

ET-1001 HS

AMODEL ET-1001 HS resin is an impact modified polyphthalamide (PPA) with exceptional impact strength and practical toughness. AMODEL PPA resins offer high fatigue strength, and good chemical resistance combined with good mechanical property retention over a broad temperature/humidity range.

Possible applications for AMODEL ET-1001 HS resin include anti-friction and wear resistant components, and

components of chemical and oil processing equipment, sporting goods, automobiles, household appliances, power tools, and safety equipment, where exceptional impact strength and high modulus are required.

AMODEL ET-1001 HS resin contains a lubricant for easier processing with conventional equipment and methods. This grade is also heat stabilized for better performance at high temperatures.

Typical Properties of AMODEL ET-1001 HS Resin

Property	ASTM Test Method	Typical Values ⁽¹⁾					
		U. S. Customary Units			SI Units		
		DAM ⁽²⁾	50% RH ⁽³⁾	Units	DAM ⁽²⁾	50% RH ⁽³⁾	Units
Mechanical							
Tensile Strength	D 638	11.0	9.0	kpsi	76	62	MPa
Tensile Elongation	D 638						
at Yield		6	6	%	6	6	%
at Break		30	30	%	30	30	%
Tensile Modulus	D 638	350	340	kpsi	2.4	2.3	GPa
Flexural Strength	D 790	18.5	16.0	kpsi	128	110	MPa
Flexural Modulus	D 790	380	380	kpsi	2.6	2.6	GPa
Izod Impact, Notched	D 256	18	18	ft-lb/in	960	960	J/m
Penetration Impact (Dynatup ⁽⁴⁾)	D 3763						
at 73°F (23°C)							
Maximum Load		1,260		lbs	5,600		N
Energy to Maximum Load		32		ft-lbs	43		J
Total Energy Absorbed		47		ft-lbs	64		J
at -10°F (-23°C)							
Maximum Load		1,460		lbs	6,500		N
Energy to Maximum Load		34		ft-lbs	46		J
Total Energy Absorbed		49		ft-lbs	66		J
Poisson's Ratio		0.35			0.35		
Thermal							
Deflection Temperature at 264 psi (1.8 MPa)	D 648	248		°F	120		°C
Melting Point	D 3418	590		°F	310		°C
General							
Specific Gravity	D 792	1.15			1.15		
Moisture Absorption, 24 hours	D 570	0.65		%	0.65		%
Mold Shrinkage ⁽⁵⁾							
Flow Direction		1.5-2.0		%	1.5-2.0		%
Transverse Direction		1.5-2.0		%	1.5-2.0		%

⁽¹⁾ Actual properties of individual batches will vary within specification limits.

⁽²⁾ DAM = "dry, as molded".

⁽³⁾ Conditioned to 50% Relative Humidity in accordance with ISO-1110, Accelerated Method.

⁽⁴⁾ "Dynatup" is a registered trademark of General Research Corporation.

⁽⁵⁾ Measured using a 4 x 4 x 1/8th inch (102 x 102 x 3 mm) plaque.

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 for most AMODEL resins 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 for this grade is 4 hours at 110°C (230°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 this grade at temperatures higher than 110°C (230°F) may result in pellet clumping.
- If a thermogravimetric moisture analyzer is used, it should be set to 170°C (338°F)

Injection Molding

AMODEL ET-1001 HS 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).

Mold temperatures from 150° to 230°F (65° to 110°C) are recommended.

Standard Packaging and Labeling

AMODEL ET-1001 HS 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 ET-1001 HS 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

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