

Ultramid® A3WG6 Polyamide 66

Ultramid A3WG6 is a 30% glass fiber reinforced and heat resistance injection molding PA66 grade for machinery components and housings of high stiffness and dimensional stability.

Applications

Typical applications include lamp socket housings, cooling fans, insulating profiles for aluminum window frames, water containers for automotive cooling systems.

PHYSICAL	ISO Test Method	Property Value	
Density, g/cm ³	1183	1.36	
Moisture, %	62		
(50% RH)		1.7	
(Saturation)		5.5	
RHEOLOGICAL	ISO Test Method	Dry	Conditioned
Melt Volume Rate (275 °C/5 Kg), cc/10min.	1133	40	-
MECHANICAL	ISO Test Method	Dry	Conditioned
Tensile Modulus, MPa	527		
23 °C		10,000	7,200
Tensile stress at break, MPa	527		
23 °C		190	130
120 °C		93	74
Tensile strain at break, %	527		
23 °C		3.0	5.0
120 °C		7.4	6.4
Flexural Modulus, MPa	178		
23 °C		8,600	-

IMPACT	ISO Test Method	Dry	Conditioned
Izod Notched Impact, kJ/m ²	180		
23°C		11.5	-
Charpy Notched, kJ/m ²	179		
-30°C		11	-
23°C		13	22
Charpy Unnotched, kJ/m ²	179		
-30°C		70	-
23°C		85	100
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		0.25 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	5.6
Dissipation Factor (100 Hz), E-4	IEC 60250	140	2,300
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		115
Electrical, °C		125
Flammability Rating, 3.0mm		UL94
Relative Temperature Index, 3.0mm		UL746B
Mechanical w/o Impact, °C		130
Mechanical w/ Impact, °C		120
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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