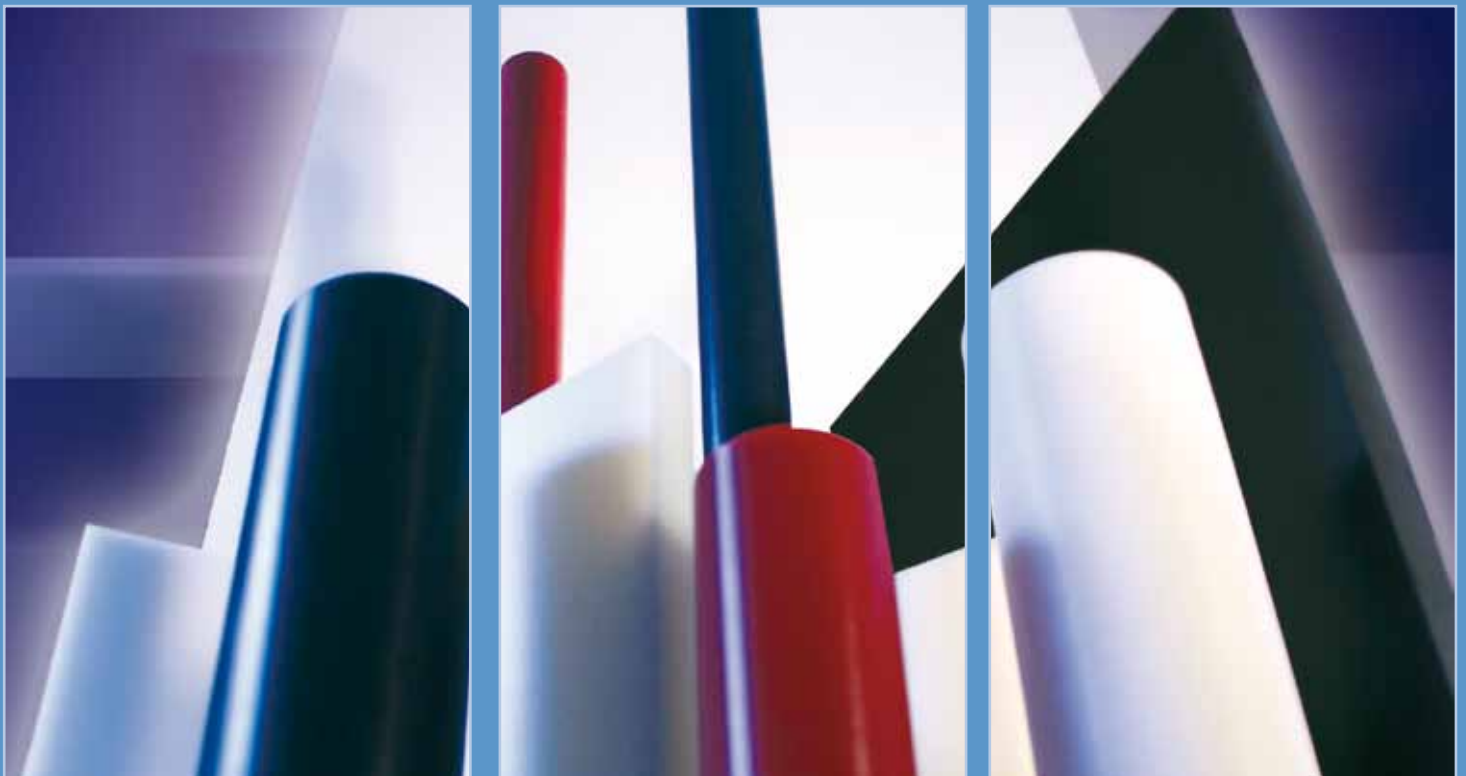




ENGINEERING PLASTIC SOLUTIONS

MATERIALS BROCHURE



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Nylacast Continue to pioneer and offer a large range of grades of materials

Please contact our materials sales team on 0116 276 8558 or visit www.nylacast.com for further details





Nylacast Materials

Nylacast is one of the leading manufacturers of cast nylons and has specialised in developing this unique polymer for many decades. For this reason we offer the widest range of profiles, grades and sizes available, concentrating on our ability to custom and formulate a grade for a particular application. Our manufacturing facilities are based in the United Kingdom and South Africa

Although our origin lies in cast nylons we are also able to supply a much wider range of extruded engineering polymers, with new high performance products being added to our product portfolio. Our cast nylon manufacturing facilities are being complemented with extrusion capacity and it is our intention to have at least 2,400 metric tons per annum of mixed product capacity from our manufacturing bases.

To support this capacity, Nylacast concentrate on the various issues relating to raw material supply, from costs, to quality, to custom formulation and logistics. Our desire is to be quality producer with a universal set of standards across our manufacturing facilities. Many of the 'non-bulk' constituent additives, which make Nylacast products so unique, are manufactured, synthesized and masterbatched 'in-house'.

Due to Nylacast significant involvement in added value machined components derived from our own range of engineering polymers, it is imperative that our recycling strategy is robust. We at present recycle over 200 metric tons per annum into both extrusion and moulding grade pellets that are reprocessed or sold specifically as recycled product.

The purpose built casting facility, which complements the extensive production ability at Nylacast, uses state of the art casting equipment and materials technology to offer a large range of semi-finished or cast products in a plate, rod or tube profile. Derivatives of our standard profiles are semi finished (cut, planed, sawn etc) according to customer requirements.

Nylacast Materials:

- Nylacast only use premium raw materials from world renowned suppliers
- In-house production and total control of active chemicals and additives
- Semi automated state-of-the-art cast and extrusion polymer processing equipment
- In-house test facilities for full material characterisation
- State-of-the-art automated precision cutting and planning technology
- MRP controlled materials stock and distribution centre
- Polymer processing facilities in 2 continents

Why choose plastics over traditional metals?

This choice is often based on improved performance and cost reduction, but further advantages include:

- Increased component life
- Zero corrosion
- Weight reduction
- Improved wear-performance/friction coefficient
- Noise dampening
- Electrical and thermal insulation
- Internal lubrication
- Non-stick characteristics
- Abrasion resistance
- Dimensional stability
- Chemical resistance
- Ease of machining
- Aesthetics
- Self Lubricating
- Self Memory

The above characteristics make engineering plastics the logical and cost-effective choice for a range of applications including: heavy-wear components, food processing components and semi conductor processing equipment.

Nylacast Cast Nylon 6

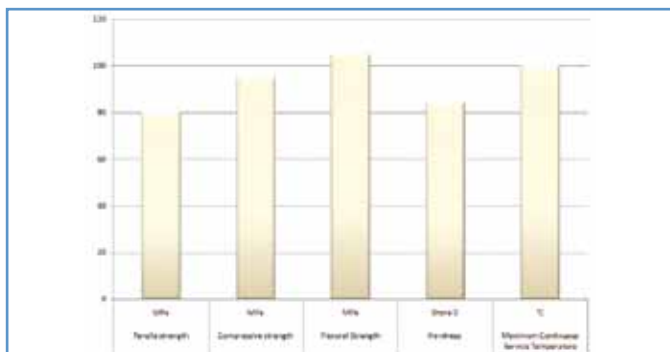
Cast Nylons are a range of polyamides produced by a casting process involving the anionic polymerisation of caprolactam. This process allows the production of semi-finished plate, rod, tube and custom castings that are largely free of internal stresses. Natural cast nylon (available also in black) is the basic cast nylon 6 grade and the one from which all the other grades of cast nylon stem. Generally accepted as the primary engineering polymer, natural cast nylon is suitable for virtually any plain bearing application, not to mention a huge range of other applications for which this versatile grade finds a use. By varying the conditions of polymerisation the mechanical properties of cast nylon may be altered to suit specific applications and the performance of the basic polymer can be enhanced with the addition of various additives, fillers, lubricants and colorants (see further grades).

Compared with injection moulding and extrusion grades of polyamide, cast nylons stand out with their improved mechanical, thermal and chemical resistance properties. Specifically the material has a higher tensile, compressive

and impact strength as well as an improved resistance to creep and heat ageing. The reasons for these improved characteristics are high crystallinity and a remarkably higher molecular weight. Due to low water absorption, mechanical properties and dimensions are more stable making it suited for components that have to meet closer tolerances. Abrasion resistance and overall wear performance are probably the materials most important characteristics for use in bearing applications and in applications where food contact is involved, cast nylons may be offered as a material conforming to FDA approvals.

Natural cast nylon has the ability to operate effectively without the need for lubricants and has an increased resistance to wear of over 5 times that for plain bearings manufactured from non-ferrous metals. As is the case with virtually all nylons it is easy to machine, pleasant to work with and relatively light weight - one eighth that of brass - making the handling and fitting of large components manufactured in cast nylon a relatively easy matter.

Benefits of Cast Nylon 6



- Good mechanical, thermal and chemical resistance properties.
- Universally acknowledged as the primary engineering polymer.
- Good PV and load bearing capabilities.
- Improved characteristics over extruded polyamides.
- Good wear and abrasion resistance.
- Good dimensional stability, largely free from internal stresses.
- FDA Compliance
- Available in a wide range of sizes and colours.

Industry Users



- Petrochemical
- Aerospace
- Railways
- Ship building
- Food and food packaging
- Bottling and canning
- Pharmaceuticals
- Steel mills
- Quarrying/mining
- Cranes
- Shoe manufacturing
- Conveyors

Typical Application



- Rollers
- Switch collar
- Washers
- Bearings
- Load support
- Bushes
- Centralizers
- Cable drums
- Guide clutch
- Seals
- Blockers
- Wear pads
- Chain Guide
- Clamps
- Bespoke Components

Nylacast PA6 is available as standard plate, rod and over thousands of tube OD/ID configurations in four different lengths.

In addition cut piece derivatives, strips, billets, discs and rings up to 2.5 metres diameter as well as custom castings to specific designs are available.

Nylacast PA6 C

PROPERTY	TEST METHOD	NOTES	METRIC	UNITS	IMPERIAL	UNITS
GENERAL						
Colour				Natural/ Black/ Other		Natural/ Black/ Other
Density	ISO1183:1987	Test Method A	g/cm ³	1.145	lb/inch ³	0.041
Moisture Absorption (Equilibrium)	ISO 62:1999	50% RH, 23C	%	-	%	-
Water Absorption (24 Hours)	ISO 62:1999(modified)	Immersion, 23C	%	0.30	%	0.30
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	7.00	%	7.00
MECHANICAL						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	80	psi	11603
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	4000	psi	580152
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	%	>20	%	>20
Compressive strength	ISO 604:2002	Sample Type B, 5mm min ⁻¹	MPa	95	psi	13779
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min ⁻¹	MPa	2700	psi	391603
Flexural Strength*	ISO 178:2001	1.5mm min ⁻¹	MPa	105	psi	15229
Flexural Modulus	ISO 178:2001	1.5mm min ⁻¹	MPa	3300	psi	478626
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	kJ/m ²	5.60	ft.lb/in ²	2.66
Charpy Impact Strength	ISO 179-2:1999	Notched	kJ/m ²	-	ft.lb/in ²	-
Hardness (Shore D)	ISO 868: 2003			84		84
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa		0.39		0.39
Limiting PV			Mpa/m. min	-	psi.ft/min	-
Wear Rate		31.4m/min, 1.75MPa	mg/km	0.44		-
K-Factor		31.4m/min, 1.75MPa	mm ³ /Nm	5.0 x 10 ⁻⁶	in ³ min/ ft.lb.hr	2.4 x 10 ⁻⁹
THERMAL						
Melting Temperature	-		°C	220	°F	428
Glass Transition Temperature (Tg)	ISO 11359-2:1999		°C	-	°F	-
Heat Deflection Temperature HDT/A	ISO 75	1.80MPa	°C	-	°F	-
Heat Deflection Temperature HDT/B	ISO 75	0.45MPa	°C	-	°F	-
Maximum Intermittent Service Temperature	-		°C	170	°F	338
Maximum Continuous Service Temperature	-	5000hrs	°C	100	°F	212
Minimum Intermittent Service Temperature	-		°C	-100	°F	-148
Minimum Continuous Service Temperature	-		°C	-40	°F	-40
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	23°C - 55°C	°C ⁻¹	8 x 10 ⁻⁵	°F ⁻¹	4.44 x 10 ⁻⁵
Thermal Conductivity	ISO 8301:1991	Mean T = 20°C	W/m°C	0.26	BTU in/ ft.hr°F	0.15
Flammability	IEC 60695-11-10:2003-08		-	HB	-	HB
ELECTRICAL						
Dielectric Constant	IEC 60250:1969-01	1 MHz		3.7		3.7
Dielectric Constant (Low Frequency)		100Hz		4		4
Dissipation Factor	IEC 60250:1969-01	100Hz	Hz	-	Hz	-
Dielectric Strength	IEC 60243-1:1998-01		kV/mm	25	kV/in	635
Volume Resistivity	IEC 60093:1980-01		ohm.m	1x10 ¹³	ohm.m	3.93x10 ¹⁴
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 ¹²	ohm	1 x 10 ¹²
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

PRODUCT AVAILABILITY

Rod	10mm-500mm DIA
Tube	50mm-1000mm OD
Plate	8mm-100mm THICKNESS
Custom Castings	Bespoke
Cut to size	Available upon request

NOTES

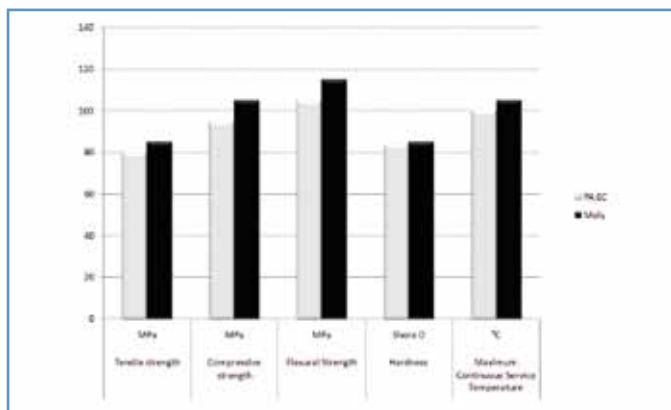
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Nylacast Moly

Nylacast Moly is a cast nylon 6 material in which improved crystallisation occurs by the addition of occurs by the addition of Molybdenum Disulphide. On account of this the superficial hardness increases (providing excellent machine ability) and simultaneously the general mechanical and anti-friction properties are improved. Due to the fact that the crystal structure breaks down immediately before the melting temperature is reached, the thermal properties of the material are improved over the basic grade.

MoS2 provides a degree of self lubrication leading to an improvement in the wear properties of the material. These improved properties, combined with lower water absorption extend the range of applications that Moly has over Natural cast nylon. Dynamic bearing applications at elevated operating temperatures of up to 105 °C are particularly suited to this material.

Benefits of Nylacast Moly



- Increased superficial hardness provides excellent machine ability
- Improvement in wear properties as a result of dry lubricant
- Improved anti-friction properties
- Improved mechanical properties
- Elevated operating temperatures
- Lower water absorption
- Improved dimensional stability
- Excellent chemical resistance properties
- Good PV and load bearing capabilities
- Extended range of applications

Industry Users



- Aerospace
- Railways
- Ship building
- Food and food packaging s
- Steel mills
- Quarrying and mining
- Cranes
- Conveyor
- Offshore
- Agriculture
- Waste Management
- Construction

Typical Applications



- Sheaves
- Rollers
- Spacers
- Slide pads
- Chain sheaves
- Wear strips
- Spacer
- Wear pads
- Bearings
- Bush
- Chain Wheel
- Hose Clamp
- Wear plates
- Bespoke Components

Nylacast Moly is available as standard plate, rod and over thousands of tubes OD/ID configurations in four different lengths.

In addition cut piece derivatives, strips, billets, discs and rings up to 2.5 metres diameter as well as custom castings to specific designs are available

Nylacast Moly

PROPERTY	TEST METHOD	NOTES	METRIC	UNITS	IMPERIAL	UNITS
GENERAL						
Colour				Black		Black
Density	ISO1183:1987	Test Method A	g/cm ³	1.150	lb/inch ³	0.042
Moisture Absorption (Equilibrium)	ISO 62:1999	50% RH, 23C	%	-	%	-
Water Absorption (24 Hours)	ISO 62:1999(modified)	Immersion, 23C	%	0.20	%	0.20
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	-	%	-
MECHANICAL						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	85	psi	12328
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	4100	psi	594656
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	%	>20	%	>20
Compressive strength	ISO 604:2002	Sample Type B, 5mm min ⁻¹	MPa	105	psi	15229
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min ⁻¹	MPa	3000	psi	435114
Flexural Strength*	ISO 178:2001	1.5mm min ⁻¹	MPa	115	psi	16679
Flexural Modulus	ISO 178:2001	1.5mm min ⁻¹	MPa	3700	psi	536641
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	kJ/m ²	4.50	ft.lb/in ²	2.14
Charpy Impact Strength	ISO 179-2:1999	Notched	kJ/m ²	-	ft.lb/in ²	-
Hardness (Shore D)	ISO 868: 2003			85		85
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa		0.25		0.25
Limiting PV			Mpa/m. min	-	psi.ft/ min	-
Wear Rate		31.4m/min, 1.75MPa	mg/km	-		-
K-Factor		31.4m/min, 1.75MPa	mm ³ / Nm	-	in ³ min/ ft.lb.hr	-
THERMAL						
Melting Temperature	-		°C	220	°F	428
Glass Transition Temperature (Tg)	ISO 11359-2:1999		°C	-	°F	-
Heat Deflection Temperature HDT/A	ISO 75	1.80MPa	°C	210	°F	410
Heat Deflection Temperature HDT/B	ISO 75	0.45MPa	°C	220	°F	428
Maximum Intermittent Service Temperature	-		°C	170	°F	338
Maximum Continuous Service Temperature	-	5000hrs	°C	105	°F	221
Minimum Intermittent Service Temperature	-		°C	-100	°F	-148
Minimum Continuous Service Temperature	-		°C	-40	°F	-40
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	23°C - 55°C Mean T = 20°C	°C ⁻¹	8 x 10 ⁻⁵	°F ⁻¹	4.44 x 10 ⁻⁵
Thermal Conductivity	ISO 8301:1991		W/m°C	-	BTU in/ ft.hr°F	
Flammability	IEC 60695-11- 10:2003-08		-	HB	-	HB
ELECTRICAL						
Dielectric Constant	IEC 60250:1969-01	1 MHz		3.7		3.7
Dielectric Constant (Low Frequency)		100Hz		4		4
Dissipation Factor	IEC 60250:1969-01	100Hz	Hz	-	Hz	-
Dielectric Strength	IEC 60243-1:1998-01		kV/mm	25	kV/in	635
Volume Resistivity	IEC 60093:1980-01		ohm.m	1 x 10 ¹³	ohm.m	3.93x10 ¹⁴
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 ¹²	ohm	1 x 10 ¹²
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

PRODUCT AVAILABILITY

Rod	10mm-500mm DIA
Tube	50mm-1000mm OD
Plate	8mm-100mm THICKNESS
Custom Castings	Bespoke
Cut to size	Available upon request

NOTES

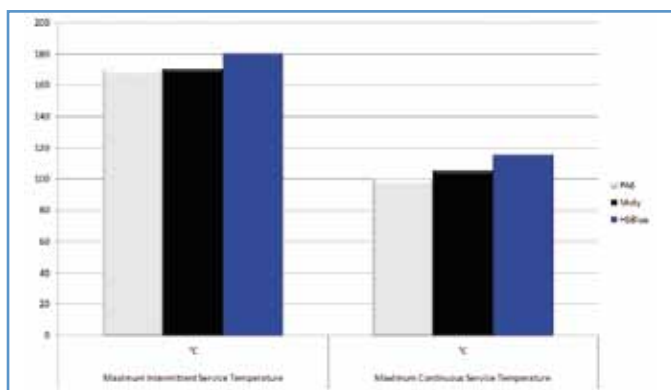
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Nylacast HS Blue

HS Blue is heat stabilized cast nylon 6, easily distinguished by its distinctive blue colour. Additives in the form of high temperature resistant colourants, heat stabilizers and UV stabilizers allow HS Blue to better retain its mechanical properties in applications operating at higher temperatures. HS Blue conforms to the specifications required by the

Japanese market for cast nylons, a high percentage of which is serviced by this product alone. This accreditation is held by very few manufacturers of cast nylon due to the difficulties involved during its manufacture.

Benefits of Nylacast HS Blue



- Better performance at higher operating temperatures
- Heat stabilized colourants
- UV stabilized
- Improved mechanical properties
- Good dimensional stability as with Natural cast nylon
- Excellent chemical resistance properties
- Good PV and load bearing capabilities
- Conforms to Japanese standards

Industry Users



- Transport
- Ship building
- Food and food packaging
- Pharmaceuticals
- Steel mills
- Quarrying and mining
- Cranes
- Conveyors
- Offshore
- Power Plants

Typical Applications



- Wear rings
- Spacers
- Dolly blocks
- Guides
- Wear pads
- Shims
- Sheaves
- Rollers
- Pump blocks
- Pusher blocks
- Bush Stoppers
- Thruster Nozzles
- Bespoke Components

Nylacast H.S. Blue is available as standard plate, rod and over thousands of tubes OD/ID configurations in four different lengths.

In addition cut piece derivatives, strips, billets, discs and rings up to 2.5 metres diameter as well as custom castings to specific designs are available.

Nylacast H.S. Blue PA 6 C + UV & heat stabilisers

PROPERTY	TEST METHOD	NOTES	METRIC	UNITS	IMPERIAL	UNITS
GENERAL						
Colour				Blue		Blue
Density	ISO1183:1987	Test Method A	g/cm ³	1.140	lb/inch ³	0.041
Moisture Absorption (Equilibrium)	ISO 62:1999	50% RH, 23C	%	-	%	-
Water Absorption (24 Hours)	ISO 62:1999(modified)	Immersion, 23C	%	-	%	-
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	-	%	-
MECHANICAL						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	80	psi	11603
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	4000	psi	580152
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	%	>20	%	>20
Compressive strength	ISO 604:2002	Sample Type B, 5mm min ⁻¹	MPa	95	psi	13779
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min ⁻¹	MPa	2700	psi	391603
Flexural Strength*	ISO 178:2001	1.5mm min ⁻¹	MPa	105	psi	15229
Flexural Modulus	ISO 178:2001	1.5mm min ⁻¹	MPa	3300	psi	478626
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	kJ/m ²	5.40	ft.lb/in ²	2.57
Charpy Impact Strength	ISO 179-2:1999	Notched	kJ/m ²	-	ft.lb/in ²	-
Hardness (Shore D)	ISO 868: 2003		-	84	-	84
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa	-	0.15	-	0.15
Limiting PV			Mpa/m. min	-	psi.ft/ min	-
Wear Rate		31.4m/min, 1.75MPa	mg/km	-	-	-
K-Factor		31.4m/min, 1.75MPa	mm ³ /Nm	-	in ³ min/ ft.lb.hr	-
THERMAL						
Melting Temperature	-		°C	220	°F	428
Glass Transition Temperature (Tg)	ISO 11359-2:1999		°C	-	°F	-
Heat Deflection Temperature HDT/A	ISO 75	1.80MPa	°C	-	°F	-
Heat Deflection Temperature HDT/B	ISO 75	0.45MPa	°C	-	°F	-
Maximum Intermittent Service Temperature	-		°C	180	°F	356
Maximum Continuous Service Temperature	-	5000hrs	°C	115	°F	239
Minimum Intermittent Service Temperature	-		°C	-100	°F	-148
Minimum Continuous Service Temperature	-		°C	-40	°F	-40
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	23°C - 55°C	°C ⁻¹	8 x 10 ⁻⁵	°F ⁻¹	4.44 x 10 ⁻⁵
Thermal Conductivity	ISO 8301:1991	Mean T = 20°C	W/m°C	-	BTU in/ ft.hr°F	-
Flammability	IEC 60695-11-10:2003-08		-	HB	-	HB
ELECTRICAL						
Dielectric Constant	IEC 60250:1969-01	1 MHz		3.7		3.7
Dielectric Constant (Low Frequency)		100Hz		4		4
Dissipation Factor	IEC 60250:1969-01	100Hz	Hz	-	Hz	-
Dielectric Strength	IEC 60243-1:1998-01		kV/mm	25	kV/in	635
Volume Resistivity	IEC 60093:1980-01		ohm.m	1 x 10 ¹³	ohm.m	3.93x10 ¹⁴
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 ¹²	ohm	1 x 10 ¹²
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

PRODUCT AVAILABILITY

Rod	10mm-500mm DIA
Tube	50mm-1000mm OD
Plate	8mm-100mm THICKNESS
Custom Castings	Bespoke
Cut to size	Available upon request

NOTES

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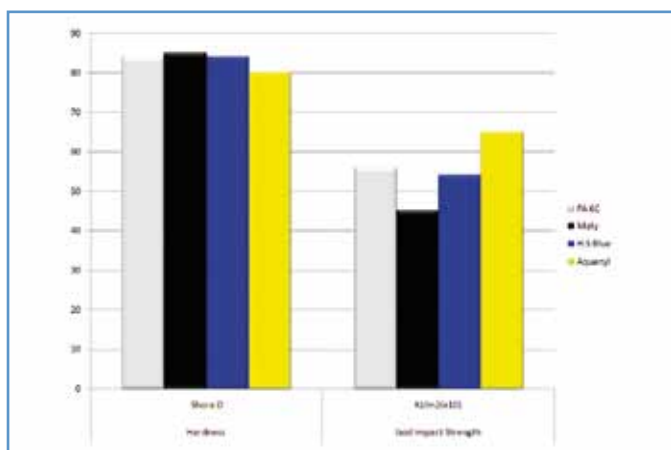
Nylacast Aquanyl 612

Aquanyl 612 is a copolymer of nylon 6 and nylon 12 produced via the anionic polymerization process using the monomer's of caprolactam and laurilactam.

Laurilactam has a similar effect to a plasticizer, but being a copolymer does not suffer the "leeching out" problems of many plasticisers'. The aim is to impart a greater degree of resilience to the material, for which purpose the co-polymerisation method is very successful.

Aquanyl 612 is employed where additional resilience is a specific requirement for the application, for instance in the ball valve industry where the application of valve seat seals benefits greatly from this material. In addition due to its copolymer make up with nylon 12 the product has a lower moisture uptake than cast nylon providing the obvious benefit of improved dimensional stability.

Benefits of Nylacast Aquanyl 612



- Greater degree of material resilience
- Plasticised benefits without the associated problems
- Reduced water absorption
- Improved dimensional stability
- Good mechanical, thermal and chemical resistance properties
- Improved impact resistance
- Good PV and load bearing capabilities

Industry Users



- Petrochemical
- Offshore
- Airways
- Ship building
- Food and food packaging
- Bottling and canning
- Pharmaceuticals
- Steel Mills
- Quarrying/mining
- Cranes
- Shoe manufacturing
- Conveyors

Typical Application



- Seal rings
- Pipe clamps
- Thrust rollers
- Nozzles
- Bushes
- Sheaves/Pulleys
- Winches
- Diffts
- Bespoke Components

Nylacast Aquanyl 612 is available as standard plate, rod and over thousands of tube OD/ID configurations in four different lengths.

In addition cut piece derivatives, strips, billets, discs and rings up to 2.5 metres diameter as well as custom castings to specific designs are available.

Nylacast Aquanyl PA 612 C Copolymer

PROPERTY	TEST METHOD	NOTES	METRIC	UNITS	IMPERIAL	UNITS
GENERAL						
Colour				Natural/ Yellow		Natural/ Yellow
Density	ISO1183:1987	Test Method A	g/cm ³	1.140	lb/inch ³	0.041
Moisture Absorption (Equilibrium)	ISO 62:1999	50% RH, 23C	%	-	%	-
Water Absorption (24 Hours)	ISO 62:1999(modified)	Immersion, 23C	%	0.20	%	0.20
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	5.00	%	5.00
MECHANICAL						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	75	psi	10878
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	3700	psi	536641
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	%	>30	%	>30
Compressive strength	ISO 604:2002	Sample Type B, 5mm min ⁻¹	MPa	90	psi	13053
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min ⁻¹	MPa	2000	psi	290076
Flexural Strength*	ISO 178:2001	1.5mm min ⁻¹	MPa	95	psi	13779
Flexural Modulus	ISO 178:2001	1.5mm min ⁻¹	MPa	2700	psi	391603
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	kJ/m ²	6.50	ft.lb/in ²	3.09
Charpy Impact Strength	ISO 179-2:1999	Notched	kJ/m ²	-	ft.lb/in ²	-
Hardness (Shore D)	ISO 868: 2003			80		80
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa		-		-
Limiting PV			Mpa/m.min	-	psi.ft/ min	-
Wear Rate		31.4m/min, 1.75MPa	mg/km	-		-
K-Factor		31.4m/min, 1.75MPa	mm ² /Nm	-	in ³ min/ ft.lb.hr	-
THERMAL						
Melting Temperature	-		°C	215	°F	419
Glass Transition Temperature (Tg)	ISO 11359-2:1999		°C	-	°F	-
Heat Deflection Temperature HDT/A	ISO 75	1.80MPa	°C	-	°F	-
Heat Deflection Temperature HDT/B	ISO 75	0.45MPa	°C	-	°F	-
Maximum Intermittent Service Temperature	-		°C	160	°F	320
Maximum Continuous Service Temperature	-	5000hrs	°C	100	°F	212
Minimum Intermittent Service Temperature	-		°C	-100	°F	-148
Minimum Continuous Service Temperature	-		°C	-40	°F	-40
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	23°C - 55°C Mean T = 20°C	°C ⁻¹	8 x 10 ⁻⁵	°F ⁻¹	4.72 x 10 ⁻⁵
Thermal Conductivity	ISO 8301:1991		W/m°C	-	BTU in/ ft.hr°F	
Flammability	IEC 60695-11-10:2003-08		-	HB	-	HB
ELECTRICAL						
Dielectric Constant	IEC 60250:1969-01	1 MHz		3.7		3.7
Dielectric Constant (Low Frequency)		100Hz		4		4
Dissipation Factor	IEC 60250:1969-01	100Hz	Hz	-	Hz	-
Dielectric Strength	IEC 60243-1:1998-01		kV/mm	25	kV/in	635
Volume Resistivity	IEC 60093:1980-01		ohm.m	1x10 ¹³	ohm.m	3.93x10 ¹⁴
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 ¹²	ohm	1 x 10 ¹²
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

PRODUCT AVAILABILITY

Rod	10mm-500mm DIA
Tube	50mm-1000mm OD
Plate	8mm-100mm THICKNESS
Custom Castings	Bespoke
Cut to size	Available upon request

NOTES

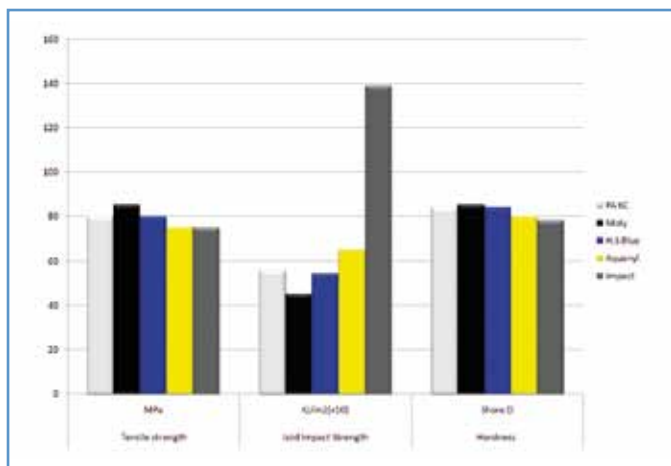
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Nylacast Impact

Impact is a grade specifically developed for applications requiring high impact resistance and/or noise reduction capabilities. The important characteristics of these materials are their improved insensitivity against stresses, sharp edges, notches, scratches etc. Impact is ideally suited to applications such as support rollers for the aggregate

processing industry, dollies used in conjunction with pile drivers and crane feet pads as well as roller coaster wheels in relation to noise reduction. However there are many industries and applications within industries where this type of material would be very beneficial over the basic grade of Natural cast nylon.

Benefits of Nylacast Impact



- Significantly improved impact resistance.
- Improved insensitivity against stresses, sharp edges, notches and scratches.
- Free of internal stresses.
- Good mechanical, thermal and chemical resistance properties.
- Improved noise reduction capability.
- Good PV and load bearing capabilities.
- Good dimensional stability.

Industry Users



- Aerospace
- Railways
- Ship Building
- Food and Food Packaging
- Bottling and canning
- Pharmaceuticals
- Steel Mills
- Quarrying/mining
- Cranes
- Conveyors

Typical Application



- Rollers
- Wear pads
- Switch collar
- Washers
- Bearings
- Load support
- Wheels
- Sheaves
- Wear strips
- Clamps
- Bespoke Impact Ring

Nylacast Impact is available as standard plate, rod and over thousands of tubes OD/ID configurations in four different lengths.

In addition cut piece derivatives, strips, billets, discs and rings up to 2.5 metres diameter as well as custom castings to specific designs are available.

Nylacast Impact

PROPERTY	TEST METHOD	NOTES	METRIC	UNITS	IMPERIAL	UNITS
GENERAL						
Colour				Grey		Black
Density	ISO1183:1987	Test Method A	g/cm ³	1.11	lb/inch ³	0.04
Water Absorption (Equilibrium)	ISO 62:1999	Immersion, 23C	%	-	%	-
Water Absorption (24 Hours)	ISO 62:1999(modified)	Immersion, 23C	%	-	%	-
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	-	%	-
MECHANICAL						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min-1	MPa	60-70	psi	8702 -10153
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min-1	MPa	3250	psi	471372
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min-1	%	<10	%	<10
Compressive strength	ISO 604:2002	Sample Type B, 5mm min-1	MPa	120	psi	17405
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min-1	MPa	2400	psi	348090
Flexural Strength*	ISO 178:2001	1.5mm min-1	MPa	93.5	psi	13561
Flexural Modulus	ISO 178:2001	1.5mm min-1	MPa	2400	psi	348090
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	kJ/m ²	13.9	ft.lb/in ²	6.609
Charpy Impact Strength	ISO 179-2:1999	Notched	kJ/m ²	-	ft.lb/in ²	-
Hardness (Shore D)	ISO 868: 2003			-		-
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa		-		-
Limiting PV			Mpa/m. min	-	psi.ft/min	-
Wear Rate		31.4m/min, 1.75MPa	mg/km mm ³ / Nm	-	in ³ min/ ft.lb.hr	-
K-Factor		31.4m/min, 1.75MPa		-		-
THERMAL						
Melting Temperature	-		°C	219.47	°F	427.026
Glass Transition Temperature (Tg)	ISO 11359-2:1999		°C	-	°F	-
Heat Deflection Temperature HDT/A	ISO 75	1.80MPa	°C	-	°F	-
Heat Deflection Temperature HDT/B	ISO 75	0.45MPa	°C	-	°F	-
Maximum Intermittent Service Temperature	-		°C	+ 150	°F	302
Maximum Continuous Service Temperature	-	5000hrs	°C	+ 100	°F	212
Minimum Intermittent Service Temperature	-		°C	- 100	°F	-148
Minimum Continuous Service Temperature	-		°C	- 40	°F	-40
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	23°C - 55°C	°C-1	5-8 x 10-5	°F-1	4.44 x 10-5
Thermal Conductivity	ISO 8301:1991	Mean T = 20°C	W/m°C	-	BTU in/ ft.hr°F	
Flammability	IEC 60695-11- 10:2003-08		-	HB	-	HB
ELECTRICAL						
Dielectric Constant	IEC 60250:1969-01	1 MHz		3.7		3.7
Dielectric Constant (Low Frequency)		100Hz		4		4
Dissipation Factor	IEC 60250:1969-01	100Hz	Hz	-	Hz	-
Dielectric Strength	IEC 60243-1:1998-01		kV/mm	25	kV/in	635
Volume Resistivity	IEC 60093:1980-01		ohm.m	1x10 ¹⁵	ohm.m	3.93x10 ¹⁶
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 ¹⁵	ohm	3 x 10 ¹²
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

PRODUCT AVAILABILITY

Rod	10mm-500mm DIA
Tube	50mm-1000mm OD
Plate	8mm-100mm THICKNESS
Custom Castings	Bespoke
Cut to size	Available upon request

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Nylacast Oilon

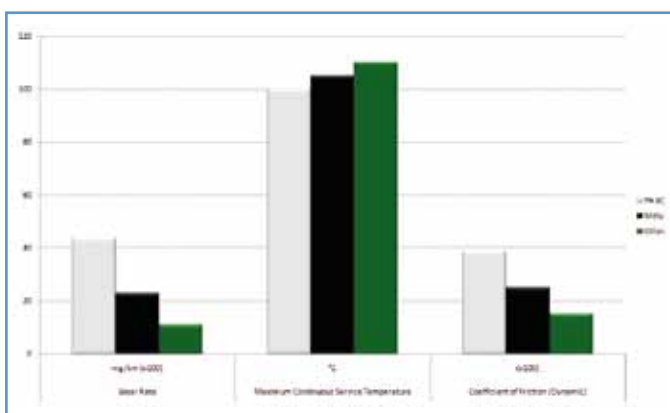
Oilon was a break through of the first magnitude in the world of cast nylons, developed in the early 70's by Nylacast Ltd and introduced to the market in 1974.

Oilon was the very first authentic lubricated Nylon having a blended liquid lubricant system built in during the process stages, which obviously resulted in a substantial increase in bearing life, 5 times that of Natural cast nylon and 25 times that of phosphor bronze! The lubricant contained within the material will not drain, machine, spin, leech or dry out and never needs replenishment.

A uniformed distribution of the lubricant throughout the product guarantees a constant performance over the whole service life and improvements in rate of wear,

sliding frictional properties, abrasion resistance and stick/slip performance are just a few of the benefits offered by this material. Oilon has been successful in considerably enlarging the application possibilities of nylons in many areas and specifically that of unlubricated moving parts. Oilon has acquired an unmatched track record over the past 20 years and continues to go from strength to strength, for Nylacast has over this period produced thousands of tons of Oilon and the trend continues. There have been many imitators over the years since Oilon has been introduced, however Oilon has not yet been equalled by its rivals and remains the premier oil-lubricated nylon available from any source. Oilon is suitable for use in applications in both the food and pharmaceutical industries.

Benefits of Nylacast Oilon



- First authentic lubricated nylon
- Improved wear and abrasion resistance
- Improved PV characteristics
- Improved coefficient of friction and stick/slip characteristics
- Consistent wear performance throughout product life
- Reduced water absorption
- Excellent mechanical, thermal and chemical resistance properties
- Good dimensional stability
- FDA compliant for direct food contact applications
- Blended liquid lubricant system

Industry Users



- Petrochemical
- Construction
- Transport
- Food and food packaging
- Bottling and canning
- Pharmaceuticals
- Steel mills
- Quarrying/mining
- Cranes
- Conveyors
- Offshore

Typical Application



- Wear pads
- Support rails
- Sheaves
- Rollers
- Guide plates
- Bearings
- Spacers
- Pulleys
- Spacers
- Brake blocks
- Conveyor rail
- Pipe Clamps
- Gears
- Bushes
- Wear Strips
- Bespoke Components

Nylacast Oilon is available as standard plate, rod and over thousands of tubes OD/ID configurations in four different lengths.

In addition cut piece derivatives, strips, billets, discs and rings up to 2.5 metres diameter as well as custom castings to specific designs are available.

Nylacast Oilon

PROPERTY	TEST METHOD	NOTES	METRIC	UNITS	IMPERIAL	UNITS
GENERAL						
Colour				Green		Green
Density	ISO1183:1987	Test Method A	g/cm ³	1.140	lb/inch ³	0.041
Moisture Absorption (Equilibrium)	ISO 62:1999	50% RH, 23C	%	-	%	-
Water Absorption (24 Hours)	ISO 62:1999(modified)	Immersion, 23C	%	-	%	-
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	-	%	-
MECHANICAL						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	75	psi	10878
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	4000	psi	580152
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	%	>30	%	>30
Compressive strength	ISO 604:2002	Sample Type B, 5mm min ⁻¹	MPa	95	psi	13779
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min ⁻¹	MPa	2500	psi	362595
Flexural Strength*	ISO 178:2001	1.5mm min ⁻¹	MPa	100	psi	14504
Flexural Modulus	ISO 178:2001	1.5mm min ⁻¹	MPa	3100	psi	449618
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	kJ/m ²	6.00	ft.lb/in ²	2.86
Charpy Impact Strength	ISO 179-2:1999	Notched	kJ/m ²	-	ft.lb/in ²	-
Hardness (Shore D)	ISO 868: 2003			83		83
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa		0.15		0.15
Limiting PV			Mpa/m. min	-	psi.ft/ min	-
Wear Rate		31.4m/min, 1.75MPa	mg/km	0.11		-
K-Factor		31.4m/min, 1.75MPa	mm ³ /Nm	1.2 x 10 ⁻⁶	in ³ min/ ft.lb.hr	0.60 x 10 ⁻⁹
THERMAL						
Melting Temperature	-		°C	220	°F	428
Glass Transition Temperature (T _g)	ISO 11359-2:1999		°C	-	°F	-
Heat Deflection Temperature HDT/A	ISO 75	1.80MPa	°C	-	°F	-
Heat Deflection Temperature HDT/B	ISO 75	0.45MPa	°C	-	°F	-
Maximum Intermittent Service Temperature	-		°C	170	°F	338
Maximum Continuous Service Temperature	-	5000hrs	°C	110	°F	230
Minimum Intermittent Service Temperature	-		°C	-100	°F	-148
Minimum Continuous Service Temperature	-		°C	-40	°F	-40
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	23°C - 55°C Mean T = 20°C	°C ⁻¹	8 x 10 ⁻⁵	°F ⁻¹	4.44 x 10 ⁻⁵
Thermal Conductivity	ISO 8301:1991		W/m°C	-	BTU in/ ft.hr°F	
Flammability	IEC 60695-11-10:2003-08		-	HB	-	HB
ELECTRICAL						
Dielectric Constant	IEC 60250:1969-01	1 MHz		3.7		3.7
Dielectric Constant (Low Frequency)		100Hz		4		4
Dissipation Factor	IEC 60250:1969-01	100Hz	Hz	-	Hz	-
Dielectric Strength	IEC 60243-1:1998-01		kV/mm	25	kV/in	635
Volume Resistivity	IEC 60093:1980-01		ohm.m	1x10 ¹³	ohm.m	3.93x10 ¹⁵
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 ¹²	ohm	1 x 10 ¹²
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

PRODUCT AVAILABILITY

Rod	10mm-500mm DIA
Tube	50mm-1000mm OD
Plate	8mm-100mm THICKNESS
Custom Castings	Bespoke
Cut to size	Available upon request

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Nylacast Nylube

Nylube was introduced into the Nylacast product range in 1989 as a logical progression to Oilon already outstanding performance as a bearing material. Since that time, it has proved to be Nylacast supreme wear resisting grade and one of the most important developments from Nylacast in new materials. Nylube contains a combined liquid/solid lubricant system which allows for a coefficient of friction as low as 0.08. This is below that of almost any other polymer available at present.

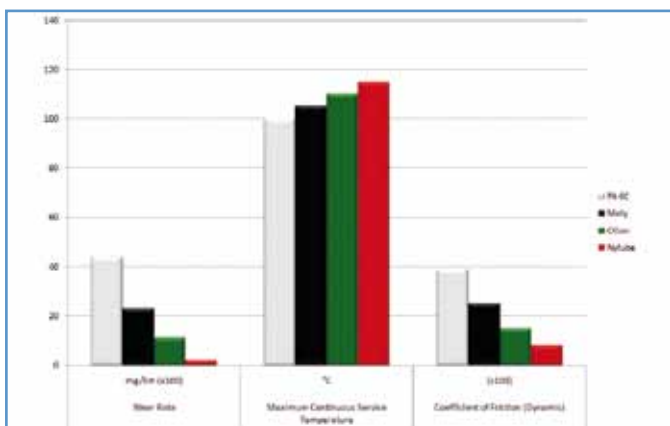
Nylube has substantially improved the wear resistance

abilities compared to that of any other currently available lubricated grade of cast nylon, whilst retaining excellent physical property characteristics. The material is particularly suited to dry running bearing applications throughout a wide load, speed and temperature range (up to 120oC).

Like Oilon, Nylube is suitable for use in applications in the food and pharmaceutical industries.

Separate literature is available for this grade.

Benefits of Nylacast Nylube



- Outstanding wear and abrasion resistance
- Significantly improved PV characteristics
- Improved operating temperature capability
- Outstanding lubricate and low coefficient of friction
- Greatly improved stick/slip capabilities
- Wide load, speed and temperature operating range
- Consistent wear performance throughout product life
- Excellent dimensional stability
- Reduced water absorption
- Excellent chemical resistance
- Blended solid/liquid lubricant system
- FDA compliant for direct food contact applications

Industry Users



- Construction
- Aerospace
- Transport
- Ship building
- Food and food packaging
- Bottling and canning
- Pharmaceuticals
- Steel mills
- Quarrying and mining
- Cranes
- Agriculture
- Recycling and waste management

Typical Application



- Wear pads
- Stabilisers
- Stoppers
- Pulleys
- L-shape wear pads
- Sheaves
- Rollers
- Sliders
- Stoppers
- Bushes
- Slide pads
- Bearings
- Gears
- Winches
- Bespoke Components

Nylacast Nylube is available as standard plate, rod and over thousands of tubes OD/ID configurations in four different lengths.

In addition cut piece derivatives, strips, billets, discs and rings up to 2.5 metres diameter as well as custom castings to specific designs are available.

Nylacast Nylube

PROPERTY	TEST METHOD	NOTES	METRIC	UNITS	IMPERIAL	UNITS
GENERAL						
Colour				Red Black Natural		Red Black Natural
Density	ISO1183:1987	Test Method A	g/cm ³	1.145	lb/inch ³	0.041
Moisture Absorption (Equilibrium)	ISO 62:1999	50% RH, 23C	%	-	%	-
Water Absorption (24 Hours)	ISO 62:1999(modified)	Immersion, 23C	%	-	%	-
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	-	%	-
MECHANICAL						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	80	psi	11603
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	MPa	4000	psi	580152
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	%	>20	%	>20
Compressive strength	ISO 604:2002	Sample Type B, 5mm min ⁻¹	MPa	95	psi	13779
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min ⁻¹	MPa	2600	psi	377099
Flexural Strength*	ISO 178:2001	1.5mm min ⁻¹	MPa	105	psi	15229
Flexural Modulus	ISO 178:2001	1.5mm min ⁻¹	MPa	3400	psi	493130
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	kJ/m ²	6.00	ft.lb/in ²	2.86
Charpy Impact Strength	ISO 179-2:1999	Notched	kJ/m ²	-	ft.lb/in ²	-
Hardness (Shore D)	ISO 868: 2003			84		84
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa		0.08		0.08
Limiting PV			Mpa/m.min	-	psi.ft/ min	-
Wear Rate		31.4m/min, 1.75MPa	mg/km	0.02		-
K-Factor		31.4m/min, 1.75MPa	mm ³ /Nm	0.25 x 10 ⁻⁶	in ³ min/ ft.lb.hr	0.12 x 10 ⁻⁹
THERMAL						
Melting Temperature	-		°C	220	°F	428
Glass Transition Temperature (Tg)	ISO 11359-2:1999		°C	-	°F	-
Heat Deflection Temperature HDT/A	ISO 75	1.80MPa	°C	-	°F	-
Heat Deflection Temperature HDT/B	ISO 75	0.45MPa	°C	-	°F	-
Maximum Intermittent Service Temperature	-		°C	180	°F	356
Maximum Continuous Service Temperature	-	5000hrs	°C	110	°F	230
Minimum Intermittent Service Temperature	-		°C	-100	°F	-148
Minimum Continuous Service Temperature	-		°C	-40	°F	-40
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	23°C - 55°C	°C ⁻¹	8 x 10 ⁻⁵	°F ⁻¹	4.44 x 10 ⁻⁵
Thermal Conductivity	ISO 8301:1991	Mean T = 20°C	W/m°C	-	BTU in/ ft.hr°F	
Flammability	IEC 60695-11-10:2003-08		-	HB	-	HB
ELECTRICAL						
Dielectric Constant	IEC 60250:1969-01	1 MHz		3.7		3.7
Dielectric Constant (Low Frequency)		100Hz		4		4
Dissipation Factor	IEC 60250:1969-01	100Hz	Hz	-	Hz	-
Dielectric Strength	IEC 60243-1:1998-01		kV/mm	25	kV/in	635
Volume Resistivity	IEC 60093:1980-01		ohm.m	1x10 ¹³	ohm.m	3.93x10 ¹⁶
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 ¹²	ohm	3 x 10 ¹²
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

PRODUCT AVAILABILITY

Rod	10mm-500mm DIA
Tube	50mm-1000mm OD
Plate	8mm-100mm THICKNESS
Custom Castings	Bespoke
Cut to size	Available upon request

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Imperial Units Comparison

PROPERTY	TEST METHOD	NOTES	IMPERIAL			PA6			Moly			H.S Blue			Aquanyl			Impact			Oilon			Nylube			
			UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS		
GENERAL																											
Colour						Natural/ Black/Other	Black	Blue	Natural/ Yellow	Black	Blue	Black	Green	Black	Green	Red Black Natural											
Density	ISO1183:1987	Test Method A	lb/inch ³	0.041	0.042	0.041	0.041	0.041	0.041	0.041	0.041	0.04	0.041	0.04	0.041	0.041	0.041										
Moisture Absorption (Equilibrium)	ISO 62:1999	50% RH, 23C	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
Water Absorption (24 Hours)	ISO 62:1999(modified)	Immersion, 23C	%	0.30	0.20	0.30	0.30	0.30	0.30	0.30	0.30	-	-	-	-	-	-										
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	7.00	-	7.00	7.00	7.00	7.00	7.00	7.00	-	-	-	-	-	-										
MECHANICAL																											
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	psi	11603	12328	11603	11603	11603	10878	8702 - 10153	10878	8702 - 10153	10878	8702 - 10153	10878	11603	11603										
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	psi	580152	594656	580152	580152	580152	536641	471372	536641	471372	536641	471372	536641	580152	580152										
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min ⁻¹	%	>20	>20	>20	>20	>20	>30	<10	>30	<10	>30	<10	>30	>30											
Compressive strength	ISO 604:2002	Sample Type B, 5mm min ⁻¹	psi	13779	15229	13779	13779	13779	13053	17405	13053	17405	13053	17405	13053	13779	13779										
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min ⁻¹	psi	391603	435114	391603	391603	391603	290076	348090	290076	348090	290076	348090	290076	377099	377099										
Flexural Strength*	ISO 178:2001	1.5mm min ⁻¹	psi	15229	16679	15229	15229	15229	13779	13561	13779	13561	13779	13561	15229	15229											
Flexural Modulus	ISO 178:2001	1.5mm min ⁻¹	psi	478626	536641	478626	478626	478626	391603	348090	391603	348090	391603	348090	493130	493130											
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	ft.lb/in ²	2.66	2.14	2.66	2.66	2.66	3.09	6.609	3.09	6.609	3.09	6.609	2.86	2.86											
Charpy Impact Strength	ISO 179-2:1999	Notched	ft.lb/in ²	-	-	-	-	-	-	-	-	-	-	-	-	-											
Hardness (Shore D)	ISO 868: 2003			84	85	84	84	84	80	83	84	83	84	83	84	84											
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa		0.39	0.25	0.39	0.39	0.39	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.08											
Limiting PV			psi.ft./min	-	-	-	-	-	-	-	-	-	-	-	-	-											
Wear Rate		31.4m/min, 1.75MPa	in ³ /min/ ft.lb.hr	-	-	-	-	-	-	-	-	-	-	-	-	-											
K-Factor		31.4m/min, 1.75MPa		2.4 x 10 ⁻⁹	-	2.4 x 10 ⁻⁹	2.4 x 10 ⁻⁹	2.4 x 10 ⁻⁹	-	-	-	-	-	-	0.12 x 10 ⁻⁹	0.12 x 10 ⁻⁹											
THERMAL																											
Melting Temperature			°F	428	428	428	428	428	419	427.026	428	427.026	428	427.026	428	428											
Glass Transition Temperature (Tg)	ISO 11359-2:1999		°F	-	-	-	-	-	-	-	-	-	-	-	-	-											
Heat Deflection Temperature HDT/A	ISO 75	1.80MPa	°F	-	-	-	-	-	-	-	-	-	-	-	-	-											
Heat Deflection Temperature HDT/B	ISO 75	0.45MPa	°F	-	-	-	-	-	-	-	-	-	-	-	-	-											
Maximum Intermittent Service Temperature			°F	338	374	338	338	338	320	302	338	302	338	302	356	356											
Maximum Continuous Service Temperature		5000hrs	°F	212	248	212	212	212	239	212	239	212	239	212	230	230											
Minimum Intermittent Service Temperature			°F	-148	-148	-148	-148	-148	-148	-148	-148	-148	-148	-148	-148	-148											
Minimum Continuous Service Temperature			°F	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40											
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	23°C - 55°C	°F ⁻¹	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵	4.44 x 10 ⁻⁵											
Thermal Conductivity	ISO 8301:1991	Mean T = 20°C	BTU in/ ft.hr°F	0.15	-	0.15	0.15	0.15	-	-	-	-	-	-	-	-											
Flammability	IEC 60695-11-10:2003-08			HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB											
ELECTRICAL																											
Dielectric Constant	IEC 60250:1969-01	1 MHz		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7											
Dielectric Constant (Low Frequency)		100Hz		4	4	4	4	4	4	4	4	4	4	4	4	4											
Dissipation Factor	IEC 60250:1969-01	100Hz	Hz	-	-	-	-	-	-	-	-	-	-	-	-	-											
Dielectric Strength	IEC 60243-1:1998-01		kV/in	635	635	635	635	635	635	635	635	635	635	635	635	635											
Volume Resistivity	IEC 60093:1980-01		ohm.m	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶	3.93x10 ¹⁶											
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 ¹²	1 x 10 ¹²	1 x 10 ¹²	1 x 10 ¹²	1 x 10 ¹²	3 x 10 ¹²	3 x 10 ¹²	3 x 10 ¹²	3 x 10 ¹²	3 x 10 ¹²	3 x 10 ¹²	3 x 10 ¹²	3 x 10 ¹²											
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	600	600	600	600	600	600	600	600	600	600	600	600											

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