

Amodel® A-1145 HS

Polyphthalamide
Solvay Specialty Polymers

Message:

AMODEL A- 1145 HS is a 45% glass fiber reinforced heat stable polyphthalamide (PPA) with high thermal deformation temperature, very high bending modulus and high tensile strength. Excellent creep resistance and low moisture absorption are also characteristics of the resin. -black: A- 1145 HS BK 324
-natural color: A- 1145 HS NT

General Information		
UL YellowCard	E95746-253218	E161096-224269
Filler / Reinforcement	Glass fiber reinforced material, 45% filler by weight	
Additive	heat stabilizer	
Features	Good dimensional stability	
	Low hygroscopicity	
	Rigid, good	
	High strength	
	High temperature strength	
	Good creep resistance	
	Good chemical resistance	
	Heat resistance, high	
Uses	Power/other tools	
	Valve/valve components	
	Industrial components	
	Industrial application	
	Machine/mechanical parts	
	Metal substitution	
	Connector	
	Parts under the hood of a car	
	Automotive Electronics	
	Application in Automobile Field	
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	1.59	--	g/cm ³	ISO 1183/A
Molding Shrinkage				ASTM D955
Flow	0.20	0.10	%	ASTM D955
Transverse flow	0.60	0.10	%	ASTM D955
Water Absorption (24 hr)	0.12	--	%	ASTM D570
Hardness	Dry	Conditioned	Unit	Test Method
Rockwell Hardness (R-Scale)	125	--		ASTM D785
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				
--	17200	17200	MPa	ASTM D638
23°C	16800	--	MPa	ISO 527-2
100°C	11200	--	MPa	ISO 527-2
150°C	8000	--	MPa	ISO 527-2
175°C	5380	--	MPa	ISO 527-2
Tensile Stress				
Fracture, 23°C	263	--	MPa	ISO 527-2
Fracture, 100°C	173	--	MPa	ISO 527-2
Fracture, 150°C	84.8	--	MPa	ISO 527-2
Fracture, 175°C	75.8	--	MPa	ISO 527-2
--	259	228	MPa	ASTM D638
Tensile Elongation				
Fracture	2.6	2.1	%	ASTM D638
Fracture, 23°C	2.7	--	%	ISO 527-2
Fracture, 100°C	2.5	--	%	ISO 527-2
Fracture, 150°C	7.2	--	%	ISO 527-2
Fracture, 175°C	6.5	--	%	ISO 527-2
Flexural Modulus				
--	13800	13800	MPa	ASTM D790
23°C	15900	--	MPa	ISO 178
100°C	13000	--	MPa	ISO 178
150°C	5380	--	MPa	ISO 178
175°C	4900	--	MPa	ISO 178
Flexural Strength				
--	363	294	MPa	ASTM D790
23°C	377	--	MPa	ISO 178
100°C	267	--	MPa	ISO 178
150°C	111	--	MPa	ISO 178
175°C	94.5	--	MPa	ISO 178

Compressive Strength (25.4 mm)	194	--	MPa	ASTM D695
Shear Strength	108	91.7	MPa	ASTM D732
Poisson's Ratio	0.41	--		ASTM E132
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength (23°C)	10	--	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	92	--	kJ/m ²	ISO 179/1eU
Notched Izod Impact				
--	110	100	J/m	ASTM D256
23°C	10	--	kJ/m ²	ISO 180/1A
Unnotched Izod Impact				
--	1100	--	J/m	ASTM D256
23°C	61	--	kJ/m ²	ISO 180/1U
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, annealed, 3.20mm	301	--	°C	ASTM D648
1.8 MPa, not annealed	281	--	°C	ISO 75-2/A
1.8 MPa, annealed, 3.20mm	287	--	°C	ASTM D648
Continuous Use Temperature				ASTM D3045
-- ¹	165	--	°C	ASTM D3045
-- ²	185	--	°C	ASTM D3045
Melting Temperature	310	--	°C	ISO 11357-3, ASTM D3418
Linear thermal expansion coefficient				ASTM E831
Flow: 0 to 100°C	1.4E-5	--	cm/cm/°C	ASTM E831
Flow: 100 to 200°C	3.5E-5	--	cm/cm/°C	ASTM E831
Lateral: 0 to 100°C	5.0E-5	--	cm/cm/°C	ASTM E831
Lateral: 100 to 200°C	1.5E-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)	23	23	kV/mm	ASTM D149
Dielectric Constant				ASTM D150
60 Hz	4.60	4.90		ASTM D150
1 MHz	4.40	4.50		ASTM D150
Dissipation Factor				ASTM D150
60 Hz	5.0E-3	9.0E-3		ASTM D150
1 MHz	0.016	0.021		ASTM D150
Arc Resistance	145	125	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
Injection	Dry	Unit		
Drying Temperature	120		°C	
Drying Time	4.5		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.

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