FORLON® 4203 PAI

TORLON 4203 PAI offers the best toughness and impact strength of all TORLON PAI grades. Because of its intrinsic high temperature resistance, high dimensional stability and good machinability, this extruded TORLON PAI grade is very popular for precision parts in high-tech equipment. In addition, its good electrical insulating ability provides numerous possibilities in the field of electrical components.

Physical properties (indicative values*)

PROPERTIES	Test methods ISO/(IEC)	Units	VALUES
Colour	_		yellow-ochre
Density	1183	g/cm ³	1.41
Water absorption:		3/	
- after 24 h immersion in water of 23°C (1)	62	mq	29
	62	%	0.35
- at saturation in air of 23°C / 50% RH	_	%	2.5
- at saturation in water of 23°C	_	%	4.4
Thermal Properties		70	4.4
Melting temperature	_	٩c	NA
Glass transition temperature	_	°C	280_
Thermal conductivity at 23°C			0.86
Coefficient of linear thermal expansion:	_	W/(K·III)	20.80
			30.10%
- average value between 23 and 100°C	_	m/(m ⋅ K)	
- average value between 23 and 150°C	_	m/(m ⋅ K)	30.10-6
- average value above 150°C	_	m/(m · K)	30.10-6
Temperature of deflection under load:		$\left(\frown \right)$	
- method A: 1.8 MPa	75	<u></u>	280
Max. allowable service temperature in air:			
- for short periods (2)	_	26) /270
- continuously: for min. 20,000h (3)	_	°C 🔪	∕∕250
Flammability (4):			\checkmark
- "Oxygen index"	4589	%	45 //
- according to UL 94 (1.5/3 mm thickness)	$\pm $		V-0/V-0<
Mechanical Properties at 23°C			//
	\ *.	$/\sim$	
Tension test (5):	$\langle \langle$,	
- tensile stress at yield (6)	527	MPa	120
- tensile strain at break (6)	527	✓ % // «	10
- tensile modulus of elasticity (7)	527	MPa <	4,500
Compression test (8):			$/\rangle$
- compressive stress at 1% nominal strain (7)	604	MPA	27
- compressive stress at 2% nominal strain (7)	604	MPa	53
Charpy impact strength - Unnotched (9)	179/1eU		no break
Charpy impact strength - Notched	179/1eA	KJ/m ²	10
Ball indentation hardness (10)	2039/1	NXmmr	200
Rockwell hardness (10)	2039-2	7/11	E 80 (M 120
	2003-2	\sim	L 80 (M 120
Electrical Properties at 23°C		<u>.</u>	
Electric strength (11)	(60243)	/ kV/mm	24
Volume resistivity	(60093)	$\Omega \cdot cm$	> 1014
Surface resistivity	(60093)	Ω	> 1013
Relative permittivity $arepsilon_{ m r}$: - at 100 Nz	(60250)	-	4.2
- at 1 MHz	(60250)	_	3.9
Dielectric dissipation factor tan δ : - at 100 Nz	(60250)	_	0.026
- at 1 MHz	(60250)	_	0.031
	<pre></pre>		
	\rightarrow		
	/		

Legend

- (1) According to method 1 of 150 62 and done on discs Ø 50.
- (2) Only for short time exposure (a few yours) (in applications where no or only a very low load is applied to the rhaterial.
 (3) Temperature resistance over a period of min 20,000 hours. After this period of time, there is a decrease in tensile strength of about 50% as compared with the original value. The temperature value given here is thus based on the thermal-oxidative degradation when takes place and cause a reduction in properties. Note, however, that the maximum allowable service temperature depends in many case essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.
 (4) These postpostimates training, derived from raw material
- (4) Inese prospective stimategy fatings, derived from raw material supplier data, are not intended to reflect hazards presented by the materials under actual fire conditions. There is no UL/cellow card available for TORLON 4203 PAI stock shapes.
 (5) Test specimens: Type 1 B.
 (6) Test special: 5 mm/min.
- A Test speed: 1 mm/min.
- (8) Test specimens: cylinders Ø 12 x 30 mm.
- (9) Pendulum used: 4 J.
- (10) 10 mm thick test specimens. (11) 1 mm thick test specimens.
- (11) I min thek test specimen:
 - This table is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.

Availability

Round Rods: Ø 2.38-50.80 mm - Plates: Thicknesses 6.35-25.40 mm

Note: 1 g/cm³ = 1,000 kg/m³; 1 MPa = 1 N/mm²; 1 kV/mm = 1 MV/m

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NA: not applicable

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telephone 0800 321 3085