

NYLATRON® 703 XL

KEY BENEFITS

Key benefits

- · No "Slip-Stick" for precise, efficient control
- Excellent mechanical strength to withstand high loads
- Very abrasion resistant
- · Good thermal resistance
- Good dimensional stability

A New Level of Performance

Nylatron* 703 XL sets a new standard of machined part performance for linear bearing and wear pad applications. Building on the success of Quadrant Engineering Plastic Products Nylatron® NSM, the

industry's premier Applications material for nearly 20 years, Nylatron 703 XL · Wear pads provides lifting Bearing blocks

 Wear guides advantage. The wear · Linear bearings and resistance of NSM with bushings added benefit of zero

> for applications where precise control is required. Why is "Zero Slip-Stick" Better?

equipment with a new

Units equipped with Nylatron 703 XL can accurately display smaller movements made possible by today's sophisticated control devices. Static and dynamic coefficients of friction that approximate each other at virtually every point over the

"slip-stick" makes Nylatron 703 XL an ideal material

product's useful range, make this possible

Broadest Range of Materials

Quadrant developed Nylatron 703 XL to meet the increasing needs of engineers in the construction and production equipment industries.

Materials like Nylatron® NSM and Nylatron® GSM are still available, and are widely used in critical bearing applications. Quadrant offers a broad range of bearing and wear resistant materials that can handle aggressive thermal, wear and chemical environments.

Learn more at www.quadrantepp.com or www.dotmar.com.au

Properties	Test Methods ISO / IEC	Units	703 XL
Density	1183	g/cm³	1.11
Water absorption:			
- after 24/96h immersion in water of 23°C (1)	62 62	mg %	40/76 0.61/1.16
- at saturation in air of 23°C / 50% RH		%	2
- at saturation in water of 23°C		%	6.3
Thermal Properties			
Melting temperature		°C	220
Termal conductivity at 23°C		W/(K.m)	0.30
Coefficient of linear thermal expansion:		22163777	1100000
- average value between 23 and 60°C		m/(m.K)	85 x 10 ⁻⁴
- average value between 23 and 100°C	29	m/(m,K)	100 x 10 ⁻⁴
Temperature of deflection under load:		3.37.4.33.17.47.1	
- method A: 1.8 MPa	75	°C	70
Max. allowable surface temperature in air:			
- for short periods (2)	-	°C	160
- continuously: for 5,000 / 20,000 h (3)	-	°C	105/90
Min. service temperature (4)	-	°C	-20
Flammability (5):			
- "Oxygen Index"	4589	%	< 20
- according to UL 94 (3 / 6 mm thickness)	-	+	HB / HB
Mechanical Properties at 23°C (dry material)			
Tension test (6):			
- tensile stress at yield (7)	527	MPa	62
- tensile strain at break (7)	527	%	10
- tensile modulus of elasticity (8)	527	MPa	2750
Compression test (9):			
- compressive stress at 1 / 2 / 5 % normal strain (8)	604	MPa	20.5/40/67
Creep test in tension (6):	3550		
- stress to produce 1% strain in 1,000 h (s _{v1,m0})	899	MPa	16
Charpy impact strength - unnotched (10)	179/1eU	kJ/m²	≥ 25
Charpy impact strength - notched	179/1eA	kJ/m²	3
Izod impact strength - notched	180/2A	kJ/m²	3
Ball indentation hardness (11)	2039-1	N/mm ^a	120
Rockwell hardness (11)	2039-2	-	R 109 (M 59)
Electrical Properties at 23°C (dry material)	-		
Volume resistivity	(60093)	Ohm.cm	> 1013
Surface resistivity	(60093)	Ohm	> 1012

Physical properties (indicates values)

DATA SHEET

- According to method 1 of ISO 62 and done on discs Ø 50 x 3 mm.
- Only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material
- Temperature resistance over a period of 5,000/20,000 hours. After these periods of time, there is a decrease in tensile strength of about 50% as compared with the original

The temperature values given here are thus based on the thermal-oxidative degradation which takes place and causes a reduction in properties. Note, however, that, as for all thermoplastics, the maximum allowable service temperature depends in many cases essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.

- Impact strength decreasing with decreasing temperature. the minimum allowable service temperature is practically mainly determined by the extent to which the material is subjected to impact. The value here is based on unfavourable impact conditions and may consequently not be considered as being the absolute practical limit.
- These estimated ratings are not intended to reflect hazards presented by the material under actual fire conditions. There are no UL-yellow cards available for NYLATRON 703 XL stock shapes.
- Test specimens: Type 1 B
- Test speed: 20 mm/mir
- Test speed: 1 mm/min
- Test specimens: cylinders (Ø 12 x 30 mm) Pendulum used: 4 J
- 10 mm thick test specimens

This table is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.

Plates: Thicknesses 10, 16, 20, 30, 40, 60 and 80 mm NYLATRON[®] is a registered trade mark of Quadrant.

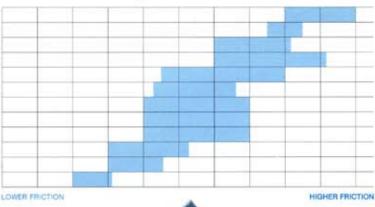


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Dynamic coefficient of friction (Lower is better - Plastic Pin on rotating steel Disk Method)

ERTALON 6 PLA / NYLATRON MC 901 NYLATRON GSM blue Competitive Product A ERTACETAL C Competitive Product B Competitive Product C Competitive Product D **ERTALON LFX** NYLATRON NSM **ERTALYTE** ERTALYTE TX NYLATRON 703 XL



DATA SHEET - NYLATRON® 703 XL

- (1) Data represent Quadrant's estimated maximum long-term service temperature based on practical field experience.
- (2) Specimens 1/8" thick or 2" dia. or
- (3) Estimated rating based on available data. The UL 94 Test is a laboratory test and does not relate to actual fire hazard.

Property data shown are typical average values and will vary on specific production lots and by size and configuration of product. Where no value is listed, sufficient details are not available to present a useable figure. All statements, technical information and recommendations contained in this publication are presented in good faith, based upon tests believed to be reliable and practical field experience. The reader is cautioned, however, that Quadrant Engineering Plastic Products cannot guarantee the accuracy or completeness of this information, and it is the customer's responsibility to determine the suitability of Quadrant products in any given application.

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Property	Test Method	Values
Specific Gravity @ 73°F (23°C)	ASTM D792	1.11
Ultimate Tensile Strength, psi (MPa)	ASTM D638	9,600 (66)
Tensile Modulus, psi (GPa)	ASTM D638	360,000 (2.48)
Elongation, at break, %	ASTM D638	19
Flexural Strength, psi (MPa)	ASTM D790	13,000 (90
Flexural Modulus of Elasticity, psi (GPa)	ASTM D790	364,000 (2.51
Compressive Strength, psi (MPa) @ 10% deformation	ASTM D790	10,800 (74
Compressive Modulus, psi (GPa)	ASTM D790	357,000 (2.46
Hardness, Rockwell	ASTM D785	R110
Surface Resistivity, ohms/sq.	EOS/ESD S11.11	>101
Static Decay, Mil-B-81705C, seconds, max.	FTMS-4046.1	>30 second
folume Resistivity, ohm-cm	ASTM D257	>10
Deflection Temp., °F at 264 psi (°C @ 1.82 MPa)	ASTM D648	243 (117
Coefficient of Linear Thermal Expansion		4.9 x 10
in./in./°F), -40°F to 300°F (m/m°C; -40 to 150°C)		(88 x 10 ⁻⁴
Continuous Use Temperature ⁽¹⁾ , °F (°C)	ASTM E831	
UL-94 @ 1/16 in (1.5 mm) estimated rating based on available data ⁽³⁾	UL-94	HE
Water Absorption [™] , %, 24 hrs. @ 73°F (23°C)	ASTM D570	0.4
Coefficient of Friction - Static (50lb. load, 90° rotation)	P55007	0.1
Coefficient of Friction - Dynamic (unlub. @ 20 ft./min x 250 psi)	P55007	0.1
Limiting PV (Test Value unlub. @ ft./min. ÷ 4, lb.ft²min.)	P55007	17,00
K-Factor, 1/2" ID Journal at 5,000PV (50 psi x 100 fpm)	P55100	2

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