

Amodel® A-1133 HS

Polyphthalamide
Solvay Specialty Polymers

Message:

AMODEL A- 1133 HS is a 33% glass fiber reinforced thermally stable polyphthalamide (PPA) with high thermal deformation temperature, high bending modulus and high tensile strength. Excellent creep resistance and low moisture absorption are also characteristics of the resin. -Black: A- 1133 HS BK 324
black: A- 1133 HS BK 543
natural color: A- 1133 HS NT

General Information		
UL YellowCard	E95746-253217	E161096-224268
Filler / Reinforcement	Glass fiber reinforced material, 33% filler by weight	
Additive	heat stabilizer	
Features	Good dimensional stability	
	Low hygroscopicity	
	Rigidity, high	
	Rigid, good	
	High strength	
	High temperature strength	
	Good creep resistance	
	Good chemical resistance	
	Heat resistance, high	
Uses	Power/other tools	
	Industrial components	
	Industrial application	
	Machine/mechanical parts	
	Metal substitution	
	Connector	
	Parts under the hood of a car	
	Automotive Electronics	
	Application in Automobile Field	
	Car interior parts	
	Fuel line	
	Mobile phone	
	Shell	
RoHS Compliance	RoHS compliance	
UL File Number	E95746	
Appearance	Black	
	Natural color	

Forms		Particle		
Processing Method		Injection molding		
Multi-Point Data		Isochronous Stress vs. Strain (ISO 11403-1)		
		Isothermal Stress vs. Strain (ISO 11403-1)		
		Secant Modulus vs. Strain (ISO 11403-1)		
		Viscosity vs. Shear Rate (ISO 11403-2)		
Part Marking Code (ISO 11469)		>PA6T/6I/66-GF33		
Physical	Dry	Conditioned	Unit	Test Method
Density	1.48	--	g/cm ³	ISO 1183/A
Molding Shrinkage				ASTM D955
Flow	0.40	--	%	ASTM D955
Transverse flow	0.80	--	%	ASTM D955
Water Absorption (24 hr)	0.23	--	%	ASTM D570
Hardness	Dry	Conditioned	Unit	Test Method
Rockwell Hardness (R-Scale)	125	--		ASTM D785
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				
--	13100	13100	MPa	ASTM D638
23°C	13400	--	MPa	ISO 527-2
100°C	10800	--	MPa	ISO 527-2
150°C	6700	--	MPa	ISO 527-2
175°C	4300	--	MPa	ISO 527-2
Tensile Stress				
Fracture, 23°C	233	--	MPa	ISO 527-2
Fracture, 100°C	148	--	MPa	ISO 527-2
Fracture, 150°C	80.0	--	MPa	ISO 527-2
Fracture, 175°C	72.0	--	MPa	ISO 527-2
--	221	193	MPa	ASTM D638
Tensile Elongation				
Fracture	2.5	2.1	%	ASTM D638
Fracture, 23°C	2.5	--	%	ISO 527-2
Fracture, 100°C	2.9	--	%	ISO 527-2
Fracture, 150°C	8.7	--	%	ISO 527-2
Fracture, 175°C	8.5	--	%	ISO 527-2
Flexural Modulus				
--	11400	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	254	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	88.9	MPa	ASTM D732
Poisson's Ratio	0.41	--		ASTM E132
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength (23°C)	9.5	--	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	73	--	kJ/m ²	ISO 179/1eU
Notched Izod Impact				
--	80	59	J/m	ASTM D256
23°C	8.8	--	kJ/m ²	ISO 180/1A
Unnotched Izod Impact				
--	770	--	J/m	ASTM D256
23°C	49	--	kJ/m ²	ISO 180/1U
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, annealed, 3.20mm	297	--	°C	ASTM D648
1.8 MPa, not annealed	280	--	°C	ISO 75-2/A
1.8 MPa, annealed, 3.20mm	285	--	°C	ASTM D648
Continuous Use Temperature				
-- ¹	164	--	°C	ASTM D3045
-- ²	185	--	°C	ASTM D3045
Melting Temperature	313	--	°C	ASTM D570, ISO 11357-3
Linear thermal expansion coefficient				
				ASTM E831
Flow: 0 to 100°C	2.4E-5	--	cm/cm/°C	ASTM E831
Flow: 100 to 200°C	2.7E-5	--	cm/cm/°C	ASTM E831
Lateral: 0 to 100°C	5.5E-5	--	cm/cm/°C	ASTM E831
Lateral: 100 to 200°C	1.1E-4	--	cm/cm/°C	ASTM E831
Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity	1.0E+16	2.0E+15	ohms · cm	ASTM D257
Dielectric Strength (3.20 mm)	21	21	kV/mm	ASTM D149
Dielectric Constant				
				ASTM D150

60 Hz	4.40	4.70		ASTM D150
1 MHz	4.20	4.30		ASTM D150
Dissipation Factor				ASTM D150
60 Hz	5.0E-3	9.0E-3		ASTM D150
1 MHz	0.017	0.022		ASTM D150
Arc Resistance	140	120	sec	ASTM D495
Comparative Tracking Index (CTI)	550	550	V	UL 746
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating ³ (3.20 mm)	HB	--		UL 94
Optical	Dry	Conditioned	Unit	Test Method
Transmittance ⁴				ASTM D1003
1070 nm : 1.60 mm	> 30	--	%	ASTM D1003
940 nm : 1.60 mm	> 30	--	%	ASTM D1003
Additional Information				

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Conditioned to 50% RH in accordance with ISO-1110, Accelerated Method

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

Injection instructions

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.

NOTE	
1.	20000 hours
2.	5000 hours
3.	These flammability ratings do not represent the risk of these materials or any other materials in actual fire situations.
4.	Light transmittance, natural color only

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