

## 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.

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

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

#### General

|                           |  |   |   |
|---------------------------|--|---|---|
| Material Status           | • Commercial: Active   |   |   |
| Availability              | • Africa & Middle East<br>• Asia Pacific   | • Europe<br>• North America   | • South America   |
| Filler / Reinforcement    | • Glass\Mineral, 65% Filler by Weight  |   |   |
| Additive                  | • Heat Stabilizer  |   |   |
| Features                  | • Good Chemical Resistance<br>• Good Creep Resistance<br>• Good Dimensional Stability  | • Good Toughness<br>• Heat Stabilized<br>• High Heat Resistance   | • High Strength<br>• Low CLTE<br>• Ultra High Stiffness             |
| Uses                      | • Automotive Applications<br>• Automotive Electronics<br>• Automotive Under the Hood<br>• General Purpose<br>• Housings  | • Industrial Applications<br>• Industrial Parts<br>• Lawn and Garden Equipment<br>• Machine/Mechanical Parts<br>• Metal Replacement | • Power/Other Tools<br>• Thick-walled Parts<br>• Valves/Valve Parts |
| RoHS Compliance           | • RoHS Compliant   |   |   |
| Automotive Specifications | <ul style="list-style-type: none"> <li>• ASTM D4000 PA122 R65 Color: BK324 Black</li> <li>• ASTM D4000 PA122 R65 Color: NT Natural</li> <li>• ASTM D6779 PA122R65</li> <li>• DELPHI DCM4899 Color: BK324 Black</li> <li>• DELPHI DCM4899 Color: NT Natural</li> <li>• DELPHI M-2987 Color: BK324 Black</li> <li>• DELPHI M-2987 Color: NT Natural</li> <li>• DELPHI M-53292</li> <li>• DELPHI M-53292 Color: BK545 Black</li> <li>• GM GM7001M PA6T/6I/66 A3 A22 A42 A64 BJ721 DE1830 KS1750 Color: NT Natural</li> <li>• GM GMP.PPA.003 Color: BK324 Black</li> <li>• ISO 1874 PA6T/6I/66, MH, 11-120, (GF+MD)64 Color: BK324 Black</li> <li>• ISO 1874 PA6T/6I/66, MH, 11-120, (GF+MD)64 Color: NT Natural</li> <li>• TRW SP-13161601 Color: BK324 Black</li> <li>• TRW SP-13161601 Color: NT Natural</li> </ul> |   |   |
| Appearance                | • Black  | • Natural Color   |   |
| Forms                     | • Pellets  |   |   |
| Processing Method         | • Injection Molding  |   |   |

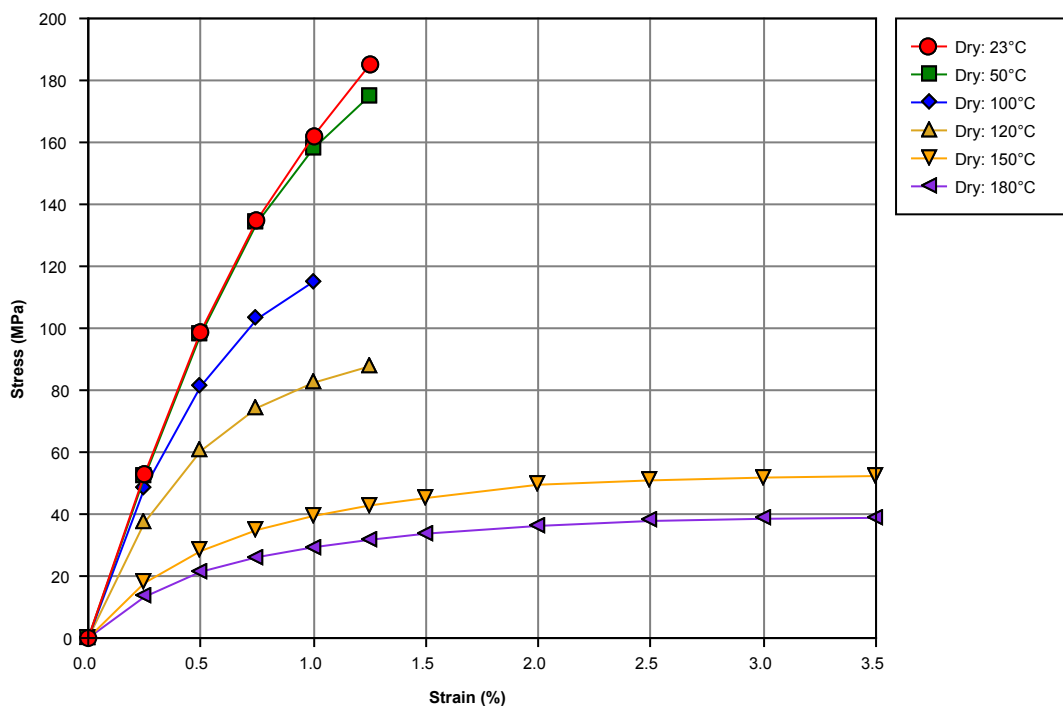
| Physical | Dry  | Conditioned Unit     | Test Method |
|----------|------|----------------------|-------------|
| Density  | 1.84 | -- g/cm <sup>3</sup> | ISO 1183/A  |

| Physical                                | Dry   | Conditioned | Unit              | Test Method   |
|---|-------|-------------|-------------------|---------------|
| 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     |
| 175°C                                   | 75.8  | --          | MPa               | ISO 178       |
| 150°C                                   | 95.8  | --          | MPa               | ISO 178       |
| 100°C                                   | 205   | --          | MPa               | ISO 178       |
| 23°C                                    | 284   | --          | 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/m <sup>2</sup> | ISO 179/1 e A |
| Charpy Unnotched Impact Strength (23°C) | 34    | --          | kJ/m <sup>2</sup> | ISO 179/1 eU  |
| Notched Izod Impact                     |       |             |                   |               |
| --                                      | 64    | 53          | J/m               | ASTM D256     |
| 23°C                                    | 6.5   | --          | kJ/m <sup>2</sup> | ISO 180/1A    |
| Unnotched Izod Impact                   |       |             |                   |               |
| --                                      | 590   | --          | J/m               | ASTM D256     |
| 23°C                                    | 44    | --          | kJ/m <sup>2</sup> | ISO 180/1U    |

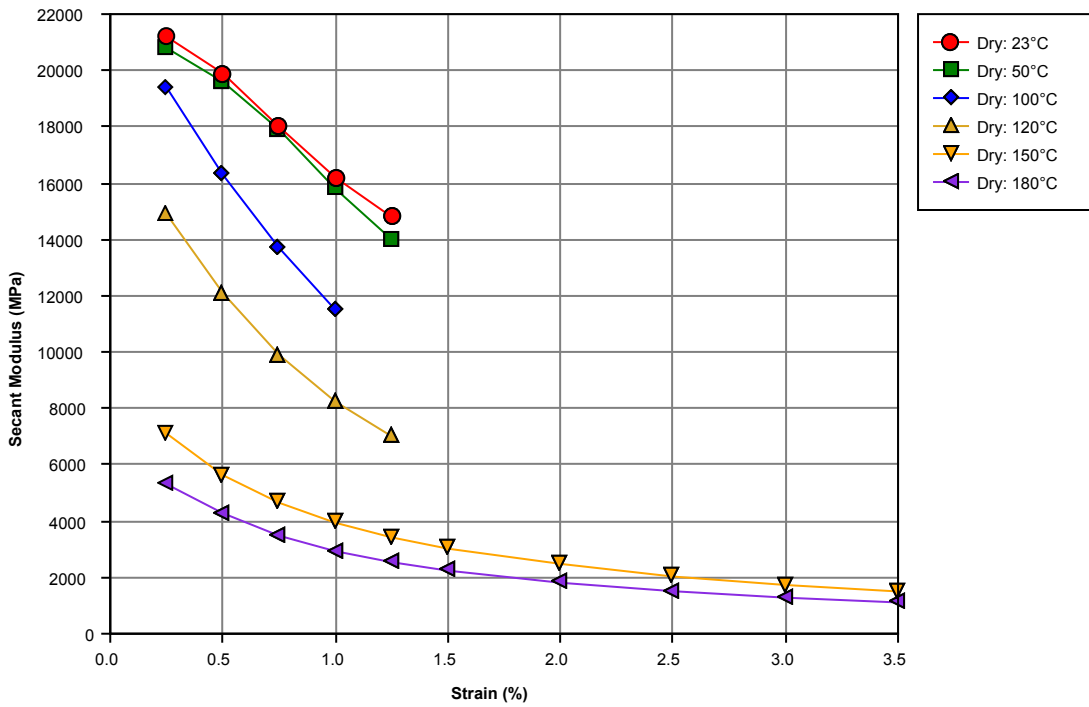
| Thermal                     | Dry      | Conditioned Unit | Test Method               |
|-----------------------------|----------|------------------|---------------------------|
| Heat Deflection Temperature |          |                  |                           |
| 1.8 MPa, Unannealed         | 280      | -- °C            | ISO 75-2/A                |
| 1.8 MPa, Annealed           | 278      | -- °C            | ASTM D648                 |
| Melting Temperature         | 311      | -- °C            | ISO 11357-3<br>ASTM D3418 |
| CLTE                        |          |                  | ASTM E831                 |
| Flow: 0 to 100°C            | 0.000017 | -- cm/cm/°C      |                           |
| Flow: 100 to 200°C          | 0.000017 | -- cm/cm/°C      |                           |
| Transverse: 0 to 100°C      | 0.000040 | -- cm/cm/°C      |                           |
| Transverse: 100 to 200°C    | 0.000072 | -- cm/cm/°C      |                           |

| Injection              | Dry Unit       |
|------------------------|----------------|
| Drying Temperature     | 120 °C         |
| Drying Time            | 4.0 hr         |
| Suggested Max Moisture | 0.045 %        |
| Hopper Temperature     | 79.4 °C        |
| Rear Temperature       | 307 to 329 °C  |
| Front Temperature      | 307 to 329 °C  |
| Processing (Melt) Temp | 321 to 343 °C  |
| Mold Temperature       | 65.6 to 166 °C |

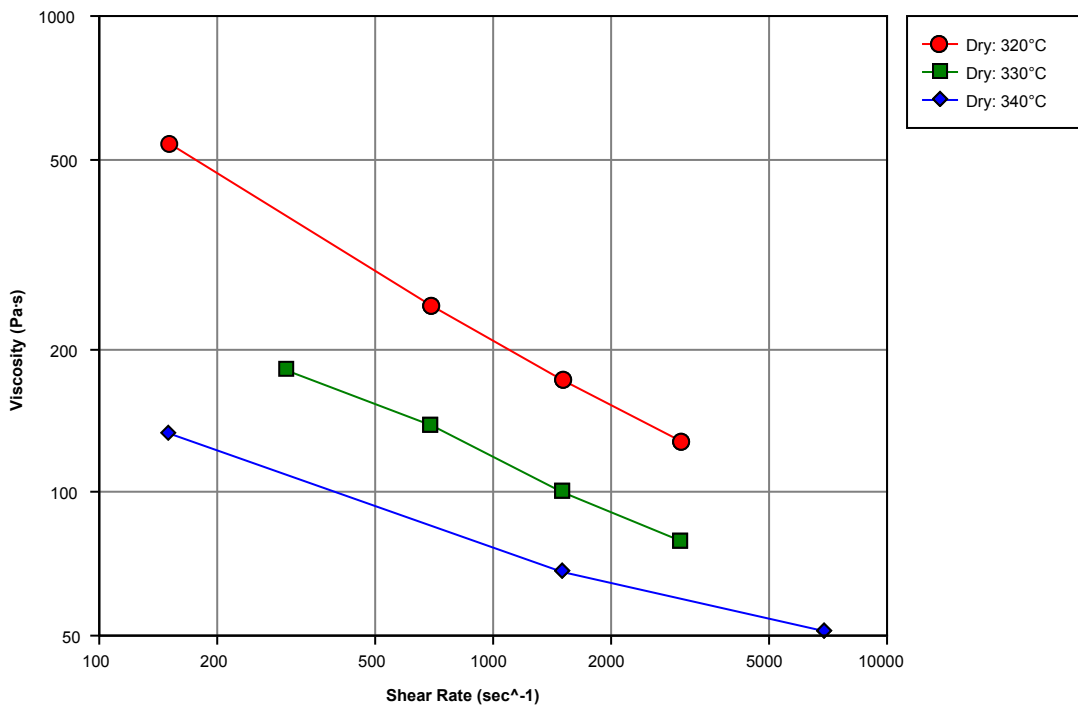
**Isothermal Stress vs. Strain (ISO 11403-1)**



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.

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

## Contact Solvay Specialty Polymers

Europe, Middle East and Africa [SpecialtyPolymers.EMEA@solvay.com](mailto:SpecialtyPolymers.EMEA@solvay.com)  
Americas [SpecialtyPolymers.Americas@solvay.com](mailto:SpecialtyPolymers.Americas@solvay.com)  
Asia and Australia [SpecialtyPolymers.Asia@solvay.com](mailto:SpecialtyPolymers.Asia@solvay.com)

**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  
+1.703.527.3887 (CHEMTREC)  
**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

Material Safety Data Sheets (MSDS) for products of Solvay Specialty Polymers are available upon request from your sales representative or by emailing us at [specialtypolymers@solvay.com](mailto:specialtypolymers@solvay.com). Always consult the appropriate MSDS before using any of our products.

Solvay Specialty Polymers is comprised of the activities of the Solvay Advanced Polymers, Solvay Solexis and Solvay Padanaplast companies along with the Ixan® and Diofan® PVDC products lines. To our actual knowledge, the information contained herein is accurate as of the date of this document. However the companies that comprise Solvay Specialty Polymers and none of their affiliates make any warranty, express or implied, or accepts any liability in connection with this information or its use. Only products designated as part of the Solviva® family of biomaterials may be considered as candidates for implantable medical devices; Solvay Specialty Polymers does not allow or support the use of any other products in any implant applications. This information is 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. The user alone must finally determine suitability of any information or material for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. This information gives typical properties only and is not to be used for specification purposes. All companies comprising Solvay Specialty Polymers reserve the right to make additions, deletions or modifications to the information at any time without prior notification.

All trademarks and registered trademarks are property of the companies that comprise Solvay Specialty Polymers or their respective owners.  
© 2012 Solvay Specialty Polymers. All rights reserved.

