



QUADRANT

Quadrant EPP Torlon® 4203 PAI, Polyamide-imide, extruded (electrical grade)

Material Notes:

Torlon® 4203 extruded PAI offers excellent compressive strength and the highest elongation of the Torlon grades. It also provides electrical insulation and exceptional impact strength. This grade is commonly used for electrical connectors and insulators due to its high dielectric strength.

Torlon is the highest performing melt processable plastic. It has superior resistance to elevated temperatures. It is capable of performing under severe stress conditions at continuous temperatures to 500°F (260°C). Parts machined from Torlon stock shapes provide greater compressive strength and higher impact resistance than most advanced engineering plastics. Its extremely low coefficient of linear thermal expansion and high creep resistance deliver excellent dimensional stability over its entire use range. Torlon is an amorphous material with a T_g (glass transition temperature) of 537°F (280°C).

Quadrant EPP's extruded Torlon stock shapes are post-cured using the latest technology and procedures developed jointly by Amoco Performance Products and Quadrant eliminating the need for additional curing by the end user in most situations. A post-curing cycle is recommended for components fabricated from extruded shapes where optimization of chemical resistance and/or wear performance is required.

Data provided by Quadrant Engineering Plastic Products from tests on stock shapes and parts produced by Quadrant EPP.

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	0.0509 lb/in ³	ASTM D792
Water Absorption	0.4 %	0.4 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	1.7 %	1.7 %	Immersion; ASTM D570(2)
Mechanical Properties			
Hardness, Rockwell E	80	80	ASTM D785
Hardness, Rockwell M	120	120	ASTM D785
Tensile Strength, Ultimate	138 MPa	20000 psi	ASTM D638
Elongation at Break	10 %	10 %	ASTM D638
Tensile Modulus	4.14 GPa	600 ksi	ASTM D638
Flexural Modulus	4.14 GPa	600 ksi	ASTM D790
Flexural Yield Strength	165 MPa	24000 psi	ASTM D790
Compressive Strength	165 MPa	24000 psi	10% Def.; ASTM D695
Compressive Modulus	3.3 GPa	478 ksi	ASTM D695
Shear Strength	110 MPa	16000 psi	ASTM D732
Coefficient of Friction	0.35	0.35	Dry vs. Steel; QTM55007
K (wear) Factor	101 x 10 ⁻⁸ mm ³ /N-M	50 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.438 MPa-m/sec	12500 psi-ft/min	4:1 safety factor; QTM 55007
Izod Impact, Notched	1.07 J/cm	2 ft-lb/in	ASTM D256 Type A
Electrical Properties			
Surface Resistivity per Square	Min 1e+016 ohm	Min 1e+016 ohm	EOS/ESD S11.11
Dielectric Constant	4.2	4.2	1MHz; ASTM D150
Dielectric Strength	22.8 kV/mm	580 V/mil	Short Term; ASTM D149

Dallas, Texas (Corporate Offices)
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NATIONWIDE PLASTICS, INC.

"The Authority On Plastics Manufacturing And Distribution"

Dissipation Factor 0.026 0.026 1MHz; ASTM D150

Thermal Properties

CTE, linear 68°F	30.6 µm/m-°C	17 µin/in-°F	(-40°F to 300°F); ASTM E831
Thermal Conductivity	0.259 W/m-K	1.8 BTU-in/hr-ft ² -°F	ASTM F433
Maximum Service Temperature, Air	260 °C	500 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	278 °C	532 °F	ASTM D648
Glass Temperature	275 °C	527 °F	ASTM D3418
Flammability, UL94*	V-0	V-0	1/8 inch

Qualitative Processing Properties

Compliance - FDA	Not Compliant	
Machinability	5	1-10, 1=Easier to Machine
Service in Alcohols	Acceptable	
Service in Aliphatic Hydrocarbons	Acceptable	
Service in Aromatic Hydrocarbons	Acceptable	
Service in Chlorinated Solvents	Acceptable	
Service in Ethers	Acceptable	
Service in Ketones	Acceptable	
Service in Strong Acids	Limited	
Service in Strong Alkalies	Unacceptable	
Service in Sunlight	Limited	
Service in Weak Acids	Acceptable	
Service in Weak Alkalies	Limited	

All statements, technical information and recommendations contained in this database are presented in good faith, based upon tests believed to be reliable and practical field experience. The reader is cautioned, however, that Quadrant EPP and Automation Creations, Inc. cannot guarantee the accuracy or completeness of this information, and it is the customer's responsibility to determine the suitability of Quadrant EPP's products in any given application.

* This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.



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