

Amodel® AE-1133

polyphthalamide

Amodel® AE-1133 is a 33% glass reinforced, heat stabilized polyphthalamide (PPA) designed to work in the modern automotive electrical environment. It has a high heat deflection temperature, high flexural modulus and high tensile strength. Excellent

creep resistance and low moisture absorption are also characteristic of this resin.

- Black: AE-1133 BK 324
- Natural: AE-1133 NT

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	• Heat Stabilizer	
Features	• Chemical Resistant • Creep Resistant • Good Dimensional Stability • Good Stiffness • High Heat Resistance	• High Stiffness • High Strength • High Temperature Strength • Low Moisture Absorption
Uses	• Automotive Electronics • Connectors	• Electrical Parts • Electrical/Electronic Applications
RoHS Compliance	• RoHS Compliant	
Appearance	• Black	• Natural Color
Forms	• Pellets	
Processing Method	• Injection Molding	
Part Marking Code (ISO 11469)	• >PA6T/6I/66-GF33<	

Physical	Typical Value	Unit	Test method
Density	1.48	g/cm ³	ISO 1183/A
Molding Shrinkage			ASTM D955
Flow	0.40	%	
Across Flow	0.80	%	
Water Absorption (24 hr)	0.21	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
--	13100	MPa	ASTM D638
23°C	13400	MPa	ISO 527-1
100°C	10800	MPa	ISO 527-1
150°C	6700	MPa	ISO 527-1
175°C	4300	MPa	ISO 527-1

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Mechanical	Typical Value	Unit	Test method
Tensile Stress			
Break, 23°C	233	MPa	ISO 527-2
Break, 100°C	148	MPa	ISO 527-2
Break, 150°C	80.0	MPa	ISO 527-2
Break, 175°C	72.0	MPa	ISO 527-2
--	221	MPa	ASTM D638
Tensile Elongation			
Break	2.5	%	ASTM D638
Break, 23°C	2.5	%	ISO 527-2
Break, 100°C	2.9	%	ISO 527-2
Break, 150°C	8.7	%	ISO 527-2
Break, 175°C	8.5	%	ISO 527-2
Flexural Modulus			
--	11400	MPa	ASTM D790
23°C	11600	MPa	ISO 178
100°C	9800	MPa	ISO 178
150°C	4000	MPa	ISO 178
175°C	3600	MPa	ISO 178
Flexural Strength			
--	317	MPa	ASTM D790
23°C	319	MPa	ISO 178
100°C	227	MPa	ISO 178
150°C	93.0	MPa	ISO 178
175°C	80.0	MPa	ISO 178
Compressive Strength	185	MPa	ASTM D695
Shear Strength	101	MPa	ASTM D732
Poisson's Ratio	0.41		ASTM E132
Impact			
		Typical Value	Unit
Charpy Notched Impact Strength (23°C)	9.5		kJ/m ²
Charpy Unnotched Impact Strength (23°C)	73		kJ/m ²
Notched Izod Impact			
--	80	J/m	ASTM D256
23°C	8.8	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
--	770	J/m	ASTM D4812
23°C	49	kJ/m ²	ISO 180/1U
Hardness			
		Typical Value	Unit
Rockwell Hardness (R-Scale)	125		
			ASTM D785

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Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			
0.45 MPa, Annealed, 3.20 mm	297	°C	ASTM D648
1.8 MPa, Unannealed	280	°C	ISO 75-2/A
1.8 MPa, Annealed, 3.20 mm	285	°C	ASTM D648
Continuous Use Temperature			ASTM D3045
-- ¹	164	°C	
-- ²	185	°C	
Melting Temperature	313	°C	ASTM D570 ISO 11357-3
CLTE			ASTM E831
Flow : 0 to 100°C	2.4E-5	cm/cm/°C	
Flow : 100 to 200°C	2.7E-5	cm/cm/°C	
Transverse : 0 to 100°C	5.5E-5	cm/cm/°C	
Transverse : 100 to 200°C	1.1E-4	cm/cm/°C	

Electrical	Typical Value	Unit	Test method
Volume Resistivity	1.0E+16	ohms·cm	ASTM D257
Dielectric Strength (3.20 mm)	21	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	4.40		
1 MHz	4.20		
Dissipation Factor			ASTM D150
60 Hz	5.0E-3		
1 MHz	0.017		
Arc Resistance	140	sec	ASTM D495
Comparative Tracking Index (CTI)			
--	550	V	UL 746A
--	600	V	IEC 60112

Injection	Typical Value	Unit
Drying Temperature	120	°C
Drying Time	4.0	hr
Suggested Max Moisture	0.045	%
Rear Temperature	304 to 318	°C
Front Temperature	316 to 329	°C
Processing (Melt) Temp	321 to 343	°C
Mold Temperature	135	°C

Injection Notes

Storage:

- Amodel® compounds are shipped in moisture-resistant packages at moisture levels according to specifications. Sealed, undamaged bags should be preferably stored in a dry room at a maximum temperature of 50°C (122°F) and should be protected from possible damage. If only a portion of a package is used, the remaining material should be transferred into a sealable container. It is recommended that Amodel® resins be dried prior to molding following the recommendations found in this datasheet and/or in the Amodel® processing guide.

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Notes

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

¹ 20000 hr

² 5000 hr



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