

Ultramid® A3WG5 Polyamide 66

Ultramid A3WG5 is a 25% glass fiber reinforced and heat resistance injection molding PA66 grade.

Applications

Typical applications include machinery components and housings of high stiffness and dimensional stability such as coil formers and bearing cages. A3EG5 and A3HG5 are the preferred grades for producing electrically insulating parts.

PHYSICAL	ISO Test Method	Property Value	
Density, g/cm ³	1183	1.32	
Moisture, %	62		
(50% RH)		1.9	
(Saturation)		6	
RHEOLOGICAL	ISO Test Method	Dry	Conditioned
Melt Volume Rate (275 °C/5 Kg), cc/10min.	1133	50	-
MECHANICAL	ISO Test Method	Dry	Conditioned
Tensile Modulus, MPa	527		
23 °C		8,600	6,500
Tensile stress at break, MPa	527		
23 °C		180	120
Tensile strain at break, %	527		
23 °C		2.8	6.0
Flexural Modulus, MPa	178		
23 °C		7,600	-
IMPACT	ISO Test Method	Dry	Conditioned
Izod Notched Impact, kJ/m²	180		

23°C		9.5	-
Charpy Notched, kJ/m²	179		
-30°C		9	-
23°C		10	20
Charpy Unnotched, kJ/m²	179		
-30°C		55	-
23°C		60	90
THERMAL	ISO Test Method	Dry	Conditioned
Melting Point, °C	3146	260	-
HDT A, ° C	75	250	-
HDT B, ° C	75	250	-
Coef. of Linear Thermal Expansion, Parallel, mm/mm °C		0.3 X10-4	-
Coef. of Linear Thermal Expansion, Normal, mm/mm °C		0.65 X10-4	-
ELECTRICAL	ISO Test Method	Dry	Conditioned
Comparative Tracking Index	IEC 60112	450	450
Volume Resistivity (Ohm-m)	IEC 60093	1E13	1E10
Dielectric Constant (1 MHz)	IEC 60250	3.5	5.5
Dissipation Factor (100 Hz), E-4	IEC 60250	140	3,000
Dissipation Factor (1 MHz), E-4	IEC 60250	140	3,000
UL RATINGS	UL Test Method	Property Value	
Flammability Rating, 0.71mm	UL94	HB	
Relative Temperature Index, 0.71mm	UL746B		
Electrical, °C		125	
Flammability Rating, 1.5mm	UL94	HB	
Relative Temperature Index, 1.5mm	UL746B		
Mechanical w/o Impact, °C		115	

Mechanical w/ Impact, °C		120
Electrical, °C		125
Flammability Rating, 3.0mm	UL94	HB
Relative Temperature Index, 3.0mm	UL746B	
Mechanical w/o Impact, °C		130
Mechanical w/ Impact, °C		125
Electrical, °C		125

Processing Guidelines

Material Handling

Max. Water content: 0.15%

Material is supplied in sealed containers and drying prior to molding in a dehumidifying or desiccant dryer is recommended. Drying parameters are dependent upon the actual percentage of moisture in the pellets and typical pre-drying conditions are 2-4 hours at 180F (83C). Further information concerning safe handling procedures can be obtained from the Safety Data Sheet (MSDS), or by contacting your BASF representative.

Typical Profile

Melt Temperature 280-305°C (536-581°F)

Mold Temperature 80-90°C (176-194°F)

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

Mold Temperatures

A mold temperature of 80-90°C (176-194°F) is recommended, however temperatures of as low as 45°C (113°F) and as high as 105°C (221°F) 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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