Amodel® A-4133 HH

Polyphthalamide

Solvay Specialty Polymers

Message:

Amodel® A-4133 HH is a 33% glass fiber reinforced heat stabilized grade of polyphthalamide (PPA) that has been designed to provide outstanding property retention to thermal oxidative degradation at temperatures of 230°C. Other features are fast cycling and hot water moldability. This product is particularly suitable to air induction applications within downsized automotive engines such as air induction charge air cooling and exhaust gas recirculation.
Black: A-4133 HH BK324

General Information	
Filler / Reinforcement	Glass fiber reinforced material, 33% filler by weight
Additive	heat stabilizer Lubricant demoulding
Features	Good dimensional stability Low hygroscopicity Rigid, good High strength Laser welding Fast molding cycle Good creep resistance Good chemical resistance Heat resistance, high Hot water formability Thermal Stability Lubrication
Uses	Metal substitution Parts under the hood of a car Application in Automobile Field
RoHS Compliance	Contact manufacturer
Appearance	Black
Forms	Particle
Processing Method	Water temperature mold injection molding
Multi-Point Data	Isothermal Stress vs. Strain (ISO 11403-1)

Physical	Dry	Conditioned	Unit	Test Method
Density	1.47	--	g/cm³	ISO 1183/A
Molding Shrinkage				ASTM D955

Flow	0.50	--	%	ASTM D955
Transverse flow	1.0	--	%	ASTM D955
Water Absorption (24 hr)	0.43	--	%	ASTM D570
Mechanical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Tensile Modulus	12800	--	MPa	ISO 527-2
Tensile Stress				ISO 527-2
Fracture, 23°C	195	--	MPa	ISO 527-2
Fracture, 200°C	70.0	--	MPa	ISO 527-2
Fracture, 230°C	60.0	--	MPa	ISO 527-2
Tensile Strain				ISO 527-2
Fracture, 23°C	2.0	--	%	ISO 527-2
Fracture, 200°C	8.1	--	%	ISO 527-2
Fracture, 230°C	8.4	--	%	ISO 527-2
Flexural Modulus (23°C)	10900	--	MPa	ISO 178
Flexural Stress (23°C)	290	--	MPa	ISO 178
Compressive Strength	179	172	MPa	ASTM D695
Shear Strength	89.6	75.8	MPa	ASTM D732
Poisson's Ratio	0.41	--		ASTM E132
Impact	**Dry**	**Conditioned**	**Unit**	**Test Method**
Charpy Notched Impact Strength (23°C)	9.2	--	kJ/m^2	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	73	--	kJ/m^2	ISO 179/1eU
Notched Izod Impact (23°C)	9.2	--	kJ/m^2	ISO 180/1A
Unnotched Izod Impact Strength (23°C)	65	--	kJ/m^2	ISO 180/1U
Thermal	**Dry**	**Conditioned**	**Unit**	**Test Method**
Heat Deflection Temperature (1.8 MPa, Unannealed)	297	--	°C	ISO 75-2/A
Melting Temperature	327	--	°C	ASTM D570, ISO 11357-3
Linear thermal expansion coefficient				ASTM E831
Flow: 0 to 100°C	2.0E-5	--	cm/cm/°C	ASTM E831
Flow: 100 to 200°C	1.5E-5	--	cm/cm/°C	ASTM E831
Lateral: 0 to 100°C	7.6E-5	--	cm/cm/°C	ASTM E831
Lateral: 100 to 200°C	1.2E-4	--	cm/cm/°C	ASTM E831
Electrical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Volume Resistivity	2.0E+15	5.0E+14	ohms·cm	ASTM D257
Dielectric Strength (1.60 mm)	20	20	kV/mm	ASTM D149
Dielectric Constant				ASTM D150
60 Hz	3.80	4.30		ASTM D150
1 MHz	3.60	3.40		ASTM D150

Dissipation Factor				ASTM D150
60 Hz	4.0E-3	0.020		ASTM D150
1 MHz	0.012	0.019		ASTM D150
Comparative Tracking Index (CTI)	600	600	V	UL 746
High Voltage Arc Tracking Rate (HVTR)	14.0	18.0	mm/min	UL 746

Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating [1] (3.20 mm)	HB	--		UL 94

Injection	Dry	Unit
Drying Temperature	120	°C
Drying Time	4.0	hr
Suggested Max Moisture	0.045	%
Rear Temperature	318 - 324	°C
Front Temperature	327 - 332	°C
Processing (Melt) Temp	330 - 335	°C
Mold Temperature	65.6 - 93.3	°C

Injection instructions

Injection Rate: 3 to 4 in/secHolding Pressure: 50% of injection pressureStorage:
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.
Proper Ventilation:
It is strongly recommended that the processing site be correctly ventilated during molding. The ventilation should be placed directly above the injection nozzle to prevent exposure to fumes and gases that may be generated.
In the event of a barrel purge where a large melt patty may be generated, it is often advisable to draw the purge patty into a bucket of water to reduce fumes.
Hot Runners:
Solvay does not encourage the use of hot runner technology with this product. For further clarification on hot runners, please contact your Solvay Specialty Polymers Technical Marketing representative.

NOTE

1. These flammability ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

Recommended distributors for this material

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