

Mitsubishi Chemical Advanced Materials TIVAR® 88-2 UHMW-PE, Premium Lubricant Filled Lining Material (ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Polyethylene (PE); High Density (HDPE); High Density Polyethylene (HDPE), UHMW PE Ultra High Molecular Weight

- Material Notes:**
- 1 Promotes reliable, steady bulk material flow
 - 1 Abrasion-, chemical- and corrosion-resistant
 - 1 Low coefficient of friction
 - 1 No moisture absorption
 - 1 Reduces or eliminates arching, ratholing and erratic flow

Quadrant Engineering Plastic Products is now Mitsubishi Chemical Advanced Materials.

Physical Properties	Metric	English	Comments
Specific Gravity	0.933 g/cc	0.933 g/cc	ASTM D792
Water Absorption	<= 0.010 %	<= 0.010 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	<= 0.010 %	<= 0.010 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	64	64	ASTM D2240
Tensile Strength	37.9 MPa	5500 psi	ASTM D638
Tensile Strength at 65°C (150°F)	2.76 MPa	400 psi	ASTM D638
Elongation at Break	200 %	200 %	ASTM D638
Tensile Modulus	0.669 GPa	97.0 ksi	ASTM D638
Flexural Strength	20.7 MPa	3000 psi	ASTM D790
Flexural Modulus	0.724 GPa	105 ksi	ASTM D790
Compressive Strength	20.0 MPa	2900 psi	10% Def.; ASTM D695
Compressive Modulus	0.552 GPa	80.0 ksi	ASTM D695
Shear Strength	33.1 MPa	4800 psi	ASTM D732
Izod Impact, Notched	NB	NB	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.080	0.080	Dry vs. Steel; QTM55007
Sand Slurry	11	11	1018 Steel = 100
Limiting Pressure Velocity	0.140 MPa-m/sec	4000 psi-ft/min	4:1 safety factor; QTM 55007

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+15 ohm	>= 1.00e+15 ohm	ASTM D257
Dielectric Constant	2.3	2.3	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	90.6 kV/mm	2300 kV/in	Short Term; ASTM D149
Dissipation Factor	0.00050	0.00050	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

Thermal Properties	Metric	English	Comments
CTE, linear	198 µm/m-°C	110 µin/in-°F	ASTM E831
	@Temperature -40.0 - 149 °C	@Temperature -40.0 - 300 °F	
Thermal Conductivity	0.409 W/m-K	2.84 BTU-in/hr-ft²-°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	HB	HB	Estimated Rating
	@Thickness 3.17 mm	@Thickness 0.125 in	

Compliance Properties	Metric	English	Comments
3A-Dairy	No	No	
Canada AG	No	No	
FDA	No	No	
NSF	No	No	
USDA	No	No	
USP Class VI	No	No	

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Limited	Limited	
Acids, Weak	Acceptable	Acceptable	
Alcohols	Acceptable	Acceptable	

Alkalies, Strong (pH 11-14)	Acceptable	Acceptable
Alkalies, Weak	Acceptable	Acceptable
Chlorinated Solvents	Acceptable	Acceptable
Conductive / Static Dissipative	No	No
Continuous Sunlight	Acceptable	Acceptable
Hot Water / Steam	Limited	Limited
Hydrocarbons - Aliphatic	Acceptable	Acceptable
Hydrocarbons - Aromatic	Unacceptable	Unacceptable
Inorganic Salt Solutions	Acceptable	Acceptable
Ketones, Esters	Limited	Limited

Descriptive Properties

Machinability	3	1-10, 1=Easier to Machine
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