

DATA SHEET
TIVAR® ECO – Recycled UHMW-PE

Property	Units	Test Method	Typical Average Values ⁽⁴⁾
Mechanical			
Specific Gravity, 73° F.	-	ASTM D792	0.93
Tensile Strength, 73° F.	psi	ASTM D638	4,000
Tensile Modulus of Elasticity, 73° F.	psi	ASTM D638	70,000
Tensile Elongation (at break), 73° F.	%	ASTM D638	200
Flexural Strength, 73° F.	psi	ASTM D790	3,500
Flexural Modulus of Elasticity, 73° F.	psi	ASTM D790	90,000
Shear Strength, 73° F.	psi	ASTM D732	NA
Compressive Strength, 10% Deformation, 73° F.	psi	ASTM D695	3,000
Compressive Modulus of Elasticity, 73° F.	psi	ASTM D695	70,000
Hardness, Rockwell, Scale as noted, 73°F	-	ASTM D785	NA
Hardness, Durometer, Shore "D" Scale, 73°F	-	ASTM D2240	D67
Izod Impact (notched), 73° F.	ft.lb./in.	ASTM D256 Type "A"	No Break
Coefficient of Friction (Dry vs. Steel) Dynamic	-	QTM 55007	0.14
Limiting PV (with 4:1 safety factor applied)	ft.lbs.in. ² min.	QTM 55007	2,000
Sand Slurry Abrasion	1018 Steel = 100	ASTM D4020	18
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)	-	NA
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Property	Units	Test Method	Typical Average Values ⁽⁴⁾
Electrical			
Dielectric Strength, Short Term	Volts/mil	ASTM D149	NA
Surface Resistivity	ohms/square	EOS/ESD S11.11	$\leq 10^{13}$
Dielectric Constant, 10 ⁶ Hz	-	ASTM D150	NA
Dissipation Factor, 10 ⁶ Hz	-	ASTM D150	NA
Flammability @ 3.1 mm (1/8 in.) ⁽²⁾		UL 94	HB
Miscellaneous			
Water Absorption Immersion, 24 Hours	% by wt.	ASTM D 570 ⁽³⁾	<0.01
Water Absorption Immersion, Saturation	% by wt.	ASTM D 570 ⁽³⁾	<0.01

- (1) Data represent Quadrant's estimated maximum long-term service temperature based on practical field experience.
- (2) **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.
- (3) Specimens 1/8" thick x 2" dia. or square.
- (4) TIVAR[®] EC is made from recycled material and therefore actual production data can vary more than product produced from virgin material like TIVAR[®] 1000.

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