

UHMW Product Data



DATA SHEET			
TIVAR® 1000 Natural Virgin UHMW-PE			
Property	Units	Test Method	Typical Average Values
Mechanical			
Specific Gravity, 73° F	-	ASTM D792	.93
Tensile Strength, 73° F	psi	ASTM D638	5800
Tensile Modulus of Elasticity, 73° F	psi	ASTM D638	100000
Tensile Elongation (at break), 73° F	%	ASTM D638	300
Flexural Strength, 73° F	psi	ASTM D790	3500
Flexural Modulus of Elasticity, 73° F	psi	ASTM D790	110000
Shear Strength, 73° F	psi	ASTM D732	4800
Compressive Strength, 10% Deformation, 73° F	psi	ASTM D695	3000
Compressive Modulus of Elasticity, 73° F	psi	ASTM D695	80000
Hardness, Rockwell, S scale as noted, 73° F	-	ASTM D785	N/A
Hardness, Durometer, Shore "D" Scale, 73° F	-	ASTM D2240	66
Izod Impact (notched), 73° F	ft.lb./in.	ASTM D256 Type "A"	No Break
Coefficient of Friction (Dry vs. Steel) Dynamic	-	QTM 55007	.12
Limiting PV (with 4:1 safety factor applied)	ft.lbs.in. ² min.	QTM 55007	2000
Sand Slurry Abrasion	1018 Steel = 100.	ASTM D4020	10
Thermal			
Coefficient of Linear Thermal Expansion (-40°F to 300°F)	in./in./°F	ASTM E-831 (TMA)	1.1 X 10 ⁻⁴
Heat Deflection Temperature 264 psi	°F	ASTM D648	116
Tg-Glass Transition (amorphous)	°F	ASTM D3418	N/A
Melting Point (crystalline) peak	°F	ASTM D3418	275
Continuous Service Temperature in Air (Max.)(1)	°F	-	180
Thermal Conductivity	BTU in./(hr.ft. ² °F)	-	2.84

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Electrical			
Dielectric Strength, Short Term	KV/CM	ASTM D149	900
Surface Resistivity	ohms/square	ASTM D257	> 10 ¹⁵
Dielectric Constant, 10 ⁶ Hz	-	ASTM D150	2.3
Dissipation Factor, 10 ⁶ Hz	-	ASTM D150	< 0.5 X 10 ³
Flammability @ 3.1 mm (1/8 in.) (3)	-	UL94	HB
Miscellaneous			
Water Absorption Immersion, 24 Hours	% by wt.	ASTM D570(2)	< 0.01
Water Absorption Immersion, Saturation	% by wt.	ASTM D570(2)	< 0.01

- (1) Data represent Quadrant's estimated maximum long-term service temperature based on practical field experience.
- (2) Specimens: 1/8" thick x 2" diameter or square.
- (3) Estimated rating based on available data. The UL 94 Test is a laboratory test and does not relate to actual fire hazard. Contact Quadrant for specific UL "Yellow Card" recognition number.