Poly-Texx MPG

Engineering plastic utilized in wear and bearing applications that excels in highly abrasive environments

General Information

Chemical Designation:

UHMW-PE (Ultra High Molecular Weight Polyethylene)

Fillers:

Glass

Color:

Blue or Orange

Specific Gravity:

0.95

Poly-Texx MPG is the most abrasive resistant filled polymer material available. Its natural color is orange or blue. Typical applications include sleeve and flanged bearings and thrust washers for high aggregate bearing applications. Its excellent chemical resistance makes it suitable for chemical and solvent rich environments. Its main attribute is its resistance to abrasion from particulate such as sand, wood pulp and paper dust.

Available in many shapes and sizes, it is easily machined to close tolerances (with experience) and can be sawed, milled and turned with most metal working equipment. Poly-Texx MPG is a great choice for many demanding applications. See our Technical Assistance page on our website for details.

Technical Information

Specification	Test	Value	Units
Density, 73°F	D792	.932-.96	g/cm3
Tensile Strength @ Yield, 73°F	D638	2,900	psi
Tensile Modulus of Elasticity, 73°F	D638		psi
Tensile Elongation (at break), 73°F	D638	330	>50% (No Break)
Flexural Strength, 73°F	D790		psi
Flexural Modulus of Elasticity	D790		psi
Shear Strength, 73°F	D732		psi
Compressive Strength – Ultimate		1,500	psi
Compressive Strength at 2% Deformation	D695	1,200	psi
Compressive Strength at 10% Deformation	D695	N/A	psi
Deformation Under Load		10	%
Compressive Modulus of Elasticity, 73°F	D695		
Compressive Strength ⊥ to Laminate (Modulus)			psi
Compressive Strength ⊥ to Laminate (Yield)		1,500	psi
Compressive Strength ⊥ to Laminate (Ultimate)		3,100	psi
Hardness, Durometer (Shore “D” scale)	D2240	62-67	
Hardness, Rockwell (Scale as noted)	D785		Rockwell M
Izod Impact, Notched @ 73°F	D256 Type A	>120	ft.lbs/in. of notch
Coefficient of Friction (Dry vs Steel) Static	PTM 55007	0.14	
Coefficient of Friction (Dry vs Steel) Dynamic	PTM 55007	0.09	
Maximum Static Bearing Load (P)	PTM 55007	3,100	psi
Maximum Unlubricated No Load Bearing Velocity (V)	PTM 55007	20	ft/minute
Maximum Limiting PV (Unlubricated)	PTM 55007	5,000	psi x ft/min.
Wear Factor “K” x 10-10	PTM 55010		Cubic in.-min/ft.lbs.hr
Sand Wheel Wear/Abrasion Test		120	Virgin UHMW=100
Minimum Mating Surface Hardness		20	Rockwell (Brinnell)
Coefficient of Linear Thermal Expansion	E-831 (TMA)	7.8	in/in/°F x 10-5
Coefficient of Thermal Expansion // to Laminates	E-831 (TMA)	7.8	in/in/°F x 10-5
Coefficient of Thermal Expansion I to Laminates	E-831 (TMA)	7.8	in/in/°F x 10-5
Softening Point			°F
Heat Deflection Temperature 264 psi	D648	180	°F
Embrittlement Temperature		Cryogenic	°F Min.
Continuous Service Temperature in Air		180	°F Max.
Short Term Service Temperature		212	°F Max.
Tg-Glass Transition (Amorphous)	D3418		°F
Melting Point (Crystalline) Peak	D3418	280	°F
Thermal Conductivity	F433		BTU-in/(hr/ft2°F)
Dielectric Strength Short Term	D149	900	KV/mil
Volume Resistivity	D257	<1015	Ohm/cm
Surface Resistivity	D257	<1015	Ohm
Dielectric Constant, 106 Hz	D150	2.3	
Dissipation Factor, 106 Hz	D150		
Flammability @ 3.1mm(1/8 in.) UL94	UL94	HB	
Arc Resistance			seconds
Water Absorption, Immersion 24 Hours	D570 (2)	Nil	%
Water Absorption, Immersion Saturation	D570 (2)	Nil	%
Machinability Rating		3	1=easy, 10=difficult
Rod Diameter Availability (Off the Shelf)	1	6.0	inches
Sheet Thickness Availability (Off the Shelf)	.25	3.0	inches
Characteristics / Attributes	Highest Abrasion Resistance / Self Lubricating / Higher Cost / UV Resistant		

Thank you for your interest in our materials. All statements, technical information and recommendations presented are in good faith, based upon tests believed to be reliable and practical field experience. Poly-Tech is not responsible for its accuracy or completeness. It is our recommendation and the customer’s responsibility to determine the suitability of any material for any given application.