

## Akro-Plastic Akromid® S3 GF 30 1 (3222) PA 6.10 Dry, 30% 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 Sector Connectors and housings Non-return valves Power steering-fluid reservoirs Corrugated tubing and fluid pipes Machine Construction and Tool-Building Gears Door handles and fittings Office equipment, housings, functional parts, amongst others Connectors and plugs Power tools Sports and Leisure Components in high-end garden tools Bicycle accessories Sail-boat accessories Winter sports accessories Information from Akro-Plastic

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Akro-Plastic-Akromid-S3-GF-30-1-3222-PA-610-Dry-30-Glass-Filled.php](http://www.lookpolymers.com/polymer_Akro-Plastic-Akromid-S3-GF-30-1-3222-PA-610-Dry-30-Glass-Filled.php)

Physical Properties	Metric	English	Comments
Density	1.31 g/cc	0.0473 lb/in <sup>3</sup>	ISO 1183
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Filler Content	30 %	30 %	ISO 1172
Water Absorption	1.2 %	1.2 %	62% r.h., Humidity; ISO 62
	@Temperature 70.0 °C	@Temperature 158 °F	
Water Absorption at Saturation	0.40 %	0.40 %	62% rel. humidity
	@Temperature 25.0 °C, Treatment Temp. 70.0 °C	@Temperature 77.0 °F, Treatment Temp. 158 °F	
	0.60 %	0.60 %	62% rel. humidity
	@Temperature 45.0 °C, Treatment Temp. 70.0 °C	@Temperature 113 °F, Treatment Temp. 158 °F	

Physical Properties	°C Metric	°F English	Comments
	0.70 %	0.70 %	
	@Temperature 70.0 °C, Treatment Temp. 70.0 °C	@Temperature 158 °F, Treatment Temp. 158 °F	62% rel. humidity
	1.0 %	1.0 %	
	@Treatment Temp. 70.0 °C, Temperature 160 °C	@Treatment Temp. 158 °F, Temperature 320 °F	62% rel. humidity
	1.1 %	1.1 %	
	@Treatment Temp. 70.0 °C, Temperature 240 °C	@Treatment Temp. 158 °F, Temperature 464 °F	62% rel. humidity
	1.2 %	1.2 %	
	@Treatment Temp. 70.0 °C, Temperature 340 °C	@Treatment Temp. 158 °F, Temperature 644 °F	62% rel. humidity
	1.2 %	1.2 %	
	@Treatment Temp. 70.0 °C, Temperature 400 °C	@Treatment Temp. 158 °F, Temperature 752 °F	62% rel. humidity
Linear Mold Shrinkage, Flow	0.0030 cm/cm	0.0030 in/in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.0090 cm/cm	0.0090 in/in	ISO 294-4
Spiral Flow	40.0 cm	15.7 in	AKRO

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	160 MPa	23200 psi	5 [mm/min]; ISO 527-1/2
Elongation at Break	4.5 %	4.5 %	5 [mm/min]; ISO 527-1/2
	5.5 %	5.5 %	2 [mm/min], Flexural; ISO 178
Tensile Modulus	8.60 GPa	1250 ksi	1[mm/min]; ISO 527-1/2
	6.50 GPa	943 ksi	
	@Treatment Temp. 70.0 °C, Time 1.44e+6 sec	@Treatment Temp. 158 °F, Time 400 hour	62% rel. humidity
	6.70 GPa	972 ksi	
	@Treatment Temp. 70.0 °C, Time 1.22e+6 sec	@Treatment Temp. 158 °F, Time 340 hour	62% rel. humidity

Mechanical Properties	6.90 GPa Metric	1000 ksi English	Comments
	@Treatment Temp. 70.0 °C, Time 864000 sec	@Treatment Temp. 158 °F, Time 240 hour	62% rel. humidity
	7.00 GPa	1020 ksi	
	@Treatment Temp. 70.0 °C, Time 576000 sec	@Treatment Temp. 158 °F, Time 160 hour	62% rel. humidity
	7.90 GPa	1150 ksi	
	@Treatment Temp. 70.0 °C, Time 270000 sec	@Treatment Temp. 158 °F, Time 75.0 hour	62% rel. humidity
	8.00 GPa	1160 ksi	
	@Treatment Temp. 70.0 °C, Time 180000 sec	@Treatment Temp. 158 °F, Time 50.0 hour	62% rel. humidity
	8.20 GPa	1190 ksi	
	@Treatment Temp. 70.0 °C, Time 90000 sec	@Treatment Temp. 158 °F, Time 25.0 hour	62% rel. humidity
Flexural Strength	230 MPa	33400 psi	2 [mm/min]; ISO 178
Flexural Modulus	7.70 GPa	1120 ksi	2 [mm/min]; ISO 178
Izod Impact, Unnotched (ISO)	95.0 kJ/m <sup>2</sup>	45.2 ft-lb/in <sup>2</sup>	After 200 hours in ZnCl <sub>2</sub>
Charpy Impact Unnotched	10.0 J/cm <sup>2</sup>	47.6 ft-lb/in <sup>2</sup>	ISO 179/1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	10.0 J/cm <sup>2</sup>	47.6 ft-lb/in <sup>2</sup>	ISO 179/1eU
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	1.20 J/cm <sup>2</sup>	5.71 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	1.70 J/cm <sup>2</sup>	8.09 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	

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	145 °C	293 °F	HDT/C; ISO 75-1/2

Thermal Properties Flammability, UL94	MP Metric	MP English	Comments
	@Thickness 0.800 mm	@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	
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	

## Contact Songhan Plastic Technology Co.,Ltd.

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