

Ultramid® A3K

Polyamide 66 (Nylon 66)



Product Description

Ultramid A3K is an easy flowing, injection molding grade PA66. It conforms to FDA requirements of 21 CFR 177.1500 (exception: food containing alcohol).

Applications

Typical applications include fast processing high stress technical parts or electrically insulating parts.

| PHYSICAL | ISO Test Method | Property Value | |
|---|-----------------|------------------------|-------------|
| Density, g/cm ³ | 1183 | 1.13 | |
| Moisture, % | 62 | | |
| (50% RH) | | 2.8 | |
| (Saturation) | | 8.5 | |
| RHEOLOGICAL | ISO Test Method | Dry | Conditioned |
| Melt Volume Rate (275 °C/5) Kg, cc/10min. | 1133 | 115 | |
| MECHANICAL | ISO Test Method | Dry | Conditioned |
| Tensile Modulus, MPa | 527 | | |
| 23°C | | 3,000 | 1,100 |
| Tensile stress at yield, MPa | 527 | | |
| 23°C | | 85 | 50 |
| Tensile strain at yield, % | 527 | | |
| 23°C | | 5 | 20 |
| Nominal strain at break, % | 527 | | |
| 23°C | | 20 | >50 |
| Flexural Modulus, MPa | 178 | | |
| 23°C | | 3,100 | - |
| IMPACT | ISO Test Method | Dry | Conditioned |
| Izod Impact, kJ/m ² | 180 | | |
| 23°C | | 5.5 | - |
| Charpy Notched, kJ/m ² | 179 | | |
| 23°C | | 5 | 25 |
| -30°C | | 4 | - |
| Charpy Unnotched, kJ/m ² | 179 | | |
| 23°C | | N | N |
| -30°C | | N | - |
| THERMAL | ISO Test Method | Dry | Conditioned |
| Melting Point, °C | 3146 | 260 | - |
| HDT A, °C | 75 | 75 | - |
| Coef. of Linear Thermal Expansion, Parallel, mm/mm °C | | 0.85 X10 ⁻⁴ | - |
| ELECTRICAL | ISO Test Method | Property Value | |
| Comparative Tracking Index | IEC 60112 | 600 | |

| Volume Resistivity | IEC 60093 | 1E13 | | |
|-----------------------------------|-------------|-----------------|-----|-------------|
| Surface Resistivity | IEC 60093 | 1E13 | | |
| Dielectric Constant (100 Hz) | IEC 60250 | 3.8 | | |
| Dielectric Constant (1 MHz) | IEC 60250 | 3.2 | | |
| Dissipation Factor (100 Hz) | IEC 60250 | 50 | | |
| Dissipation Factor (1 MHz) | IEC 60250 | 250 | | |
| Dielectric Strength, KV/mm | IEC 60243-1 | 120 | | |
| UL RATINGS | | ISO Test Method | Dry | Conditioned |
| Flammability Rating, 1.5mm | | UL94 | V-2 | |
| Relative Temperature Index, 1.5mm | | UL746B | | |
| Mechanical w/o Impact, °C | | | 85 | |
| Mechanical w/ Impact, °C | | | 80 | |
| Electrical, °C | | | 125 | |

Processing Guidelines

Material Handling

Max. Water content: 0.20%

Product is supplied in sealed containers and drying prior to molding is not required. If drying becomes necessary, a dehumidifying or desiccant dryer operating at 80 °C (176 °F) is recommended. Drying time is dependent on moisture level. Further information concerning safe handling procedures can be obtained from the Material Safety Data Sheet. Alternatively, please contact your BASF representative.

Typical Profile

Melt Temperature 280-300 °C (536-572 °F)

Mold Temperature 40-80 °C (104-176 °F)

Injection and Packing Pressure 35-125 bar (500-1500 psi)

Mold Temperatures

This product can be processed over a wide range of mold temperatures; however, for applications where aesthetics are critical, a mold surface temperature of 40-80 °C (104-176 °F) is recommended.

Pressures

Injection pressure controls the filling of the part and should be applied for 90% of ram travel. Packing pressure affects the final part and can be used effectively in controlling sink marks and shrinkage. It should be applied and maintained until the gate area is completely frozen off.

Fill Rate

Fast fill rates are recommended to insure uniform melt delivery to the cavity and prevent premature freezing.

Note

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