



TIVAR Oil-Filled

Oil-filled UHMW-PE

Physical Properties	Metric	English	Comments
Specific Gravity	0.935 g/cc	0.0338 lb/in ³	ASTM D792
Water Absorption	Max 0.01 %	Max 0.01 %	Immersion, 24hr; ASTM D570 (2)
Water Absorption at Saturation	Max 0.01 %	Max 0.01 %	Immersion; ASTM D570(2)
Mechanical Properties			
Hardness, Shore D	64	64	ASTM D2240
Tensile Strength, Ultimate	40 MPa	5800 psi	ASTM D638
Elongation at Break	280 %	280 %	ASTM D638
Tensile Modulus	0.524 GPa	76 ksi	ASTM D638
Flexural Modulus	0.441 GPa	64 ksi	ASTM D790
Flexural Yield Strength	22.1 MPa	3200 psi	ASTM D790
Compressive Strength	18.6 MPa	2700 psi	10% Def., 73°F; ASTM D695
Compressive Modulus	0.29 GPa	42 ksi	ASTM D695
Coefficient of Friction	0.14	0.14	Dry vs. Steel; QTM55007
Limiting Pressure Velocity	0.0701 MPa-m/sec	2000 psi-ft/min	4:1 safety factor; QTM 55007
Izod Impact, Notched	NB	NB	ASTM D256 Type A
Electrical Properties			
Surface Resistivity per Square	Min 1e+015 ohm	Min 1e+015 ohm	ASTM D257
Dielectric Constant	2.3	2.3	(1MHz); ASTM D150
Dielectric Strength	90.6 kV/mm	2300 V/mil	Short Term; ASTM D149
Dissipation Factor	0.0005	0.0005	(1MHz); ASTM D150
Thermal Properties			
CTE, linear 68°F	342 µm/m-°C	190 µin/in-°F	(-40°F to 300°F); ASTM E831
Thermal Conductivity	0.409 W/m-K	2.84 BTU-in/hr-ft ² -°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 (Estimated Rating)	HB	HB	1/8 inch
Qualitative Processing Properties			
Compliance - FDA	Compliant		
Machinability	3	1-10, 1=Easier to Machine	
Service in Alcohols	Acceptable		
Service in Aliphatic Hydrocarbons	Acceptable		
Service in Aromatic Hydrocarbons	Unacceptable		
Service in Chlorinated Solvents	Acceptable		
Service in Ethers	Limited		
Service in Ketones	Limited		
Service in Strong Acids	Limited		
Service in Strong Alkalies	Acceptable		
Service in Sunlight	Limited		
Service in Weak Acids	Acceptable		
Service in Weak Alkalies	Acceptable		

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