

## 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).

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

#### 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	<ul style="list-style-type: none"> <li>• ASTM D4000 PA121 G45 Color: BK324 Black</li> <li>• ASTM D4000 PA121 G45 Color: NT Natural</li> <li>• ASTM D5336 PPA0120 G45 A06637 Color: BK324 Black</li> <li>• ASTM D6779 PA121G45</li> <li>• BOSCH N28 BN05-OX1 BN0510-GF45-3Anf10SO Color: NT Natural</li> <li>• BOSCH N28 BN05-OX1 BN0510-GF45-3Asw01SO Color: BK324 Black</li> <li>• DELPHI DCM4889 Color: BK324 Black</li> <li>• DELPHI DCM4889 Color: NT Natural</li> <li>• DELPHI M-6073 Color: BK324 Black</li> <li>• FORD WSK-M4D861-A2 Color: BK324 Black</li> <li>• FORD WSK-M4D861-A2 Color: NT Natural</li> <li>• ISO 1874 PA6T/6I/66, MH, 12-160, GF45 Color: BK324 Black</li> <li>• ISO 1874 PA6T/6I/66, MH, 12-160, GF45 Color: NT Natural</li> <li>• VALEO VMS-8108 Color: BK324 Black</li> </ul>		
Appearance	• Black	• Natural Color	
Forms	• Pellets		
Processing Method	• Injection Molding		

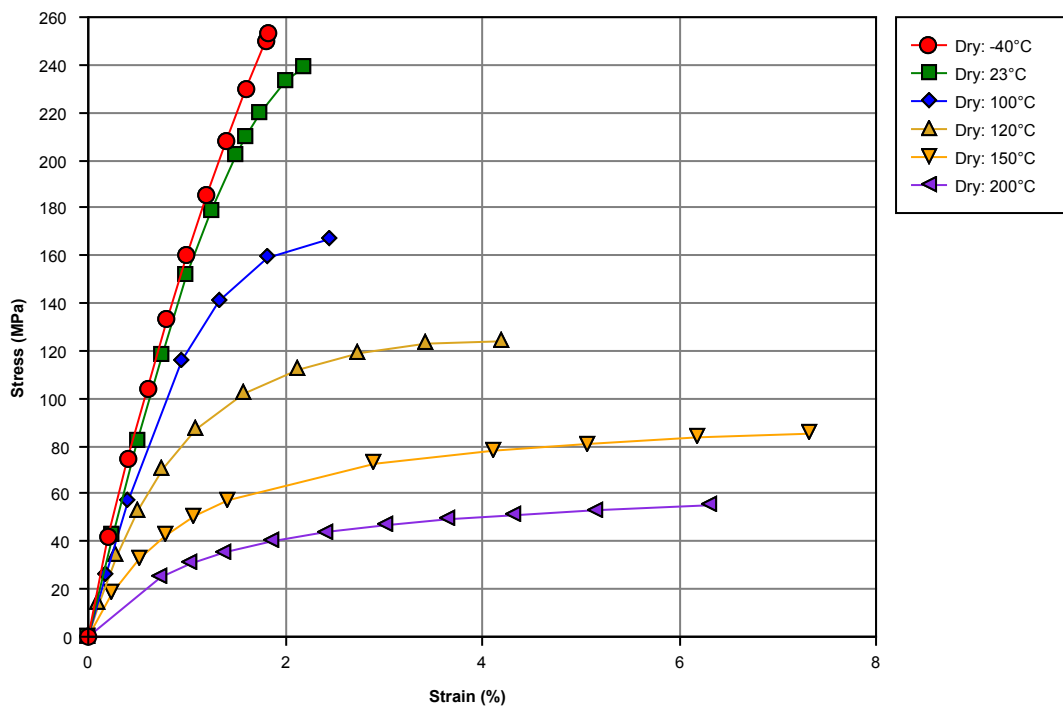
Physical	Dry	Conditioned Unit	Test Method
Density	1.56	-- g/cm <sup>3</sup>	ISO 1183/A
Molding Shrinkage			ASTM D955
Flow	0.20	0.10 %	
Across Flow	0.60	0.10 %	
Water Absorption (24 hr)	0.12	-- %	ASTM D570

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
<b>Impact</b>	<b>Dry</b>	<b>Conditioned Unit</b>	<b>Test Method</b>
Charpy Notched Impact Strength	12	-- kJ/m <sup>2</sup>	ISO 179/1eA
Notched Izod Impact			
--	120	100 J/m	ASTM D256
--	14	-- kJ/m <sup>2</sup>	ISO 180/1A
Unnotched Izod Impact	1300	-- J/m	ASTM D256
<b>Hardness</b>	<b>Dry</b>	<b>Conditioned Unit</b>	<b>Test Method</b>
Rockwell Hardness (R-Scale)	125	--	ASTM D785
<b>Thermal</b>	<b>Dry</b>	<b>Conditioned Unit</b>	<b>Test Method</b>
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
-- <sup>1</sup>	165	-- °C	
-- <sup>2</sup>	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	
<b>Electrical</b>	<b>Dry</b>	<b>Conditioned Unit</b>	<b>Test Method</b>
Volume Resistivity	1.0E+16	2.0E+15 ohm·cm	ASTM D257
Dielectric Strength	22	22 kV/mm	ASTM D149

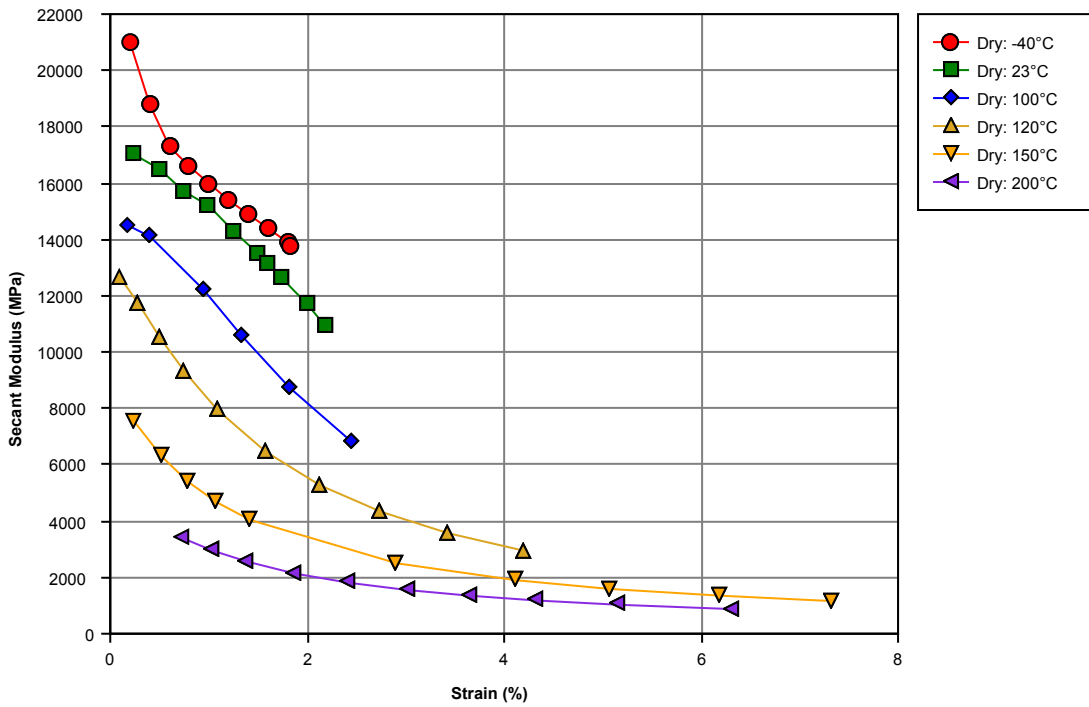
Electrical	Dry	Conditioned Unit	Test Method
Dielectric Constant			ASTM D150
60 Hz	4.60	4.90	
1 MHz	4.40	4.50	
Dissipation Factor			ASTM D150
60 Hz	0.0050	0.0090	
1 MHz	0.016	0.021	
Arc Resistance	145	125 sec	ASTM D495
Flammability	Dry	Conditioned Unit	Test Method
Flame Rating - UL <sup>3</sup> (3.18 mm)	HB	--	UL 94
UL	Dry	Conditioned Unit	Test Method
Comparative Tracking Index (CTI)	550	550 V	UL 746

Injection	Dry 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

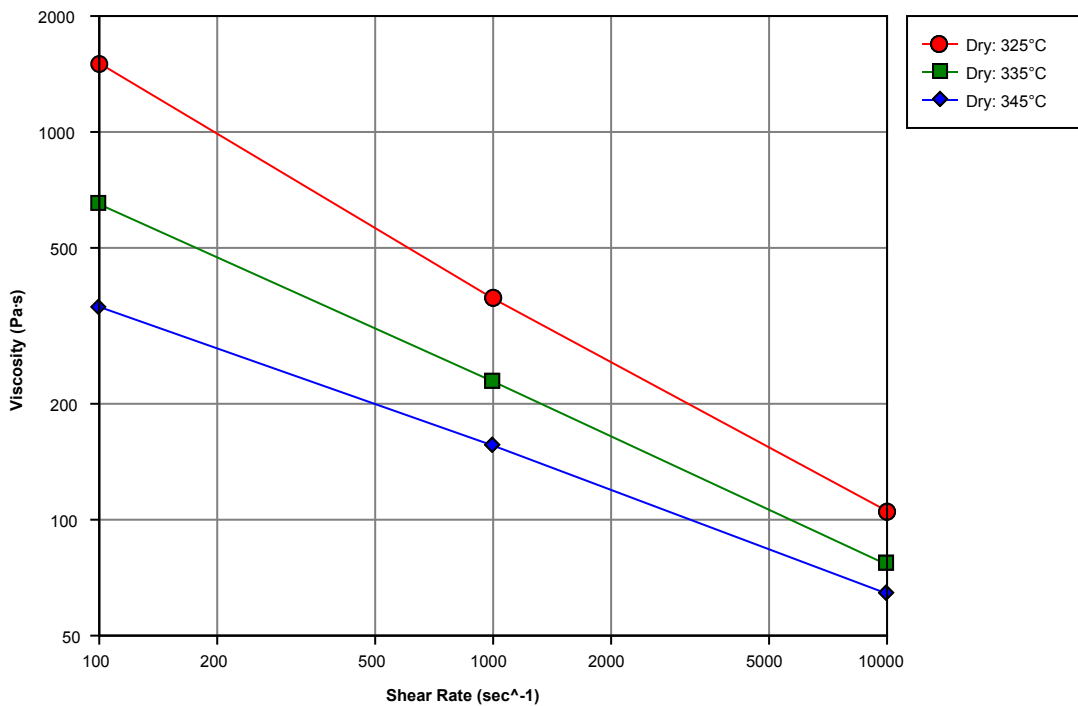
### Isothermal Stress vs. Strain (ISO 11403-1)



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.

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<sup>1</sup> 20000 hr

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<sup>2</sup> 5000 hr

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

[www.SolvaySpecialtyPolymers.com](http://www.SolvaySpecialtyPolymers.com)

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**For assistance with an emergency involving this product, such as spill, leak, fire or explosion, call day or night:**

### Emergency Health Information

**USA** +1.800.621.4590  
**International** +1.770.772.8577

### Emergency Spill Information

**USA** +1.800.424.9300  
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**Europe** +44.208.762.8322 (CARECHEM)  
**China** +86.10.5100.3039  
**All other Asian countries** +65.633.44.177

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

**USA** + 1.800.621.4557 / +1.770.772.8760  
**Europe** +39.02.3835.1  
**Japan** +81.3.5425.4300  
**China & Southeast Asia** +86.21.5080.5080

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