Amodel® AS-1945 HS

polyphthalamide

Amodel® AS-1945 HS is a 45% glass reinforced grade of polyphthalamide (PPA) resin developed specifically for improved performance in a 50/50 ethylene glycol and water environment. This material exceeds the performance required by the automotive industry for polymeric materials exposed to antifreeze at 226°F (108°C), even when tested at 275°F (135°C).

Potential applications include a variety of automotive components such as thermostat housings, heater core endcaps, heater hose connectors, and water inlets, outlets and valves.

- Black: AS-1945 HS BK 324

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	• Antifreeze Resistant • Glycol Resistant • Good Chemical Resistance	• Good Creep Resistance • Good Dimensional Stability • Good Stiffness	• Heat Stabilized • High Heat Resistance • High Strength
Uses	• Automotive Applications • Automotive Under the Hood • Housings • Industrial Applications	• Industrial Parts • Machine/Mechanical Parts • Metal Replacement • Power/Other Tools	• Thick-walled Parts • Valves/Valve Parts
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• ASTM D6779 PA121G45 • CHRYSLER MS-DB-478 CPN 5101 Color: BK 324 Black [1]	• FORD WSS-M4D997-A Color: BK-324 Black • GM GMP.PPA.018 Color: BK-324 Black	• GM GMW16360P-PPA-GF45 Color: BK-324 Black • IMDS ID 14880200 Color: BK-324 Black
Appearance	• Black		
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical	Typical Value	Unit	Test method
Density	1.57	g/cm³	ISO 1183/A
Molding Shrinkage			
Flow [2]	0.20	%	ASTM D955
Across Flow [2]	0.60	%	ASTM D955
Across Flow	0.60	%	ISO 294-4
Flow	0.20	%	ISO 294-4

Amodel® AS-1945 HS
polyphthalamide

Mechanical	Typical Value	Unit	Test method
Tensile Modulus			
--	15200	MPa	ASTM D638
-- [3]	10300	MPa	ASTM D638
--	15100	MPa	ISO 527-2
Tensile Strength			
Break	252	MPa	ASTM D638
Break [3]	107	MPa	ASTM D638
Break	244	MPa	ISO 527-2
Tensile Elongation (Break)	2.5	%	ASTM D638
Flexural Modulus			
--	13800	MPa	ASTM D790
--	12600	MPa	ISO 178
Flexural Stress			
--	335	MPa	ISO 178
Yield	359	MPa	ASTM D790

Impact	Typical Value	Unit	Test method
Charpy Notched Impact Strength	13	kJ/m²	ISO 179/1eA
Notched Izod Impact			
--	120	J/m	ASTM D256
-- [3]	69	J/m	ASTM D256
--	11	kJ/m²	ISO 180/1A

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed	282	°C	ISO 75-2/Af
Melting Temperature	312	°C	ISO 11357-3

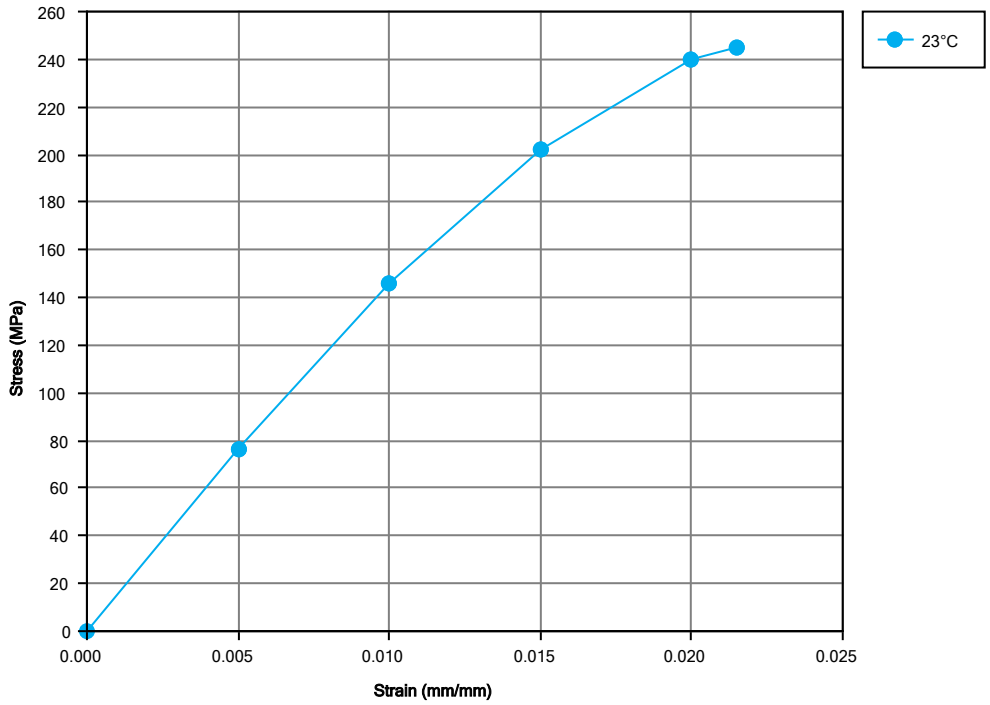
Injection	Typical Value	Unit
Drying Temperature	121	°C
Drying Time	4.0	hr
Suggested Max Moisture	0.10	%
Hopper Temperature	79.4	°C
Rear Temperature	304 to 318	°C
Front Temperature	316 to 329	°C
Processing (Melt) Temp	321 to 343	°C
Mold Temperature	135	°C

Injection Notes

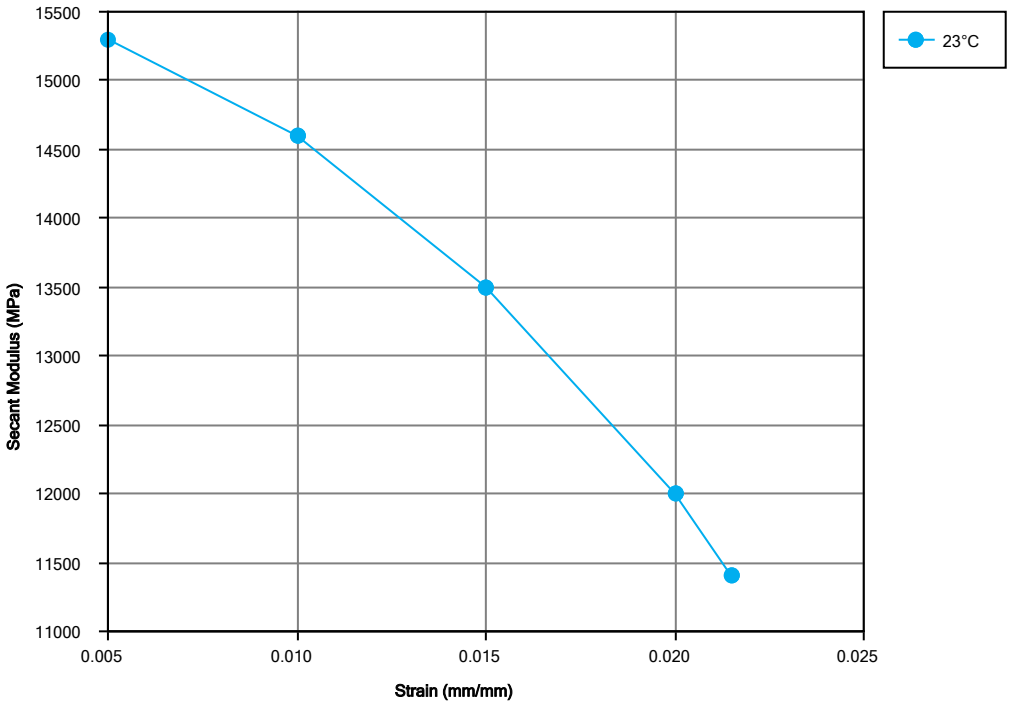
Storage:

- 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)



Amodel® AS-1945 HS
polyphthalamide

Notes

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

[1] CPN 5101

[2] Type D2

[3] After Immersion in 50/50 Glycol/Water Mixture for 1,000 hours at 275°F (135°C)

www.solvay.com

SpecialtyPolymers.EMEA@solvay.com | Europe, Middle East and Africa
SpecialtyPolymers.Americas@solvay.com | Americas
SpecialtyPolymers.Asia@solvay.com | Asia and Australia

SOLVAY
asking more from chemistry®