

Mitsubishi Chemical Advanced Materials Nylatron® MC® 907 PA6 Natural and Black, Unfilled Type 6 nylon (ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Nylon (Polyamide PA); Nylon 6 (PA6); Nylon 6, Cast

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

Physical Properties	Metric	English	Comments
Specific Gravity	1.15 g/cc	1.15 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	85	85	ASTM D785
Hardness, Rockwell R	115	115	ASTM D785
Hardness, Shore D	85	85	ASTM D2240
Tensile Strength	82.7 MPa	12000 psi	ASTM D638
Tensile Strength at 65°C (150°F)	41.4 MPa	6000 psi	ASTM D638
Elongation at Break	30 %	30 %	ASTM D638
Tensile Modulus	2.76 GPa	400 ksi	ASTM D638
Flexural Strength	110 MPa	16000 psi	ASTM D790
Flexural Modulus	3.45 GPa	500 ksi	ASTM D790
Compressive Strength	103 MPa	15000 psi	10% Def.; ASTM D695
Compressive Modulus	2.76 GPa	400 ksi	ASTM D695
Shear Strength	75.8 MPa	11000 psi	ASTM D732
Izod Impact, Notched	0.214 J/cm	0.400 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.20	0.20	Dry vs. Steel; QTM55007
K (wear) Factor	201 x 10 ⁻⁹ mm ³ /N-M	100 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	19.7 kV/mm	500 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
Thermal Conductivity	0.245 W/m-K	1.70 BTU-in/hr-ft ² -°F	ASTM F433
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 @Thickness 3.17 mm	HB @Thickness 0.125 in	Estimated Rating
Compliance Properties	Metric	English	Comments
3A-Dairy	Yes	Yes	Natural Only
Canada AG	No	No	
FDA	Yes	Yes	Natural Only
NSF	No	No	
USDA	Yes	Yes	Natural Only
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	Natural	
Machinability	1	1-10, 1=Easier to Machine