

# Quadrant® Nylon 101

## Quadrant Nylon 101 PA66, Unfilled, extruded (ASTM Product Data Sheet)

Physical Properties	Metric	English	Comments
Specific Gravity	1.15 g/cc	1.15 g/cc	ASTM D792
Water Absorption	0.30 %	0.30 %	Immersion, 24 hr; 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	80	80	ASTM D2240
Tensile Strength	82.7 MPa	12,000 psi	ASTM D638
Elongation at Break	50 %	50 %	ASTM D638
Tensile Modulus	2.93 GPa	425 ksi	ASTM D638
Flexural Strength	103 MPa	15,000 psi	ASTM D790
Flexural Modulus	3.10 GPa	450 ksi	ASTM D790
Compressive Strength	86.2 MPa	12,500 psi	10% Def.; ASTM D695
Compressive Modulus	2.90 GPa	420 ksi	ASTM D695
Shear Strength	68.9 MPa	10,000 psi	ASTM D732
Izod Impact, Notched	0.320 J/cm	0.600 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.25	0.25	Dry vs Steel; QTM 55007
K (wear) Factor	161 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	80.0 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.0946 MPa-m/sec	2,700 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	3.6 @Frequency 1e+6 Hz	3.6 @Frequency 1e+6 Hz	ASTM D150
Dielectric Strength	15.7 kV/mm	400 kV/in	Short Term; ASTM D149
Dissipation Factor	0.020 @Frequency 1e+6 Hz	0.020 @Frequency 1e+6 Hz	ASTM D150
Thermal Properties	Metric	English	Comments
CTE, Linear	99.0 µm/m-°C @Temperature -40.0 - 149 °C	55.0 µin/in-°F @Temperature -40.0 - 149 °C	ASTM E831
Thermal Conductivity	0.245 W/m-K	1.70 BTU-in/hr-ft <sup>2</sup> -°F	ASTM F433
Melting Point	260 °C	500 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	98.9 °C	210 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	93.3 °C	200 °F	ASTM D648
Flammability, UL94	V-2	V-2	1/8 inch (Estimated Rating)
Compliance Properties	Metric	English	Comments
3-A Dairy	Yes	Yes	
Canada AG	No	No	
FDA	Yes	Yes	Natural Only
NSF	Yes	Yes	STD 61, Natural Only
USDA	Yes	Yes	
USP Class VI	No	No	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations should contact Alro Plastics and/or Quadrant EPP directly. This data sheet is for reference only in helping if a material may be suitable for an application. Proper material testing is the only way to know for sure and is the recommended way to go when implementing a new material for an application. Material samples may also be available for testing, please contact Alro Plastics for samples.



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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	Metric	English	Comments
Color		Natural	
Machinability		1	1-10, 1 = Easier to Machine

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