

Ultramid® A3L HP Polyamide 66

Ultramid A3L HP is an unreinforced, heat stabilized, impact modified, high flow, nylon 66 for injection molding. This grade has excellent flow and improved ambient and low temperature toughness.

Applications

Typical applications include fasteners and clamps.

PHYSICAL	ISO Test Method	Property Value	
Density, g/cm ³	1183	1.10	
MECHANICAL	ISO Test Method	Dry	Conditioned
Tensile Modulus, MPa	527		
23 °C		2,440	-
Tensile stress at yield, MPa	527		
23 °C		63.5	-
Tensile strain at yield, %	527		
23 °C		6.2	-
Tensile strain at break, %	527		
23 °C		28	-
Flexural Modulus, MPa	178		
23 °C		2,280	-
IMPACT	ISO Test Method	Dry	Conditioned
Izod Notched Impact, kJ/m²	180		
-40 °C		12	-
23 °C		18	-
Charpy Notched, kJ/m²	179		

-30°C		14	-	
23°C		19	-	
THERMAL		ISO Test Method	Dry	Conditioned
Melting Point, °C		3146	260	-
HDT A, °C		75	70	-
HDT B, °C		75	192	-
UL RATINGS		UL Test Method	Property Value	
Flammability Rating, 0.75mm		UL94	HB	
Relative Temperature Index, 0.75mm		UL746B		
Mechanical w/o Impact, °C			110	
Mechanical w/ Impact, °C			105	
Electrical, °C			140	
Flammability Rating, 3.0mm		UL94	HB	
Relative Temperature Index, 3.0mm		UL746B		
Mechanical w/o Impact, °C			110	
Mechanical w/ Impact, °C			105	
Electrical, °C			140	

Processing Guidelines

Material Handling

Nylon 66 materials must be properly dried in order to provide parts with optimum strength and toughness. Nylon 66 materials are hygroscopic and will become degraded by excessive moisture during the injection molding Process. For unopened bag/box, dry at 60°C (140°F) for 1-2 hours. For material exposed to the atmosphere, if additional drying is needed, dry at 66°C (150°F) or until the moisture level is between 0.04 - 0.20%.

Typical Profile

Melt Temperature: 288-305°C (550-581°F)

Mold Temperature: 60-100°C (140-212°F)

Injection Pressure: 35-125 MPa (5000-18000 psi)

Back Pressure: 0-0.35 MPa (0-50 psi)

Screw RPM 40-80

Screw Compression Ratio:3:1-4:1

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 60-100°C (140-212°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 ensure uniform melt delivery to the cavity and prevent premature freezing.

Note

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BASF Corporation

Engineering Plastics
1609 Biddle Avenue
Wyandotte, MI 48192



General Information

800-BC-RESIN

Technical Assistance

800-527-TECH (734-324-5150)

Web address

<http://www.plasticsportal.com/usa>