

Mitsubishi Chemical Advanced Materials Armor-X™ and Armor-X™ with Proknob Non-Marring, Elastomer Polymeric Blend (ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Polyethylene (PE); High Density (HDPE)

Material Notes: 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

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	50	50	ASTM D2240
Tensile Strength	22.1 MPa	3200 psi	ASTM D638
Tensile Strength at 65°C (150°F)	2.76 MPa	400 psi	ASTM D638
Elongation at Break	100 %	100 %	ASTM D638
Tensile Modulus	0.355 GPa	51.5 ksi	ASTM D638
Flexural Strength	15.2 MPa	2200 psi	ASTM D790
Flexural Modulus	0.303 GPa	44.0 ksi	ASTM D790
Compressive Strength	26.9 MPa	3900 psi	10% Def.; ASTM D695
Compressive Modulus	0.234 GPa	34.0 ksi	ASTM D695
Izod Impact, Notched	26.7 J/cm	50.0 ft-lb/in	DOUBLE NOTCHED; ASTM D4060
Coefficient of Friction, Dynamic	0.20	0.20	Dry vs. Steel; QTM55007

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+15 ohm	>= 1.00e+15 ohm	ASTM D257

Thermal Properties	Metric	English	Comments
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 @Thickness 3.17 mm	HB @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	No	No	
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	

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