



TIVAR 1000 Virgin Black (UHMW-PE)

Physical Properties	Metric	English	Comments
Specific Gravity	0.93 g/cc	0.0336 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	67	67	ASTM D2240
Tensile Strength, Ultimate	40 MPa	5800 psi	ASTM D638
Elongation at Break	250 %	250 %	ASTM D638
Tensile Modulus	0.827 GPa	120 ksi	ASTM D638
Flexural Modulus	0.758 GPa	110 ksi	ASTM D790
Flexural Yield Strength	24.1 MPa	3500 psi	ASTM D790
Compressive Strength	20.7 MPa	3000 psi	10% Def., 73°F; ASTM D695
Compressive Modulus	0.552 GPa	80 ksi	ASTM D695
Shear Strength	33.1 MPa	4800 psi	ASTM D732
Coefficient of Friction	0.12	0.12	Dry vs. Steel; QTM55007
Limiting Pressure Velocity	0.0701 MPa-m/sec	2000 psi-ft/min	4:1 safety factor; QTM 55007
Abrasion	10	10	Sand Slurry; 1018 Steel = 100; ASTM D4020
Izod Impact, Notched	NB	NB	ASTM D256 Type A
Electrical Properties			
Surface Resistivity per Square	Min 1e+011 ohm	Min 1e+011 ohm	ASTM D257
Thermal Properties			
CTE, linear 68°F	198 µm/m-°C	110 µin/in-°F	(-40°F to 300°F); ASTM E831
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

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