

## A-1133 NL WH 505

AMODEL A-1133 NL WH 505 resin is a 33% glass reinforced polyphthalamide (PPA) which exhibits a high deflection temperature, flexural modulus and tensile strength. This material also has excellent creep resistance and low moisture absorption. This grade is distinguished

by its high-reflectivity white color. It can be easily processed using conventional equipment and methods.

### Typical Properties of AMODEL A-1133 NL WH 505 Resin

Property	ASTM Test Method	Typical Values <sup>(1)</sup>			
		U.S. Customary Units		SI Units	
		DAM <sup>(2)</sup>	Units	DAM <sup>(2)</sup>	Units
<b>Mechanical</b>					
Tensile Strength	D 638	26,000	psi	179	MPa
Tensile Elongation	D 638	1.8	%	1.8	%
Tensile Modulus	D 638	1,800	kpsi	12.4	GPa
Flexural Strength	D 790	34,200	psi	236	MPa
Flexural Modulus	D 790	1,700	kpsi	11.7	GPa
Poisson's Ratio		0.41		0.41	
Izod Impact, Notched	D 256	0.7	ft-lb/in	37	J/m
Rockwell Hardness	D 785	125	R	125	R
<b>Thermal</b>					
Heat Deflection Temperature at 264 psi (1.8 MPa)	D 648	520	°F	271	°C
Melting Point	D 570	590	°F	310	°C
Coefficient of Thermal Expansion	E 831				
32° to 212°F (0° to 100°C), FD <sup>(3)</sup>		13	ppm/°F	24	ppm/°C
32° to 212°F (0° to 100°C), TD <sup>(4)</sup>		25	ppm/°F	45	ppm/°C
320° to 480°F (160° to 250°C), FD <sup>(3)</sup>		8	ppm/°F	15	ppm/°C
320° to 480°F (160° to 250°C), TD <sup>(4)</sup>		56	ppm/°F	101	ppm/°C
<b>General</b>					
Specific Gravity	D 792	1.54		1.54	
Moisture Absorption, 24 hours	D 570	0.16	%	0.16	%
Mold Shrinkage	D 955				
Flow Direction		0.2	%	0.2	%
Transverse Direction		0.6	%	0.6	%

<sup>(1)</sup> Actual properties of individual batches will vary within specification limits.

<sup>(2)</sup> "dry, as molded".

<sup>(3)</sup> FD = Flow direction.

<sup>(4)</sup> TD = Transverse Direction.

## Drying

Resin should be dried before molding because excessive moisture will result in nozzle drool, reduced mechanical properties, poor surface appearance, and sprue sticking. Extremely wet resin will result in a foamy extrudate. The target moisture level is 0.03 to 0.06% (300 to 600 ppm) and the maximum recommended drying temperature is 135°C (275°F).

Although AMODEL resins are shipped with less than 0.15% moisture and packaged in moisture-proof foil-lined bags or boxes, the resin should be dried for optimum molding results. The preferred drying condition is 4 hours at 120°C (248°F). Alternatively, the resins can be dried for 8 hours at 90°C (194°F). In either case, a desiccant bed dryer with a dew point below -30°C (-22°F) should be used.

### Drying Tips:

- Do not open containers until ready to process.
- Drying at temperatures higher than 125°C (257°F) may result in the darkening of natural colored pellets.
- If a thermogravimetric moisture analyzer is used, it should be set to 170°C (338°F)
- AMODEL resin in an open container needs to be dried as shown in the following table. The recommended drying time depends on how long the container has been open and the estimated relative humidity.

#### Drying Time at 120°C (248°F), hours

Relative Humidity, %	Elapsed Time From Container Opening, hours				
	0.25	0.5	1	2	3
30	4.5	5.0	5.5	6.0	6.5
50	5.0	5.5	6.0	7.0	7.5
75	5.0	5.5	6.5	7.5	8.0
100	5.5	6.5	7.5	8.5	9.0

## Injection Molding

AMODEL A-1133 NL WH 505 resin can be readily injection molded in most screw injection molding machines. A general purpose screw is recommended, with minimum back pressure.

Barrel temperatures generally should range from 580° to 605°F (304° to 318°C) in the rear zone and gradually increase to 600° to 625°F (315° to 329°C) in the front zone. These conditions should give melt temperatures of 610° to 650°F (321° to 343°C).

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A mold temperature of 275°F (135°C) is recommended to ensure full crystallinity in the typical molded part. High crystallinity results in optimum mechanical properties, excellent dimensional stability and good surface appearance. The use of lower mold temperatures may produce parts with lower crystallinity and, consequently, optimal performance may not be achieved.

## Standard Packaging and Labeling

AMODEL A-1133 NL WH 505 resin is packaged in foil lined, multiwall paper bags containing 25 kg (55.115 pounds) of material. Special packaging can be supplied upon request. Individual packages will be plainly marked with the product number, the color, the lot number, and the net weight.

## Precautionary Labeling

On the basis of the toxicological, physical, and chemical properties of AMODEL A-1133 NL WH 505 resin, labeling used on containers is as follows:

*Caution! Handling and/or processing this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose, and throat.*

## Product Safety and Emergency Service

For product safety information or a Material Safety Data Sheet on a product of Solvay Advanced Polymers

**1 (800) 621-4557**

**1 (770) 772-8880 outside of U.S.**

For information or help in an emergency such as a spill, leak, fire or explosion, call day or night:

Emergency Health Information

**1 (800) 621-4590**

**1 (770) 772-5177 outside of U.S.**

Emergency Spill Information

**CHEMTREC 1 (800) 424-9300**

**1 (703) 527-3887 outside of U.S.**

**collect calls accepted**

## For Additional Information

Technical Service

**1 (800) 621-4557**

Customer Service

**1 (800) 848-9744**