

Mitsubishi Chemical Advanced Materials Nylacel Low K Lower Thermal Conductivity Nylon-based Syntactic Foam, cast (ASTM Data)
Categories: Polymer; Thermoplastic; Nylon (Polyamide PA); Nylon 6 (PA6)

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

Physical Properties	Metric	English	Comments
Specific Gravity	0.679 g/cc	0.679 g/cc	ASTM D792
Mechanical Properties	Metric	English	Comments
Hardness, Shore D	74	74	ASTM D2240
Tensile Strength	43.1 MPa	6250 psi	ASTM D638
Tensile Strength at 65°C (150°F)	41.4 MPa	6000 psi	ASTM D638
Elongation at Break	2.3 %	2.3 %	ASTM D638
Tensile Modulus	2.41 GPa	350 ksi	ASTM D638
Flexural Strength	51.7 MPa	7500 psi	ASTM D790
Flexural Modulus	2.24 GPa	325 ksi	ASTM D790
Compressive Strength	50.3 MPa	7300 psi	10% Def.; ASTM D695
Compressive Modulus	1.52 GPa	220 ksi	ASTM D695
Izod Impact, Notched	0.160 J/cm	0.300 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.18 - 0.19	0.18 - 0.19	Dry vs. Steel; QTM55007
Limiting Pressure Velocity	0.219 MPa-m/sec	6250 psi-ft/min	4:1 safety factor; QTM 55007
Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+12 ohm	>= 1.00e+12 ohm	EOS/ESD S11.11
Thermal Properties	Metric	English	Comments
CTE, linear	77.0 - 87.3 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature -40.0 - 149 °C	42.8 - 48.5 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.0259 W/m-K	0.180 BTU-in/hr-ft ² -F	ASTM F433
Deflection Temperature at 1.8 MPa (264 psi)	177 °C	350 °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)	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	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			
Color		Natural	
Machinability		1	1-10, 1=Easier to Machine