

# Duratron® T4503

Polyamide-imide

Quadrant Engineering Plastic Products

Message:

Duratron® T4503 compression molded PAI is commonly used for dies and patterns of formed metal parts, or as thermal insulators and isolators. It is similar in composition to Duratron® T4203 PAI, and selected when larger shapes are required.

Duratron® PAI 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 Duratron® PAI 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. Duratron® PAI is an amorphous material with a Tg (glass transition temperature) of 537°F (280°C).

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

General Information			
Features	Acid Resistant		
	Alcohol Resistant		
	Amorphous		
	Good Chemical Resistance		
	Good Compressive Strength		
	Good Creep Resistance		
	Good Dimensional Stability		
	Good Stiffness		
	Good Thermal Stability		
	Good Wear Resistance		
	High Impact Resistance		
	High Strength		
	Hydrocarbon Resistant		
	Solvent Resistant		
Uses	Insulation Shield		
Forms	Customizable Forms		
	Preformed Parts		
	Rod		
	Tubing		
Processing Method	Compression Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.40	g/cm³	ASTM D792
Water Absorption			ASTM D570
24 hr	0.35	%	
Saturation	1.7	%	
Hardness	Nominal Value	Unit	Test Method

Rockwell Hardness		ASTM D785	
E-Scale	80		
M-Scale	119		
Durometer Hardness (Shore D)		ASTM D2240	
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	3450	MPa	ASTM D638
Tensile Strength (Ultimate)	124	MPa	ASTM D638
Tensile Elongation (Break)	5.0	%	ASTM D638
Flexural Modulus	4140	MPa	ASTM D790
Flexural Strength (Yield)	165	MPa	ASTM D790
Compressive Modulus	2410	MPa	ASTM D695
Compressive Strength (10% Strain)	124	MPa	ASTM D695
Coefficient of Friction (vs. Steel - Static)	0.30		Internal Method
Wear Factor	2000	10 <sup>-8</sup> mm <sup>3</sup> /N · m	ASTM D3702
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact	80	J/m	ASTM D256A
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (1.8 MPa, Unannealed)	278	°C	ASTM D648
Maximum Use Temperature - Long Term, Air	260	°C	
Limiting Pressure Velocity <sup>1</sup>	0.263	MPa · m/s	Internal Method
Glass Transition Temperature	275	°C	ASTM D3418
CLTE - Flow <sup>2</sup> (-40 to 149°C)	2.7E-5	cm/cm/°C	ASTM E831
Thermal Conductivity	0.26	W/m/K	ASTM F433
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity <sup>3</sup>	> 1.0E+13	ohms	Internal Method
Dielectric Strength <sup>4</sup>	24	kV/mm	ASTM D149
Dielectric Constant (1 MHz)	4.20		ASTM D150
Dissipation Factor (1 MHz)	0.031		ASTM D150
Flammability	Nominal Value	Unit	Test Method
Flame Rating (3.18 mm, Estimated Rating)	V-0		UL 94
NOTE			
1.	4:1 safety factor		
2.	68°F		
3.	EOS/ESD S11.11		
4.	Method A (Short-Time)		

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