Akro-Plastic Akromid® S3 GF 50 1 (3533) PA 6.10 Dry, 50% Glass Filled

Category : Polymer , Renewable/Recycled Polymer , Thermoplastic , Nylon , Nylon 610 , Nylon 610, Glass Reinforced

Material Notes:

A characteristic property of AKROMID® S (PA 6.10) is that it has a renewable-resource content of up to 70 % and therefore fulfils the current definition of a bioplastic. The plant-based raw material used is sebacic acid, synthesized from castor oil which is obtained from the seeds of Ricinus communis, the castor oil plant. From a technical standpoint, AKROMID® S closes the gap between PA 6/PA 6.6 and PA 12. It is characterized by significantly lower moisture absorption compared to PA 6 and PA 6.6. At 23 °C and 50 % relative humidity, typical values for these product types are 3 % and 2.8 %, respectively. With a value of approximately 1.4 %, PA 6.10 absorbs just half as much moisture and can therefore be used as an engineering material in applications requiring a high dimensional consistency. Moreover, it exhibits excellent cold impact resistance. Other outstanding characteristics include very good chemical resistance due to the structure of the polymer and high hydrolysis resistance, although it can be processed like all common polyamides. The materials from the PA 6.10 product family are further characterized by exceptional dimensional stability, good surface resistance, good abrasion resistance and wear behaviour, and an improved carbon footprint. This is due to the fact that the plant-based raw materials have already removed CO2 from the environment during their growth phase. The product portfolio currently comprises one non reinforced variant and several reinforced variants with a glass-fibre content ranging from 15 % to 50 %. AKROMID® S is a bioplastic according to today's standards. Unlike certain materials used in the packaging industry, however, the material is not biodegradable. The distinguishing feature of AKROMID® S is its reduced ecological footprint: The use of harmful CO2 per ton of polyamide produced from renewable resources is significantly lower compared to one ton produced from fossil-based resources, without affecting the product's performance characteristics.Applications:Automotive SectorConnectors and housingsNon-return valvesPower steering-fluid reservoirsCorrugated tubing and fluid pipesMachine Construction and Tool-BuildingGearsDoor handles and fittingsOffice equipment, housings, functional parts, amongst othersConnectors and plugsPower toolsSports and LeisureComponents in high-end garden toolsBicycle accessoriesSail-boat accessoriesWinter sports accessoriesInformation from Akro-Plastic

Order this product through the following link:
http://www.lookpolymers.com/polymer_Akro-Plastic-Akromid-S3-GF-50-1-3533-PA-610-Dry-50-Glass-Filled.php

Physical Properties	Metric	English	Comments
Density	1.51 g/cc @Temperature 23.0 °C	0.0546 lb/in³ @Temperature 73.4 °F	ISO 1183
Filler Content	50 %	50 %	ISO 1172
Water Absorption	0.90 % @Temperature 70.0 °C	0.90 % @Temperature 158 °F	62% r.h., Humdity; ISO 62
Water Absorption at Saturation	0.35 % @Temperature 25.0 °C, Treatment Temp. 70.0 °C	0.35 % @Temperature 77.0 °F, Treatment Temp. 158 °F	62% rel. humidity
	0.40 % @Temperature 50.0 °C, Treatment Temp. 70.0	0.40 % @Temperature 122 °F, Treatment Temp. 158	62% rel. humidity

Physical Properties	Metric (°C)	English (°F)	Comments
	0.60 % @Treatment Temp. 70.0 °C, Temperature 145 °C	0.60 % @Treatment Temp. 158 °F, Temperature 293 °F	62% rel. humidity
	0.70 % @Treatment Temp. 70.0 °C, Temperature 310 °C	0.70 % @Treatment Temp. 158 °F, Temperature 590 °F	62% rel. humidity
	0.70 % @Treatment Temp. 70.0 °C, Temperature 335 °C	0.70 % @Treatment Temp. 158 °F, Temperature 635 °F	62% rel. humidity
	0.75 % @Treatment Temp. 70.0 °C, Temperature 220 °C	0.75 % @Treatment Temp. 158 °F, Temperature 428 °F	62% rel. humidity
Linear Mold Shrinkage, Flow	0.0030 cm/cm	0.0030 in/in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.010 cm/cm	0.010 in/in	ISO 294-4
Spiral Flow	35.0 cm	13.8 in	AKRO

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	230 MPa	33400 psi	H 961/30; ISO 2039-1
Tensile Strength at Break	200 MPa	29000 psi	5 [mm/min]; ISO 527-1/2
Elongation at Break	3.5 %	3.5 %	5 [mm/min]; ISO 527-1/2
	3.6 %	3.6 %	Flexural Strain, 2 [mm/min]; ISO 178
Tensile Modulus	14.5 GPa	2100 ksi	1[mm/min]; ISO 527-1/2
	10.5 GPa @Treatment Temp. 70.0 °C, Time 1.22e+6 sec	1520 ksi @Treatment Temp. 158 °F, Time 340 hour	62% rel. humidity
	10.8 GPa @Treatment Temp. 70.0 °C, Time 1.15e+6 sec	1570 ksi @Treatment Temp. 158 °F, Time 320 hour	62% rel. humidity
	11.0 GPa @Treatment Temp. 70.0 °C,	1600 ksi @Treatment Temp. 158 °F,	62% rel. humidity

Mechanical Properties	Metric	English	Comments
	Time 936000 sec	Time 260 hour	
	11.5 GPa @Treatment Temp. 70.0 °C, Time 522000 sec	1670 ksi @Treatment Temp. 158 °F, Time 145 hour	62% rel. humidity
	12.4 GPa @Treatment Temp. 70.0 °C, Time 180000 sec	1800 ksi @Treatment Temp. 158 °F, Time 50.0 hour	62% rel. humidity
	12.5 GPa @Treatment Temp. 70.0 °C, Time 90000 sec	1810 ksi @Treatment Temp. 158 °F, Time 25.0 hour	62% rel. humidity
Flexural Strength	310 MPa	45000 psi	2 [mm/min]; ISO 178
Flexural Modulus	13.8 GPa	2000 ksi	2 [mm/min]; ISO 178
Charpy Impact Unnotched	10.0 J/cm² @Temperature 23.0 °C	47.6 ft-lb/in² @Temperature 73.4 °F	ISO 179/1eU
	10.5 J/cm² @Temperature -30.0 °C	50.0 ft-lb/in² @Temperature -22.0 °F	ISO 179/1eU
Charpy Impact, Notched	1.60 J/cm² @Temperature -30.0 °C	7.61 ft-lb/in² @Temperature -22.0 °F	ISO 179/1eA
	2.00 J/cm² @Temperature 23.0 °C	9.52 ft-lb/in² @Temperature 73.4 °F	ISO 179/1eA

Thermal Properties	Metric	English	Comments
Melting Point	220 °C	428 °F	ISO 11357-1, DSC,10 [K/min]
Deflection Temperature at 1.8 MPa (264 psi)	205 °C	401 °F	HDT/A; ISO 75-1/2
Deflection Temperature at 8.0 MPa	170 °C	338 °F	HDT/C; ISO 75-1/2
Flammability, UL94	HB @Thickness 0.800 mm	HB @Thickness 0.0315 in	

Processing Properties	Metric	English	Comments
Feed Temperature	60.0 - 80.0 °C	140 - 176 °F	
Nozzle Temperature	240 - 295 °C	464 - 563 °F	

Processing Properties	Metric	English	Comments
Zone 1	220 - 300 °C	428 - 572 °F	
Zone 2	220 - 300 °C	428 - 572 °F	
Zone 3	220 - 300 °C	428 - 572 °F	
Zone 4	220 - 300 °C	428 - 572 °F	
Melt Temperature	260 - 310 °C	500 - 590 °F	
Mold Temperature	70.0 - 100 °C	158 - 212 °F	
Drying Temperature	80.0 °C	176 °F	
Dry Time	<= 4 hour	<= 4 hour	
Hold Pressure	30.0 - 80.0 MPa	4350 - 11600 psi	
Back Pressure	5.00 - 15.0 MPa	725 - 2180 psi	

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

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