



PROFESSIONAL PLASTICS, INC.

Leading Global Supplier of Engineered Plastic Shapes

USA Phone (888) 995-7767 – Asia Phone +65-6266-6193

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TIVAR® Oil Filled UHMW-PE Properties

Physical Properties	Metric	English	Comments
Specific Gravity	0.935 g/cc	0.935 g/cc	ASTM D792
Water Absorption	<= 0.010 %	<= 0.010 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	<= 0.010 %	<= 0.010 %	Immersion; ASTM D570(2)
Mechanical Properties	Metric	English	Comments
Hardness, Shore D	64	64	ASTM D2240
Tensile Strength	44.8 MPa	6500 psi	ASTM D638
Tensile Strength at 65°C (150°F)	2.76 MPa	400 psi	ASTM D638
Elongation at Break	280 %	280 %	ASTM D638
Tensile Modulus	0.300 GPa	43.5 ksi	ASTM D638
Flexural Yield Strength	17.2 MPa	2500 psi	ASTM D790
Flexural Modulus	0.400 GPa	58.0 ksi	ASTM D790
Compressive Strength	18.6 MPa	2700 psi	10% Def.; ASTM D695
Compressive Modulus	0.290 GPa	42.0 ksi	ASTM D695
Izod Impact, Notched	NB	NB	ASTM D256 Type A
Coefficient of Friction	0.14	0.14	Dry vs. Steel; QTM55007
Sand Slurry	13	13	1018 Steel = 100
Limiting Pressure Velocity	0.140 MPa-m/sec	4000 psi-ft/min	4:1 safety factor; QTM 55007
Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+15 ohm	>= 1.00e+15 ohm	ASTM D257
Dielectric Constant	2.3	2.3	ASTM D150
Dielectric Strength	@Frequency 1e+6 Hz 90.6 kV/mm	@Frequency 1e+6 Hz 2300 kV/in	Short Term; ASTM D149
Dissipation Factor	0.00050 @Frequency 1e+6 Hz	0.00050 @Frequency 1e+6 Hz	ASTM D150
Thermal Properties	Metric	English	Comments
CTE, linear	198 µm/m-°C @Temperature -40.0 - 149 °C	110 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.409 W/m-K	2.84 BTU-in/hr-ft²-°F	
Melting Point	135 °C	275 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	82.2 °C	180 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	46.7 °C	116 °F	ASTM D648
Flammability, UL94	HB	HB	1/8 inch (Estimated Rating)
Compliance Properties	Metric	English	Comments
3A-Dairy	No	No	
Canada AG	No	No	
FDA	Yes	Yes	
NSF	No	No	
USDA	Yes	Yes	
USP Class VI	No	No	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. Properties provided by Quadrant EPP. Professional Plastics makes no claim as to the suitability of any material in any application. It is the sole responsibility of the customer to determine material suitability.

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