

# High Temperature Epoxy Encapsulating and Potting Compound



## ■ 832HT

For encapsulating and potting electronics in high temperature environments, aggressive chemical environments, or where improved technology protection is desired. Bonds to a wide variety of substrates, including metals, glass, ceramics and many plastics.

### Features / Benefits

- Extreme physical strength and chemical resistance
- Suitable for extreme environments, such as submersion in salt water, acids, bases, fuels, and alcohols
- Protects against strong vibrations, abrasions, and direct physical impact
- Extremely difficult to remove - grants incredible technology protection
- Maximum service temperature of 275°C (527°F)



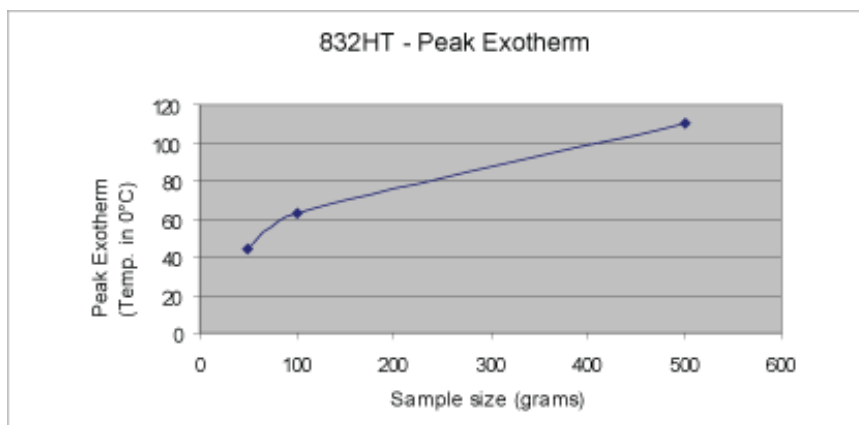
### Typical Applications

- Use in electronic assemblies to prevent vibration damage
- Encapsulate circuits for the purpose of technological protection

### Specifications

Cured Properties - Physical	Test Method	Result
Viscosity at 20 °C (68 °F) (Part A)		54,800 cps
Viscosity at 20 °C (68 °F) (Part B)		11,000 cps
Mixed Viscosity at 20 °C (68 °F)		40,000 cps
Mixing Ratio by Volume		2.0 : 1.0 (Part A: Part B)
Mixing Ratio by Mass		2.186 : 1.000 (Part A: Part B)
Maximum Service Temperature		275 °C (527 °F)
Maximum Intermittent Temperature		300 °C (572 °F)
Working Time (100 gram sample)		1 hour
Hardness, Shore D		80
Tensile Strength	ASTM-D-638-02a	7,861 PSI
Elongation	ASTM-D-638-02a	3.38%
Compressive Strength	ASTM-D-695-02a	11,870 PSI

Flexural Strength	ASTM-D-790-03	14,600 PSI
Flexural Modulus	ASTM-D-790-03	399,000 PSI
Lap Shear Strength	ASTM-D-1002-01	1,794 PSI
Coefficient of Thermal Expansion	ASTM-D-648-01	
-40 °C to 50 °C		75.7x10 <sup>-6</sup> mm/mm°C
+100 °C to +250 °C		154.0x10 <sup>-6</sup> mm/mm°C
-40 °C to +250 °C		125.3x10 <sup>-6</sup> mm/mm°C
+25 °C to + 250 °C		140.2x10 <sup>-6</sup> mm/mm°C
Deflection Temperature Under Load	ASTM-D-648-01	53.9 °C (129.02 °F)
Thermal Conductivity	ASTM-E-1530-99	0.210 W/m°K
Thermal Conductivity @ 25 °C (77°F)	ASTM-E-1461-92	0.218 W /m°K
Thermal Diffusivity @ 25 °C (77 °F)	ASTM-E-1461-92	1.33 x 10 <sup>-13</sup> M <sup>2</sup> /s
Specific Heat Capacity @ 25 °C (77 °F)	ASTM-E-1269-01	1419 J/kg°K
Curing Time (100g)		
@ room temp.		24 hours
@ 65°C		60 minutes
@ 80°C		45 minutes
@ 100°C		35 minutes
@ 130°C		25 minutes
@ 160°C		15 minutes
@ 200°C		10 minutes
<b>Cured Properties - Electrical</b>	<b>Test Method</b>	<b>Result</b>
Corrected Dissipation Factor, D	ASTM D150-98	0.007 @ 1KHz
		0.011 @ 10KHz
		0.014 @ 100KHz
		0.014 @ 1MKHz
Dielectric Constant	ASTM D150-98	4.24 @ 60Hz
		2.96 @ 1KHz
		2.81 @ 10KHz
		2.83 @ 100KHz
		2.83 @ 1MKHz
Dissipation Factor	ASTM-D-150-98	0.0018 @ 60 Hz
Volume Resistivity	ASTM-D-257-99	9.3 x 10 <sup>15</sup> ohm · cm
Surface Resistivity	ASTM-D-257-99	5.3 x 10 <sup>13</sup> ohm
Dielectric Strength	ASTM D149-97a	1,138 V/mill @ 0.020"
	ASTM D149-97a	326 V/mil @ 0.017"
Breakdown Voltage	ASTM D149-97a	54.4 kV



Sample Size (grams)	Peak Exotherm (Temp. in 0° C)	Time in Minutes
50	44	155
100	63	110
500	110	65

### Available Sizes

Catalog Number	Sizes Available	Description
832HT-375ML	375ml (12 oz)	Liquid
832HT-3L	3L (0.8 gal)	Liquid

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# Material Safety Data Sheet

## Section 1: Product Identification

**MSDS Code: 832HT - Part A Name: High Temperature Epoxy Potting and Encapsulating Compound**

**Related Part Numbers: 832HT-375ML; 832HT-3L**

Use: Encapsulating and potting compound for high temperature applications.

## Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
28064-14-4	Phenol Novolac Type Epoxy Resin	87-92%	N/E	N/E	N/E
28064-14-4	Epoxy Resin Type Bis-F	5-10%	N/E	N/E	N/E

## Section 3: Hazards Identification

**NFPA Ratings:** Health 1 Flammability 0 Reactivity 0

**HMIS Ratings:** Health 1 Flammability 0 Physical Hazard 0

**Eyes:** Causes eye irritation. Avoid eye contact.

**Skin:** Causes skin irritation. Avoid skin contact.

**Inhalation:** At room temperature, exposure to vapors is unlikely due to physical properties. Higher temperatures may generate vapor levels sufficient to cause irritation.

**Ingestion:** Single dose oral toxicity is low. Amounts ingested incidental to industrial handling are not likely to cause injury; however, ingestion of large amounts may cause injury.

**Chronic:** No information available.

## Section 4: First Aid Measure

**Eyes:** Remove contact lenses. Flush with plenty of water. Get medical aid if symptoms persist.

**Skin:** Wash skin with soap and water. Get medical aid if symptoms persist.

**Inhalation:** Immediately remove from exposure to fresh air. Get medical aid if symptoms persist.

**Ingestion:** Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid.

## Section 5: Fire Fighting Measures

**Autoignition Temperature:** N/A **Flash Point:** 150°C/302°F **LEL / UEL:** N/A

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam.

**General Information:** N/A

## Section 6: Accidental Release Measures

**Spill Procedure:** Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent compound onto spill, then sweep into a plastic or metal container. Wipe up further residue with paper towel and place in container. Wash spill area with soap and water.

## Section 7: Handling and Storage

**Handling:** Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Do not ingest or inhale. Do not expose container to heat.

**Storage:** Store in a cool, dry, well-ventilated area, away from incompatible substances.

## Section 8: Exposure Controls

**Routes of entry:** Eyes, ingestion, inhalation, and skin.

**Ventilation:** Use adequate general or local exhaust ventilation to keep airborne concentrations below exposure limits.

**Personal Protection:** Wear appropriate protective eyeglasses or chemical safety goggles. Wear appropriate protective clothing to prevent skin contact. Wear chemical resistant gloves such as butyl rubber, nitrite, or neoprene. Use a NIOSH approved respirator when necessary.

## Section 9: Physical and Chemical Properties

<b>Physical State:</b>	Liquid	<b>Odor:</b>	Mild	<b>Solubility in water:</b>	Insoluble	<b>Evaporation Rate:</b>	N/E
<b>Boiling Point:</b>	>150°C /302°F	<b>Specific Gravity:</b>	1.39	<b>Vapor Pressure:</b>	<1 mm Hg @ 20°C	<b>Vapor Density:</b>	N/A
						<b>pH:</b>	N/A

## Section 10: Stability and Reactivity

**Stability:** Stable at normal temperatures and pressures.

**Conditions to avoid:** Excessive temperatures.

**Incompatibilities:** Strong Acids, Amines, strong bases, and strong oxidizing agents.

**Polymerization:** May occur.

**Decomposition:** Carbon dioxide, and carbon monoxide, phenol compounds.



This product does not contain any class 2 ozone depleting substances.

This product does not contain any chemicals listed as hazardous air pollutants.

**Health Canada**

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling Regulations.

**USA**

**SARA** (Superfund Amendments and Reauthorization Act of 1986, USA, 40 CFR 372.4)

None of the chemicals in this product have a reportable quantity.

**EPCRA** (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product does not contain any chemicals subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

**TSCA** (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

**California Proposition 65** (Chemicals known to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)

This product does not contain any chemicals listed.

**EUROPE**

**RoHS**

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

**WEEE**

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

**Section 16: Other Information**

**Definitions:** N/A = not applicable, N/E = not established

**Disclaimer:** This material safety data sheet is provided as an information resource only. M.G. Chemicals believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.