



Amodel® AS-1145 HS

polyphthalamide

Amodel AS-1145 HS is a 45% glass reinforced heat stabilized polyphthalamide (PPA) resin that provides excellent structural integrity in molded parts, even those with wall thicknesses greater than 0.125 inch (3 mm).

- Natural: AS-1145 HS NT

Key properties of this structural resin are high heat deflection temperature, high flexural modulus, high tensile strength, excellent creep resistance, and low moisture absorption.

- Black: AS-1145 HS BK 324

General

Material Status	• Commercial: Active
Availability	• Africa & Middle East • Asia Pacific • Europe • North America • South America
Filler / Reinforcement	• Glass Fiber Reinforcement, 45% Filler by Weight
Additive	• Heat Stabilizer
Features	• Good Chemical Resistance • Good Creep Resistance • Good Dimensional Stability • Good Stiffness • Heat Stabilized • High Heat Resistance • High Strength • Low Moisture Absorption
Uses	• Automotive Applications • Automotive Electronics • Automotive Under the Hood • Connectors • Fuel Lines • General Purpose • Housings • Industrial Applications • Industrial Parts • Lawn and Garden Equipment • Machine/Mechanical Parts • Metal Replacement • Power/Other Tools • Thick-walled Parts • Valves/Valve Parts
RoHS Compliance	• RoHS Compliant
Automotive Specifications	• ASTM D4000 PA121 G45 Color: BK324 Black • ASTM D4000 PA121 G45 Color: NT Natural • ASTM D5336 PPA0120 G45 A06637 Color: BK324 Black • BOSCH N28 BN05-OX1 Color: BK324 Black • BOSCH N28 BN05-OX1 Color: NT Natural • DELPHI DCM4889 Color: BK324 Black • DELPHI DCM4889 Color: NT Natural • DELPHI M-6073 Color: BK324 Black • FORD WSK-M4D861-A2 Color: BK324 Black • FORD WSK-M4D861-A2 Color: NT Natural • ISO 1874 PA6T/6I/66, MH, 12-160, GF45 Color: BK324 Black • ISO 1874 PA6T/6I/66, MH, 12-160, GF45 Color: NT Natural • VALEO VMS-8108 Color: BK324 Black
Appearance	• Black • Natural Color
Forms	• Pellets
Processing Method	• Injection Molding

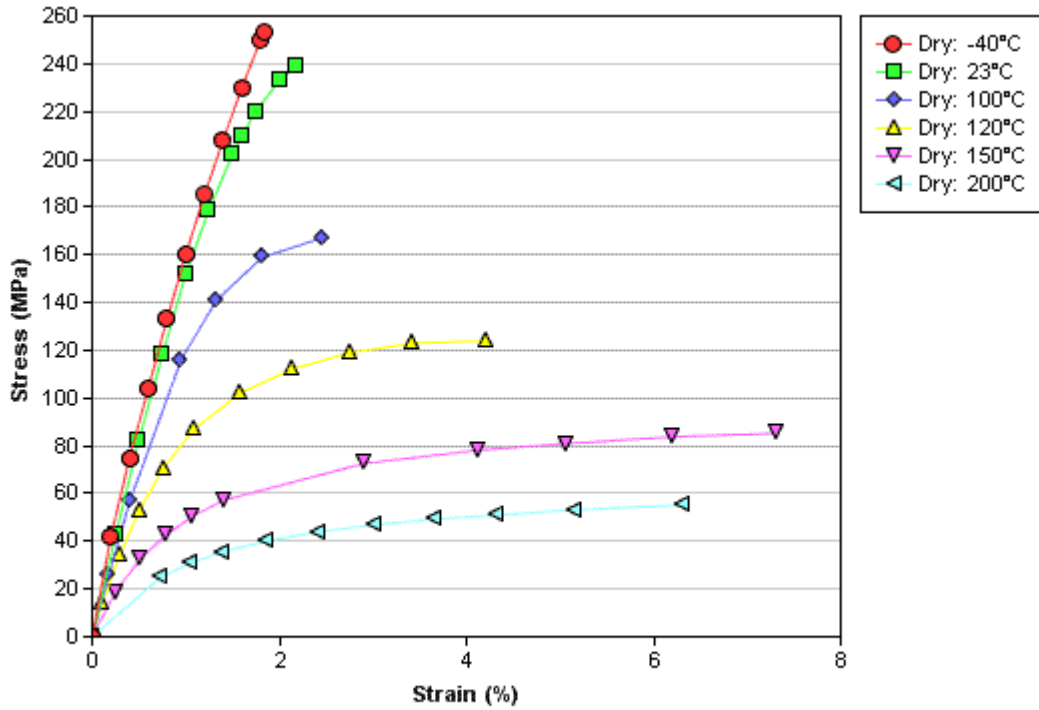
Physical	Dry	Conditioned Unit	Test Method
Density	1.56	-- g/cm ³	ISO 1183/A

Physical	Dry	Conditioned	Unit	Test Method
Molding Shrinkage				ASTM D955
Flow	0.20	0.10	%	
Across Flow	0.60	0.10	%	
Water Absorption (24 hr)	0.12	--	%	ASTM D570
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				
--	17200	17200	MPa	ASTM D638
--	16000	--	MPa	ISO 527-2
Tensile Strength				
Break	259	228	MPa	ASTM D638
Break	263	--	MPa	ISO 527-2
Tensile Elongation				
Break	2.6	2.1	%	ASTM D638
Break	2.7	--	%	ISO 527-2
Flexural Modulus				
--	13800	13800	MPa	ASTM D790
--	14800	--	MPa	ISO 178
Flexural Strength				
--	376	--	MPa	ISO 178
Yield	363	294	MPa	ASTM D790
Compressive Strength	314	302	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	12	--	kJ/m ²	ISO 179/1eA
Notched Izod Impact				
--	120	100	J/m	ASTM D256
--	14	--	kJ/m ²	ISO 180/1A
Unnotched Izod Impact	1300	--	J/m	ASTM D256
Hardness	Dry	Conditioned	Unit	Test Method
Rockwell Hardness (R-Scale)	125	--		ASTM D785
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Annealed, 3.18 mm	301	--	°C	ASTM D648
1.8 MPa, Unannealed	279	--	°C	ISO 75-2/A
1.8 MPa, Annealed, 3.18 mm	287	--	°C	ASTM D648
Max. Continuous Use Temperature				ASTM D3045
-- ¹	165	--	°C	
-- ²	185	--	°C	
Melting Temperature	312	--	°C	ISO 11357-3 ASTM D3418
CLTE				ASTM E831
Flow: 0 to 100°C	0.000014	--	cm/cm/°C	
Flow: 160 to 249°C	0.000011	--	cm/cm/°C	
Transverse: 0 to 100°C	0.000050	--	cm/cm/°C	
Transverse: 160 to 249°C	0.00010	--	cm/cm/°C	

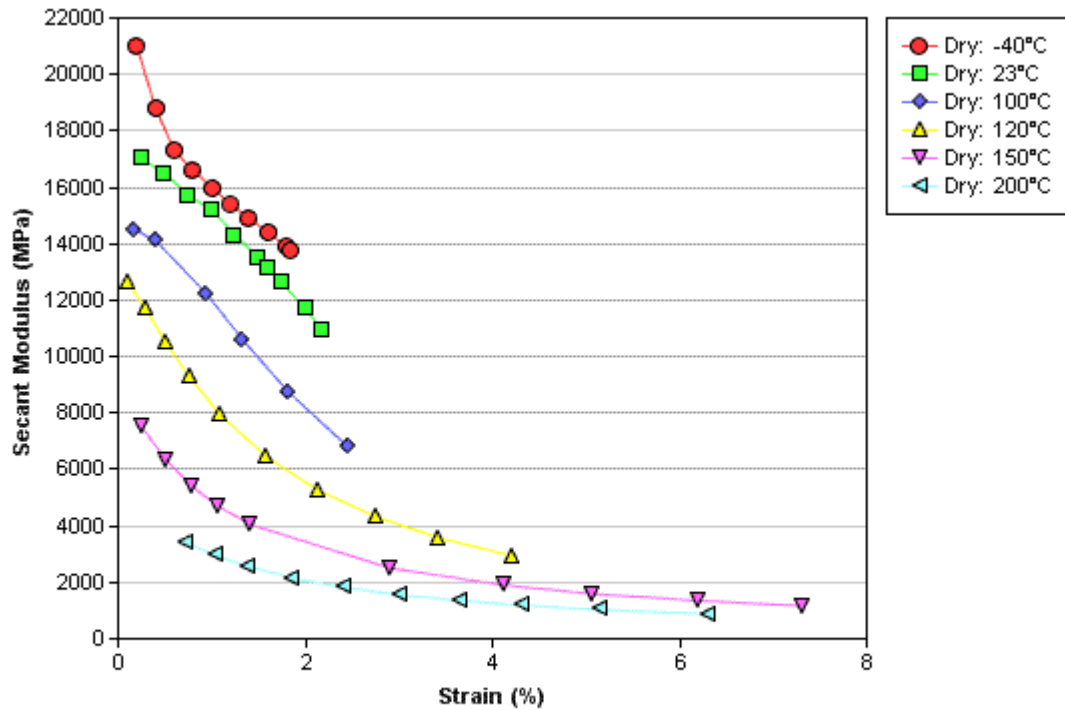
Electrical	Dry	Conditioned Unit	Test Method
Volume Resistivity	1.0E+16	2.0E+15 ohm·cm	ASTM D257
Dielectric Strength	22	22 kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	4.60	4.90	
1 MHz	4.40	4.50	
Dissipation Factor			ASTM D150
60 Hz	0.0050	0.0090	
1 MHz	0.016	0.021	
Arc Resistance	145	125 sec	ASTM D495
Flammability	Dry	Conditioned Unit	Test Method
Flame Rating - UL ³ (3.18 mm)	HB	--	UL 94
UL 746	Dry	Conditioned Unit	Test Method
Comparative Tracking Index (CTI)	550	550 V	UL 746

Injection	Typical Value	Unit
Drying Temperature	121	°C
Drying Time	4.0	hr
Suggested Max Moisture	0.10	%
Hopper Temperature	79.4	°C
Rear Temperature	304 to 318	°C
Front Temperature	316 to 329	°C
Processing (Melt) Temp	321 to 343	°C
Mold Temperature	135	°C

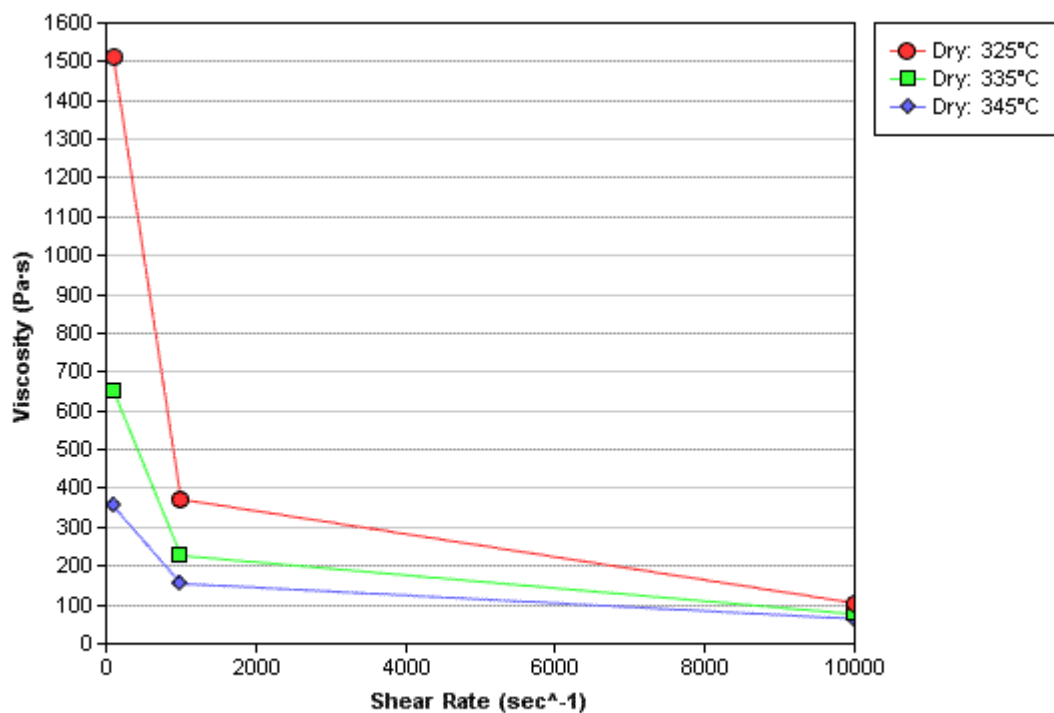
Isothermal Stress vs. Strain (ISO 11403-1)



Secant Modulus vs. Strain (ISO 11403-1)



Viscosity vs. Shear Rate (ISO 11403-2)



Notes

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

¹ 20000 hr

² 5000 hr

³ These flammability ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

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For additional product information, technical assistance, and Material Safety Data Sheets (MSDS), call:

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Property values for individual batches will vary within specification limits. Unless otherwise noted, values shown are typical for uncolored resin; colorants may alter values. For Preliminary Data Sheets, values are typical of limited production and specifications are not yet established.

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