

Mitsubishi Chemical Advanced Materials Semitron® ESd 225, Extruded, Static Dissipative Acetal (ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Acetal (Polyoxymethylene, POM); Acetal Copolymer, Unreinforced

Material Notes: Quadrant Engineering Plastic Products is now Mitsubishi Chemical Advanced Materials.

Key Words: POM, Polyoxymethylene; Polyformaldehyde; Polyacetal

Physical Properties	Metric	English	Comments
Specific Gravity	1.33 g/cc	1.33 g/cc	ASTM D792
Water Absorption	2.0 %	2.0 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	8.0 %	8.0 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	50	50	ASTM D785
Hardness, Rockwell R	108	108	ASTM D785
Hardness, Shore D	76	76	ASTM D2240
Tensile Strength	37.2 MPa	5400 psi	ASTM D638
Tensile Strength at 65°C (150°F)	27.6 MPa	4000 psi	ASTM D638
Elongation at Break	15 %	15 %	ASTM D638
Tensile Modulus	1.38 GPa	200 ksi	ASTM D638
Flexural Strength	50.3 MPa	7300 psi	ASTM D790
Flexural Modulus	1.52 GPa	220 ksi	ASTM D790
Compressive Strength	55.2 MPa	8000 psi	10% Def.; ASTM D695
Compressive Modulus	1.21 GPa	175 ksi	ASTM D695
Shear Strength	41.4 MPa	6000 psi	ASTM D732
Izod Impact, Notched	0.801 J/cm	1.50 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.29	0.29	Dry vs. Steel; QTM55007
K (wear) Factor	60.4 x 10 ⁻⁸ mm ³ /N·M	30.0 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr	QTM 55010
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+9 - 1.00e+10 ohm	1.00e+9 - 1.00e+10 ohm	EOS/ESD S11.11
Dielectric Constant	4.31	4.31	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dissipation Factor	0.036	0.036	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

Thermal Properties	Metric	English	Comments
CTE, linear	167 µm/m·°C	93.0 µin/in·°F	ASTM E831
	@Temperature -40.0 - 149 °C	@Temperature -40.0 - 300 °F	
Melting Point	160 °C	320 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	82.2 °C	180 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	107 °C	225 °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)	Unacceptable	Unacceptable	
Acids, Weak	Limited	Limited	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Unacceptable	Unacceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Limited	Limited	
Conductive / Static Dissipative	Yes	Yes	
Continuous Sunlight	Limited	Limited	

Hot Water / Steam	Limited	Limited
Hydrocarbons - Aliphatic	Acceptable	Acceptable
Hydrocarbons - Aromatic	Acceptable	Acceptable
Inorganic Salt Solutions	Acceptable	Acceptable
Ketones, Esters	Acceptable	Acceptable

Descriptive Properties

Machinability	1	1-10, 1=Easier to Machine
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