

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND **832B-PART A**

Safety Data Sheet

Section 1: Product and Company Identification

Product Name: Black Epoxy Encapsulating and Potting Compound

MSDS Code: 832B-Part A

Related Part #: 832B-375ML, 832B-3L, 832B-60L

Use: Epoxy resin for use with hardeners to pot devices or encapsulate components

Uses Advised Against: Not for use as a spray coating

Emergency Contact

USA or CANADA: Call CHEMTREC ☎: 1-800-424-9300 (**for hazardous material incidents ONLY**—leaks, spills, fires, exposures or accidents)

CANADA: Call CANUTEC ☎: 1-613-996-6666 or *666 on cellular phones, Collect 24/7 (**for emergencies involving dangerous goods**)

Manufacturer: MG Chemicals (Head Office), 9347-193 Street, Surrey, B.C., V4N 4E7

Technical Contacts: ☎ 1-800-201-8822 FAX 1-800-708-9888

E-MAIL: support@mgchemicals.com **WEB** www.mgchemicals.com

Section 2: Hazards Identification

WHMIS Classification



D2A – Very Toxic (Carcinogenicity IARC: 2B); D2B – Toxic Material (Skin/Eye Irritation; Skin Sensitization in Humans)

Note: The possible carcinogenicity warning applies to inhalable dust. Aerosolization and misting should be avoided and are not expected to occur for normal uses.

GHS Pictograms






Signal Word
WARNING

Continued on the next page

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A

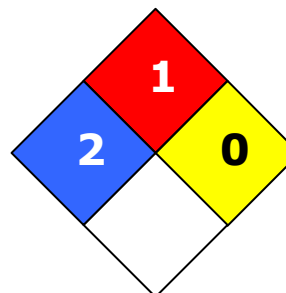
GHS Categories

Criteria		Category	Signal Word	Pictograms
Sensitization	Skin sensitizer	1	Warning	
Skin Irritation		2A	Warning	
Eye Irritation		2	Warning	
Carcinogenicity		2	Warning	
Environmental Hazard	Chronic Aqua. Tox.	2	Warning	
Environmental Hazard	Acute Aqua. Tox.	2	—	

HMIS® RATING

HEALTH:	2
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

Physical Hazards

GHS Code: Hazard Statement
none

Health Hazards

GHS Code: Hazard Statement
H319: Causes serious eye irritation
H315: May cause skin irritation
H317: May cause allergic skin reaction
H351: Suspected of causing cancer

Environmental Hazards

GHS Code: Hazard Statement
H411: Toxic to aquatic life with long lasting effects

Continued on the next page

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**Other Hazards**

Not applicable

Precautionary Statements

P280: Wear protective gloves/eye protection.

P260: Do not breathe fume/gas/vapors/spray.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P302 + P352 + P361 + P353: IF ON SKIN: Wash with plenty of water. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

Exposure Routes and Symptoms Summary

Eyes Causes serious eye irritation. May also cause eye redness or pain.

Skin May cause mild to moderate skin irritation and allergic skin reactions.

Inhalation May cause nose, throat and lung irritation.

Ingestion No acute toxicity effect known. See skin and inhalation symptoms.

Chronic Prolonged or repeated exposure to the uncured epoxy resins used may cause dermatitis and sensitization.

Long term exposure to carbon black dust or mist may cause cancer.

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
25068-38-6	reaction products: bisphenol-A-(epichlorhydrin) and epoxy resin average MW \leq 700	80-95%
68609-97-2	Alkyl glycidyl ether	7-13%
28064-14-4	epoxy phenol novolac resin	1-5%
1333-86-4	carbon black	0.1-1%

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A

Section 4: First Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF IN EYES	P305
Symptoms	Immediate: <i>irritation, redness, pain</i>
Response	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists	P313: Get medical attention.
IF ON SKIN	P302
Symptoms	Immediate: <i>irritation, redness;</i> Delayed: <i>rash</i>
Response	P352: Wash with plenty of water. P362+ P364 + P272: Take off contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace.
If skin irritation, rash occurs, or concerned	P313: Get medical advice/attention.
IF INHALED	P304 (<i>Not a likely route of exposure under normal use</i>)
Symptoms	Immediate: <i>cough, respiratory system irritation</i>
Response	P340: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.
If feeling unwell	P312: Call a POISON CENTRE/doctor.
IF SWALLOWED	P301 (<i>Not a likely route of exposure under normal use</i>)
Symptoms	Immediate: <i>irritation</i>
Response	P330: Rinse mouth. P331: Do NOT induce vomiting.
If feeling unwell	P312: Call a POISON CENTRE/doctor.

Note: GHS codes and corresponding precaution statements are used when available.

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**Section 5: Fire Fighting Measures**

Autoignition Temperature	Not Established	Flash Point ^{a)}	>142 °C [>287 °F]	LFL [LEL] ^{b)} UFL [UEL]	Not Established
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In case of fire P370

Response P378: Use dry chemical, carbon dioxide, or chemical foam to extinguish. Use water spray to cool containers.

Combustion Products Produces CO, CO₂, silicone oxides, and toxic fumes.

Fire-Fighter Wear self-contained breathing apparatus for fire fighting

General Information Prevent fire-fighting wash from entering waterway or sewer system.

Note: The GHS codes and the GHS precaution statements are used. The format is
GHS Codes: Statements.

a) Closed cup value for the alkyl glycidyl ether resin component.

b) LFL = Lower Flammability [or Explosion] Limit (in volume %);
UFL = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

Personal Protection: See Section 8. Avoid breathing the mist/vapors.

Containment Remove all sources of ignition.

Cleaning Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wipe up further residue with paper towel wetted with alcohol (or other suitable organic solvent) and place dirty towels in container. Wash spill area with soap and water to remove the last traces of residue.

RECOMMENDATION: Use a plastic, stainless steel, or carbon steel container.

Disposal Dispose of spill waste according to Section 13.

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A

Section 7: Handling and Storage

Prevention P262: Do not get in eye, on skin, or on clothing.

P261 + P271 + P284: Avoid breathing fume/vapors. Use only outdoors or in well ventilated area. In cases of inadequate ventilation wear respiratory protection.

P270: Do not eat, drink, or smoke when using this product.

Handling P280: Wear protective gloves/clothing/eye protection.

P264: Wash hands thoroughly after handling.

Storage P403 + P233+ P235: Keep Container tightly closed. Store in a well-ventilated area. Keep cool.

RECOMMENDATION: Keep in a dry and clean area, away from incompatible substances.

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation, and skin

Substances with Occupational Exposure Limit Values

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
Carbon black ^{a)}	ACGIH	3.5 mg/m ³	—
	U.S.A. OSHA PEL	3.5 mg/m ³	—
	Canada AB	3.5 mg/m ³	—
	Canada BC	3 mg/m ³	—
	Canada ON	3.5 mg/m ³	—
	Canada QC	3.5 mg/m ³	—

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH², OSHA, and Canadian provinces exposure limits were consulted. Limits from by RTECS database¹ of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are usually for 15 min and long term permissible exposure limits (PEL) for 8 h.

a) Respirable airborne particles

Continued on the next page

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**Engineering Controls****Ventilation**

Keep airborne concentrations below exposure limits. Because carbon black is bound to the liquid mixture; the airborne hazard is present only if the conditions of use result in aerosolization or misting.

RECOMMENDATION: If the product is heated at high temperatures or worker has a known allergic reaction, consider using a full mask with organic vapor cartridges.

Personal Protective Equipment**Eye protection**

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection (side shields).

Skin Protection

Wear appropriate protective clothing to prevent skin contact.

RECOMMENDATION: Use of protective gloves in butyl rubber, latex, neoprene, or other chemically resistant gloves.

Respiratory Protection

If exposed to mist, wear respirator such as a half-mask respirator.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator has filter cartridges appropriate for the ingredients listed in section 3 of this MSDS, and that the respirator is fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A

Section 9: Physical and Chemical Properties

Physical State	Liquid	Odor	Mild	Odor Threshold	Not established
Appearance	Black	Specific Gravity	1.13	Freezing Point	Not established
Boiling Point	≥216°C [≥421 °F]	Vapor Pressure @ 20 °C	Not established	Evaporation Rate	Not established
Autoignition Temperature	Not established	Flash Point^{a)}	>142°C [>288 °F]	Vapor Density	>1 (Air = 1)
Lower Flammability Limit	Not established	Upper Flammability Limit	Not established	Decomposition Temp.	Not available
Viscosity @25 °C	2000 cSt	Partition Coefficient	Not established	Solubility in Water	Negligible
pH	Not available				

a) The closed cup flash point values are based on the alkyl glycidyl ether resin component.

Section 10: Stability and Reactivity

Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, excessive heat, and incompatible substances. Do not use in a way that forms a mist or aerosolize the product.
Incompatibilities	Strong oxidizing agents, strong acids, strong bases, ammonia, ethylene oxide, flax oils, and halogenated compounds. <i>Note:</i> React with amines.
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**Section 11: Toxicological Information****Routes of Exposure**

Eyes, ingestion, inhalation, and skin

Skin corrosion/irritation	Skin irritant
Serious eye damage/irritation	Causes serious eye irritation.
Sensitization (allergic reactions)	The epoxy resin components (CAS# 25068-38-6, 28064-14-4, 68609-97-2) may cause skin sensitization in humans
Carcinogenicity (risk of cancer)	<p>The carbon black [1333-86-4] is possibly carcinogenic by airborne routes of exposures. Because the carbon black is bound in the epoxy liquid mixture, it is not expected to be available as an airborne hazard (dust, mist, or spray) under normal use.</p> <p>Carbon Black [1333-86-4]</p> <p>IARC Group 2B: Possibly carcinogenic to humans ACGIH A4: Not classified as a human carcinogen CA Prop 65: Listed as a carcinogen NTP: Not listed</p>
Mutagenicity (risk of heritable genetic effects)	No data available
Reproductive Toxicity (risk to sex functions)	No data available
Teratogenicity (risk of fetus malformation)	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	Viscosity at 40 °C is $\gg 20.5 \text{ mm}^2/\text{s}$, thus not classified as aspiration hazard.

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BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**Acute Toxicity (Lethal Exposure Concentrations)**

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
reaction products: bisphenol-A-(epichlorohydrin) and epoxy resin	11,400 mg/kg Rat	Not established	Not established	Not established
alkyl glycidyl ether	19,200 mg/kg Rat	4,500 mg/kg Rat	Not established	Not established
epoxy phenol novolac resin	Not established	Not established	Not established	Not established
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	Not established	1.6 mg/m ³ 7 h Rat

Note: Representative toxicity data from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS)¹ data from supplier MSDS were also consulted.

Section 12: Ecological Information

The ecotoxicity of the mixture was estimated by the calculation method using the summation of classified ingredients. The IMDG Code criteria and the raw-material MSDS along with supporting data for the classification of registered substances from the European Chemical Agency database (<http://echa.europa.eu>) were used.

Similar epoxy resins with CAS# 25068-38-6, 68609-97-2, and 28064-14-4 are generally classified as category 2 marine pollutant due to LC50 96 h of >1 but ≤10 mg/L.

Acute Ecotoxicity

Category 2

GHS Code: Hazard Statement

H401: Very toxic to aquatic life

Chronic Ecotoxicity

Category 2

GHS Code: Hazard Statement

H411: Toxic to aquatic life with long lasting effects

P273: Avoid release to the environment

P391: Collect spillage

Biodegradability

The content is not biodegradable.

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**Section 13: Disposal Information**

P501: Dispose of contents in accordance with all local, regional, national, and international regulations.

Section 14: Transport Information**Ground**

Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations); **USA CFR 49 Regulations** (Parts 100 to 185). **ADR** (European Agreement Concerning the International Carriage of Dangerous Goods by Road, and **ADN** (Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways).

Sizes 5 liter and under

Limited Quantity

Note: The 832B-375ML, 832B-3L and 832B-12L are composed of separate containers which meet this inner packaging limit.



All sizes greater than 5 liter

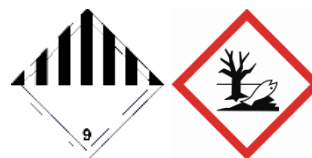
UN number: UN3082

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, N.O.S. (Reaction product: bisphenol-A-(epichlorhydrin))

Class: 9

Packing Group: III

Marine Pollutant: Yes

**Air**

Refer to IATA Dangerous Goods Regulations.

All sizes

UN number: UN3082

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, N.O.S. (Reaction product: bisphenol-A-(epichlorhydrin))

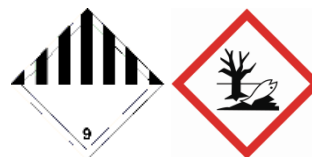
Class: 9

Packing Group: III

Marine Pollutant: Yes

Pkg Inst: 964. ERG Code: 9L

Flash Point: >142 °C [>287 °F]



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BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**Sea****Refer to IMDG regulations.**

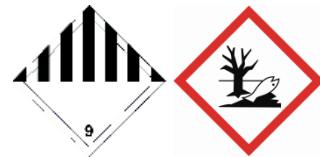
Sizes 5 liter and under

Limited Quantity**Note:** The 832B-375ML, 832B-3L and 832B-12L are composed of separate containers which meet this inner packaging limit.

All sizes greater than 5 liter

UN number: UN3082**Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, N.O.S. (Reaction product: bisphenol-A-(epichlorhydrin))**Class:** 9**Packing Group:** III**Marine Pollutant:** Yes**EmS#:** F-A, S-F**Stowage and Segregation:** Category A

Flash Point: >142 °C [>287 °F]



Note: Component supplier SDS transportation sections and labeling were consulted. All involved staff of shipper must be appropriately trained before involvement with the transport of this product, or work under direct supervision of a trained person.

Section 15: Regulatory Information**Canada****Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)**

All hazardous ingredients are listed on the DSL/NDSL.

Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

Health Canada

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

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BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**USA****CAA** (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

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

This product does not contain substances that are listed as hazardous air pollutants.

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

This product does not contain substances which are 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, Sept 2, 2011 revision, USA).

This product contains carbon black (airborne, unbound particles of respirable size), which is listed as a carcinogen.

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

MSDS Prepared by Michel Hachey

Date of Revision 26 April 2013

Supersedes 27 March 2013

Reason for Changes: Corrected environmental hazard statement

References

1) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

2) ACGIH 2011 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2011).

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BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART A**Abbreviations**

ACGIH American Conference of Governmental Industrial Hygienists

GHS: Globally Harmonized System of Classification of Labeling of Chemicals

LC50 Lethal Concentration 50%

LCLo Lowest published lethal concentration

LD50 Lethal Dose 50%

N/A Not Applicable

N/E Not Estimated

PEL Permissible Exposure Limit

STEL Short-Term Exposure Limit

TCLo Lowest published toxic concentration

TWA Time Weighted Average

VOC Volatile Organic Content

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

Email: support@mgchemicals.com

Mailing Addresses *Manufacturing & Support*
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Disclaimer This material safety data sheet is provided as an information resource only. *M.G. Chemicals, Ltd.* believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to query and verify any information seeming suspect where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, regional, national, and international regulations.

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B

Safety Data Sheet

Section 1: Product and Company Identification

Product Name: Black Epoxy Encapsulating and Potting Compound

MSDS Code: 832B-Part B

Related Part #: 832B-375ML, 832B-3L, 832B-60L; 8320

Use: Epoxy hardener for use with resins to pot devices or encapsulate components

Emergency Contact

USA or CANADA: Call CHEMTREC ☎: 1-800-424-9300 (**For hazardous material incidents ONLY**—leaks, spills, fires, exposures or accidents)

CANADA: Call CANUTEC ☎: 1-613-996-6666 or *666 on cellular phones, Collect 24/7 (**for emergencies involving dangerous goods**)

Manufacturer: MG Chemicals (Head Office), 9347-193 Street, Surrey, B.C., V4N 4E7

Technical Contacts: ☎ 1-800-201-8822 FAX 1-800-708-9888

E-MAIL: sds@mgchemicals.com **WEB** www.mgchemicals.com

Section 2: Hazards Identification**WHMIS Classification**

E - Corrosive; D1B Immediately Toxic (Skin Absorption); D2B - Toxic Material (Skin Sensitization in Humans)



GHS Pictograms

Signal Word
DANGER

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BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B

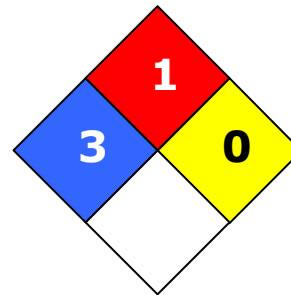
GHS Categories

Criteria	Category	Signal Word	Pictograms
Serious Eye Damage Skin Corrosion	1B 1	Danger Danger	
Sensitization Acute Toxicity	Skin sensitizer Dermal 1 4	Warning Warning	
Environmental Hazard Environmental Hazard	Acute Aqua. Tox. Chronic Aqua. Tox. 2 3	— —	No Symbol Mandated

HMIS® RATING

HEALTH:	3
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

Physical Hazards

GHS Code: Hazard Statement

none

Health Hazards

GHS Code: Hazard Statement

H314: Causes severe skin burns and eye damage

H312: Harmful in contact with skin

H317: May cause allergic skin reaction

Environmental Hazards

GHS Code: Hazard Statement

H401: Toxic to aquatic life

H412: Harmful to aquatic life with long lasting effects

Continued on the next page

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B**Other Hazards**

Not applicable

Precautionary Statements

P280: Wear protective gloves/eye protection.

P260 + P271: Do not breathe fume/gas/vapors/spray. Use only outdoors or in well ventilated area.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P302 + P352 + P361 + P353: IF ON SKIN: Wash with plenty of water. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

P310: Immediately call a POISON CENTER or doctor

Exposure Routes and Symptoms Summary

Eyes Causes severe eye irritation and may cause chemical burns. Also cause eye redness or pain.

Skin May cause chemical burns and serious skin irritation. May cause allergic skin reactions. Triethylenetetramine can be absorbed through skin leading to toxic effects.

Inhalation Inhalation of vapors or mist may cause irritation to the nose, throat and lung (upper respiratory tract).

When heated, hot triethylenetetramine vapors may also result in itching of the face with skin redness (erythema) and swelling (edema).

Ingestion May cause severe irritation or corrosive burns to the mouth, throat, esophagus, and stomach. May cause allergic reactions.

Chronic Prolonged or repeated exposure to the uncured epoxy hardener may cause sensitization (allergies).

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
68410-23-1	fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	85-95%
112-24-3	triethylenetetramine	7-13%

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B

Section 4: First Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF IN EYES	P305
Symptoms	Immediate: <i>burns, severe irritation, redness, pain</i>
Response	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do. Continue rinsing. P310 : Immediately call a POISON CENTRE/doctor
IF ON SKIN	P302
Symptoms	Immediate: <i>burns, blistering, tears, redness, pain</i>
Response	P352: Wash with plenty of water. P361: Take off immediately all contaminated clothing. P353 + P362: Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. P310 : Immediately call a POISON CENTRE/doctor
IF INHALED	P304 (<i>Not a likely route of exposure under normal use</i>)
Symptoms	Immediate: <i>burning sensation, irritation, cough</i>
Response	P340: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.
If feeling unwell	P312: Call a POISON CENTRE/doctor
IF SWALLOWED	P301 (<i>Not a likely route of exposure under normal use</i>)
Symptoms	Immediate: <i>Abdominal pain, irritation, nausea, vomiting, diarrhea</i>
Response	P330: Rinse mouth. P331: Do NOT induce vomiting.
If feeling unwell	P312: Call a POISON CENTRE/doctor

Note: GHS codes and corresponding precaution statements are used when available.

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B

Section 5: Fire Fighting Measures

Autoignition Temperature	Not Established	Flash Point ^{a)}	>122 °C [>252 °F]	LFL [LEL] ^{b)} UFL [UEL]	Not Established
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In case of fire P370

Response P378: Use dry chemical, carbon dioxide, or chemical foam to extinguish. Use water spray to cool containers.

Combustion Products Produces CO, CO₂, and nitrogen oxides.

Fire-Fighter Wear self-contained breathing apparatus for fire fighting

General Information Toxic metal fumes may be released in fire. Prevent fire-fighting wash from entering waterway or sewer system.

Note: The GHS codes and the GHS precaution statements are used. The format is *GHS Codes: Statements.*

a) Supplier value for the component with the lowest know flash point

b) LFL = Lower Flammability [or Explosion] Limit (in volume %);

UFL = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

Personal Protection: See Section 8. Avoid breathing the mist/vapors.

Containment Remove all sources of ignition.

Cleaning Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wipe up further residue with paper towel wetted with alcohol (or other suitable organic solvent) and place dirty towels in container. Wash spill area with soap and water to remove the last traces of residue.

RECOMMENDATION: Use a plastic, stainless steel, or carbon steel container.

Disposal Dispose of spill waste according to Section 13.

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B

Section 7: Handling and Storage

Prevention P262: Do not get in eye, on skin, or on clothing.

P261 + P271 + P284: Avoid breathing fume/vapors. Use only outdoors or in well ventilated area. In cases of inadequate ventilation wear respiratory protection.

P270: Do not eat, drink, or smoke when using this product.

RECOMMENDATION: Protect from high heat. Do NOT process in a fashion that causes mist or fumes.

Handling P280: Wear protective gloves/clothing/eye protection.

P264: Wash hands thoroughly after handling.

Storage P403 + P233+ P235: Keep Container tightly closed. Store in a well-ventilated area. Keep cool.

RECOMMENDATION: Keep in a dry and clean area, away from incompatible substances.

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation, and skin

Substances with Occupational Exposure Limit Values

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
Triethylenetetramine	ACGIH	—	—
	U.S.A. OSHA PEL	—	—
	U.S.A. (WEEL)	1 ppm	—
	Canada ON ^{a)}	0.5 ppm	—

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH², OSHA, and Canadian provinces exposure limits were consulted. Limits from by RTECS database¹ of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

a) Skin—can be absorbed through the skin.

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BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B**Engineering Controls****Ventilation**

Keep airborne concentrations below exposure limits.

RECOMMENDATION: If the product is heated at high temperatures or worker is allergic, consider using a full mask with organic vapor cartridges.

Personal Protective Equipment**Eye protection**

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection (side shields).

Skin Protection

Wear appropriate protective clothing to prevent skin contact.

RECOMMENDATION: Use of protective gloves in butyl rubber, latex, neoprene, or other chemically resistant gloves.

Respiratory Protection

If exposed to mist, wear respirator such as a half-mask respirator.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator has filter cartridges appropriate for the ingredients listed in section 3 of this MSDS, and that the respirator is fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B

Section 9: Physical and Chemical Properties

Physical State	Liquid	Odor	Musty	Odor Threshold	Not established
Appearance	Clear, amber	Specific Gravity	0.963	Freezing Point	Not established
Boiling Point	Not established	Vapor Pressure ^{a)} @ 20 °C	<0.001 kPa [<0.01 mmHg]	Evaporation Rate	Not established
Auto-ignition Temperature	Not established	Flash Point ^{b)}	>122 °C [>252 °F]	Vapor Density	5 (Air = 1)
Lower Flammability Limit	Not established	Upper Flammability Limit	Not established	Decomposition Temp.	Not available
Viscosity @24 °C	8,400 cSt	Partition Coefficient	Not established	Solubility in Water	Insoluble
pH	Not available				

a) Literature value for triethylenetetramine

b) The closed cup flash point for component with the lowest reported value.

Section 10: Stability and Reactivity

Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Excessive heat, and incompatible substances. Do not use in a way that forms a mist or aerosolize the product
Incompatibilities	Strong oxidizing agents, strong acids
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B

Section 11: Toxicological Information

Routes of Exposure

Eyes, ingestion, inhalation, and skin

Skin corrosion/irritation	Triethylenetetramine (CAS# 112-24-3) can cause skin burns.
Serious eye damage/irritation	Triethylenetetramine (CAS# 112-24-3) can cause severe eye damage.
Sensitization (allergic reactions)	The epoxy hardener components (CAS# 68082-29-1, and 112-24-3) may cause skin sensitization in humans
Carcinogenicity (risk of cancer)	Not classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP
Mutagenicity (risk of heritable genetic effects)	No data available
Reproductive Toxicity (risk to sex functions)	No data available
Teratogenicity (risk of fetus malformation)	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	Viscosity at 40 °C is >>20.5 mm ² /s, thus not classified as aspiration hazard.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
Fatty acids, C18-unsatd., dimers,... (CAS# 68410-23-1)	>5,000 mg/kg a)	>5,000 mg/kg a)	Not established	Not established
Triethylenetetramine	2,500 mg/kg Rat	805 g/kg Rabbit	Not established	Not established

Note: Representative toxicity data from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS)¹ data from supplier MSDS were also consulted.
a) Supplier MSDS

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B**Section 12: Ecological Information**

The ecotoxicity of the mixture was estimated by the calculation method using the summation of classified ingredients. The IMDG Code criteria and the raw-material MSDS along with supporting data for the classification of registered substances from the European Chemical Agency database (<http://echa.europa.eu>) were used.

The fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines (CAS# 68410-23-1) was classified as an acute category 2 environmental toxicant due to supplier reported LC50 range of 1–10 mg/L for fish.

Literature for the Triethylenetetramine (CAS # 112-24-3) suggest low aquatic toxicity (LC50, IC50, and EC50 values of >100 mg/L for fish and between 10 and 100 for algae).

Acute Ecotoxicity

Category 2

GHS Code: Hazard Statement

H401: Toxic to aquatic life

P273: Avoid release to the environment

P391: Collect spillage

Chronic Ecotoxicity

Category 3

GHS Code: Hazard Statement

H412: Harmful to aquatic life with long lasting effects

P273: Avoid release to the environment

P391: Collect spillage

Biodegradability

The content is not readily biodegradable.

Section 13: Disposal Information

P501: Dispose of contents in accordance with all local, regional, national, and international regulations.

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BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B**Section 14: Transport Information****Ground**

Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations); **USA CFR 49 Regulations** (Parts 100 to 185). **ADR** (European Agreement Concerning the International Carriage of Dangerous Goods by Road, and **ADN** (Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways).

Sizes 1 liter and under

Limited Quantity

Note: The 832B-375ML and 832B-3L are composed of separate containers which meet this inner packaging limit.

Sizes greater than 1 liter

UN number: UN2259;

Shipping Name: TRIETHYLENETETRAMINE

Class: 8

Packing Group: II,
Marine Pollutant: No

**Air**

Refer to IATA Dangerous Goods Regulations.

UN number: UN2259;

Shipping Name: TRIETHYLENETETRAMINE

Class: 8

Packing Group: II,
Marine Pollutant: No

**Sea**

Refer to IMDG regulations.

Sizes 1 liter and under

Limited Quantity

Note: The 832B-375ML and 832B-3L are composed of separate containers which meet this inner packaging limit.



Continued on the next page

BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B

Sizes greater than 1 liter

UN number: UN2259;

Shipping Name: TRIETHYLENETETRAMINE

Class: 8

Packing Group: II,
Marine Pollutant: No



Note: Component supplier SDS transportation sections and labeling were consulted. All involved staff of shipper must be appropriately trained before involvement with the transport of this product, or work under direct supervision of a trained person.

Section 15: Regulatory Information**Canada****Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)**

All hazardous ingredients are listed on the DSL/NDSL.

Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

Health Canada

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

USA**CAA** (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

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

This product does not contain substances that are listed as hazardous air pollutants.

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

This product does not contain substance 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, Sept 2, 2011 revision, USA).

This product does not contain any of the listed substances.

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BLACK EPOXY ENCAPSULATING AND POTTING COMPOUND 832B-PART B**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

MSDS Prepared by Michel Hachey

Date of Issue 27 March 2013

Supersedes 05 March 2013

Reason for Changes: Added additional emergency contact information

Reference

1) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

2) ACGIH 2011 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2011).

Abbreviations

ACGIH American Conference of Governmental Industrial Hygienists

GHS: Globally Harmonized System of Classification of Labeling of Chemicals

LC50 Lethal Concentration 50%

LCLo Lowest published lethal concentration

LD50 Lethal Dose 50%

N/A Not Applicable

N/E Not Estimated

PEL Permissible Exposure Limit

STEL Short-Term Exposure Limit

TCLo Lowest published toxic concentration

TWA Time Weighted Average

VOC Volatile Organic Content

WEEL Workplace Environmental Exposure Levels

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

Email: support@mgchemicals.com

Continued on the next page



Quality System Certified to ISO 9001:2008

SAI Global File #004008
Burlington, Ontario, Canada

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