Amodel® AFA-6133 V0 Z

polyphthalamide

Amodel® AFA-6133 V0 Z is a 33% glass-fiber reinforced, flame retardant grade of polyphthalamide (PPA) resin specifically formulated for connector applications requiring compatibility with both infrared and vapor phase soldering operations typically used by the electronics industry.

Amodel® AFA-6133 V0 Z offers high flow and short molding cycles, thereby enhancing molding productivity and lowering costs.

- Black: AFA-6133 V0 Z BK 324

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Filler / Reinforcement	• Glass Fiber, 33% Filler by Weight		
Additive	• Flame Retardant		
Features	• Flame Retardant • Good Chemical Resistance • Good Dimensional Stability	• Good Electrical Properties • Good Stiffness • High Flow	• High Strength • Hot Water Moldability
Uses	• Automotive Applications • Automotive Electronics	• Bobbins • Connectors	• Electrical/Electronic Applications
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• ASTM D6779 PA104G35	• GM GMW15702 Color: BK Black [1]	
Appearance	• Black		
Forms	• Pellets		
Processing Method	• Water-Heated Mold Injection Molding		
Part Marking Code (ISO 11469)	• >PA6T/66-GF33<		
Resin ID (ISO 1043)	• PA6T/66 GF33 FR(17)		

Physical	Dry	Conditioned	Unit	Test method
Density	1.68	--	g/cm³	ISO 1183/A
Molding Shrinkage				ASTM D955
Flow	0.30	--	%	
Across Flow	0.60	--	%	
Water Absorption (24 hr)	0.20	--	%	ASTM D570

Mechanical	Dry	Conditioned	Unit	Test method
Tensile Modulus				
--	16100	13700	MPa	ASTM D638
23°C	14500	14500	MPa	ISO 527-2
100°C	9170	9200	MPa	ISO 527-2
150°C	5930	5900	MPa	ISO 527-2
175°C	5100	5100	MPa	ISO 527-2

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Mechanical	Dry	Conditioned	Unit	Test method
Tensile Stress				
Yield, 23°C	186	186	MPa	ISO 527-2
Yield, 100°C	114	114	MPa	ISO 527-2
Yield, 150°C	75.2	75.2	MPa	ISO 527-2
Yield, 175°C	63.4	63.4	MPa	ISO 527-2
--	199	166	MPa	ASTM D638
Tensile Elongation				
Break	1.7	1.7	%	ASTM D638
Break, 23°C	1.6	1.6	%	ISO 527-2
Break, 100°C	2.4	2.4	%	ISO 527-2
Break, 150°C	5.1	5.1	%	ISO 527-2
Break, 175°C	4.9	4.9	%	ISO 527-2
Flexural Modulus				
--	13100	13300	MPa	ASTM D790
23°C	12600	12600	MPa	ISO 178
100°C	8070	8100	MPa	ISO 178
150°C	4960	5000	MPa	ISO 178
175°C	4620	4600	MPa	ISO 178
Flexural Strength				
--	224	229	MPa	ASTM D790
23°C	259	259	MPa	ISO 178
100°C	161	161	MPa	ISO 178
150°C	101	101	MPa	ISO 178
175°C	87.6	88.0	MPa	ISO 178
Compressive Strength	145	--	MPa	ASTM D695
Shear Strength	80.0	62.1	MPa	ASTM D732

Impact	Dry	Conditioned	Unit	Test method
Charpy Notched Impact Strength				
23°C	14	--	kJ/m²	ISO 179/1eA
23°C	--	14	kJ/m²	ISO 179/2eA
Charpy Unnotched Impact Strength (23°C)	46	47	kJ/m²	ISO 179/1eU
Notched Izod Impact				
--	85	80	J/m	ASTM D256
23°C	8.2	8.0	kJ/m²	ISO 180/1A
Unnotched Izod Impact				
--	690	--	J/m	ASTM D256
23°C	44	44	kJ/m²	ISO 180/1U

Thermal	Dry	Conditioned	Unit	Test method
Heat Deflection Temperature				
1.8 MPa, Unannealed	282	282	°C	ISO 75-2/Af
1.8 MPa, Annealed	277	--	°C	ASTM D648
Melting Temperature				
--	310	310	°C	ISO 11357-3
--	310	--	°C	ASTM D3418

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Thermal	Dry	Conditioned	Unit	Test method
CLTE				ASTM E831
Flow : 0 to 100°C	0.000017	--	cm/cm/°C	
Flow : 100 to 200°C	7.0E-6	--	cm/cm/°C	
Transverse : 0 to 100°C	0.000064	--	cm/cm/°C	
Transverse : 100 to 200°C	0.00011	--	cm/cm/°C	

Electrical	Dry	Conditioned	Unit	Test method
Surface Resistivity	1.0E+15	--	ohm	ASTM D257
Volume Resistivity	1.0E+15	--	ohm·cm	ASTM D257
Dielectric Strength (3.18 mm)	24	--	kV/mm	ASTM D149
Dielectric Constant				ASTM D150
100 Hz	4.40	--		
1 MHz	4.10	--		
Dissipation Factor (1 MHz)	0.011	--		ASTM D150
Comparative Tracking Index (CTI)	PLC 1	--		UL 746
High Amp Arc Ignition (HAI)				UL 746
0.749 mm	PLC 0	--		
1.50 mm	PLC 0	--		
3.00 mm	PLC 0	--		
Hot-wire Ignition (HWI)				UL 746
0.749 mm	PLC 0	--		
1.50 mm	PLC 0	--		
3.00 mm	PLC 0	--		

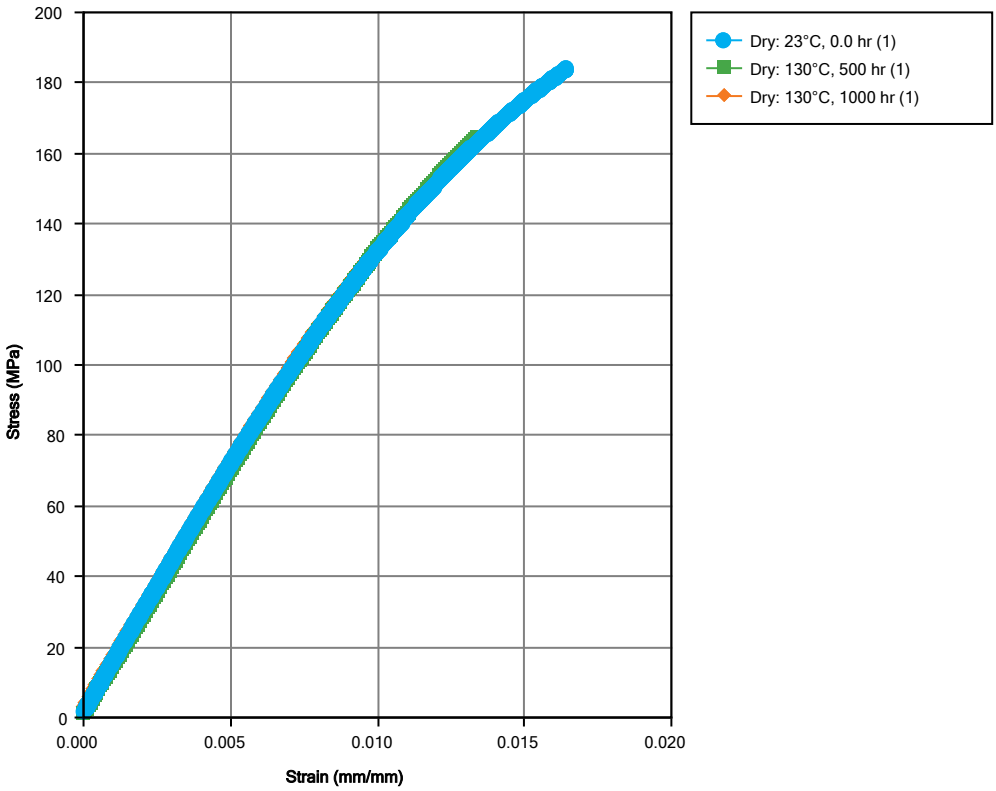
Flammability	Dry	Conditioned	Unit	Test method
Flame Rating [2] (0.800 mm)	V-0	--		UL 94

Injection	Dry	Unit
Drying Temperature	< 120	°C
Drying Time	4.0	hr
Suggested Max Moisture	0.030 to 0.060	%
Rear Temperature	327 to 332	°C
Middle Temperature	316 to 324	°C
Front Temperature	316 to 324	°C
Processing (Melt) Temp	321 to 338	°C
Mold Temperature	65.6 to 93.3	°C

Injection Notes

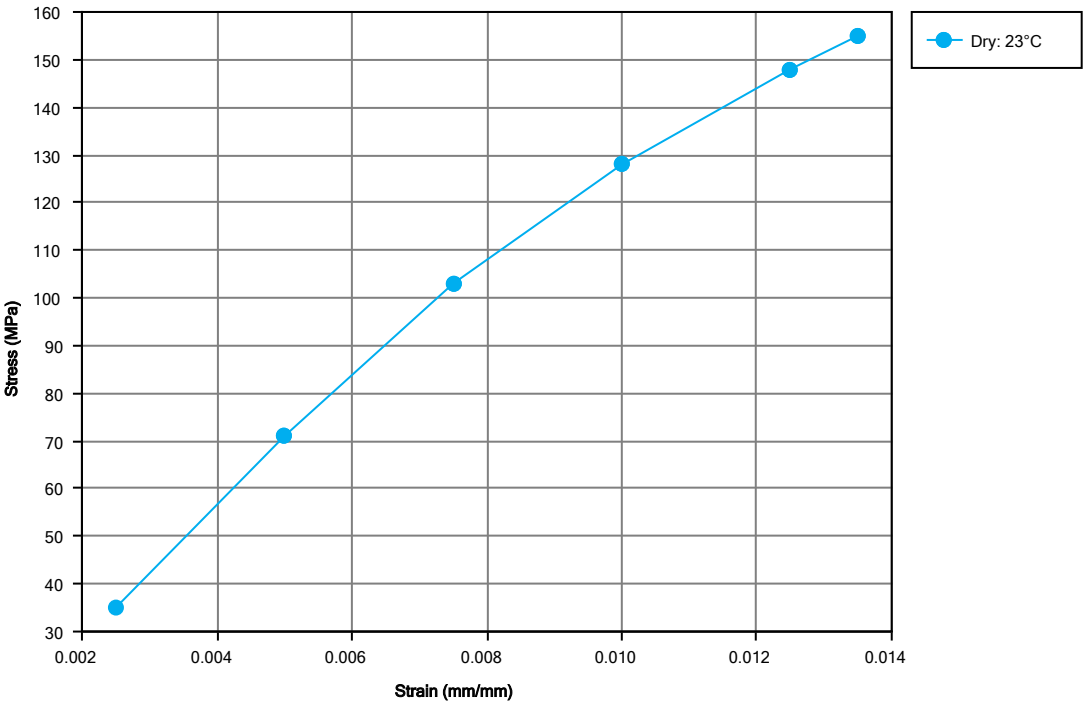
Injection Rate: 3 to 4 in/sec
Holding Pressure: 50% of injection pressure

Isochronous Stress vs. Strain (ISO 11403-1)

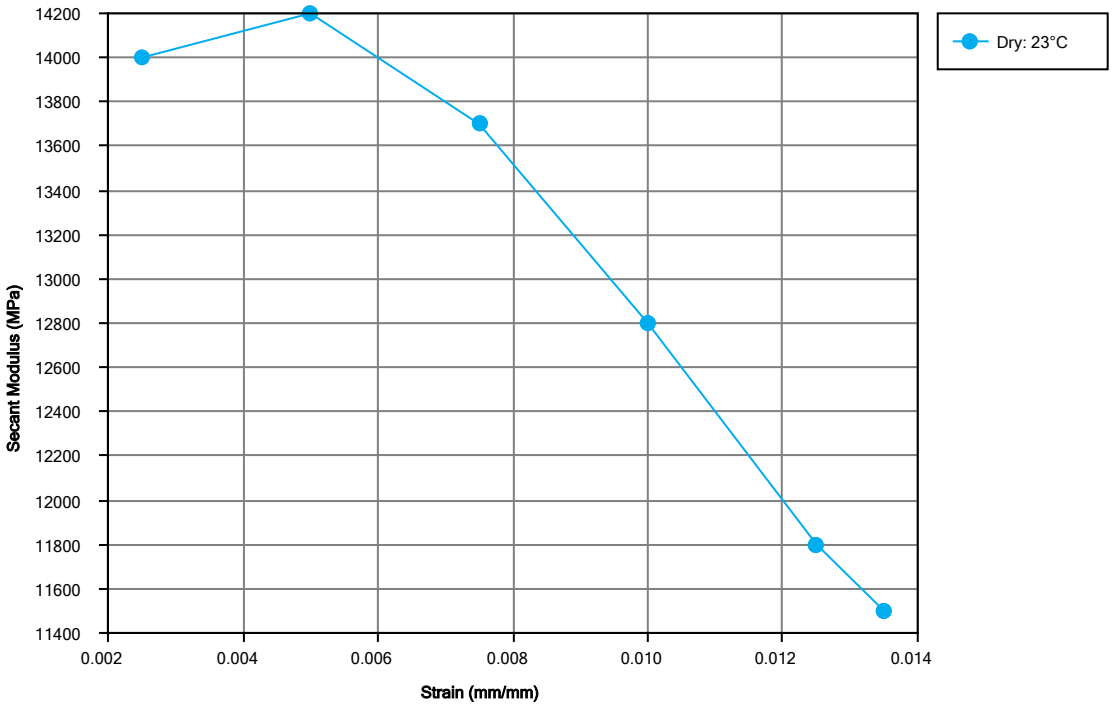


Data Notes

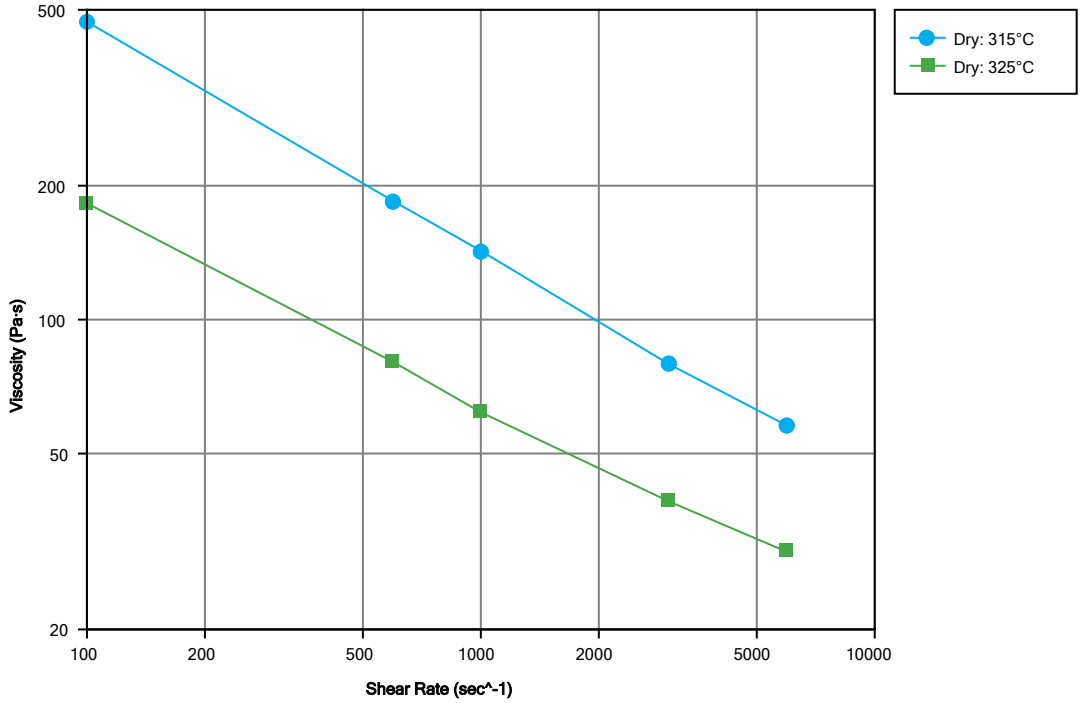
Isothermal Stress vs. Strain (ISO 11403-1)



Secant Modulus vs. Strain (ISO 11403-1)



Viscosity vs. Shear Rate (ISO 11403-2)



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Notes

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

[1] Restricted Approval as noted in GM MATSPC

[2] This flammability rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

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