Torlon® 4203L
polyamide-imide

Torlon® 4203L is an unreinforced, lubricated, pigmented grade of polyamide-imide (PAI) resin. It has the best impact resistance and greatest elongation of all the Torlon® grades. Torlon® PAI has the highest strength and stiffness of any thermoplastic up to 275°C (525°F). It has outstanding resistance to wear, creep, and chemicals.

Torlon® 4203L resin offers outstanding electrical properties, which makes it ideal for high performance parts such as connectors, switches and relays. In addition Torlon® 4203L polyamide-imide can be used in applications such as thrust washers, spline liners, valve seats, bushings, bearings, wear rings, cams and other applications requiring strength at high temperature and resistance to wear.

- High Flow: Torlon® 4203L-HF
- Low Flow: Torlon® 4203L-LF

General		
Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Additive	• PTFE Lubricant	
Features	• Chemical Resistant • Creep Resistant • Ductile • Fatigue Resistant • Flame Retardant • Good Electrical Properties	• High Heat Resistance • High Temperature Strength • Low Temperature Toughness • Ultra High Impact Resistance • Wear Resistant
Uses	• Aircraft Applications • Automotive Applications • Bushings • Connectors • Electrical Parts • Electrical/Electronic Applications	• Fasteners • Film • Machine/Mechanical Parts • Oil/Gas Applications • Semiconductor Applications • Thrust Washer
RoHS Compliance	• RoHS Compliant	
Automotive Specifications	• ASTM D4000 PAI000 R03 A56316 GA140 Z1Z2Z3Z4Z5Z6, Dwg YC3P-7E195-AA • STELLANTIS MS-DB-405 CPN3373 Color: Natural	
Forms	• Pellets	
Processing Method	• Injection Molding • Machining	• Profile Extrusion

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.42		ASTM D792
Molding Shrinkage - Flow	0.60 to 0.85	%	ASTM D955
Water Absorption (24 hr)	0.33	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
-- [1]	4480	MPa	ASTM D638
--	4900	MPa	ASTM D1708
Tensile Strength [1]	152	MPa	ASTM D638
Tensile Stress	192	MPa	ASTM D1708
Tensile Elongation			
Break [1]	7.6	%	ASTM D638
Break	15	%	ASTM D1708
Flexural Modulus			ASTM D790
23°C	5030	MPa	
232°C	3590	MPa	
Flexural Strength			ASTM D790
23°C	241	MPa	
232°C	118	MPa	
Compressive Modulus	4000	MPa	ASTM D695
Compressive Strength	221	MPa	ASTM D695
Poisson's Ratio	0.45		ASTM E132

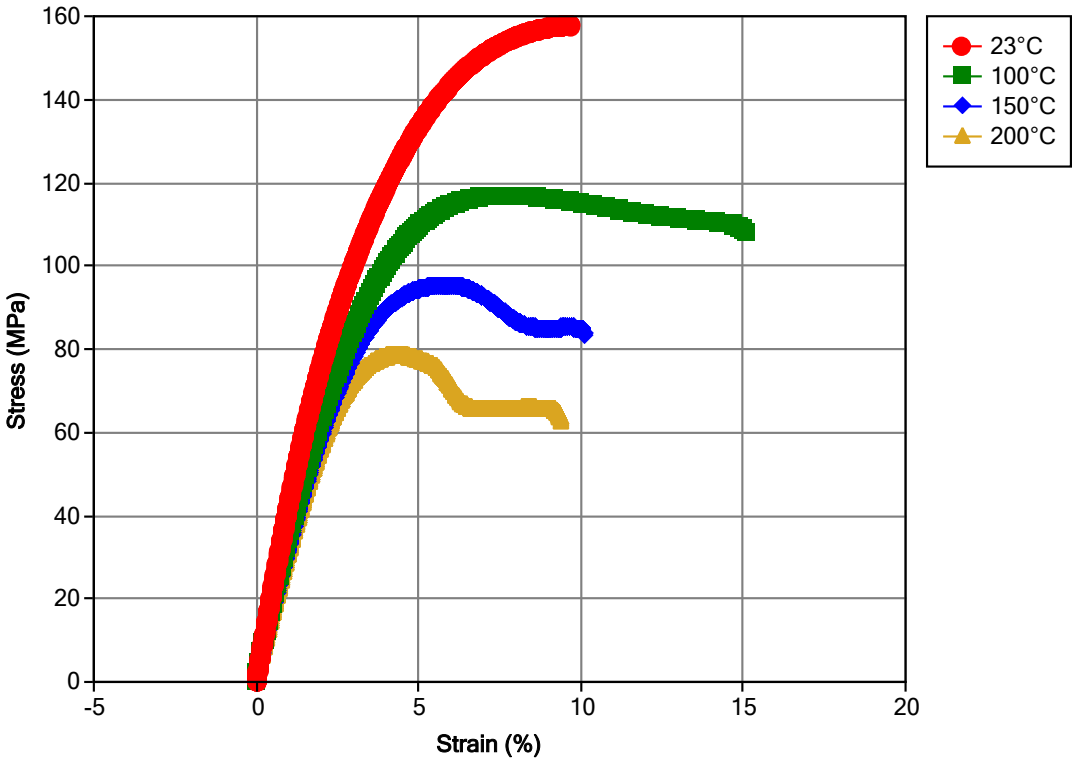
Impact	Typical Value	Unit	Test method
Notched Izod Impact	140	J/m	ASTM D256
Unnotched Izod Impact	1100	J/m	ASTM D4812

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed	278	°C	
Glass Transition Temperature [2]	277	°C	DSC
CLTE - Flow	3.1E-5	cm/cm/°C	ASTM E831
Thermal Conductivity	0.26	W/m/K	ASTM C177

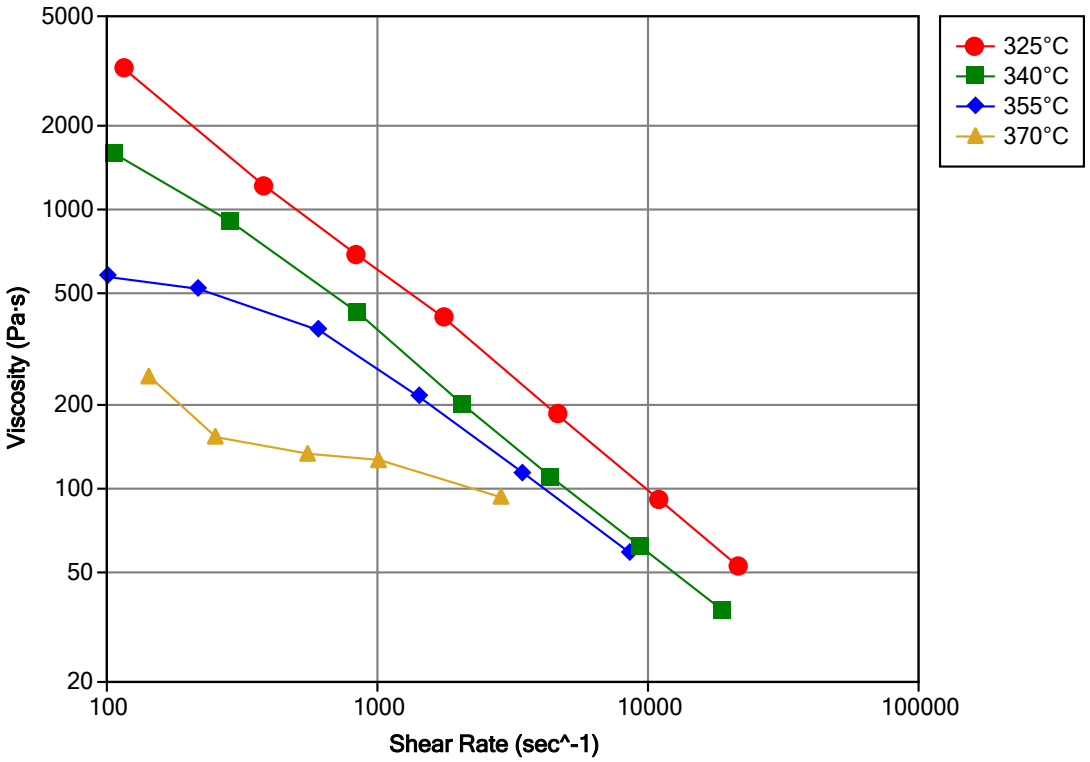
Electrical	Typical Value	Unit	Test method
Surface Resistivity	5.0E+18	ohms	ASTM D257
Volume Resistivity	2.0E+17	ohms·cm	ASTM D257
Dielectric Strength	23	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	4.20		
1 MHz	3.90		
Dissipation Factor			ASTM D150
60 Hz	0.026		
1 MHz	0.031		

Injection	Typical Value	Unit
Drying Temperature	177	°C
Drying Time	3.0	hr
Suggested Max Moisture	0.050	%
Rear Temperature	304	°C
Nozzle Temperature	371	°C
Mold Temperature	199 to 216	°C
Back Pressure	6.89	MPa
Screw Speed	50 to 100	rpm
Screw L/D Ratio	18.0:1.0 to 24.0:1.0	

Isothermal Stress vs. Strain (ISO 11403)



Viscosity vs. Shear Rate (ISO 11403)



Notes

Typical properties: these are not to be construed as specifications.

[1] Type I

[2] Tg, onset, Solvay method, 2nd heat. Method is equivalent to ISO 11357-2.