

**TIS™ 680-10AB** is a two-component, high thermal conductive, low temperature cured, long pot life, fire resistant Silica encapsulant glue. It is design for potting of capacitors and electrical devices. Their flexibility and elasticity make them suited to the coating of the very uneven surfaces. Heat can transmit to the metal housing or dissipation plate from the separate elements or even the entire PCB, which in effect enhances the efficiency and life-time of the heat-generating electronic components.

## Application

- › To potting LED Lighting heat spreader and power- driver.
- › Ferrite cements; tip type LED; good cementation to aromatic polyester
- › Relay sealant; Good adhesion to rubber, ceramics, PCB and plastics
- › Power transformers and coils; Potting capacitors; Potting of small electrical devices
- › Adhesion to metal glass and plastic; LCD & substrates adhesion; Coating and sealant; Coil ; IGBTs; Transformer; Fire retardant
- › Optical / medical component adhesive



## Features

- › Good thermal conductive: 1.0W/mK
- › Excellent insulation and smoothly surface.
- › Low shrinkage
- › Low viscosity, expediting air released.
- › Excellent in solvents and water proof.
- › Longer life time.
- › Excellent thermal shock efficiency and impact resistance

## Typical Uncured Material

### TIS™ 680-10A (Resin)

Color	White
Viscosity@25°C Brookfield	3,500 cPs
Specific Gravity	1.45 g/cc
Shelf life @25°C in sealed container	12 months

### TIS™ 680-10B (Hardener)

Color	Black
Viscosity@25°C Brookfield	3,500 cPs
Shelf life @25°C in sealed container	12 months

## Mix Ratio (By weight)

**TIS™ 680-10A : TIS™ 680-10B = 100 : 100**

Viscosity @25°C	3,500 cPs
Working pot life (250 g @25°C)	30 min
Specific Gravity	1.45 g/cc

## Cure Schedule

**Cure 3 hours at 25°C**  
**Cure 20 min at 70°C**

## Cured Properties

Hardness @25°C	85 Shore A
Service temperature	-40°C to +160°C
Glass transition temperature Tg	92°C
Elongation	4.50%
Coefficient of thermal expansion, / °C	3.0 x 10 <sup>-5</sup>
Fire resistance UL	94 V-0
Moisture absorption % wt gain 24 hours water immersion @25°C	< 0.1

## Thermal

Thermal Conductivity	1.0 W/m-K
Thermal Impedance @10psi	0.48 °C -in <sup>2</sup> /W

## ELECTRICAL AS CURED

Dielectric Strength	400 volts / mil
Dielectric Constant	4.2 MHz
Dissipation factor	0.029 MHz
Volume resistivity, ohm-cm @ 25°C	3.0 X 10 <sup>13</sup>

## Instruction for Use

### General

Thoroughly read the information concerning health and safety contained in this bulletin before using. Observe all precautionary statements that appear on the product label and/or contained in individual Material Safety Data Sheets (MSDS). To ensure the long term performance of the potted or encapsulated electrical/electronic assembly, complete cleaning of components and substrates should be performed to remove contamination such as dust, moisture, salt, and oils which can cause electrical failure, poor adhesion or corrosion in an embedded part.

### Mixing

Some filler settling is common during shipping or storage. For this reason, it is recommended that each component be thoroughly mixed in its shipping container prior to use. Power mixing is preferred to ensure a homogeneous product. Accurately weigh resin and selected hardener into a clean container in the recommended ratio. Weighing apparatus having accuracy in proportion to the amounts being weighed should always be used. If the temperature of workshop is lower than 18°C, you are suggested to preheat Part A to decrease the viscosity. For your reference, 1 kg Part A should be preheated at 50°C for 45mins. Please don't preheat Part A at temperature higher than 50°C. Too high temperature will cause the shorter work life of the epoxy mixture. Blend components by hand, using a kneading motion, for 2-3 minutes. Scrape the bottom and sides of the mixing container frequently to produce a uniform mixture. If possible, power mix for an additional 2-3 minutes. Avoid high mixing speed which could entrap excessive amounts of air or cause overheating of the mixture resulting in reduced working life.

### De-airing

To ensure a void-free embedment, vacuum de-airing should be used to remove any entrapped air introduced during the mixing operation. Vacuum de-air mixture at 1-5 mm mercury. The foam will raise several times the liquid height and subside. Continue vacuum de-airing until most of the bubbling has ceased. This usually requires 3-10 minutes.

### Application

Pour mixture into cavity or mold. Gentle warming of the mold or assembly reduces the viscosity improving the flow of material into units having intricate shapes or tightly packed coils or components. Further vacuum de-airing in the mold may be required for critical applications. Cure using any one of the recommended schedules. For optimum performance, the initial cure schedule should be followed with a post cure. In general, a post cure of 2-4 hours at the highest expected use temperature is recommended. Alternate cure schedules may also be possible. Contact your EMS Technical Representative for further information.

### STORAGE & HANDLING

For best results, store resins and hardeners in original, unopened containers. Storage in cool clean and dry areas is recommended. Usable shelf life may vary depending on method of application and storage temperature. Certain resins and hardeners are prone to crystallization. If crystallization does occur, warm the contents of the shipping container to 50°C-65°C until all crystals have dissolved. Be sure the shipping container is loosely covered during the warming stage to prevent any pressure build-up. Allow contents to cool to room temperature before continuing.

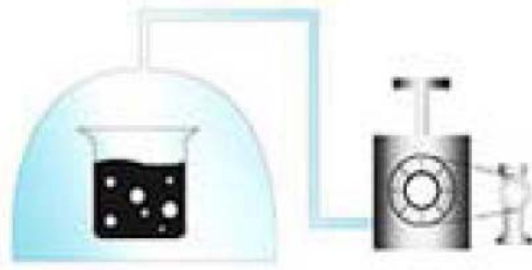
### ATTENTION SPECIFICATION WRITERS

The technical information contained herein outlines the typical properties of this material and should not be used in the preparation of specifications as it is intended for reference only.

For assistance in preparing specifications, please contact our Quality Assurance Department for specific recommendations. SAFETY/HYGIENE This product like most epoxy compounds possesses the ability to cause skin and eye irritation upon contact. Certain individuals may also develop an allergic reaction after exposure (skin contact, inhalation of vapors, etc.) which may manifest itself skin rashes and itching sensation. Handling this product at elevated temperatures may also generate vapors irritating to the respiratory system. Good industrial hygiene and safety practices should be followed when handling this product. Proper eye protection and appropriate chemical resistant clothing should be worn to minimize direct contact. Consult the Material Safety Data Sheet (MSDS) for detailed recommendations on the use of engineering controls and personal protective equipment. This information is only a brief summary of the available safety and health data. Thoroughly review the MSDS for more complete information before using this product.



Mixing



De-airing



Application

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