832TC

Thermally Conductive Epoxy, Encapsulating & Potting Compound

832TC is a 2-part, black epoxy that offers extreme environmental, mechanical and physical protection for printed circuit boards and electronic assemblies.

It is designed for applications where thermal management is a concern. Its high thermal conductivity helps protect circuits by reducing the risk of heat buildup. It also provides excellent electrical insulation and protects components from static discharge, vibration, abrasion, thermal shock, environmental humidity, salt water, fungus, and many harsh chemicals.

Features & Benefits

Low exotherm

Convenient 1A:1B volume mix ratio

High compressive and tensile strength

Excellent adhesion to a wide variety of substrates including metals, composites, glass, ceramics, and many plastics

Excellent electrical insulating characteristics

Extreme resistance to water and humidity

Solvent-free

Cure Instructions

Allow to cure at room temperature for 96 hours, or cure in an oven at one of these time/temperature options:

Temperature	65 °C	80 °C	100 °C
Time	2 h	1 h	45 min

Available Packaging

Part #	Packaging	Net Vol.	Net Wt.
832TC-450ML	2 Bottle kit	450 mL	751 g
832TC-2L	2 Can kit	1.7 L	2.83 kg
832TC-8L	2 Can kit	7.2 L	12.0 kg
832TC-40L	2 Pail kit	40 L	66.8 kg

Storage and Handling

Store between 16 and 27 ˚C in a dry area, away from sunlight (see SDS).

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Liquid Properties

Chemistry	Epoxy	—
Density	1.7 g/mL (Mixed) 1.6 g/mL (A) 1.6 g/mL (B)	ASTM D1475
Viscosity @ 25 ˚C	27 000 cP (Mixed) 33 000 cP (A) 12 000 cP (B)	Brookfield Engineering labs Inc. IPCTM-65- Method 2.4.24.4
Mix Ratio	1:1 (Volume) 1.1:1 (Weight)	—
Working Time [a]	2 h	—
Shrinkage	1.4%	Calculated
Shelf Life	5 y	—

[a] Based on 100 g sample. Varies by volume and geometry.

Cured Properties

Flame Retardancy	No	—
Color	Black	—
Density	1.7 g/mL	Hydrostatic Weighing
Service Temperature Range	-30–175 ˚C	—
Intermittent Temperature	200 ˚C	—
Thermal Conductivity @ 25 ˚C Specfic Heat Capacity @ 25 ˚C Thermal Diffusivity @ 25 ˚C	0.7 W/(m·K) 1.4 J/(g·K) 0.3 mm^2/s	ASTM E1461
Glass Transition Temperature (T_g)	50 ˚C	ASTM E1545
Coefficient of Thermal Expansion (CTE)	142 ppm/˚C (Prior T_g) 114 ppm/˚C (After T_g)	ASTM E831
Hardness	81 D	ASTM D2240
Tensile Strength	23 N/mm^2	ASTM D638
Compressive Strength	87 N/mm^2	ASTM D695

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Cured Properties Continued

Lap Shear	13 N/mm^2 (Stainless Steel) 16 N/mm^2 (Aluminum) 1.8 N/mm^2 (ABS) 1.8 N/mm^2 (PC)	ASTM D1002
Resistivity	8.2 x 10^{12} Ω·cm	ASTM D257
Breakdown Voltage @ 3.175 mm Dielectric Strength @ 3.175 mm	48 300 V 386 V/mil	ASTM D149
Dielectric Constant @ 1 MHz Dissipation Factor @ 1 MHz	3.7 0.1	ASTM D150
Chemical Absorption Weight Gain, 30 days @ 25 °C	13 % (Acetone) 9 % (Ethyl Acetate) 0.5 % (IPA) 1 % (Sulphuric Acid 3%) 1.4 % (Sulphuric Acid 30%) 0.2 % (Acetic Acid) 0.1 % (10% NaOH) 0.1 % (10% NaCl) 0.2 % (Water) 0 % (Transmission Oil) 0 % (Transformer Oil) 1 % (Gasoline)	—

Application Instructions

Read the product SDS and Application Guide for more detailed instructions before using this product.

Recommended Preparation

Clean the substrate with 824 99.9% Isopropyl Alcohol, so the surface is free of oils, dust, and other residues.

Mixing

1. Scrape settled material free from the bottom and sides of the part A container; stir the contents until homognous. Use a paint shaker if available.
2. Measure 1 parts by volume of the part A and pour into the mixing container. Ensure all contents are transferred by scraping the container.
3. Measure 1 part by volume of the part B and pour into the mixing container. Ensure all contents are transferred by scraping the container.
4. Thoroughly and gently mix parts A and B together. Avoid introducing air bubbles.
5. To de-air, let sit for 15 minutes or put in a vacuum chamber at 25 inHg for 2 minutes.
6. If bubbles are present at the top, break them gently with the mixing paddle.
7. Pour the mixture into a container holding the components to be protected.
8. Close the part A and B containers tightly between uses to prevent skinning.

If crystallization/solidification occurs, reconstitute the product by warming to between 55 and 65 °C until it becomes fully re-liquified. Let the material cool to room temperature before mixing, to prevent flash cure.

Mixing >3 kg at a time decreases working time and can lead to a flash cure. Limit the size of hand-mixed batches. For large production volumes, contact MG Chemicals Technical Support for assistance.