



TIVAR PolySteel

TIVAR PolySteel, high specific gravity UHMW-PE

Physical Properties	Metric	English	Comments
Specific Gravity	1.45 g/cc	0.0524 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	19.3 MPa	2800 psi	ASTM D638
Elongation at Break	125 %	125 %	ASTM D638
Tensile Modulus	0.703 GPa	102 ksi	ASTM D638
Flexural Modulus	0.752 GPa	109 ksi	ASTM D790
Compressive Strength	24.8 MPa	3600 psi	10% Def., 73°F; ASTM D695
Compressive Modulus	0.579 GPa	84 ksi	ASTM D695
Coefficient of Friction	0.14	0.14	Dry vs. Steel; QTM55007

Electrical Properties

Surface Resistivity per Square	Min 1e+010 ohm	Min 1e+010 ohm	ASTM D257
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Thermal Properties

Melting Point	127 °C	260 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	82.2 °C	180 °F	Long Term
Flammability, UL94 (Estimated Rating)	HB	HB	1/8 inch

Qualitative Processing Properties

Compliance - FDA	Not 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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