



EPP PA6, MoS2 filled, cast (ASTM Data)

Categories: Polymer; Thermoplastic; Filled/Reinforced Thermoplastic; Nylon; Nylon 6; Nylon 6, MoS2 Filled

Material Notes: Cast nylon contains finely divided particles of molybdenum disulfide to enhance its load bearing capabilities while maintaining the impact resistance inherent to nylon. It is the most commonly used grade for gears, sheaves, sprockets and custom parts. It is gray-black in color.

Key Words: Polyamide 6; PA6; PA 6

Physical Properties	Metric	English	Comments
Specific Gravity	1.16 g/cc	1.16 g/cc	ASTM D792
Water Absorption	0.60 %	0.60 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	7.0 %	7.0 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	80	80	ASTM D785
Hardness, Rockwell R	110	110	ASTM D785
Hardness, Shore D	85	85	ASTM D2240
Tensile Strength	75.8 MPa	11000 psi	ASTM D638
Elongation at Break	30 %	30 %	ASTM D638
Tensile Modulus	2.76 GPa	400 ksi	ASTM D638
Flexural Yield Strength	110 MPa	16000 psi	ASTM D790
Flexural Modulus	3.45 GPa	500 ksi	ASTM D790
Compressive Strength	96.5 MPa	14000 psi	10% Def.; ASTM D695
Compressive Modulus	2.76 GPa	400 ksi	ASTM D695
Shear Strength	72.4 MPa	10500 psi	ASTM D732
Izod Impact, Notched	0.267 J/cm	0.500 ft-lb/in	ASTM D256 Type A
Coefficient of Friction	0.20	0.20	Dry vs. Steel; QTM55007
K (wear) Factor	181 x 10 ⁻⁸ mm ³ /N-M	90.0 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.105 MPa-m/sec	3000 psi-ft/min	4:1 safety factor; QTM 55007

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+13 ohm	>= 1.00e+13 ohm	EOS/ESD S11.11
Dielectric Constant	3.7 @Frequency 1e+6 Hz	3.7 @Frequency 1e+6 Hz	ASTM D150
Dielectric Strength	15.7 kV/mm	400 kV/in	Short Term; ASTM D149

Thermal Properties	Metric	English	Comments
CTE, linear	90.0 µm/m-°C @Temperature -40.0 - 149 °C	50.0 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Melting Point	216 °C	420 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	93.3 °C	200 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	93.3 °C	200 °F	ASTM D648
Flammability, UL94	HB	HB	1/8 inch (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)	Unacceptable	Unacceptable	
Acids, Weak	Limited	Limited	
Alcohols	Limited	Limited	
Alkalies, Strong (pH 11-14)	Unacceptable	Unacceptable	
Alkalies, Weak	Limited	Limited	
Chlorinated Solvents	Limited	Limited	
Conductive / Static Dissipative	No	No	
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

Color		Black-Grey	
Machinability		1	1-10, 1=Easier to Machine