

ARKPA6170G

Product Description

ARKPA6170G is the base to the other grades of material offered by Nylacast. It is available in Natural (off white) or Black colour. It is made by ionic polymerisation of ε-caprolactam under anhydrous conditions in the presence of strong acids or bases. It has a higher tensile, compressive and flexural strength than extruded or injection moulding nylon 6. This is because gravitationally cast nylon 6 does have higher molecular weight and higher crystallinity.

Physical Properties	Rated Value (Metric)	Rated Value	Test Method
Density	1.14 g/cc	0.0412 lb/in ³	method A; ISO 1183:1987
Water Absorption	0.30 % @Time 86400 sec	0.30 % @Time 24.0 hour	Immersion; ISO 62:1999
Saturated water absorption rate	0.07	0.07	Immersion; ISO 62:1999
Mechanical Properties	Rated Value (Metric)	Rated Value	Test Method
Hardness (Shore D)	82-84	82-84	ISO 868:2003
Tensile Strength	80.0 Mpa	11600 psi	Type 1B, 50mm/min; ISO 527-1/2
Tensile Elongation	>= 20 %	>= 20 %	Type 1B, 50mm/min; ISO 527-1/2
Tensile Modulus	3.60 GPa	522 ksi	Type 1B, 50mm/min; ISO 527-1/2
Flexural Strength	105 MPa	15200 psi	1.5mm/min; ISO 178:2001
Flexural Modulus	3.30 Gpa	479 ksi	1.5mm/min; ISO 178:2001
Compressive Strength	95.0 MPa	13800 psi	Type B, 5mm/min; ISO 604:2002
Compressive Modulus	2.70 Gpa	392 ksi	Type B, 5mm/min; ISO 604:2002
Izod Notched Impact Strength	5.60 kJ/m ²	2.66 ft-lb/in ²	Type A; ISO 180:2000
Dynamic Coefficient of Friction	0.39 @Pressure 1.75 Mpa	0.39 @Pressure 254 psi	31.4m/min
K (wear) Factor	500 x 10 ⁻⁸ mm ³ /N-M @Pressure 1.75 Mpa	248 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr @Pressure 254 psi	31.4m/min
Electrical Performance.	Rated Value (Metric)	Rated Value	Test Method
Volume Resistivity	1.00e+15 ohm-cm	1.00e+15 ohm-cm	IEC 60093:1980-01
Surface Resistivity	1.00e+12 ohm	1.00e+12 ohm	IEC 60093:1980-01
Dielectric Constant	3.7 @Frequency 1.00e+6 Hz	3.7 @Frequency 1.00e+6 Hz	IEC 60250:1969-01
	4.0 @Frequency 100 Hz	4.0 @Frequency 100 Hz	IEC 60250:1969-01
Dielectric Strength	25.0 kV/mm	635 kV/in	IEC 60243-1:1998-01
CTI	600 V	600 V	IEC 60112:2003-01
Thermal	Rated Value (Metric)	Rated Value	Test Method
CLTE	80.0 µm/m-°C @Temperature 23.0 - 55.0 °C	44.4 µin/in-°F @Temperature 73.4 - 131 °F	ISO 11359-2:1999
Thermal Conductivity	0.260 W/m-K	1.80 BTU-in/hr-ft ² -°F	Mean T=20°C; ISO 8301:1991
Melting Point	220 °C	428 °F	
Max. Service Temperature, Ari	170 °C	338 °F	Intermittent
	100 °C @Time 1.80e+7 sec	212 °F @Time 5000 hour	Continuous
Min. Service Temperature, Ari	-100 °C	-148 °F	Intermittent
	-40 °C	-40.0 °F	Continuous
Material Description			Test Method
Color	Natural/Black/Other		
Wear Rate	0.44 mg/km		31.4m/min, 1.75MPa