

## Mitsubishi Chemical Advanced Materials TIVAR® 88 W/BurnGuard, Flame Retardant 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	1.00 g/cc	1.00 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	24.8 MPa	3600 psi	ASTM D638
Tensile Strength at 65°C (150°F)	2.76 MPa	400 psi	ASTM D638
Elongation at Break	120 %	120 %	ASTM D638
Tensile Modulus	0.600 GPa	87.0 ksi	ASTM D638
Flexural Strength	20.0 MPa	2900 psi	ASTM D790
Flexural Modulus	0.648 GPa	94.0 ksi	ASTM D790
Compressive Strength	19.3 MPa	2800 psi	10% Def.; ASTM D695
Compressive Modulus	0.448 GPa	65.0 ksi	ASTM D695
Izod Impact, Notched	NB	NB	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.090	0.090	Dry vs. Steel; QTM55007
Sand Slurry	15	15	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+12 ohm	>= 1.00e+12 ohm	ASTM D257

Thermal Properties	Metric	English	Comments
CTE, linear	162 $\mu\text{m}/\text{m}\cdot\text{°C}$ @Temperature -40.0 - 149 °C	90.0 $\mu\text{in}/\text{in}\cdot\text{°F}$ @Temperature -40.0 - 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	V-0 @Thickness 3.17 mm	V-0 @Thickness 0.125 in	Estimated Rating

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	Yes	Yes	
Continuous Sunlight	Limited	Limited	
Hot Water / Steam	Limited	Limited	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Unacceptable	Unacceptable	

Inorganic Salt Solutions	Acceptable	Acceptable
Ketones, Esters	Limited	Limited
<b>Descriptive Properties</b>		
Machinability	3	1-10, 1=Easier to Machine



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