

Amodel® AT-1116 HS

polyphthalamide

Amodel® AT-1116 HS polyphthalamide (PPA) is a toughened, heat stabilized 16% glass reinforced resin, designed as a cost effective solution for applications requiring stiffness, good dimensional stability, chemical resistance and ductility. This resin has a high heat deflection temperature and a high flexural modulus, with greater tensile elongation than untoughened glass reinforced PPA.

components, motor frames, sporting equipment, lawn and garden equipment and components that require press-fit or snap-fit assembly.

- Black: AT-1116 HS BK 324
- Natural: AT-1116 HS NT

Typical applications include bearings, bearing retainers/cages, housings, chemical processing equipment

General

Material Status	<ul style="list-style-type: none"> • Commercial: Active 	
Availability	<ul style="list-style-type: none"> • Africa & Middle East • Asia Pacific • Europe 	<ul style="list-style-type: none"> • Latin America • North America
Filler / Reinforcement	<ul style="list-style-type: none"> • Glass Fiber, 16% Filler by Weight 	
Additive	<ul style="list-style-type: none"> • Heat Stabilizer 	<ul style="list-style-type: none"> • Impact Modifier
Features	<ul style="list-style-type: none"> • Chemical Resistant • Good Dimensional Stability • Heat Stabilized 	<ul style="list-style-type: none"> • High Heat Resistance • Impact Modified
Uses	<ul style="list-style-type: none"> • Automotive Applications • Automotive Electronics • Automotive Under the Hood • Bearings • Bobbins • Connectors 	<ul style="list-style-type: none"> • General Purpose • Industrial Applications • Industrial Parts • Machine/Mechanical Parts • Metal Replacement
RoHS Compliance	<ul style="list-style-type: none"> • RoHS Compliant 	
Automotive Specifications	<ul style="list-style-type: none"> • ASTM D4000 PPA0111 G17 KD124 KN055 PN046 YI238 LD002 Color: BK 324 Black • ASTM D4000 PPA0111 G17 KD124 KN055 PN046 YI238 LD002 Color: NT Natural • ASTM D6779 PA123G15 YI220 • GM GMN6828 Color: BK 324 Black • GM GMN6828 Color: NT Natural • GM GMP.PPA.009 Color: BK 324 Black • GM GMP.PPA.009 Color: NT Natural • GM GMW15702-021991 Color: BK 324 Black • GM GMW15702-021991 Color: NT Natural • GM GMW16359P-PPA-GF15 Color: BK 324 Black • GM GMW16359P-PPA-GF15 Color: NT Natural • ISO 1874-PA 6T/6I/66-HI, MH, 12-060, GF16 • YAZAKI YPES-25-02-305 Color: BK 324 Black • YAZAKI YPES-25-02-305 Color: NT Natural 	
Appearance	<ul style="list-style-type: none"> • Black 	<ul style="list-style-type: none"> • Natural Color
Forms	<ul style="list-style-type: none"> • Pellets 	
Processing Method	<ul style="list-style-type: none"> • Injection Molding 	

Amodel® AT-1116 HS

polyphthalamide

Physical	Dry	Conditioned	Unit	Test method
Density	1.28	--	g/cm ³	ISO 1183/A
Molding Shrinkage				ASTM D955
Flow	0.60	--	%	
Across Flow	0.60	--	%	
Water Absorption (24 hr)	0.20	--	%	ASTM D570
Mechanical	Dry	Conditioned	Unit	Test method
Tensile Modulus				
--	6480	7100	MPa	ASTM D638
23°C	6890	--	MPa	ISO 527-2
100°C	6690	--	MPa	ISO 527-2
Tensile Stress				
Break, 23°C	160	--	MPa	ISO 527-2
Break, 100°C	65.5	--	MPa	ISO 527-2
--	161	131	MPa	ASTM D638
Tensile Elongation				
Break	3.8	2.8	%	ASTM D638
Break, 23°C	3.7	--	%	ISO 527-2
Break, 100°C	4.2	--	%	ISO 527-2
Flexural Modulus				
--	6000	6210	MPa	ASTM D790
23°C	6690	--	MPa	ISO 178
100°C	4960	--	MPa	ISO 178
Flexural Strength				
--	226	201	MPa	ASTM D790
23°C	197	--	MPa	ISO 178
100°C	141	--	MPa	ISO 178
Compressive Strength	124	--	MPa	ASTM D695
Shear Strength	69.6	65.5	MPa	ASTM D732
Impact	Dry	Conditioned	Unit	Test method
Charpy Notched Impact Strength (23°C)	9.0	--	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	86	--	kJ/m ²	ISO 179/1eU
Notched Izod Impact				
--	96	48	J/m	ASTM D256
23°C	8.0	--	kJ/m ²	ISO 180/1A
Unnotched Izod Impact				
--	960	800	J/m	ASTM D256
23°C	53	--	kJ/m ²	ISO 180/1U
Instrumented Dart Impact				ASTM D3763
Energy at Maximum Load ¹	--	1.36	J	
Energy at Maximum Load ²	1.76	--	J	
Total Energy	10.0	7.59	J	

Amodel® AT-1116 HS

polyphthalamide

Thermal	Dry	Conditioned	Unit	Test method
Deflection Temperature Under Load				
0.45 MPa, Annealed	268	--	°C	ASTM D648
1.8 MPa, Unannealed	258	--	°C	ISO 75-2/A
1.8 MPa, Annealed	254	--	°C	ASTM D648
Peak Melting Temperature	310	--	°C	ASTM D3418
CLTE				ASTM E831
Flow : 0 to 100°C	2.2E-5	--	cm/cm/°C	
Flow : 100 to 200°C	1.6E-5	--	cm/cm/°C	
Transverse : 0 to 100°C	7.5E-5	--	cm/cm/°C	
Transverse : 100 to 200°C	1.2E-4	--	cm/cm/°C	

Amodel® AT-1116 HS

polyphthalamide

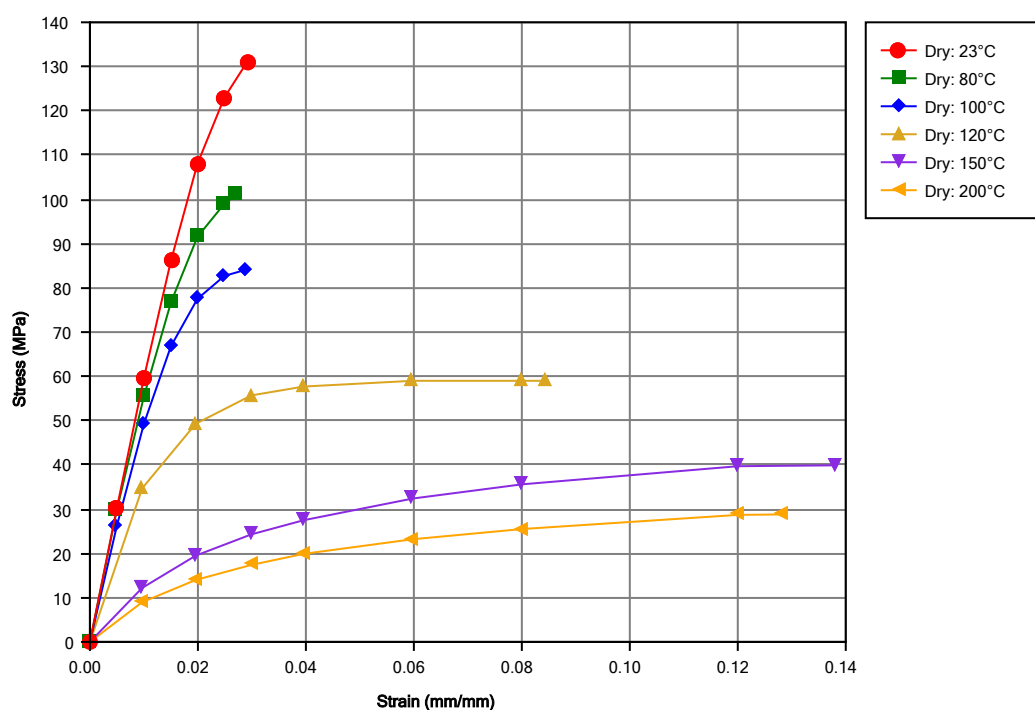
Injection	Dry Unit
Drying Temperature	110 °C
Drying Time	4.0 hr
Suggested Max Moisture	0.030 to 0.060 %
Rear Temperature	304 to 318 °C
Front Temperature	316 to 329 °C
Processing (Melt) Temp	321 to 343 °C
Mold Temperature	135 °C

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.

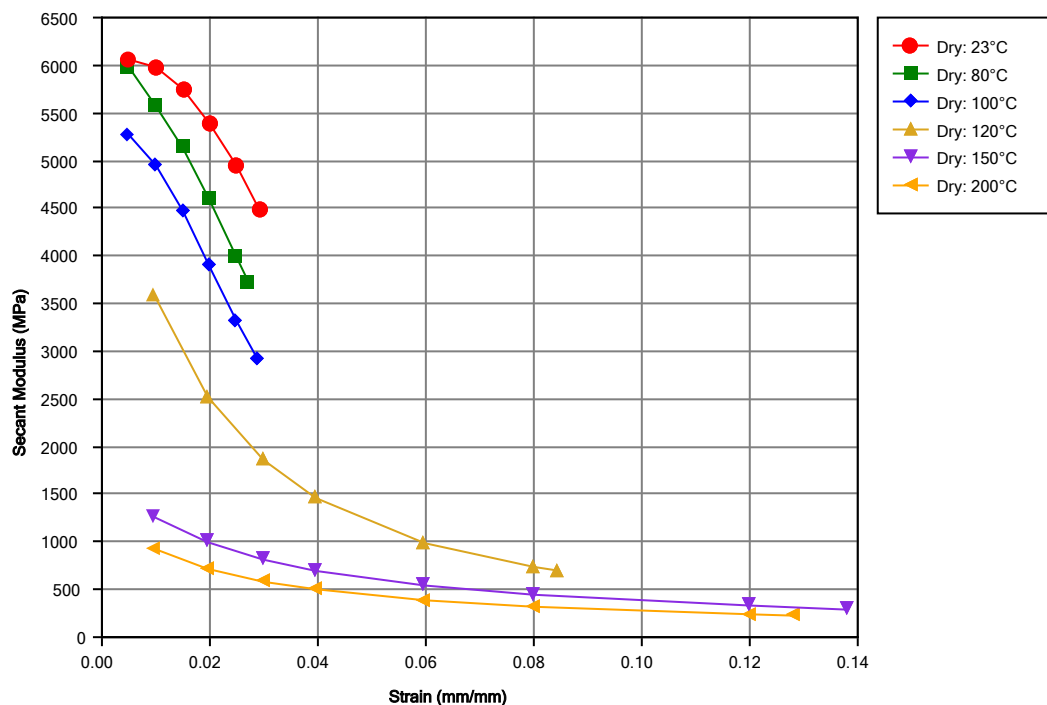
Isothermal Stress vs. Strain (ISO 11403-1)



Amodel® AT-1116 HS

polyphthalamide

Secant Modulus vs. Strain (ISO 11403-1)



Notes

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

¹ Maximum Load: 200 lb (890 N)

² Maximum Load: 240 lb (1070 N)

www.solvay.com

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

SpecialtyPolymers.Americas@solvay.com | Americas

SpecialtyPolymers.Asia@solvay.com | Asia and Australia

Safety Data Sheets (SDS) are available by emailing us or contacting your sales representative. Always consult the appropriate SDS before using any of our products.

Neither Solvay Specialty Polymers nor any of its affiliates makes any warranty, express or implied, including merchantability or fitness for use, or accepts any liability in connection with this product, related information or its use. Some applications of which Solvay's products may be proposed to be used are regulated or restricted by applicable laws and regulations or by national or international standards and in some cases by Solvay's recommendation, including applications of food/feed, water treatment, medical, pharmaceuticals, and personal care. Only products designated as part of the Solviva® family of biomaterials may be considered as candidates for use in implantable medical devices. The user alone must finally determine suitability of any information or products for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. The information and the products are for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right.

All trademarks and registered trademarks are property of the companies that comprise the Solvay Group or their respective owners.

© 2018 Solvay Specialty Polymers. All rights reserved.

