

Ultramid® A3X2G10

Polyamide 66

BASF Corporation

Message:

A glass fibre reinforced injection moulding grade with improved flame retardance. Flame retardant based on red phosphorus; giving outstanding electrical properties and very high stiffness and strength.

General Information				
UL YellowCard		E41871-233749		
Filler / Reinforcement		Glass fiber reinforced material, 50% filler by weight		
Additive		Flame retardancy		
Features		Rigidity, high		
		High strength		
		Good electrical performance		
		Oil resistance		
		Flame retardancy		
Agency Ratings		EC 1907/2006 (REACH)		
RoHS Compliance		RoHS compliance		
Forms		Particle		
Processing Method		Injection molding		
Multi-Point Data		Creep Modulus vs. Time (ISO 11403-1)		
		Isochronous Stress vs. Strain (ISO 11403-1)		
		Isothermal Stress vs. Strain (ISO 11403-1)		
		Secant Modulus vs. Strain (ISO 11403-1)		
		Shear Modulus vs. Temperature (ISO 11403-1)		
		Viscosity vs. Shear Rate (ISO 11403-2)		
Physical	Dry	Conditioned	Unit	Test Method
Density	1.60	--	g/cm ³	ISO 1183
Apparent Density	0.70	--	g/cm ³	
Melt Volume-Flow Rate (MVR) (275°C/5.0 kg)	25.0	--	cm ³ /10min	ISO 1133
Water Absorption				ISO 62
Saturated, 23°C	3.7 - 4.3	--	%	ISO 62
Equilibrium, 23°C, 50% RH	0.70 - 1.1	--	%	ISO 62
Viscosity Number (96% H2SO4)	140	--	cm ³ /g	ISO 307
Mold Shrinkage - constrained ¹	0.40	--	%	

Temperature index-at 50% loss of tensile strength				IEC 60216
-- ²	125	--	°C	IEC 60216
-- ³	145	--	°C	IEC 60216
Maximum operating temperature-short cycle operation		220	--	°C
Automotive Materials (> 1.00 mm)		Passed	--	FMVSS 302
Polymer Abbreviation	PA66-GF50 FR	--		
Screw Speed			mm/sec	
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus	16000	12000	MPa	ISO 527-2
Tensile Stress (Break)	180	130	MPa	ISO 527-2
Tensile Strain (Break)	2.0	3.0	%	ISO 527-2
Tensile Creep Modulus ⁴ (1000 hr)	--	5400	MPa	ISO 899-1
Flexural Modulus	13000	--	MPa	ISO 178
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	11	--	kJ/m ²	ISO 179/1eA
23°C	13	16	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	50	--	kJ/m ²	ISO 179/1eU
23°C	55	55	kJ/m ²	ISO 179/1eU
Notched Izod Impact (23°C)	14	20	kJ/m ²	ISO 180/A
Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
0.45 MPa, not annealed	250	--	°C	ISO 75-2/B
1.8 MPa, not annealed	250	--	°C	ISO 75-2/A
Melting Temperature	260	--	°C	ISO 11357-3
Linear thermal expansion coefficient				ISO 11359-2
Flow: 23 to 80°C	1.5E-5 - 2.0E-5	--	cm/cm/°C	ISO 11359-2
Lateral: 23 to 80°C	4.0E-5 - 5.0E-5	--	cm/cm/°C	ISO 11359-2
Specific Heat	1300	--	J/kg/°C	
Thermal Conductivity	0.35	--	W/m/K	DIN 52612
Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	--	1.0E+10	ohms	IEC 60093
Volume Resistivity	1.0E+15	1.0E+12	ohms · cm	IEC 60093
Dielectric Strength ⁵	33	30	kV/mm	IEC 60243-1

Relative Permittivity (1 MHz)	3.60	5.00		IEC 60250
Dissipation Factor (1 MHz)	0.020	--		IEC 60250
Comparative Tracking Index (Solution A)	600	--	V	IEC 60112
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating (1.60 mm)	V-0	--		UL 94
Injection	Dry	Unit		
Drying Temperature	80.0		°C	
Drying Time	4.0		hr	
Suggested Max Moisture	0.15		%	
Hopper Temperature	80.0		°C	
Rear Temperature	295		°C	
Middle Temperature	295		°C	
Front Temperature	295		°C	
Nozzle Temperature	295		°C	
Processing (Melt) Temp	290 - 300		°C	
Mold Temperature	80.0 - 90.0		°C	
Injection instructions				
Residence Time : <10 min				
NOTE				

1.	Test box with central gating, dimensions of base (107*47*1,5) mm, processing condition: TM = 320°C (unreinforced) or 330°C (reinforced), TW = 80°C
2.	20000 h
3.	5000 h
4.	strain <= 0.5%, 23°C
5.	60*60*1 mm ³

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