

Torlon® 4301

Torlon® 4301 (Reinforced with graphite & PTFE)

PLASTIM
ENGINEERING PLASTICS

PAI

TORLON® 4301 is a general purpose bearing grade polyamide-imide (PAI) containing 12% graphite and 3% PTFE powder for reduced friction and low wear rate. It is the toughest and most commonly specified of the Torlon wear grades.

Product Data Sheet

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Properties	Test method	Unit	Value
Mechanical			
Tensile strength	ASTM D638	MPa	138
Elongation at break	ASTM D638	%	5
Modulus of elasticity (tensile)	ASTM D638	MPa	6,200
Modulus of elasticity (flexural)	ASTM D790	MPa	5,520
Notch impact strength	ASTM D256 Type A	KJ / m ²	42
Flexural strength	ASTM D790	MPa	159
Compressive strength	ASTM D695	MPa	152
Compressive modulus	ASTM D695	MPa	6,552
Shore hardness	ASTM D2240	D	-
Rockwell hardness	ASTM D785	M	106
Ball indentation hardness	ISO 2039	MPa	-
Thermal			
Melting temperature	ASTM D3418	°C	275
Glass transition temperature (T _g)	D3418	°C	280
Thermal conductivity	F433	BTU-in/(hr·ft ² ·°F)	3.7
Coef. of linear thermal expansion (-40 to 300°F)	ASTM E-831	µin./in./°F	14
Long term service temperature	See note *	°C	250
Short term service temperature	See note *	°C	-20 to 250
Heat deflection temperature	D648	°F	534
Flammability	UL 94	-	V-0
Flammability (oxygen index)	ISO 4589	%	45
Electrical			
Dielectric constant at 1MHz	ASTM D150	10 ⁶ Hz	6
Dissipation factor at 1MHz	ASTM D150	10 ⁶ Hz	0.04
Volume resistivity	IEC 62631-3-1	Ω * cm	10 ¹²
Surface resistivity	ANSI/ESD STM 11.11	Ω / sq	10 ¹²
Dielectric strength	ASTM D149	V/mil	-
Tracking resistance (CTI)	IEC 60112	V	-
Additional Data			
Density	ISO 1183-1	g / cm ³	1.45
Water absorption (saturation)	ASTM D570	%	1.5
Water absorption after 24 hours	ASTM D570	%	0.4
Food compliance	EEC	-	No
Food compliance	FDA	-	No
Coefficient of Friction (pin-on-disk)	ISO 7148-2	-	0.25 - 0.4
Shapes	Rod (3.2 → 256.70 Ø)	Plate (2.03 → 101.60)	Tube MTO
Colour	Black or Dark Green/Black		

- **Torlon® 4301** offers 10 times more wear resistance than non-reinforced Torlon 4203 and has a CLTE that approaches that of many metals.

The conditioned material values stated are average test results. The data provides information about our products and offers a guide for material selection. This does not provide an assurance of specific properties or the products suitability for a particular application.

It solely remains the customers responsibility to test and assess the suitability and compatibility of Plastim's products for it's intended applications, processes and uses. The customer undertakes all liability in respect of the application, processing or use of the aforementioned information or product.

- * Long term service temperature are based on the thermal ageing of the polymer by oxidation, resulting in a decrease in mechanical capabilities

- * Short term service temperature only applies to very low mechanical stress for a very limited time only.

Properties can vary depending on the raw shape selected and the degree of crystallisation. The actual property values of a finished product may differ from the indicated values stated.