MITSUBISHI CHEMICAL ADVANCED MATERIALS

Mitsubishi Chemical Advanced Materials TIVAR® Uniblend Recycled UHMW-PE

Categories: Polymer; Thermoplastic; Polyethylene (PE); High Density (HDPE); High Density Polyethylene (HDPE), UHMW PE Ultra High Molecular Weight

Physical Properties	Metric	English	Comments
Specific Gravity	0.940 g/cc	0.940 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	68	68	ASTM D2240
Tensile Strength at 150°C (300°F)	13.8 MPa	2000 psi	
Tensile Strength, Ultimate	37.9 MPa	5500 psi	ASTM D638
Tensile Strength at 65°C (150°F)	13.8 MPa	2000 psi	
Elongation at Break	250 %	250 %	ASTM D638
Tensile Modulus	0.800 GPa	116 ksi	ASTM D638
Flexural Strength	24.8 MPa	3600 psi	ASTM D790
Flexural Modulus	0.800 GPa	116 ksi	ASTM D790
Compressive Strength	22.8 MPa	3300 psi	10% Def., 73°F; ASTM D695
Compressive Modulus	0.689 GPa	100 ksi	ASTM D695
Izod Impact, Notched	NB	NB	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.15	0.15	Dry vs. Steel; QTM55007
Limiting Pressure Velocity	0.0701 MPa-m/sec	2000 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

Thermal Properties	Metric	English	Comments
CTE, linear	288 µm/m-°C @Temperature -40.0 - 149 °C	160 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Melting Point	127 °C	260 °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	1/8 inch (Estimated Rating)

Compliance Properties	Metric	English	Comments
FDA	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	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Unacceptable	Unacceptable	
Ketones, Esters	Limited	Limited	

Descriptive Properties			
Machinability		3	1-10, 1=Easier to Machine

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