Akro-Plastic Akromid® T1 GF 50 (3101) PPA Dry, 50% Glass Filled

Category : Polymer , Thermoplastic , Polyphthalamide (PPA) , Polyphthalamide (PPA), 50% Glass Fiber Reinforced

Material Notes:

The new AKROMID® T is characterized primarily by high heat resistance and the lowest moisture absorption of the three PA grades, making it particularly well-suited in the automotive sector for high-temperature applications in the engine compartment and in machine building for components subjected to high mechanical loads. It easily maintains its high initial stability even at temperatures of up to 140 °C and still exhibits phenomenal creep behaviour. This extremely high dimensional stability is further enhanced by the product's low moisture absorption. Another key advantage over PA 6 or PA 6.6 is the significantly improved chemical resistance and high resistance to hydrolytic degradation. These properties – along with the aforementioned advantages in terms of mechanical loading – make the material an ideal answer for difficult applications in industrial pumps and fluid filters. Its low water absorption over extended periods is yet another advantage. By modifying the base grades, we have also made the material suitable for applications requiring a high quality surface finish.Applications:Automotive Sector:Cooling system (thermostat housing, connectors, etc.)Parts in the oil circuit (tensioner bases, etc.)Parts in the brake system (valve bodies, etc.)Clutch components (central clutch release bearing, etc.)Air ducting parts (side pieces for charge-air coolers, control shafts, etc.)Parts subjected to high loads in the interior (centre armrest, etc.)Electrical Engineering:Mobile telephone parts (chip carrier, etc.)Coil formersMotor parts (brush holders, etc.)Plugs and connectorsBulb and LED socketsIndustry and Household:Heating systems (fan housings, etc.)Components for coffee machines (grades compliant with KTW- German recommendation for polymers in drinking-water systems)Water counters and water filters (KTW-compliant, hot water)Pump systems (misc. functional parts)Information from Akro-Plastic

Order this product through the following link:
http://www.lookpolymers.com/polymer_Akro-Plastic-Akromid-T1-GF-50-3101-PPA-Dry-50-Glass-Filled.php

Physical Properties	Metric	English	Comments
Density	1.62 g/cc @Temperature 23.0 °C	0.0585 lb/in³ @Temperature 73.4 °F	ISO 1183
Filler Content	50 %	50 %	ISO 1172
Water Absorption	0.85 % @Temperature 70.0 °C	0.85 % @Temperature 158 °F	62% r.h., Humdity; ISO 62
Linear Mold Shrinkage, Flow	0.0030 cm/cm	0.0030 in/in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.0070 cm/cm	0.0070 in/in	ISO 294-4
Spiral Flow	53.0 cm	20.9 in	

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	360 MPa	52200 psi	H 961/30; ISO 2039-1
Tensile Strength at Break	270 MPa	39200 psi	5 [mm/min]; ISO 527-1/2
	135 MPa	19600 psi	

Mechanical Properties	Metric	English	Comments
	@Temperature 170 - 180 °C, Time 1.80e+7 sec	@Temperature 338 - 356 °F, Time 5000 hour	5 [mm/min], 50% Loss of Tensile Strength; ICE 216
	135 MPa @Temperature 150 - 160 °C, Time 7.20e+7 sec	19600 psi @Temperature 302 - 320 °F, Time 20000 hour	5 [mm/min], 50% Loss of Tensile Strength; ICE 216
Tensile Stress	120 MPa @Strain 1.00 %, Temperature 120 °C	17400 psi @Strain 1.00 %, Temperature 248 °F	
	160 MPa @Strain 2.00 %, Temperature 120 °C	23200 psi @Strain 2.00 %, Temperature 248 °F	
	170 MPa @Strain 4.00 %, Temperature 120 °C	24700 psi @Strain 4.00 %, Temperature 248 °F	
Elongation at Break	2.0 %	2.0 %	5 [mm/min]; ISO 527-1/2
	2.4 %	2.4 %	2 [mm/min], Flexural; ISO 178
Creep Strength	100 MPa @Strain 0.550 %, Time 3600 sec	14500 psi @Strain 0.550 %, Time 1.00 hour	
	100 MPa @Strain 0.580 %, Time 36000 sec	14500 psi @Strain 0.580 %, Time 10.0 hour	
	100 MPa @Strain 0.600 %, Time 360000 sec	14500 psi @Strain 0.600 %, Time 100 hour	
	100 MPa @Strain 0.650 %, Time 3.60e+6 sec	14500 psi @Strain 0.650 %, Time 1000 hour	
Tensile Modulus	20.0 GPa	2900 ksi	1[mm/min]; ISO 527-1/2
	13.5 GPa @Temperature 120 °C	1960 ksi @Temperature 248 °F	
	17.0 GPa @Temperature 80.0 °C	2470 ksi @Temperature 176 °F	
	18.5 GPa	2680 ksi	

Mechanical Properties	Metric	English	Comments
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Flexural Strength	380 MPa	55100 psi	2 [mm/min]; ISO 178
Flexural Modulus	18.0 GPa	2610 ksi	2 [mm/min]; ISO 178
Shear Modulus	0.400 GPa @Temperature 350 °C	58.0 ksi @Temperature 662 °F	
	0.600 GPa @Temperature 300 °C	87.0 ksi @Temperature 572 °F	
	0.700 GPa @Temperature 250 °C	102 ksi @Temperature 482 °F	
	0.800 GPa @Temperature 200 °C	116 ksi @Temperature 392 °F	
	3.00 GPa @Temperature 100 °C	435 ksi @Temperature 212 °F	
	3.90 GPa @Temperature 150 °C	566 ksi @Temperature 302 °F	
	4.00 GPa @Temperature 0.000 °C	580 ksi @Temperature 32.0 °F	
Charpy Impact Unnotched	1.40 J/cm² @Temperature -30.0 °C	6.66 ft-lb/in² @Temperature -22.0 °F	ISO 179/1eU
	9.00 J/cm² @Temperature 23.0 °C	42.8 ft-lb/in² @Temperature 73.4 °F	ISO 179/1eU
Charpy Impact, Notched	1.40 J/cm² @Temperature 23.0 °C	6.66 ft-lb/in² @Temperature 73.4 °F	ISO 179/1eA
	7.00 J/cm² @Temperature -30.0 °C	33.3 ft-lb/in² @Temperature -22.0 °F	ISO 179/1eA

Thermal Properties	Metric	English	Comments
Melting Point	313 °C	595 °F	ISO 11357-1, DSC,10 [K/min]
Deflection Temperature at 0.46 MPa (66 psi)	310 °C	590 °F	HDT/B; ISO 75-1/2
Deflection Temperature at 1.8 MPa (264 psi)	285 °C	545 °F	HDT/A; ISO 75-1/2
Deflection Temperature at 8.0 MPa			HDT/C; ISO 75-2

Thermal Properties	Metric	English	Comments
	230 °C	446 °F	
Flammability, UL94	HB @Thickness 0.800 mm	HB @Thickness 0.0315 in	
Glow Wire Test	960 °C @Thickness 3.20 mm	1760 °F @Thickness 0.126 in	IEC 60695-2-12

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 - 95.0 °C	176 - 203 °F	
Nozzle Temperature	325 - 335 °C	617 - 635 °F	
Zone 1	315 - 325 °C	599 - 617 °F	
Zone 2	320 - 330 °C	608 - 626 °F	
Zone 3	325 - 340 °C	617 - 644 °F	
Zone 4	325 - 340 °C	617 - 644 °F	
Melt Temperature	330 - 340 °C	626 - 644 °F	
Mold Temperature	135 - 160 °C	275 - 320 °F	
Drying Temperature	90.0 °C	194 °F	
Dry Time	2 - 16.0 hour	2 - 16.0 hour	
Hold Pressure	30.0 - 80.0 MPa	4350 - 11600 psi	
Back Pressure	0.200 - 0.650 MPa	29.0 - 94.3 psi	

Descriptive Properties	Value	Comments
Acetic acid	Fail	100% Conc
Acetone	Pass	100% Conc
Cresol	Fail	100% Conc
Diesel fuel (DIN 51601)	Pass	100% Conc
Drying, Moisture (%)	<0.1	
Engine oil	Pass	100% Conc

Descriptive Properties	Value	Comments
Ethanol	Pass	96% Conc
Ethylene glycol/water	Pass	120°C, 50% Conc
Formic acid	Fail	100% Conc
Hydraulic oil	Pass	100% Conc
Injection Speed	average to high	
Isopropanol	Pass	100% Conc
Kerosene	Pass	100% Conc
Methanol	Pass	100% Conc
Petrol	Pass	100% Conc
Phenol	Fail	100% Conc
Rate acc. FMVSS 302 (	Passed	
Rate acc. FMVSS 302,(	FMVSS 302, >1 [mm] Thickness	
Silicone oil	Pass	
Sulphuric acid	Fail	96% Conc
Toluene	Pass	100% Conc
Urea, aqueous	Pass	20% Conc
Water	Pass	100% Conc
Xylene	Pass	100% Conc
Zinc chloride, aqueous	Pass	50% Conc

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