

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).

tensile strength, excellent creep resistance, and low moisture absorption.

- Black: AS-1145 HS BK 324
- Natural: AS-1145 HS NT

Key properties of this structural resin are high heat deflection temperature, high flexural modulus, high

General

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Filler / Reinforcement	• Glass Fiber, 45% Filler by Weight	
Additive	• Heat Stabilizer	
Features	• Chemical Resistant • Creep Resistant • 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 & 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 G45¹ • ASTM D6779 PA121G45² • BOSCH N28 BN05-OX1 BN0510-GF45-3Anf10SO Color: NT Natural • BOSCH N28 BN05-OX1 BN0510-GF45-3Asw01SO Color: BK324 Black • 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	

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Physical	Dry	Conditioned	Unit	Test method
Density	1.56	--	g/cm ³	ISO 1183/A
Molding Shrinkage				ASTM D955
Flow	0.20	--	%	
Across Flow	0.60	--	%	
Water Absorption (24 hr)	0.12	--	%	ASTM D570
Mechanical	Dry	Conditioned	Unit	Test method
Tensile Modulus				
--	17200	17200	MPa	ASTM D638
--	16000	--	MPa	ISO 527-1
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 Stress				
--	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 D4812
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
Continuous Use Temperature				ASTM D3045
-- ³	165	--	°C	
-- ⁴	185	--	°C	

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Thermal	Dry	Conditioned	Unit	Test method
Melting Temperature	312	--	°C	ISO 11357-3 ASTM D3418
CLTE				ASTM E831
Flow : 0 to 100°C	1.4E-5	--	cm/cm/°C	
Flow : 160 to 249°C	1.1E-5	--	cm/cm/°C	
Transverse : 0 to 100°C	5.0E-5	--	cm/cm/°C	
Transverse : 160 to 249°C	1.0E-4	--	cm/cm/°C	

Electrical	Dry	Conditioned	Unit	Test method
Volume Resistivity	1.0E+16	2.0E+15	ohms·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	5.0E-3	9.0E-3		
1 MHz	0.016	0.021		
Arc Resistance	145	125	sec	ASTM D495
Comparative Tracking Index (CTI)	550	550	V	UL 746A

Flammability	Dry	Conditioned	Unit	Test method
Flame Rating ⁵ (3.2 mm)	HB	--		UL 94

Injection	Dry	Unit
Drying Temperature	121	°C
Drying Time	4.0	hr
Suggested Max Moisture	0.030 to 0.060	%
Hopper Temperature	79	°C
Rear Temperature	304 to 318	°C
Front Temperature	316 to 329	°C
Processing (Melt) Temp	321 to 343	°C
Mold Temperature	135	°C

Injection Notes

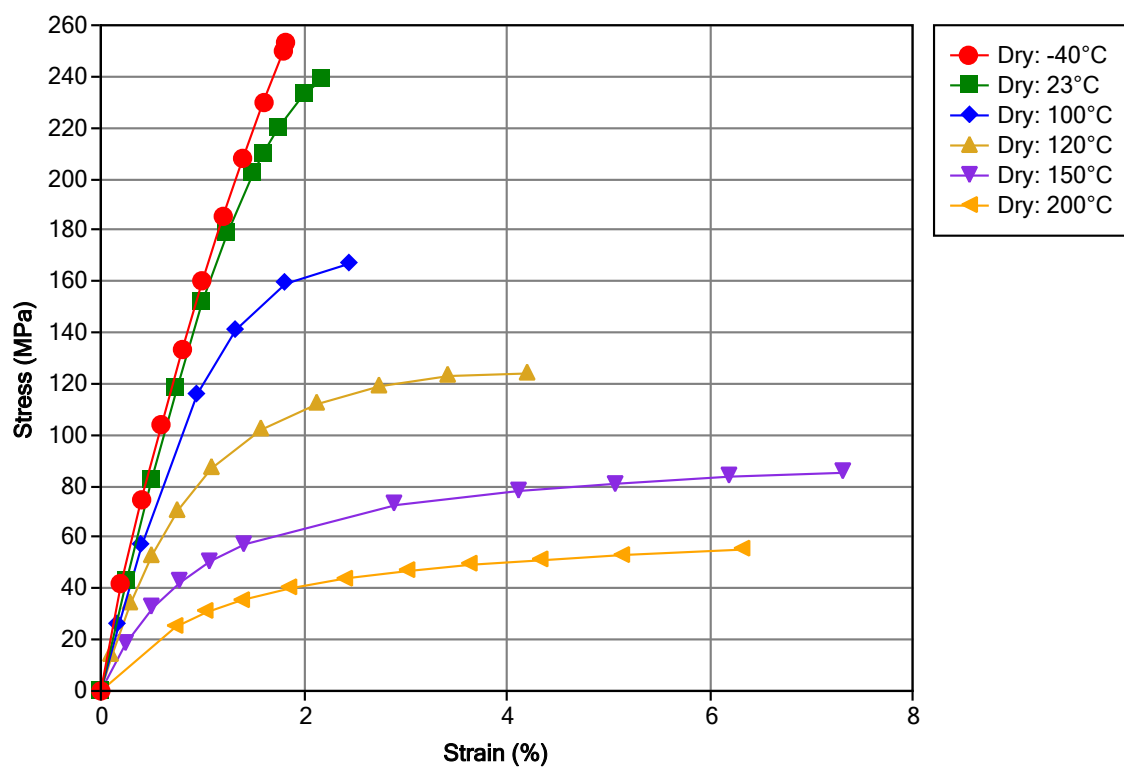
Storage:

- 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.

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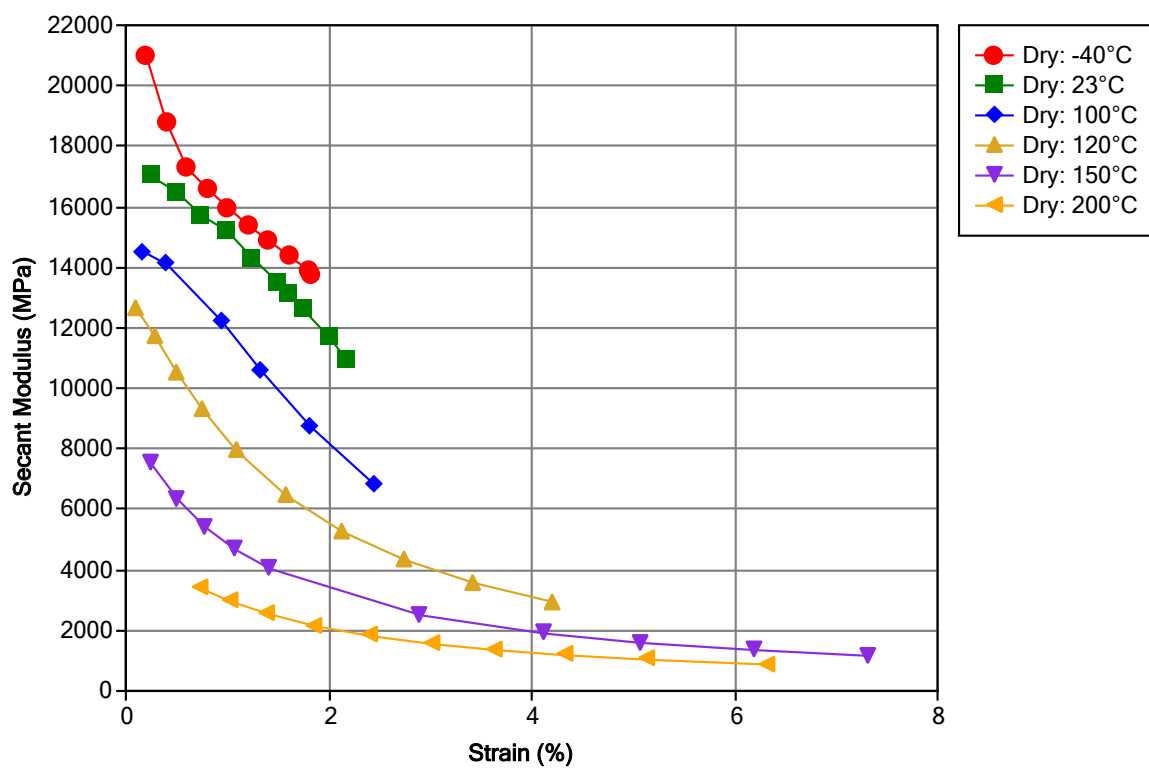
Isothermal Stress vs. Strain (ISO 11403)



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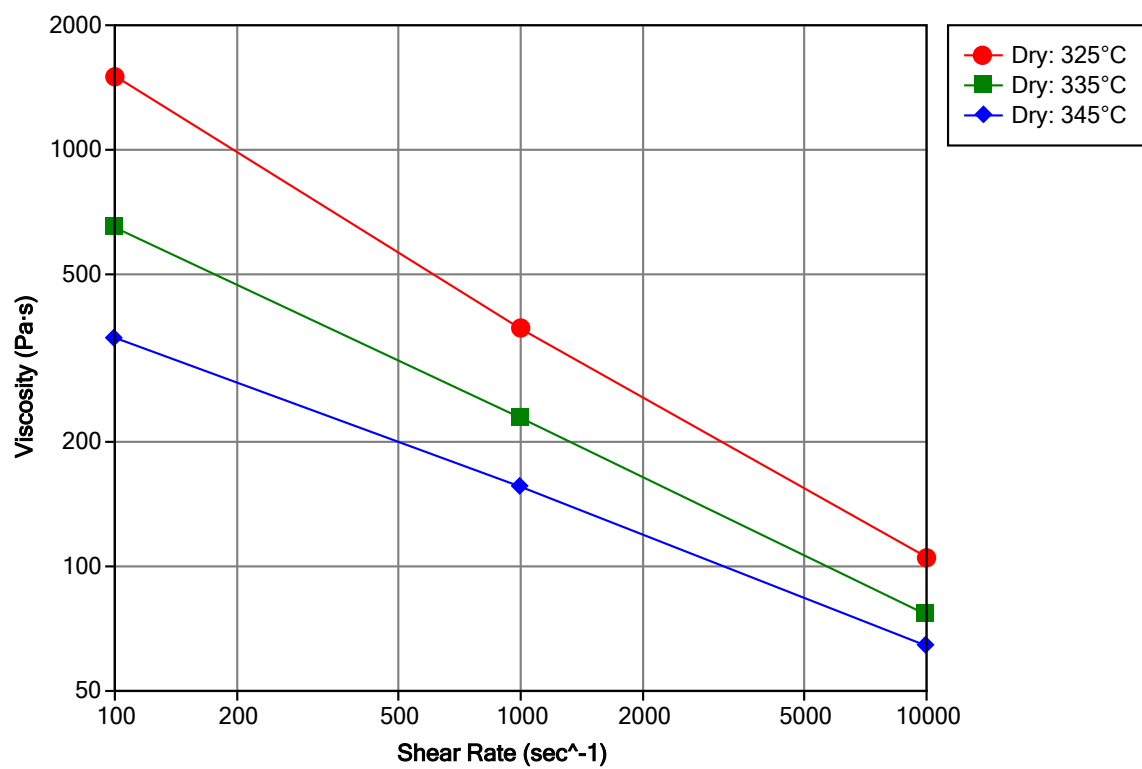
Secant Modulus vs. Strain (ISO 11403)



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Viscosity vs. Shear Rate (ISO 11403)



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Notes

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

¹ also represented as ASTM D5336 PPA0111 G45 GB156 KD220 KN135 PN085 YI265.

PPA0111 represents PPA polymer of Group 01 Class 1 and Grade 1 per ASTM D5336. G45 represents 45% glass filled and the other suffixes denote the mechanical properties of the compound.

² also represented as ASTM D5336 PPA0111 G45 GB156 KD220 KN135 PN085 YI265

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³ 20000 hr

⁴ 5000 hr

⁵ These flammability ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

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