Ultramid® A3WG5

BASF Corporation - Polyamide 66

Monday, November 4, 2019

General Information

Product Description

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.

General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Filler / Reinforcement	• Glass Fiber, 25% Filler by Weight		
Features	• Good Heat Resistance • High Dimensional Stability	• High Stiffness • Oil Resistant	
Uses	• Housings	• Machine/Mechanical Parts	
Agency Ratings	• EC 1907/2006 (REACH)		
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• CHRYSLER MS-DB-41 CPN4098 Color: Black • FORD WSK-M4D641-A • GM QK 000149 Type A Color: Natural • GM QK 003012 H Color: Natural • PSA Peugeot-Citroën SPA X62 4406 Color: 00564 Black		
Forms	• Pellets		
Processing Method	• Injection Molding		

ASTM & ISO Properties [1]

Physical	Dry	Conditioned	Unit	Test Method
Density / Specific Gravity	1.32	--		ASTM D792
Density	1.32	--	g/cm³	ISO 1183
Melt Volume-Flow Rate (MVR)				ISO 1133
275°C/5.0 kg	50	--	cm³/10min	
Molding Shrinkage - Flow (0.125 in)	3.0E-3	--	in/in	
Water Absorption (Saturation)	6.0	--	%	ASTM D570
Water Absorption				ISO 62
Saturation, 73°F	6.0	--	%	
Water Absorption				ASTM D570
Equilibrium, 50% RH	1.9	--	%	
Water Absorption				ISO 62
Equilibrium, 73°F, 50% RH	1.9	--	%	
Mechanical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Tensile Modulus (73°F)	1.25E+6	943000	psi	ISO 527-2
Tensile Strength (Break, 73°F)	24500	17100	psi	ASTM D638
Tensile Stress (Break, 73°F)	26100	17400	psi	ISO 527-2
Tensile Elongation (Break, 73°F)	2.8	5.0	%	ASTM D638
Tensile Strain (Break, 73°F)	2.8	6.0	%	ISO 527-2
Flexural Modulus (73°F)	1.12E+6	780000	psi	ASTM D790

Ultramid® A3WG5
BASF Corporation - Polyamide 66

Mechanical	Dry	Conditioned	Unit	Test Method
Flexural Modulus (73°F)	1.10E+6	--	psi	ISO 178
Impact	**Dry**	**Conditioned**	**Unit**	**Test Method**
Charpy Notched Impact Strength				ISO 179
-22°F	4.3	--	ft·lb/in²	
73°F	4.8	9.5	ft·lb/in²	
Charpy Unnotched Impact Strength				ISO 179
-22°F	26	--	ft·lb/in²	
73°F	29	43	ft·lb/in²	
Notched Izod Impact				ASTM D256
-40°F	1.3	--	ft·lb/in	
73°F	1.5	--	ft·lb/in	
Notched Izod Impact Strength				ISO 180
73°F	4.5	--	ft·lb/in²	
Thermal	**Dry**	**Conditioned**	**Unit**	**Test Method**
Deflection Temperature Under Load				ASTM D648
66 psi, Unannealed	482	--	°F	
Heat Deflection Temperature				ISO 75-2/B
66 psi, Unannealed	482	--	°F	
Deflection Temperature Under Load				ASTM D648
264 psi, Unannealed	482	--	°F	
Heat Deflection Temperature				ISO 75-2/A
264 psi, Unannealed	482	--	°F	
Peak Melting Temperature	500	--	°F	ASTM D3418
Melting Temperature (DSC)	500	--	°F	ISO 3146
CLTE - Flow	5.6E-6	--	in/in/°F	ASTM E831
CLTE - Flow	1.7E-5	--	in/in/°F	
CLTE - Transverse	3.6E-5	--	in/in/°F	
RTI Elec				UL 746
0.028 in	257	--	°F	
0.06 in	257	--	°F	
0.12 in	257	--	°F	
RTI Imp				UL 746
0.06 in	248	--	°F	
0.12 in	257	--	°F	
RTI Str				UL 746
0.06 in	239	--	°F	
0.12 in	266	--	°F	
Electrical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Volume Resistivity (0.0591 in)	1.0E+15	1.0E+12	ohms·cm	ASTM D257
Volume Resistivity	1.0E+15	1.0E+12	ohms·cm	IEC 60093
Dielectric Constant (1 MHz)	3.50	5.50		IEC 60250
Dissipation Factor				IEC 60250
100 Hz	0.014	0.30		
1 MHz	0.014	0.30		
Comparative Tracking Index	450	450	V	IEC 60112

Ultramid® A3WG5
BASF Corporation - Polyamide 66

Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.028 in	HB	--		
0.06 in	HB	--		
0.12 in	HB	--		

Processing Information

Injection	Dry	Unit
Drying Temperature	176	°F
Drying Time	2.0 to 4.0	hr
Suggested Max Moisture	0.15	%
Processing (Melt) Temp	536 to 581	°F
Mold Temperature	176 to 194	°F
Injection Pressure	508 to 1810	psi
Injection Rate	Fast	

Notes

[1] Typical properties: these are not to be construed as specifications.