



Ultramid® A3WG7

BASF Corporation - Polyamide 66

Monday, November 4, 2019

General Information

Product Description

Ultramid A3WG7 is a 35% glass fiber reinforced and heat resistance injection molding PA66 grade for machinery for industrial items.

Applications

Typical applications include gear wheels, solenoid valve housings, cable attachments, automotive fuel distributors and components for automotive gear shift.

General

Material Status	• Commercial: Active
Availability	• Asia Pacific • Europe • North America
Filler / Reinforcement	• Glass Fiber, 35% Filler by Weight
Features	• Good Heat Resistance • Oil Resistant
Uses	• Automotive Applications • Housings • Gears • Industrial Applications
Agency Ratings	• EC 1907/2006 (REACH)
RoHS Compliance	• RoHS Compliant
Automotive Specifications	• FORD WSK-M4D673-A • GM GMP.PA66.013 Color: Black • GM GMW3038P-PA66-GF35H • FORD WSS-M4D673-B1 • GM GMP.PA66.013 Color: Natural • GM GMW3038P-PA66-GF35H Color: Natural
Appearance	• Natural Color
Forms	• Pellets
Processing Method	• Injection Molding

ASTM & ISO Properties ¹

Physical	Dry	Conditioned	Unit	Test Method
Density / Specific Gravity	1.41	--		ASTM D792
Density	1.41	--	g/cm ³	ISO 1183
Melt Volume-Flow Rate (MVR)				ISO 1133
275°C/5.0 kg	40	--	cm ³ /10min	
Molding Shrinkage - Flow (0.125 in)	5.0E-3	--	in/in	
Water Absorption (Saturation)	5.0	--	%	ASTM D570
Water Absorption				ISO 62
Saturation, 73°F	5.0	--	%	
Water Absorption				ASTM D570
Equilibrium, 50% RH	1.6	--	%	
Water Absorption				ISO 62
Equilibrium, 73°F, 50% RH	1.6	--	%	
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (73°F)	1.67E+6	1.23E+6	psi	ISO 527-2
Tensile Strength (Break, 73°F)	31500	--	psi	ASTM D638
Tensile Stress				ISO 527-2
Break, 73°F	30500	21800	psi	
Break, 176°F	18100	13500	psi	
Break, 248°F	14800	11200	psi	
Tensile Elongation (Break, 73°F)	3.0	--	%	ASTM D638

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Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Strain				ISO 527-2
Break, 73°F	3.0	5.0	%	
Break, 176°F	6.8	6.1	%	
Break, 248°F	7.5	6.1	%	
Flexural Modulus (73°F)	1.55E+6	--	psi	ASTM D790
Flexural Modulus (73°F)	1.45E+6	1.23E+6	psi	ISO 178
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179
-22°F	5.7	--	ft·lb/in ²	
73°F	6.7	10	ft·lb/in ²	
Charpy Unnotched Impact Strength				ISO 179
-22°F	36	--	ft·lb/in ²	
73°F	45	52	ft·lb/in ²	
Notched Izod Impact				ASTM D256
-40°F	1.7	--	ft·lb/in	
73°F	2.2	--	ft·lb/in	
Notched Izod Impact Strength				ISO 180
73°F	6.7	--	ft·lb/in ²	
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	9.4E-6	--	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	239	--	°F	
0.12 in	248	--	°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+13	ohms·cm	ASTM D257
Volume Resistivity	1.0E+15	1.0E+13	ohms·cm	IEC 60093
Dielectric Constant (1 MHz)	3.50	5.70		IEC 60250
Dissipation Factor				IEC 60250
100 Hz	0.020	0.30		
1 MHz	0.020	0.30		

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Electrical	Dry	Conditioned	Unit	Test Method
Comparative Tracking Index	450	450	V	IEC 60112
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.