832HD

Black 1:1 Epoxy, Encapsulating & Potting Compound

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

Due to its low mixed viscosity, 832HD can easily penetrate small gaps and cavities. 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 mixed viscosity of 4 100 cP

Extremely 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 24 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	20 min

Storage and Handling

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

Available Packaging

Part #	Packaging	Net Vol.	Net Wt.
832HD-25ML	Dual syringe	25 mL	26.2 g
832HD-50ML	Dual cartridge	46 mL	48.3 g
832HD-400L	Dual cartridge	380 mL	399 g
832HD-7.4L	2 Can kit	7.4 L	7.77 kg
832HD-40L	2 Pail kit	40 L	42.0 kg

Dispensing Accessories

Part #	Dispensing Gun	Static Mixer
832HD-25ML	N/A	8MT-25, 8MT-50
832HD-50ML	8DG-50-1-1	8MT-25, 8MT-50
832HD-400ML	8DG-400-1-1	8MT-450

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Liquid Properties

Chemistry	Epoxy	—
Density	1.0 g/mL (Mixed) 1.1 g/mL (A) 1.0 g/mL (B)	ASTM D1475
Viscosity @ 25 ˚C	4 100 cP (Mixed) 5 900 cP (A) 2 300 cP (B)	Brookfield Engineering labs Inc. IPCTM-65- Method 2.4.24.4
Mix Ratio	1:1 (Volume) 1.22:1 (Weight)	—
Working Time [a]	45 min	—
Shrinkage	1.5%	Calculated
Shelf Life	5 y	—

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

Cured Properties

Flame Retardancy	No	—
Color	Black	—
Density	1.1 g/mL	Hydrostatic Weighing
Service Temperature Range [b]	-40–150 ˚C	—
Intermittent Temperature	-50–175 ˚C	—
Thermal Conductivity @ 25 ˚C Specfic Heat Capacity @ 25 ˚C Thermal Diffusivity @ 25 ˚C	0.3 W/(m·K) 2.0 J/(g·K) 0.1 mm^2/s	ASTM E1461
Glass Transition Temperature (T_g)	41 ˚C	ASTM E1545
Coefficient of Thermal Expansion (CTE)	73 ppm/˚C (Prior T_g) 207 ppm/˚C (After T_g)	ASTM E831
Hardness	80 D	ASTM D2240
Tensile Strength	32 N/mm^2	ASTM D638
Compressive Strength	75 N/mm^2	ASTM D695

[b] >65 ˚C may affect clarity.

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Cured Properties Continued

Lap Shear	21 N/mm^2 (Stainless Steel) 14 N/mm^2 (Aluminum) 3.9 N/mm^2 (ABS) 2.1 N/mm^2 (PC)	ASTM D1002
Resistivity	1.4 x 10^{13} Ω·cm	ASTM D257
Breakdown Voltage @ 3.175 mm Dielectric Strength @ 3.175 mm	45 700 V 365 V/mil	ASTM D149
Dielectric Constant @ 1 MHz Dissipation Factor @ 1 MHz	2.5 0.04	ASTM D150
Chemical Absorption Weight Gain, 30 days @ 25 °C	7 % (IPA) 0.7 % (Sulphuric Acid 3%) 2.5 % (Sulphuric Acid 30%) 7 % (Acetic Acid) 0.3 % (10% NaOH) 0.3 % (10% NaCl) 0.3 % (Water) 0 % (Transmission Oil) 0 % (Transformer Oil)	—

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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.

Syringe or Cartridge

1. Twist and remove the cap from the syringe or cartridge. Do not discard cap.
2. Dispense a small amount to ensure even flow of both parts.
3. (Optional) Attach static mixer.
   a. Dispense and discard 5 to 10 mL of the product to ensure a homogeneous mixture.
   b. After use, dispose of static mixer.
4. Without a static mixer, dispense material on a mixing surface or container, and thoroughly mix parts A and B together.
5. To stop the flow, pull back on the plunger.
6. Clean nozzle to prevent contamination and material buildup. Replace the cap on the syringe or cartridge.

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 >500 g 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.