²	167	ASTM D 790	PSI	20,000	27,000
	Flexural Modulus	ISO 178	kJ/m ²		ASTM D 790	KSI	500	850
Rockwell M Hardness	ISO 2039-2	MPa	115	ASTM D 785		112	114	
Hardness Shore D	ISO 868	GPa		ASTM D 2240		125	127	
ELECTRICAL	Dielectric Strength	IEC 60243-1	kV/mm	27	ASTM D 149	V/mil	830	770
	Volume Resistivity	IEC 62631-3-1	Ohm-cm	10 ¹³	ASTM D 257	Ohm-cm		
	Surface Resistivity	ANSI/ESD STM 11.11	Ohms/sq	10 ¹²	ANSI/ESD STM 11.11	Ohms/sq	10 ¹²	10 ¹²
	Dielectric Constant @ 1 MHz	IEC 62631-2-1		3.00	ASTM D 150		3.15	3.70
	Dissipation Factor @ 1 MHz	IEC 62631-2-1		0.0	ASTM D 150		0.0	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.