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/cm³	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

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	Test method
Charpy Notched Impact Strength (23°C)	9.5	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	73	kJ/m²	ISO 179/1eU
Notched Izod Impact			
--	80	J/m	ASTM D256
23°C	8.8	kJ/m²	ISO 180/1A
Unnotched Izod Impact			
--	770	J/m	ASTM D4812
23°C	49	kJ/m²	ISO 180/1U

Hardness	Typical Value	Unit	Test method
Rockwell Hardness (R-Scale)	125		ASTM D785

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.

Notes

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

[1] 20000 hr

[2] 5000 hr