

## Akro-Plastic Akromid® B3 GF 50 (2475) PA 6 Dry, 50% Glass Filled

Category : Polymer , Thermoplastic , Nylon , Nylon 6 , Nylon 6, 50% Glass Fiber Filled

### Material Notes:

AKROMID® B (Polyamide 6) is an engineering compound, characterized by high mechanical strength, stiffness and thermal resistance. Furthermore, this polyamide offers high toughness at low temperatures as well as easy processing. AKROMID® B is an engineering plastic compound that allows a broad range of possible applications. On the basis of these standard types, we are able to develop individual compounds for special application needs. Information from Akro-Plastic

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Akro-Plastic-Akromid-B3-GF-50-2475-PA-6-Dry-50-Glass-Filled.php](http://www.lookpolymers.com/polymer_Akro-Plastic-Akromid-B3-GF-50-2475-PA-6-Dry-50-Glass-Filled.php)

| Physical Properties               | Metric               | English                   | Comments                           |
|-----------------------------------|----------------------|---------------------------|------------------------------------|
| Density                           | 1.56 g/cc            | 0.0564 lb/in <sup>3</sup> | ISO 1183                           |
|                                   | @Temperature 23.0 °C | @Temperature 73.4 °F      |                                    |
| Filler Content                    | 50 %                 | 50 %                      | ISO 1172                           |
| Water Absorption                  | 1.3 - 1.6 %          | 1.3 - 1.6 %               | 62% r.h., Humidity; ISO 62         |
|                                   | @Temperature 70.0 °C | @Temperature 158 °F       |                                    |
| Water Absorption at Saturation    | 4.5 - 5.1 %          | 4.5 - 5.1 %               | ISO 62                             |
|                                   | @Time 82800 sec      | @Time 23.0 hour           |                                    |
| Linear Mold Shrinkage, Flow       | 0.0020 cm/cm         | 0.0020 in/in              | ISO 294-4                          |
| Linear Mold Shrinkage, Transverse | 0.0090 cm/cm         | 0.0090 in/in              | ISO 294-4                          |
| Spiral Flow                       | 43.0 cm              | 16.9 in                   | Cross Section: 7[mm]x3.5[mm]; AKRO |

| Mechanical Properties     | Metric                                         | English                                       | Comments                                          |
|---------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------------|
| Ball Indentation Hardness | 270 MPa                                        | 39200 psi                                     | H 961/30; ISO 2039-1                              |
| Tensile Strength at Break | 230 MPa                                        | 33400 psi                                     | 5 [mm/min]; ISO 527-1/2                           |
|                           | 115 MPa                                        | 16700 psi                                     | 5 [mm/min], 50% Loss of Tensile Strength; ICE 216 |
|                           | @Temperature 160 - 175 °C,<br>Time 1.80e+7 sec | @Temperature 320 - 347 °F,<br>Time 5000 hour  |                                                   |
| Elongation at Break       | 115 MPa                                        | 16700 psi                                     | 5 [mm/min], 50% Loss of Tensile Strength; ICE 216 |
|                           | @Temperature 130 - 150 °C,<br>Time 7.20e+7 sec | @Temperature 266 - 302 °F,<br>Time 20000 hour |                                                   |
|                           | 2.5 %                                          | 2.5 %                                         | 5 [mm/min]; ISO 527-1/2                           |
| Tensile Modulus           | 17.0 GPa                                       | 2470 ksi                                      | 1[mm/min]; ISO 527-1/2                            |

| Mechanical Properties   | Metric                 | English                    | Comments            |
|-------------------------|------------------------|----------------------------|---------------------|
| Flexural Strength       | 340 MPa                | 49300 psi                  | 2 [mm/min]; ISO 178 |
| Flexural Modulus        | 14.9 GPa               | 2160 ksi                   | 2 [mm/min]; ISO 178 |
| Charpy Impact Unnotched | 9.00 J/cm <sup>2</sup> | 42.8 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  | 1.60 J/cm <sup>2</sup> | 7.61 ft-lb/in <sup>2</sup> | ISO 179/1eA         |
|                         | @Temperature -30.0 °C  | @Temperature -22.0 °F      |                     |
|                         | 2.00 J/cm <sup>2</sup> | 9.52 ft-lb/in <sup>2</sup> | ISO 179/1eA         |
|                         | @Temperature 23.0 °C   | @Temperature 73.4 °F       |                     |

| Thermal Properties                          | Metric                      | English                    | Comments        |
|---------------------------------------------|-----------------------------|----------------------------|-----------------|
| CTE, linear, Parallel to Flow               | 11.0 µm/m-°C                | 6.11 µin/in-°F             | ISO 11359-1/2   |
|                                             | @Temperature 23.0 - 80.0 °C | @Temperature 73.4 - 176 °F |                 |
| CTE, linear, Transverse to Flow             | 94.0 µm/m-°C                | 52.2 µin/in-°F             | ISO 11359-1/2   |
|                                             | @Temperature 23.0 - 80.0 °C | @Temperature 73.4 - 176 °F |                 |
| Melting Point                               | 220 °C                      | 428 °F                     | ISO 11357-1/3   |
| Deflection Temperature at 0.46 MPa (66 psi) | 220 °C                      | 428 °F                     | HDT/B; ISO 75-2 |
| Deflection Temperature at 1.8 MPa (264 psi) | 220 °C                      | 428 °F                     | HDT/A; ISO 75-2 |
| Deflection Temperature at 8.0 MPa           | 185 °C                      | 365 °F                     | HDT/C; ISO 75-2 |
| Flammability, UL94                          | HB                          | HB                         |                 |
|                                             | @Thickness 1.60 mm          | @Thickness 0.0630 in       |                 |
| Glow Wire Test                              | 650 °C                      | 1200 °F                    | ICE 60695-12    |
|                                             | @Thickness 1.60 mm          | @Thickness 0.0630 in       |                 |

| Electrical Properties      | Metric          | English         | Comments                   |
|----------------------------|-----------------|-----------------|----------------------------|
| Volume Resistivity         | 1.00e+13 ohm-cm | 1.00e+13 ohm-cm | IEC 60093                  |
| Surface Resistance         | 1.00e+12 ohm    | 1.00e+12 ohm    | IEC 60093                  |
| Comparative Tracking Index | 600 V           | 600 V           | Test Solution A; IEC 60112 |

| Processing Properties | Metric          | English          | Comments |
|-----------------------|-----------------|------------------|----------|
| Feed Temperature      | 60.0 - 80.0 °C  | 140 - 176 °F     |          |
| Nozzle Temperature    | 240 - 280 °C    | 464 - 536 °F     |          |
| Zone 1                | 225 - 300 °C    | 437 - 572 °F     |          |
| Zone 2                | 225 - 300 °C    | 437 - 572 °F     |          |
| Zone 3                | 225 - 300 °C    | 437 - 572 °F     |          |
| Zone 4                | 225 - 300 °C    | 437 - 572 °F     |          |
| Melt Temperature      | 260 - 300 °C    | 500 - 572 °F     |          |
| Mold Temperature      | 80.0 - 100 °C   | 176 - 212 °F     |          |
| Drying Temperature    | 80.0 °C         | 176 °F           |          |
| Dry Time              | 2.00 hour       | 2.00 hour        |          |
| Hold Pressure         | 30.0 - 80.0 MPa | 4350 - 11600 psi |          |
| Back Pressure         | 5.00 - 10.0 MPa | 725 - 1450 psi   |          |

| Descriptive Properties        | Value                        | Comments           |
|-------------------------------|------------------------------|--------------------|
| Rate acc. FMVSS 302 (         | Passed                       |                    |
| Rate acc. FMVSS 302,(         | FMVSS 302, >1 [mm] Thickness |                    |
| Resistance to Oleic acid      | Pass                         | 100% Conc. at 23°C |
| Resistance to Acetaldehyde    | Fail                         | 40% Conc. at 23°C  |
| Resistance to Acetic Acid     | Pass                         | 20% Conc. at 23°C  |
| Resistance to Acetone         | Pass                         | 100% Conc. at 23°C |
| Resistance to Acetonitrile    | Pass                         | 100% Conc. at 23°C |
| Resistance to Acrylonitrile   | Pass                         | 100% Conc. at 23°C |
| Resistance to Allyl alcohol   | Fail                         | 96% Conc. at 23°C  |
| Resistance to Amyl alcohol    | Pass                         | 100% Conc. at 23°C |
| Resistance to Aqueous Ammonia | Pass                         | 10% Conc. at 23°C  |
| Resistance to Benzene         | Fail                         | 100% Conc. at 40°C |
|                               | Pass                         | 100% Conc. at 23°C |
|                               |                              |                    |

| Descriptive Properties                           | Pass Value | 100% Conc. at 23°C Comments |
|--------------------------------------------------|------------|-----------------------------|
| Resistance to Biodiesel                          | Pass       | 100% Conc. at 23°C          |
| Resistance to Boric acid                         | Fail       | 100% Conc. at 23°C          |
|                                                  | Pass       | 10% Conc. at 23°C           |
| Resistance to Brake fluid (DOT 4)                | Fail       | 100% Conc. at 130°C         |
|                                                  | Pass       | 100% Conc. at 23°C          |
| Resistance to Calcium chloride, alcoholic        | Fail       | 10% Conc. at 23°C           |
| Resistance to Calcium chloride, aqueous          | Pass       | 10% Conc. at 23°C           |
| Resistance to Carbonic acid                      | Pass       | 100% Conc. at 60°C          |
| Resistance to Caustic potash solution, aqueous   | Pass       | 50% Conc. at 23°C           |
| Resistance to Chloracetic acid                   | Fail       | 50% Conc. at 23°C           |
| Resistance to Chlorine                           | Fail       | 100% Conc. at 23°C          |
| Resistance to Chlorine water                     | Fail       | 100% Conc. at 23°C          |
| Resistance to Chromic acid                       | Fail       | 10% Conc. at 23°C           |
| Resistance to Cyclohexane                        | Pass       | 100% Conc. at 23°C          |
| Resistance to Cyclohexanol                       | Pass       | 100% Conc. at 23°C          |
| Resistance to Dichloro-Acetic acid               | Fail       | 50% Conc. at 23°C           |
| Resistance to Diesel fuel (DIN 51601)            | Pass       | 100% Conc. at 23°C          |
| Resistance to Ethanol                            | Pass       | 96% Conc. at 23°C           |
| Resistance to Ethylene glycol/water              | Fail       | 50% Conc. at 120°C          |
| Resistance to Formaldehyde, aqueous              | Pass       | 10% Conc. at 23°C           |
| Resistance to Formic acid                        | Fail       | 2% Conc. at 23°C            |
| Resistance to Glycerin                           | Pass       | 100% Conc. at 23°C          |
| Resistance to Hydraulic oil H and HL (DIN 51524) | Pass       | 100% Conc. at 100°C         |
| Resistance to Hydrogen chloride, gas             | Fail       | 100% Conc. at 23°C          |
| Resistance to Iso-octanol                        | Pass       | 100% Conc. at 23°C          |
| Resistance to Isopropanol                        | Pass       | 100% Conc. at 23°C          |
| Resistance to Methanol                           | Pass       | 100% Conc. at 23°C          |

| Descriptive Properties                           | Value | Comments            |
|--------------------------------------------------|-------|---------------------|
| Resistance to Methylene chloride                 | Fail  | 100% Conc. at 23°C  |
| Resistance to Motor oil (SAE 10W-40)             | Pass  | 100% Conc. at 130°C |
|                                                  | Pass  | 100% Conc. at 23°C  |
| Resistance to Natural Gas                        | Pass  | 100% Conc. at 23°C  |
| Resistance to Nitric acid                        | Fail  | 40% Conc. at 23°C   |
| Resistance to Ozone                              | Fail  | 100% Conc. at 23°C  |
| Resistance to Phenol                             | Fail  | 100% Conc. at 23°C  |
| Resistance to Phosphoric acid                    | Fail  | 30% Conc. at 23°C   |
| Resistance to Potassium chloride, aqueous        | Pass  | 10% Conc. at 23°C   |
| Resistance to Potassium permanganate, aqueous    | Fail  | 10% Conc. at 23°C   |
| Resistance to Sodium chloride, aqueous           | Pass  | 10% Conc. at 23°C   |
| Resistance to Sodium hydroxide solution, aqueous | Pass  | 1% Conc. at 23°C    |
| Resistance to Sodium hypochlorite, aqueous       | Fail  | 10% Conc. at 23°C   |
| Resistance to Transmission oil (ATF m 1375.4)    | Pass  | 100% Conc. at 150°C |
| Resistance to Urea, aqueous                      | Pass  | 20% Conc. at 23°C   |
| Resistant to Carbon disulphide                   | Pass  | 100% Conc. at 23°C  |
| Resistant to Carbon tetrachloride                | Pass  | 100% Conc. at 23°C  |
| Resistant to Citric acid                         | Pass  | 10% Conc. at 23°C   |
| Resistant to Ethyl acetate                       | Pass  | 100% Conc. at 23°C  |
| Resistant to Hydrochloric acid                   | Fail  | 36% Conc. at 23°C   |
| Resistant to Hydrogen peroxide                   | Fail  | 23°C                |
| Resistant to Seawater                            | Pass  | 100% Conc. at 23°C  |
| Resistant to Silicone fluid                      | Pass  | 23°C                |
| Resistant to Sodium hypochlorite, aqueous        | Fail  | 5% Conc. at 23°C    |
| Resistant to Sulphuric acid                      | Fail  | 10% Conc. at 23°C   |
|                                                  | Fail  | 96% Conc. at 23°C   |
| Resistant to Super-grade petrol (DIN 51600)      | Pass  | 100% Conc. at 23°C  |

| Resistant to Toluol<br>Descriptive Properties | Pass<br>Value | 100% Conc. at 23°C<br>Comments |
|-----------------------------------------------|---------------|--------------------------------|
| Resistant to Water                            | Pass          | 100% Conc. up to 50 °C         |
| Resistant to Xylol                            | Pass          | 100% Conc. at 23°C             |
| Resistant to Zinc chloride, aqueous           | Fail          | 50% Conc. at 23°C              |

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