

Ultramid® A3EG7 Polyamide 66

Ultramid A3EG7 is a 35% glass fiber reinforced 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 profile for aluminium window frames, water containers for automotive cooling systems, as well as electrically insulating parts.

PHYSICAL	ISO Test Method	Property Value	
Density, g/cm ³	1183	1.41	
Moisture, %	62		
(50% RH)		1.6	
(Saturation)		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		11,500	8,500
Tensile stress at break, MPa	527		
23 °C		210	150
80 °C		122	-
Tensile strain at break, %	527		
23 °C		3.0	5.0
80 °C		5.3	-
Flexural Modulus, MPa	178		
23 °C		10,000	8,480

IMPACT		ISO Test Method	Dry	Conditioned
Izod Notched Impact, kJ/m²		180		
23°C			14	-
Charpy Notched, kJ/m²		179		
-30°C			12	-
23°C			14	22
Charpy Unnotched, kJ/m²		179		
-30°C			75	-
23°C			95	105
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			0.17 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	550	550
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	200	3,000
Dissipation Factor (1 MHz), E-4		IEC 60250	200	1,500
UL RATINGS		UL Test Method	Property Value	
Relative Temperature Index, 0.75mm		UL746B		
Electrical, °C			120	
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		120
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		120
Flammability Rating, 6.0mm	UL94	HB
Relative Temperature Index, 6.0mm	UL746B	
Mechanical w/o Impact, °C		130
Mechanical w/ Impact, °C		120
Electrical, °C		120

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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