

Amodel® AS-1133 HS

Polyphthalamide
Solvay Specialty Polymers

Message:

Amodel AS -1133 HS is 33% glass fiber reinforced heat stable polyphthalamide (PPA) resin. Even those molded parts with wall thickness greater than 0.125 inches (3mm) have excellent structural integrity. The main characteristics of the structural resin include high thermal deformation temperature, high flexural modulus, high tensile strength, excellent creep resistance and low moisture absorption. -Black: AS-1133 HS BK 324
natural color: AS-1133 HS NT

General Information		
UL YellowCard	E95746-253236	E161096-224278
Filler / Reinforcement	Glass fiber reinforced material, 33% filler by weight	
Additive	heat stabilizer	
Features	Good dimensional stability	
	Low hygroscopicity	
	Rigid, good	
	High strength	
	Good creep resistance	
	Good chemical resistance	
	Heat resistance, high	
	Thermal Stability	
Uses	Lawn and Garden Equipment	
	Power/other tools	
	Valve/valve components	
	Industrial components	
	Industrial application	
	Thick wall fittings (parts)	
	Machine/mechanical parts	
	Metal substitution	
	Connector	
	Parts under the hood of a car	
	Automotive Electronics	
	Application in Automobile Field	
	Fuel line	
	Oil/Gas Supplies	
	General	
	Shell	
RoHS Compliance	RoHS compliance	
Appearance	Black	

Natural color

Forms		Particle		
Processing Method		Injection molding		
Multi-Point Data		Isothermal Stress vs. Strain (ISO 11403-1)		
		Secant Modulus vs. Strain (ISO 11403-1)		
		Viscosity vs. Shear Rate (ISO 11403-2)		
Physical	Dry	Conditioned	Unit	Test Method
Density	1.44	--	g/cm ³	ISO 1183/B
Molding Shrinkage				ASTM D955
Flow	0.40	0.0	%	ASTM D955
Transverse flow	0.80	0.20	%	ASTM D955
Water Absorption (24 hr)	0.21	--	%	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
--	12200	--	MPa	ISO 527-2
Tensile Stress				
Yield	225	--	MPa	ISO 527-2
Fracture	221	193	MPa	ASTM D638
Tensile Elongation				
Fracture	2.5	2.1	%	ASTM D638
Fracture	3.0	--	%	ISO 527-2
Flexural Modulus				
--	10300	10300	MPa	ASTM D790
--	10300	--	MPa	ISO 178
Flexural Stress				
--	326	--	MPa	ISO 178
Yield	317	254	MPa	ASTM D790
Compressive Strength	276	247	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	11	--	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength	82	--	kJ/m ²	ISO 179/1eU
Notched Izod Impact				
--	85	75	J/m	ASTM D256

--	11	--	kJ/m ²	ISO 180/1A
Unnotched Izod Impact	1000	--	J/m	ASTM D256
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, annealed, 3.18mm	297	--	°C	ASTM D648
1.8 MPa, annealed, 3.18mm	285	--	°C	ASTM D648
1.8 MPa, annealed	277	--	°C	ISO 75-2/Af
Continuous Use Temperature				
-- ¹	164	--	°C	ASTM D3045
-- ²	185	--	°C	ASTM D3045
Melting Temperature	310	--	°C	ISO 11357-3, ASTM D3418
Linear thermal expansion coefficient				
Flow: 0 to 100°C	2.3E-5	--	cm/cm/°C	ASTM E831
Flow: 160 to 249°C	1.4E-5	--	cm/cm/°C	ASTM E831
Lateral: 0 to 100°C	5.9E-5	--	cm/cm/°C	ASTM E831
Lateral: 160 to 249°C	1.3E-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 (3.18 mm)	21	21	kV/mm	ASTM D149
Dielectric Constant				
60 Hz	4.40	4.70		ASTM D150
1 MHz	4.20	4.30		ASTM D150
Dissipation Factor				
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 (3.18 mm)	HB	--		UL 94
Optical	Dry	Conditioned	Unit	Test Method
Transmittance ⁴				
1070 nm : 1.60 mm	> 35	--	%	ASTM D1003
940 nm : 1.60 mm	> 30	--	%	ASTM D1003
Injection	Dry	Unit		
Drying Temperature	120		°C	
Drying Time	4.0		hr	
Suggested Max Moisture	0.045		%	

Hopper Temperature	79.4	°C
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 grade

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