

Akro-Plastic Akromid® S3 GF 23 1 (2917) PA 6.10 Conditioned, 23% 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-23-1-2917-PA-610-Conditioned-23-Glass-Filled.php

| Physical Properties | Metric | English | Comments |
|-----------------------------------|-------------------------------|------------------------------|----------------------------|
| Density | 1.25 g/cc | 0.0452 lb/in ³ | ISO 1183 |
| Filler Content | 23 % | 23 % | ISO 1172 |
| Water Absorption | 1.3 % @Temperature 70.0 °C | 1.3 % @Temperature 158 °F | 62% r.h., Humidity; ISO 62 |
| Linear Mold Shrinkage, Flow | 0.0040 cm/cm | 0.0040 in/in | ISO 294-4 |
| Linear Mold Shrinkage, Transverse | 0.0090 cm/cm | 0.0090 in/in | ISO 294-4 |

| Mechanical Properties | Metric | English | Comments |
|---------------------------|---------|-----------|-------------------------|
| Tensile Strength at Break | 100 MPa | 14500 psi | 5 [mm/min]; ISO 527-1/2 |

| Elongation at Break Mechanical Properties | 10 % Metric | 10 % English | 5 [mm/min]; ISO 527-1/2 Comments |
|----------------------------------------------|------------------------------------------------|----------------------------------------------------|-------------------------------------|
| Tensile Modulus | 5.00 GPa | 725 ksi | 1[mm/min]; ISO 527-1/2 |
| Charpy Impact Unnotched | 8.50 J/cm ² @Temperature 23.0 °C | 40.4 ft-lb/in ² @Temperature 73.4 °F | ISO 179/1eU |

| Thermal Properties | Metric | English | Comments |
|--------------------|--------|---------|-----------------------------|
| Melting Point | 220 °C | 428 °F | ISO 11357-1, DSC,10 [K/min] |

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