TMI PRODUCTS
2279 Cedar Cliff Road, Hiawassee, GA 30546
706-896-5534 fax: 706-896-2011 Joe@TMIProducts.net

Stick Fast 350 Wood Stabilizing Resin

Thermal Curing Impregnation Resin

Stick Fast 350 Resin is a high performance, water washable, heat cured resin designed for impregnation of porous materials. The resin cures to form a hard durable thermoset plastic formed by a free radical polymerization initiated by exposure to heat. The resin can be cured at temperatures between 80˚C - 96˚C, (177˚F - 205˚F). Cure is preferably accomplished by submersion in heated water or in an oven. 350 Resin is formulated for use in all available impregnation equipment for stabilizing wood and other porous materials. It forms a densely cross linked thermoset polymer when cured. 350 Resin is formulated with a balance of reactive and unreactive surfactants and inhibitors to maximize wash ability and provide some protection against oxidizing. This critical formulation results in a resin with a high resistance to solvents and to thermal degration, yet is easily washable in plain water.

I. GENERAL PROPERTIES

The following data are typical properties based on laboratory results.

Uncured Properties	
Composition /type:	methacrylate monomers
Appearance/Color:	translucent, amber liquid
Viscosity @ 25˚C:	5-20 cP
Specific Gravity:	1.03
Flash Point:	>90˚C
Vapor Pressure:	<5 mmHg
Flourescence:	Yes
Cured Properties	
Appearance:	Hard, translucent, plastic
Hardness Shore D (ADTM D2240):	75-85

II. SOLVENT RESISTANCE

The cured resin is resistant to almost all common solvents, including hydrocarbon solvent (oils, gasoline), chlorinated and flourinated solvents, mild caustic acid solutions and water.

III. SERVICE TEMPERATURE RANGE

350 Resin is formulated from the highest quality monomers to maximize the service operating range of the polymer. 350 Resin is recommended for continuous service from -54˚C, (-65˚F) to 204˚C, (399˚F) may be permissible in particular applications.

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IV. CURING RATES AND METHODS

After impregnation, excess resin can be recovered in a bottle for future use. The resin cures when the temperature within the part reaches 200˚F for a minimum of three minutes. Special initiators blended into the resin cause free radical polymerization once the resin temperature reaches cure temperatures. The thermal conductivity of the part being impregnated and the recovery rate of the curing medium are factors used to calculate actual process times.

The most effective method for curing is using boiling water as the heat source until core cure temperature is sustained for five minutes or more. Submersion of impregnated parts in this efficient thermal conductivity shortens processing time. Parts with large cross section areas may require longer processing times to achieve the required cure temperature throughout the wood. Typically wood parts will cure in 20 minutes heated with boiling water. Parts should be tightly wrapped individually to keep from bonding together and placed in a 2 to 3 mil plastic bag. The bag should be long enough to extend above the top of the pot used for "cooking"with the top of the bag open to allow heated air to escape without water getting into the bag. The parts in the bag must be below the surface of the water to cure.

An oven is a common heat source for curing. Cure times can be almost double and maintaining a constant 200 degree temperature can be difficult for ovens. Using a thermometer to correctly monitor the oven temperature is highly recommended. Individually wrap each piece.

Over cooking will push out an excessive amount of resin; undercooking will cause finish problems. A good indicator of being cured is when resin being pushed out of the end grain crystalizes.

Reactivity/freshness of the impregnation resin is monitored by measuring gel time of a representative sample from the tank. Catalyzed resin temperature should be kept below 80˚F. Gel time measured in a 15 x 85 mm test tube should be between 4-6 minutes at 200˚F.

Extended time in a vacuum chamber (6-12 hours) may also initiate a cure without heat.

V. STORAGE

350 Resin is easy to store and has 3 year or more shelf life under proper storage conditions. The resin should be stored in its original container and away from direct sunlight or other sources of UV light. Storage temperatures should be maintained below 80˚F. Catalyzed resin will maintain stability for one year or more if it is stored as noted. The packaged unmixed catalyst should be refrigerated (not frozen) for maximum shelf life and water may be added if needed.

VI. HANDLING NOTE: See MSDS for complete handling instructions

ALL CHEMICALS SHOULD BE HANDLED WITH CARE. Resin can be safely handled using normally accepted practices for handling non-toxic industrial chemicals. Rubber gloves should be worn when handling liquid resin. Avoid excessive skin contact and wash thoroughly with water and mild soap if contact occurs. If dermatitis occurs, seek medical attention and avoid further exposure. Avoid accidental contact with the eyes by using safety glasses. If accidental contact with eyes should occur, flush immediately with copious amount of clean water and obtain medial attention.

Warning: Dry unmixed Catalyst must stay away from heat sources. Elevated temperatures above 122˚F will cause Dry unmixed catalyst to release flammable and toxic products (see SDS)

VII. WASTE TREATMENT

Cured resin is inert and can be disposed of as ordinary industrial trash. Resin in solution in wash water effluent is biodegradable.

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