Amodel® A-4145 HH
polyphthalamide

Amodel® A-4145 HH is a 45% glass fiber reinforced heat stabilized grade of polyphthalamide (PPA) that has been designed to provide outstanding property retention to thermal oxidative degradation at temperatures of 230°C. Other features are fast cycling and hot water moldability. This product is particularly suitable to air induction applications within downsized automotive engines such as air induction charge air cooling and exhaust gas recirculation.

This grade features high heat deflection temperature, high flexural modulus and high tensile strength, as well as excellent creep resistance and low moisture absorption.

- Black: A-4145 HH BK311
- Black: A-4145 HH BK324

General		
Material Status	• Commercial: Active	
Availability	• Europe	• North America
Filler / Reinforcement	• Glass Fiber, 45% Filler by Weight	
Additive	• Heat Stabilizer	
Features	• Chemical Resistant • Creep Resistant • Good Dimensional Stability • Good Stiffness • Heat Stabilized	• High Heat Resistance • High Strength • Hot Water Moldability • Laser Weldable • Low Moisture Absorption
Uses	• Automotive Applications • Automotive Electronics • Connectors • Consumer Applications	• Housings • Industrial Applications • Machine/Mechanical Parts • Metal Replacement
RoHS Compliance	• Contact Manufacturer	
Appearance	• Black	
Forms	• Pellets	
Processing Method	• Water-Heated Mold Injection Molding	

Physical	Typical Value	Unit	Test method
Density	1.59	g/cm³	ISO 1183/A
Molding Shrinkage			ASTM D955
Flow	0.30	%	
Across Flow	0.90	%	
Water Absorption (24 hr)	0.40	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tensile Modulus	15500	MPa	ISO 527-1

Mechanical	Typical Value	Unit	Test method
Tensile Stress			ISO 527-2
Break, -40°C	272	MPa	
Break, 23°C	230	MPa	
Break, 80°C	156	MPa	
Break, 120°C	103	MPa	
Break, 180°C	68.0	MPa	
Break, 200°C	61.0	MPa	
Break, 220°C	52.0	MPa	
Break, 250°C	44.0	MPa	
Tensile Strain (Break, 23°C)	2.0	%	ISO 527-2
Flexural Modulus (23°C)	14200	MPa	ISO 178
Flexural Stress (23°C)	318	MPa	ISO 178
Compressive Strength	168	MPa	ASTM D695
Shear Strength	91.0	MPa	ASTM D732
Poisson's Ratio	0.39		ASTM E132

Impact	Typical Value	Unit	Test method
Charpy Notched Impact Strength (23°C)	10	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	78	kJ/m²	ISO 179/1eU
Notched Izod Impact Strength (23°C)	11	kJ/m²	ISO 180/1A
Unnotched Izod Impact Strength (23°C)	65	kJ/m²	ISO 180/1U

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ISO 75-2/A
1.8 MPa, Unannealed	291	°C	
Melting Temperature	327	°C	ISO 11357-3

Injection	Typical Value	Unit
Drying Temperature	120	°C
Drying Time	4.0	hr
Suggested Max Moisture	0.045	%
Rear Temperature	318 to 324	°C
Middle Temperature	318 to 324	°C
Front Temperature	327 to 332	°C
Processing (Melt) Temp	330 to 335	°C
Mold Temperature	66 to 93	°C

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Injection Notes

Injection Rate: 3 to 4 in/sec
Holding Pressure: 50% of injection pressure

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.

Proper Ventilation:

- It is strongly recommended that the processing site be correctly ventilated during molding. The ventilation should be placed directly above the injection nozzle to prevent exposure to fumes and gases that may be generated.
- In the event of a barrel purge where a large melt patty may be generated, it is often advisable to draw the purge patty into a bucket of water to reduce fumes.

Hot Runners:

- Syensqo does not encourage the use of hot runner technology with this product. For further clarification on hot runners, please contact your Syensqo Technical Marketing representative.

Notes

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

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