

# Ultramid® A3HG5

## Polyamide 66



### Product Description

Ultramid A3HG5 is a 25% glass fiber reinforced injection molding PA66 grade.

### Applications

Typical applications include machinery components and housings of high stiffness and dimensional stability.

| PHYSICAL   | ASTM Test Method | Property Value        |             |
|--|------------------|-----------------------|-------------|
| Specific Gravity                                     | D-792            | 1.32                  |             |
| Mold Shrinkage (1/8" bar, in/in)                     |                  | 0.003                 |             |
| Moisture, %  | D-570            |                       |             |
| (50% RH)   |                  | 1.9                   |             |
| (Saturation)   |                  | 6                     |             |
| MECHANICAL   | ASTM Test Method | Dry                   | Conditioned |
| Tensile Strength, Break, MPa (psi)                   | D-638            |                       |             |
| 23C (73F)  |                  | 179 (26,000)          | -           |
| Elongation, Break, %                                 | D-638            |                       |             |
| 23C (73F)  |                  | 3                     | -           |
| Flexural Modulus, MPa (psi)                          | D-790            |                       |             |
| 23C (73F)  |                  | 7,930 (1,150,000)     | -           |
| IMPACT   | ASTM Test Method | Dry                   | Conditioned |
| Notched Izod Impact, J/M (ft-lbs/in)                 | D-256            |                       |             |
| -40C (-40F)  |                  | 53 (1.0)              | -           |
| 23C (73F)  |                  | 96 (1.8)              | -           |
| THERMAL  | ASTM Test Method | Dry                   | Conditioned |
| Melting Point, C(F)                                  | D-3418           | 260 (500)             | -           |
| Heat Deflection @ 264 psi (1.8 MPa) C(F)             | D-648            | 250 (482)             | -           |
| Heat Deflection @ 66 psi (.45 MPa) C(F)              | D-648            | 250 (482)             | -           |
| Coef. of Linear Thermal Expansion, mm/mm C (in/in F) | E-831            | 0.1 X10 <sup>-4</sup> | -           |
| UL RATINGS   | UL Test Method   | Property Value        |             |
| Flammability Rating, 0.8mm                           | UL94             | HB                    |             |
| Relative Temperature Index, 0.8mm                    | UL746B           |                       |             |
| Electrical, C  |                  | 130                   |             |
| Flammability Rating, 1.5mm                           | UL94             | HB                    |             |
| Relative Temperature Index, 1.5mm                    | UL746B           |                       |             |
| Mechanical w/o Impact, C                             |                  | 130                   |             |
| Mechanical w/ Impact, C                              |                  | 120                   |             |
| Electrical, C  |                  | 130                   |             |
| Flammability Rating, 3.0mm                           | UL94             | HB                    |             |
| Relative Temperature Index, 3.0mm                    | UL746B           |                       |             |
| Mechanical w/o Impact, C                             |                  | 130                   |             |

| Mechanical w/ Impact, C    |                         | 120        |                    |
|----------------------------|-------------------------|------------|--------------------|
| Electrical, C              |                         | 130        |                    |
| <b>ELECTRICAL</b>          | <b>ASTM Test Method</b> | <b>Dry</b> | <b>Conditioned</b> |
| Volume Resistivity (Ohm-m) | D-257                   | 1E13       | 1E10               |

**Processing Guidelines**

**Material Handling**

Max. Water content: 0.15%  
 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 80C (176F) is recommended. Drying time is dependent on moisture level, However 2-4 hours is generally sufficient. Recommended moisture levels for achieving optimum surface qualities and mechanical properties is 0.05% - 0.12%. Further information concerning safe handling procedures can be obtained from the Safety Data Sheet. Alternatively, please contact your BASF representative.

**Typical Profile**

Melt Temperature 280-305C (536-581F)  
 Mold Temperature 80-90C (176-194F)  
 Injection and Packing Pressure 35-125 bar (500-1500 psi)

**Mold Temperatures**

A mold temperature of 80-90C (176-194F) is recommended, however temperatures of as low as 45C (113F) and as high as 105C (221F) can be used where applicable.

**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.

Back pressure can be utilized to provide uniform melt consistency and reduce trapped air and gas. Minimal back pressure should be utilized to prevent glass breakage.

**Fill Rate**

Fast fill rates are recommended to ensure uniform melt delivery to the cavity and prevent premature freezing. Surface appearance is directly affected by injection rate.

**Note**

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