Amodel® AS-1566 HS

polyphthalamide

Amodel® AS-1566 HS resin is a 65% glass and mineral reinforced polyphthalamide (PPA) resin that exhibits a high deflection temperature and high flexural modulus. This grade was designed specifically to be cost effective for most applications requiring high stiffness, good dimensional stability and chemical resistance.

Typical applications for Amodel® AS-1566 HS resin include electrical connectors and housings, motor components, pistons, covers, engine parts and transmission components.

- Black: AS-1566 HS BK 324
- Black: AS-1566 HS BK 545
- Natural: AS-1566 HS NT

General

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Filler / Reinforcement	• Glass\Mineral, 65% Filler by Weight	
Additive	• Heat Stabilizer	
Features	• Chemical Resistant • Creep Resistant • Good Dimensional Stability • Good Toughness • Heat Stabilized	• High Heat Resistance • High Strength • Low CLTE • Ultra High Stiffness
Uses	• Automotive Applications • Automotive Electronics • Automotive Under the Hood • 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	• 3M 11-0003-5762-1 Color: NT Natural • ASTM D6779 PA122R65 Color: BK324 Black • ASTM D6779 PA122R65 Color: BK545 Black • ASTM D6779 PA122R65 Color: NT Natural • BMW GS 93016 • DELPHI DCM4899 Color: BK324 Black • DELPHI DCM4899 Color: NT Natural • DELPHI M-2987 Color: BK324 Black • DELPHI M-2987 Color: NT Natural • DELPHI M-53292 • DELPHI M-53292 Color: BK545 Black • GM GM7001M PA6T/6I/66 A3 A22 A42 A64 BJ721 DE1830 KS1750 Color: NT Natural • GM GMP.PPA.003 Color: Black • GM GMP.PPA.003 Color: Natural • GM GMW16358P-PPA-GF43MD22 Color: BK324 Black • GM GMW16358P-PPA-GF43MD22 Color: NT Natural • TRW SP-13161601 Color: BK324 Black	

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General		
Appearance	• Black	• Natural Color
Forms	• Pellets	
Processing Method	• Injection Molding	
Resin ID (ISO 1043)	• PA6T/6I/66-(GF+MD)65	

Physical	Dry	Conditioned	Unit	Test method
Density	1.84	--	g/cm³	ISO 1183/A
Molding Shrinkage				ASTM D955
Flow	0.30	--	%	
Across Flow	0.50	--	%	
Water Absorption (24 hr)	0.10	--	%	ASTM D570

Mechanical	Dry	Conditioned	Unit	Test method
Tensile Modulus				
--	20000	20900	MPa	ASTM D638
23°C	22500	--	MPa	ISO 527-2
100°C	17200	--	MPa	ISO 527-2
150°C	7310	--	MPa	ISO 527-2
175°C	6210	--	MPa	ISO 527-2
Tensile Strength				
Break	207	--	MPa	ASTM D638
Break, 23°C	200	--	MPa	ISO 527-2
Break, 100°C	127	--	MPa	ISO 527-2
Break, 150°C	52.4	--	MPa	ISO 527-2
Break, 175°C	43.4	--	MPa	ISO 527-2
--	--	175	MPa	ASTM D638
Tensile Elongation				
Break	1.7	1.8	%	ASTM D638
Break, 23°C	1.4	--	%	ISO 527-2
Break, 100°C	1.5	--	%	ISO 527-2
Break, 150°C	3.4	--	%	ISO 527-2
Break, 175°C	3.1	--	%	ISO 527-2
Flexural Modulus				
--	18600	19900	MPa	ASTM D790
23°C	20500	--	MPa	ISO 178
100°C	16800	--	MPa	ISO 178
150°C	7310	--	MPa	ISO 178
175°C	6410	--	MPa	ISO 178
Flexural Strength				
--	--	263	MPa	ASTM D790
23°C	284	--	MPa	ISO 178
100°C	205	--	MPa	ISO 178
150°C	95.8	--	MPa	ISO 178
175°C	75.8	--	MPa	ISO 178
Yield	290	--	MPa	ASTM D790
Shear Strength	80.0	62.7	MPa	ASTM D732

Impact	Dry	Conditioned	Unit	Test method
Charpy Notched Impact Strength (23°C)	6.1	--	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	34	--	kJ/m²	ISO 179/1eU
Notched Izod Impact				
--	64	53	J/m	ASTM D256
23°C	6.5	--	kJ/m²	ISO 180/1A
Unnotched Izod Impact				
--	590	--	J/m	ASTM D256
23°C	44	--	kJ/m²	ISO 180/1U

Thermal	Dry	Conditioned	Unit	Test method
Heat Deflection Temperature				
1.8 MPa, Unannealed	280	--	°C	ISO 75-2/A
1.8 MPa, Annealed	278	--	°C	ASTM D648
Melting Temperature	311	--	°C	ISO 11357-3 ASTM D3418
CLTE				ASTM E831
Flow : 0 to 100°C	1.7E-5	--	cm/cm/°C	
Flow : 100 to 200°C	1.7E-5	--	cm/cm/°C	
Transverse : 0 to 100°C	4.0E-5	--	cm/cm/°C	
Transverse : 100 to 200°C	7.2E-5	--	cm/cm/°C	

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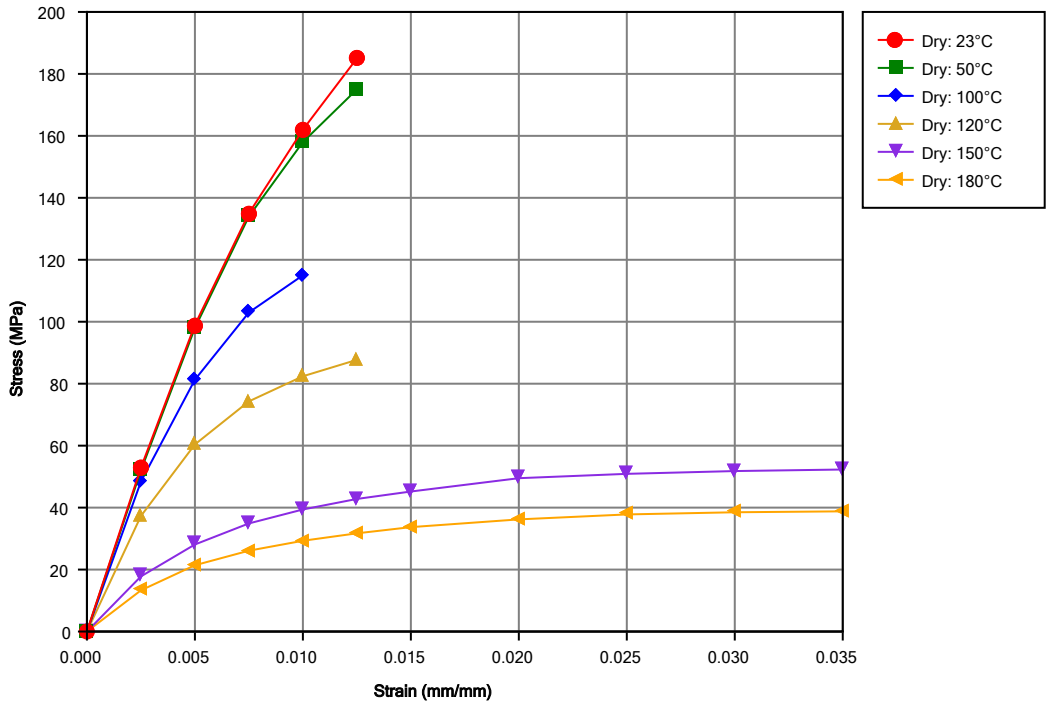
Injection	Dry	Unit
Drying Temperature	120	°C
Drying Time	4.0	hr
Suggested Max Moisture	0.030 to 0.060	%
Hopper Temperature	79	°C
Rear Temperature	307 to 329	°C
Front Temperature	307 to 329	°C
Processing (Melt) Temp	321 to 343	°C
Mold Temperature	> 135	°C

Injection Notes

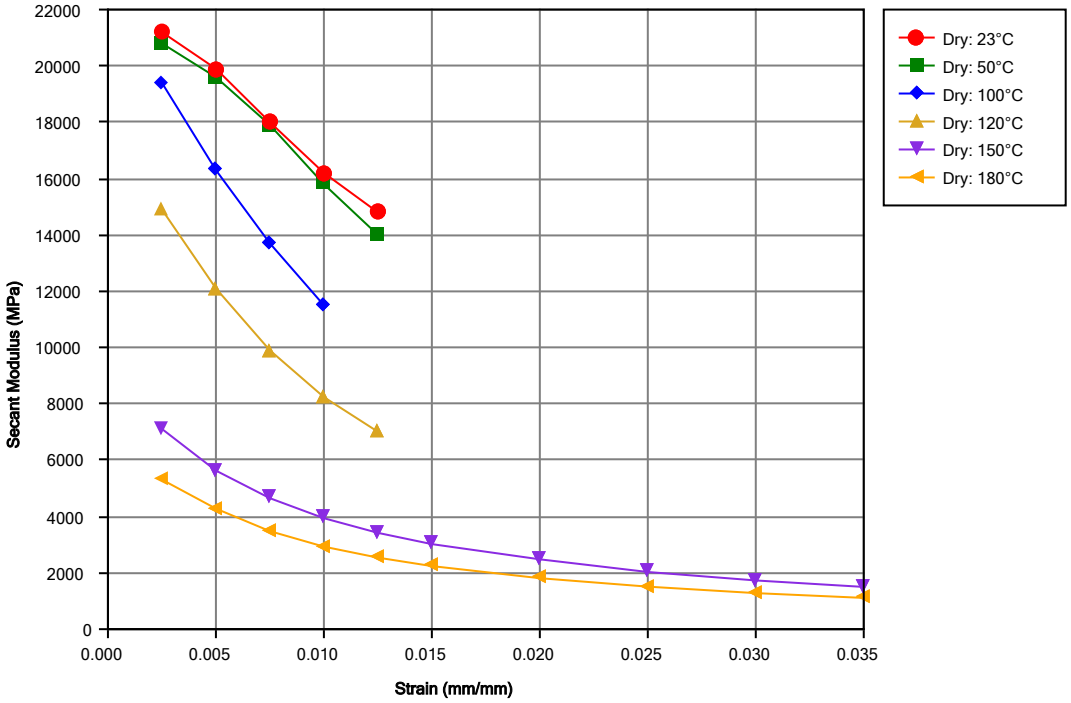
Storage:

- 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.

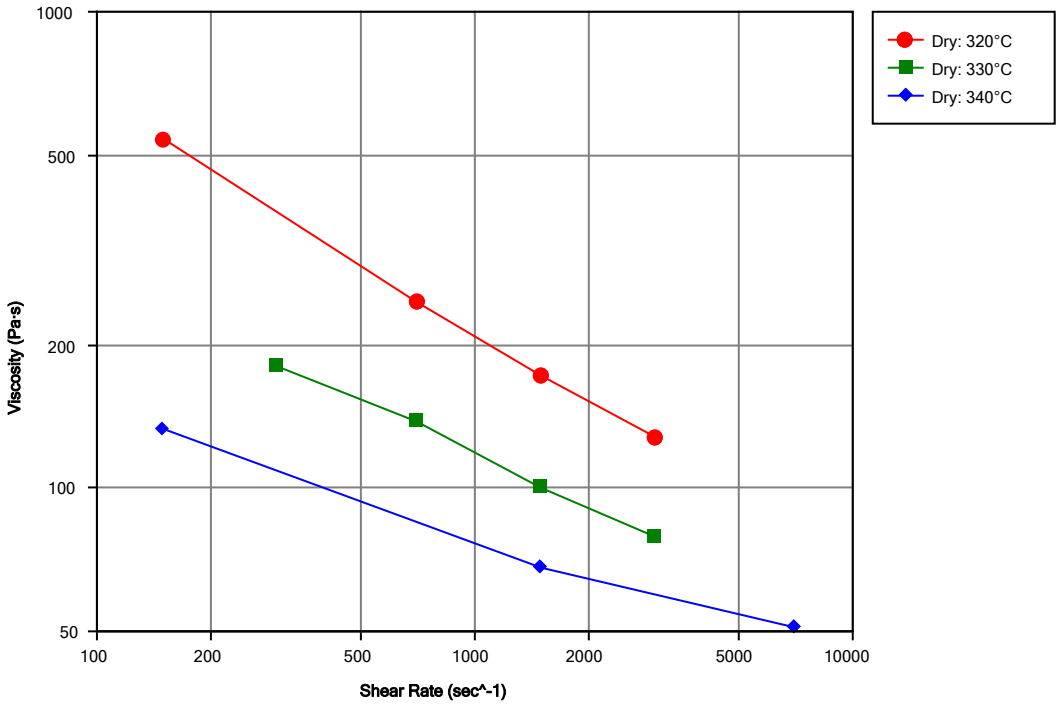
Isothermal Stress vs. Strain (ISO 11403-1)



Secant Modulus vs. Strain (ISO 11403-1)



Viscosity vs. Shear Rate (ISO 11403-2)



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Notes

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

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