



# Product Datasheet

## Drake PAI 4200

*High purity PAI for Semicon service, Extruded*

Drake PAI 4200 is a new grade of PAI which is available in rod, plate and Seamless Tube for machining. Drake PAI 4200 is Torlon 4000 T resin which has been compounded into pellets, making it suitable for extrusion or injection molding. Drake PAI 4200 is a temperature extreme capable, high purity and high-performance thermoplastic for parts requiring the performance of unreinforced PAI such as Torlon 4203, but without the TiO<sub>2</sub> which is considered a potential contaminant in some applications. It also has excellent fatigue resistance. It is dark brown in color.

Drake PAI 4200 is well suited for:

- Fasteners used within the plasma etch chamber
- Wafer handling contacts
- Electrical insulators

Physical Properties	Metric	English	Methods
Specific Gravity	1.41 g/cc	.051 lb/in <sup>3</sup>	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 M		M120	ASTM D785
Hardness, Rockwell		E80	ASTM D785
Hardness, Shore D		90	ASTM D2240
Tensile Strength, Ultimate	138 MPa	20,000 psi	ASTM D638
Elongation at Break	20 %	20 %	ASTM D638
Tensile Modulus	4136 MPa	600,000 psi	ASTM D638
Flexural Modulus	4136 MPa	600,000 psi	ASTM D790
Flexural Yield Strength	165 MPa	24,000 psi	ASTM D790
Compressive Strength	165 MPa	24,000 psi	10% Def.; ASTM D695
Compressive Modulus	3,296 MPa	478,000 psi	ASTM D695
Izod Impact (notched)	105 J/M	2.0	ASTM D256 Type A

### Thermal Properties

Melt Point	275°C	527°F	ASTMD3418
Heat Deflection Temp (264 psi)	278°C	532°F	ASTM D638
Coefficient of Linear Thermal Exp. in/in/°F		1.7x10 <sup>-5</sup>	ASTM E831

\*The mechanical properties of extruded shapes may differ from the values published by resin producers. Published resin data is always generated off injection molded test specimens run under near perfect conditions. Drake's extruded shape values are generated using specimens machined from actual shapes and may reflect surface imperfections from machining, enhanced crystallinity resulting from processing and fiber alignment inherent in all reinforced plastic shapes,

regardless of process. For additional information on the effects of fiber alignment see Drake Fiber Orientation Diagram available on the Resource page of our website.