

# Nylon 6 Cast Rod - Technical Data Sheet



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GENERAL	TEST METHOD	NOTES	METRIC UNITS		IMPERIAL UNITS	
Density	ISO1183:1987	Test Method A	g/cm <sup>3</sup>	1.145	lb/inch <sup>3</sup>	0.041
Moisture Absorption (Equilibrium)	ISO 62:1999	50% RH, 23C	%	-	%	-
Water Absorption (24 Hours)	ISO 62:1999 (modified)	Immersion, 23C	%	0.3	%	0.3
Water Absorption (Saturation)	ISO 62:1999	Immersion, 23C	%	7	%	5.3

MECHANICAL	TEST METHOD	NOTES	METRIC UNITS		IMPERIAL UNITS	
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 <sup>2</sup>	5.6	ft.lb/in <sup>2</sup>	2.66
Charpy Impact Strength	ISO 179-2:1999	Notched	KJ/m <sup>2</sup>	-	ft.lb/in <sup>2</sup>	-
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 <sup>3</sup> /Nm	5.0 x 10 <sup>-6</sup>	in <sup>3</sup> .min./ft.lb.hr	2.4 x 10 <sup>-9</sup>

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THERMAL	TEST METHOD	NOTES	METRIC UNITS		IMPERIAL UNITS	
Melting Temperature	-		°C	220	°F	428
Glass Transition Temperature (Tg)	ISO 11359-2:1999		°C	-	°F	-
Heat Deflection Temperature HDT/A	ISO 75	1.80M Pa	°C	-	°F	-
Heat Deflection Temperature HDT/B	ISO 75	0.45M Pa	°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 <sup>-5</sup>	°F-1	4.44 x 10 <sup>-5</sup>
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		°C	HB	-	HB

ELECTRICAL	TEST METHOD	NOTES	METRIC UNITS		IMPERIAL UNITS	
Dielectric Constant	IEC 60250:1969-01	1MHz	-	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 <sup>13</sup>	ohm.in	3.93 x 10 <sup>14</sup>
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 <sup>12</sup>	ohm	1 x 10 <sup>12</sup>
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

# Nylon 6 Moly Cast Rod - Technical Data Sheet



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PROPERTY	TEST METHOD	NOTES	METRIC UNITS		IMPERIAL UNITS	
<b>General</b>						
Colour				Black		Black
Density	ISO1183:1987	Test Method A	g/cm <sup>3</sup>	1.15	lb/inch <sup>3</sup>	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	%	6	%	6

<b>MECHANICAL</b>						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min <sup>-1</sup>	MPa	85	psi	12328
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min <sup>-1</sup>	MPa	4100	psi	594656
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min <sup>-1</sup>	%	>20	%	>20
Compressive Strength	ISO 604:2002	Sample Type B, 5mm min <sup>-1</sup>	MPa	105	psi	15229
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min <sup>-1</sup>	MPa	3000	psi	435114
Flexural Strength*	ISO 178:2001	1.5mm min <sup>-1</sup>	MPa	115	psi	16679
Flexural Modulus	ISO 178:2001	1.5mm min <sup>-1</sup>	MPa	3700	psi	536641
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	KJ/m <sup>2</sup>	4.5	ft.lb/in <sup>2</sup>	2.14
Charpy Impact Strength	ISO 179-2:1999	Notched	KJ/m <sup>2</sup>	-	ft.lb/in <sup>2</sup>	-
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 <sup>3</sup> /Nm	-	in <sup>3</sup> .min./ft.lb.hr	-

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<b>THERMAL</b>						
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	°C-1	$8 \times 10^{-5}$	°F <sup>-1</sup>	$4.44 \times 10^{-5}$
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

<b>ELECTRICAL</b>						
Dielectric Constant	IEC 60250:1969-01	1MHz	-	3.7	-	3.7
Dielectric Constant (Low Frequency)		100Hz	-	4	-	4
Dissipation Factor	IEC 60250:1969-01	100 Hz	Hz	-	Hz	-
Dielectric Strength	IEC 60243-1:1998-01		kV/mm	25	kV/in	635
Volume Resistivity	IEC 60093:1980-01		ohm.m	$1 \times 10^{13}$	ohm.in	$3.93 \times 10^{14}$
Surface Resistivity ROA	IEC 60093:1980-01		ohm	$1 \times 10^{12}$	ohm	$1 \times 10^{12}$
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600

# Nylon 6 Oil Filled Rod - Technical Data Sheet



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PROPERTY	TEST METHOD	NOTES	METRIC UNITS		IMPERIAL UNITS	
<b>GENERAL</b>						
Colour				Black Yellow		Black Yellow
Density	ISO1183:1987	Test Method A	g/cm <sup>3</sup>	1.140	lb/inch <sup>3</sup>	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	%	4	%	4

<b>MECHANICAL</b>						
Tensile strength	ISO 527-1/2:1993	Sample Type 1B, 50mm min <sup>-1</sup>	MPa	75	psi	10878
E-modulus	ISO 527-1/2:1993	Sample Type 1B, 50mm min <sup>-1</sup>	MPa	3800	psi	551145
Elongation at break	ISO 527-1/2:1993	Sample Type 1B, 50mm min <sup>-1</sup>	%	>25	%	>25
Compressive Strength	ISO 604:2002	Sample Type B, 5mm min <sup>-1</sup>	MPa	95	psi	13779
Compressive Modulus	ISO 604:2002	Sample Type A, 1mm min <sup>-1</sup>	MPa	2400	psi	348091
Flexural Strength*	ISO 178:2001	1.5mm min <sup>-1</sup>	MPa	95	psi	13779
Flexural Modulus	ISO 178:2001	1.5mm min <sup>-1</sup>	MPa	3000	psi	435114
Izod Impact Strength	ISO 180:2000	Sample Type A (Notched)	KJ/m <sup>2</sup>	5.8	ft.lb/in <sup>2</sup>	2.76
Charpy Impact Strength	ISO 179-2:1999	Notched	KJ/m <sup>2</sup>	-	ft.lb/in <sup>2</sup>	-
Hardness (Shore D)	ISO 868:2003		-	83	-	83
Coefficient of Friction (Dynamic)		31.4m/min, 1.75MPa	-	0.19	-	0.19
Limiting PV			MPa/m.min	-	psi.ft/min	-
Wear Rate		31.4m/min, 1.75MPa	mg/km	0.15	-	-
K-Factor		31.4m/min, 1.75MPa	mm <sup>3</sup> /Nm	1.70 x 10 <sup>-6</sup>	in <sup>3</sup> .min./ft.lb.hr	0.84 x 10 <sup>-9</sup>

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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	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 <sup>-1</sup>	8 x 10 <sup>-5</sup>	°F-1	4.44 x 10 <sup>-1</sup>
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	1MHz	-	3.7	-	3.7
Dielectric Constant (Low Frequency)		100Hz	-	4	-	4
Dissipation Factor	IEC 60250:1969-01	100 Hz	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 <sup>13</sup>	ohm.in	3.93 x 10 <sup>14</sup>
Surface Resistivity ROA	IEC 60093:1980-01		ohm	1 x 10 <sup>12</sup>	ohm	1 x 10 <sup>12</sup>
Comparative Tracking Index	IEC 60112:2003-01		CTI	600	CTI	600