

Akro-Plastic Akroloy® PA GF 30 (2718) PA 6.6 & PA6I/6T Dry, 30% Glass Filled

Category : Polymer , Thermoplastic , Nylon , Nylon 66 , Nylon 66, 30% Glass Fiber Filled

Material Notes:

One of the most characteristic properties of polyamide (PA 6.6) is the absorption of moisture. This essentially leads to increased toughness and elongation at break, to name the most important parameters. On the other side, there are important diminished design properties, such as rigidity, strength and creep modulus. It is also clear that the water molecules diffused into the polymer require a certain space, so that the dimensional stability suffers, as well. Applications that up to now have been manufactured of die-cast metals, usually involve extremely high demands on synthetic materials, running contrary to the above mentioned disadvantages. Even high levels of reinforcement in standard polyamides on the basis of PA 6 or PA 6.6 with, for example, 50 % or 60 % glass fibres, still exhibit drastic changes in mechanical characteristics. By blending of PA 6.6 with a partially aromatic CoPA (PA 6I/6T), it is possible to significantly reduce the influence of moisture on the product characteristics. While the drop in rigidity and strength of PA 6.6 GF 50 in a standard climate is still at approx. 25 %, a partially aromatic blend nevertheless exhibits a drop of less than 10 %. Furthermore, it becomes apparent that the toughness remains virtually unaffected. As a result of these findings, the swelling behaviour is improved, as well, which is favourable for dimensional stability. At the same time, this material mix also increases the glass transition temperature range. All in all, partly aromatic PA 6.6-Blends offer exactly the characteristics that are demanded by designers and users.

Processing: AKROLOY® PA is based on a semi-crystalline PA 6.6 and an amorphous CoPA. This essentially determines the processing conditions. Accordingly, the melting point of AKROLOY® PA is at approx. 255 °C and is not influenced by the CoPA. With increasing temperatures, the amorphous contents provide a disproportionately low viscosity. The result is a very good reproduction of mould surfaces and a mass temperature that is up to 30 °C lower than required by comparable products. This results, aside from high quality surface finishes, frequently in reductions of cycle times, as well. Owing to production conditions, this must be verified in each individual case. Overall, AKROLOY® PA represents a step towards energy savings, in particular, when energy costs are compared to those in metal production and processing. Due to increasing cost pressure in many industrial sectors, AKROLOY® PA will become a very interesting alternative material in the area of substitutes for metal diecasting. Aside from already mentioned advantages in the service life of the mould, the omission of post processing allows an average cost reduction of up to 50 % – and more. The following list comprises imaginable and suitable areas of application, grouped by segments.

Applications: Automotive Industry: Ignition key switch housing Door handle components door lock components Instrument panels (centre console) Arm rests Electric motor housings Wiper components Carriers for wood decor strips Seat sliding mechanisms, etc. Sanitary Installation: Single lever taps Water filter housings Housing for bath tap Chrome-plated shower heads, levels, etc. Construction: Window locks Door lock components Expanding nails for insulating plugs Corner connectors for lighting systems Shelving support elements, etc. Household: Handles Coffee maker components Juice extractor components Knives and handles Bottle openers Nutcrackers, etc. Electronic Industry: Mobile phone housings Plastic tongs Housings for measuring units Carrier plates, etc. Machine Building: Plastic screws Calipers Screw clamps, etc.

Information from Akro-Plastic

Order this product through the following link:

http://www.lookpolymers.com/polymer_Akro-Plastic-Akroloy-PA-GF-30-2718-PA-66-PA6I6T-Dry-30-Glass-Filled.php

Physical Properties	Metric	English	Comments
Density	1.38 g/cc	0.0499 lb/in³	ISO 1183
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Filler Content	30 %	30 %	ISO 1172

Physical Properties	Metric	English	Comments
Water Absorption	@Temperature 70.0 °C	@Temperature 158 °F	62% r.h., Humidity, ISO 62
Water Absorption at Saturation	4.5 - 5.0 %	4.5 - 5.0 %	ISO 62
Linear Mold Shrinkage, Flow	<= 0.0010 cm/cm	<= 0.0010 in/in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.0060 cm/cm	0.0060 in/in	ISO 294-4
Spiral Flow	757 cm	298 in	Akro

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	240 MPa	34800 psi	(H 961/30); ISO 2039-1
Tensile Strength at Break	210 MPa	30500 psi	5 [mm/min]; ISO 527-1/2
	105 MPa	15200 psi	5 [mm/min], 50% Loss of Tensile Strength; ICE 216
	@Temperature 140 - 150 °C, Time 1.80e+7 sec	@Temperature 284 - 302 °F, Time 5000 hour	
	105 MPa	15200 psi	5 [mm/min], 50% Loss of Tensile Strength; ICE 216
	@Temperature 140 - 150 °C, Time 7.20e+7 sec	@Temperature 284 - 302 °F, Time 20000 hour	
Elongation at Break	3.0 %	3.0 %	5 [mm/min]; ISO 527-1/2
	4.0 %	4.0 %	Flexural Stain, 2.0mm/min; ISO 178
Tensile Modulus	10.5 GPa	1520 ksi	1[mm/min]; ISO 527-1/2
Flexural Strength	265 MPa	38400 psi	2 [mm/min]; ISO 178
Flexural Modulus	9.30 GPa	1350 ksi	2 [mm/min]; ISO 178
Charpy Impact Unnotched	6.50 J/cm²	30.9 ft-lb/in²	ISO 179/1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	8.00 J/cm²	38.1 ft-lb/in²	ISO 179/1eU
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	1.00 J/cm²	4.76 ft-lb/in²	ISO 179/1eA
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	1.10 J/cm²	5.23 ft-lb/in²	ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	20.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	11.1 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ISO 11359-1/2
	@Temperature 23.0 - 80.0 $^{\circ}\text{C}$	@Temperature 73.4 - 176 $^{\circ}\text{F}$	
CTE, linear, Transverse to Flow	75.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	41.7 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ISO 11359-1/2
	@Temperature 23.0 - 80.0 $^{\circ}\text{C}$	@Temperature 73.4 - 176 $^{\circ}\text{F}$	
Melting Point	255 $^{\circ}\text{C}$	491 $^{\circ}\text{F}$	ISO 11357-1, DSC,10 [K/min]
Deflection Temperature at 0.46 MPa (66 psi)	245 $^{\circ}\text{C}$	473 $^{\circ}\text{F}$	HDT/B; ISO 75-1/2
Deflection Temperature at 1.8 MPa (264 psi)	215 $^{\circ}\text{C}$	419 $^{\circ}\text{F}$	HDT/A; ISO 75-1/2
Flammability, UL94	HB	HB	
	@Thickness 0.800 mm	@Thickness 0.0315 in	

Electrical Properties	Metric	English	Comments
Comparative Tracking Index	600 V	600 V	Test Solution A; IEC 60112

Processing Properties	Metric	English	Comments
Feed Temperature	80.0 $^{\circ}\text{C}$	176 $^{\circ}\text{F}$	
Nozzle Temperature	290 - 310 $^{\circ}\text{C}$	554 - 590 $^{\circ}\text{F}$	
Zone 1	275 - 305 $^{\circ}\text{C}$	527 - 581 $^{\circ}\text{F}$	
Zone 2	275 - 305 $^{\circ}\text{C}$	527 - 581 $^{\circ}\text{F}$	
Zone 3	275 - 305 $^{\circ}\text{C}$	527 - 581 $^{\circ}\text{F}$	
Zone 4	275 - 305 $^{\circ}\text{C}$	527 - 581 $^{\circ}\text{F}$	
Melt Temperature	290 - 310 $^{\circ}\text{C}$	554 - 590 $^{\circ}\text{F}$	
Mold Temperature	80.0 - 120 $^{\circ}\text{C}$	176 - 248 $^{\circ}\text{F}$	
Drying Temperature	80.0 $^{\circ}\text{C}$	176 $^{\circ}\text{F}$	
Dry Time	4 - 8 hour	4 - 8 hour	
Injection Pressure	100 MPa	14500 psi	
Hold Pressure	30.0 - 80.0 MPa	4350 - 11600 psi	
Back Pressure	0.500 - 1.50 MPa	72.5 - 218 psi	

Descriptive Properties	Value	Comments
Rate acc. FMVSS 302 (Passed	
Rate acc. FMVSS 302,(FMVSS 302, >1 [mm] Thickness	

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