

ERTALON® Cast Products

Polyamides (PA)

Main Characteristics:

- High mechanical strength, stiffness, hardness and toughness
- Good fatigue resistance
- Excellent resilience
- High mechanical damping ability
- Good sliding properties
- Excellent wear resistance
- Good electrical insulating properties
- Good resistance to high energy radiation (gamma and X rays)
- Good machinability

ERTALON® LFX

(PA6G Oil Filled)

Colour: Green

This internally lubricated cast nylon 6 grade is self-lubricating in the real meaning of the word. ERTALON® LFX, especially developed for un-lubricated, highly loaded and slowly moving parts applications, yields a considerable enlargement of the application possibilities of nylons. This is because of its reduced coefficient friction (up to -50%) and improved wear resistance (up to x 10).

Within the Polyamides, commonly referred to as 'nylons', we distinguish different types. The most important ones are: PA6, PA66, PA11 and PA12.

The differences in physical properties which exist between these types are mainly determined by the composition and the structure of their molecular chains.

ERTALON® 6PLA

(PA6G)

Colours: Natural (ivory) and Black

Unmodified cast nylon 6 grade exhibiting characteristics which come very close to those of ERTALON® 66SA. It combines high strength, stiffness and hardness with good creep and wear resistance, heat ageing properties and machinability.

ERTALON® 6XAU+

(PA6G Heat Stabilised)

Colour: Black

ERTALON® 6 XAU+ is a heat stabilised cast nylon 6 grade with a very dense and highly crystalline structure. Compared with conventional extruded or cast nylons ERTALON® 6 XAU+ offers superior heat ageing performance in air (much better resistance to thermal-oxidative degradation), allowing 15-30°C higher continuously allowable service temperatures. ERTALON® 6 XAU+ is particularly recommended for bearings, and other mechanical parts subject to wear which are operating in air for long periods of time at temperatures above 60 °C.

ERTALON® 6PLA Cast Nylon Grade 6 (PA6G)

ERTALON® 6PLA is a natural white cast nylon with a good overall balance of physical properties, combining good tensile performance with wear resistance, toughness, flexibility and creep resistance.

- High impact strength
- High mechanical damping
- Good alkaline resistance (up to pH 12)
- High strength / stiffness
- Good fatigue resistance
- Low weight (1/6 vs Steel)
- Good wear resistance
- Continuous temperature 90°C (max 170°C)

Common Applications:

Racks; Pinions; Gears; Bearings; Rollers; Wheels; Cams; Nuts; Valve seats; Pulleys; Gaskets; Electrical insulators.

Delivery Programme

	min	max
Rod 3m long diameter (mm)	50	150
Rod 1m long diameter (mm)	50	500
Rod 500mm long diameter (mm)	210	500
Tube 2m long outer diameter (mm)	50	150
inner diameter (mm)	20	135
Tube 1m long outer diameter (mm)	155	260
inner diameter (mm)	50	235
Tube 600mm long outer diameter (mm)	220	600
inner diameter (mm)	70	570
Plate thickness (mm)	10	100
sizes 610 x 1220 / 1220 x 2000 / 1220 x 2440		
Colours: Natural (ivory) and Black		

Technical Specification

Property	ISO Method	Units	Values
Density	1183	g/cm ³	1.15
Water absorption			
• Saturation in air (23°C/50% RH)	~	%	2.20
• Saturation in water (23°C)	~	%	6.50
Tensile strength* ¹	527	N/mm ²	85
Tensile modulus of elasticity* ¹	527	N/mm ²	3500
Elongation at break* ¹	527	%	25
Impact - Charpy* ¹	179/1eU	kJ/m ²	no break
Impact - Izod notched* ¹	180/2A	kJ/m ²	3.5
Hardness	Rockwell	~	M88
	Shore D	~	~
Melt point	~	°C	220
Max allowable service temperature in air			
• for short periods	~	°C	170
• continuously for 20,000 hrs	~	°C	90
Linear thermal expansion coefficient	~	K ⁻¹ x 10 ⁻⁵	8.0
Thermal conductivity	~	W/(K.m)	0.29
Flammability* ² (6mm thickness)	~	~	HB
Volume resistivity* ¹	IEC93	Ω.cm	>10 ¹⁴
Dielectric strength* ¹	IEC243	kV/mm	25
Outside applications			
• UV resistance	~	~	B/A
Acids - strong (pH<3)	~	~	C
Alkalis - strong (pH>11)	~	~	B/C
Chlorinated hydrocarbons	~	~	A/B
Hot water	~	~	B

'A' - Acceptable service

'B' - Limited service

'C' - Unacceptable

*¹ - Measured on dry test specimens (where applicable)

*² - Tests completed by DSM EPP using UL test methods

ERTALON® 6XAU+

Cast Nylon Grade 6 (PA6G Heat Stabilised)

ERTALON® 6XAU+ is a heat stabilised cast nylon with a dense and highly crystalline structure. It offers better mechanical properties than conventional extruded or cast nylons, including superior resistance to creep and wear, better heat ageing performance and excellent machinability. ERTALON® 6XAU+ is particularly recommended for bearings, and other mechanical parts subject to wear, that are operating at temperatures above 60 °C.

- High impact strength
- High mechanical damping
- Good alkaline resistance (up to pH 11)
- High strength / stiffness
- Good fatigue resistance
- Low weight (1/6 vs Steel)
- Good wear resistance
- Continuous temperature 105°C (max 180°C)

Common Applications:

Rail wheels; Gears; Bearings; Rollers; Wheels; Cams; Nuts; Valve seats; Pulleys; Gaskets; Electrical insulators.

Delivery Programme

	min	max
Rod 3m long diameter (mm)	50	150
Rod 1m long diameter (mm)	50	500
Rod 500mm long diameter (mm)	210	500
Tube 2m long outer diameter (mm)	50	150
inner diameter (mm)	20	135
Tube 1m long outer diameter (mm)	155	260
inner diameter (mm)	50	235
Tube 600mm long outer diameter (mm)	220	600
inner diameter (mm)	70	570
Plate thickness (mm)	8.0	100
sizes 610 x 1220 / 1220 x 2440		
Plate thickness (mm)	10	100
size 1220 x 2000		

Colour: Black

Technical Specification

Property	ISO Method	Units	Values
Density	1183	g/cm ³	1.15
Water absorption			
• Saturation in air (23°C/50% RH)	~	%	2.20
• Saturation in water (23°C)	~	%	6.50
Tensile strength* ¹	527	N/mm ²	83
Tensile modulus of elasticity* ¹	527	N/mm ²	3400
Elongation at break* ¹	527	%	25
Impact - Charpy* ¹	179/1eU	kJ/m ²	no break
Impact - Izod notched* ¹	180/2A	kJ/m ²	3.5
Hardness	Rockwell	~	M87
	Shore D	~	~
Melt point	~	°C	220
Max allowable service temperature in air			
• for short periods	~	°C	180
• continuously for 20,000 hrs	~	°C	105
Linear thermal expansion coefficient	~	K ⁻¹ x 10 ⁻⁵	8.0
Thermal conductivity	~	W/(K.m)	0.29
Flammability* ² (6mm thickness)	~	~	HB
Volume resistivity* ¹	IEC93	Ω.cm	>10 ¹⁴
Dielectric strength* ¹	IEC243	kV/mm	29
Outside applications			
• UV resistance	~	~	B
Acids - strong (pH<3)	~	~	C
Alkalis - strong (pH>11)	~	~	B/C
Chlorinated hydrocarbons	~	~	A/B
Hot water	~	~	B

'A' - Acceptable service

'B' - Limited service

'C' - Unacceptable

*¹ - Measured on dry test specimens (where applicable)

*² - Tests completed by DSM EPP using UL test methods

ERTALON® LFX Cast Nylon Grade 6 (PA6G Oil Filled)

ERTALON® LFX is an internally lubricated cast nylon. It has been specifically developed for un-lubricated moving parts applications and yields a considerable enlargement of the application possibilities of nylons. This is due to reduced coefficient friction and improved wear resistance compared to standard nylons.

- High impact strength
- High mechanical damping
- Good alkaline resistance (up to pH 11)
- High strength / stiffness
- Good fatigue resistance
- Low weight (1/6 vs Steel)
- Good wear resistance
- Low coefficient of friction

Common Applications:

Gears; Sleeve bearings; Slide bearings; Rollers; Wheels; Cams; Nuts; Valve seats; Pulleys; Gaskets; Electrical insulators.

Delivery Programme

	min	max
Rod 3m long diameter (mm)	50	150
Rod 1m long diameter (mm)	50	500
Rod 500mm long diameter (mm)	210	500
Tube 2m long outer diameter (mm)	50	150
inner diameter (mm)	20	135
Tube 1m long outer diameter (mm)	155	260
inner diameter (mm)	50	235
Tube 600mm long outer diameter (mm)	220	600
inner diameter (mm)	70	570
Plate thickness (mm)	8.0	100
sizes 610 x 1220 / 1220 x 2440		
Plate thickness (mm)	10	100
size 1220 x 2000		

Colour: Green

Technical Specification

Property	ISO Method	Units	Values
Density	1183	g/cm ³	1.135
Water absorption			
· Saturation in air (23°C/50% RH)	~	%	2.00
· Saturation in water (23°C)	~	%	6.30
Tensile strength* ¹	527	N/mm ²	70
Tensile modulus of elasticity* ¹	527	N/mm ²	3000
Elongation at break* ¹	527	%	25
Impact - Charpy** ¹	179/1eU	kJ/m ²	>50
Impact - Izod notched* ¹	180/2A	kJ/m ²	4
Hardness	Rockwell	~	M82
	Shore D	~	~
Melt point	~	°C	220
Max allowable service temperature in air			
· for short periods	~	°C	165
· continuously for 20,000 hrs	~	°C	90
Linear thermal expansion coefficient	~	K ⁻¹ x 10 ⁻⁵	8.0
Thermal conductivity	~	W/(K.m)	0.28
Flammability* ² (6mm thickness)	~	~	HB
Volume resistivity* ¹	IEC93	Ω.cm	>10 ¹⁴
Dielectric strength* ¹	IEC243	kV/mm	22
Outside applications			
· UV resistance	~	~	B
Acids - strong (pH<3)	~	~	C
Alkalis - strong (pH>11)	~	~	B/C
Chlorinated hydrocarbons	~	~	A/B
Hot water	~	~	B

'A' - Acceptable service

'B' - Limited service

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