

TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND **832C-PART A**

# Safety Data Sheet

## Section 1: Identification

### Product Identifier and Other Means of Identification

**Product Name:** Translucent Epoxy Encapsulating and Potting Compound

**SDS Code:** 832C-Part A

**Related Part #** 832C-375ML, 832C-3L, 832C-60L

### Recommended Use and Restriction on Use

**Use:** Epoxy resin for use with hardeners

**Uses Advised Against:** Not for use as a spray coating

### Details of Manufacturer or Importer

#### Manufacturer

MG Chemicals  
1210 Corporate Drive  
Burlington, Ontario L7L 5R6  
CANADA

MG Chemicals (Head Office)  
9347-193 Street  
Surrey, British Columbia V4N 4E7  
CANADA

**☎** +1-800-340-0772

**FAX** +1-800-340-0773

**E-MAIL** [support@mgchemicals.com](mailto:support@mgchemicals.com)

**WEB** [www.mgchemicals.com](http://www.mgchemicals.com)

**☎** +1-905-331-1396

**FAX** +1-905-331-2682

**E-MAIL** [info@mgchemicals.com](mailto:info@mgchemicals.com)

**E-MAIL** (Competent Person): [sds@mgchemicals.com](mailto:sds@mgchemicals.com)

### Emergency Phone Number

**For hazardous material incidents ONLY**—leaks, spills, fires, exposures or accidents

USA or CANADA: Call CHEMTREC ☎: **+1-800-424-9300**

**For emergencies involving dangerous goods;** Collect 24/7

CANADA: Call CANUTEC ☎: **+1-613-996-6666** or **\*666** on cellular phones

**TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND 832C-PART A**

**Section 2: Hazard(s) Identification**

**Classification of Hazardous Chemical**

**GHS Categories**

Criteria		Category	Signal Word	Pictograms
Sensitization	Skin	1	Warning	Exclamation
Eye Irritation		2	Warning	Exclamation
Skin Irritation		2	Warning	Exclamation
Environmental Hazard	Chronic Aqua. Tox.	2	<i>none</i>	Environment
Environmental Hazard	Acute Aqua. Tox.	2	<i>none</i>	<i>none</i>

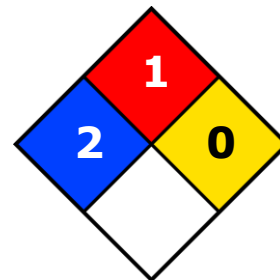
*Note:* The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

**Other Classifications**

**HMIS® RATING**

<b>HEALTH:</b>	<b>* 2</b>
<b>FLAMMABILITY:</b>	<b>1</b>
<b>PHYSICAL HAZARD:</b>	<b>0</b>
<b>PERSONAL PROTECTION:</b>	

**NFPA® 704 CODES**





*Approximate HMIS and NFPA Risk Ratings Legend:*  
0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

*Section continued on the next page*

## TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND **832C-PART A**

### Label Elements

<b>Signal Word</b>	<b>WARNING</b>
<b>Pictograms</b>	<b>Hazard Statements</b>
	H319: Causes serious eye irritation H315: Cause skin irritation H317: May cause an allergic skin reaction
	H411: Toxic to aquatic life with long lasting effects
<b>Prevention</b>	<b>Precautionary Statements</b>
P102	Keep out of reach of children.
P261	Avoid breathing fumes/mist/vapors.
P280	Wear protective gloves/eye protection/face protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
<b>Prevention</b>	<b>Precautionary Statements</b>
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.
<b>Storage</b>	<b>Precautionary Statements</b>
None	None
<b>Disposal</b>	<b>Precautionary Statements</b>
P501	Dispose of contents/container in accordance to local/regional/international regulations.

*Section continued on the next page*

## TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND **832C-PART A**

### Hazards Not Otherwise Classified

No other known hazards

### Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(wt/wt)
25068-38-6	bisphenol-A epoxy resin (reaction product) <sup>a)</sup>	89%
68609-97-2	alkyl glycidyl ether	11%

a) Average molecular weight of  $\leq 700$

### Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
<b>IF IN EYES</b>	P305 + P351 + P338, P337 + P313
<b>Immediate Symptoms</b>	<i>redness, irritation, pain</i>
<b>Response</b>	Rinse cautiously with water for 15 minutes or more. Remove contact lenses, if present and easy to do. Continue rinsing.  If eye irritation persists: Get medical advice/attention.
<b>IF ON SKIN</b>	P302 + P352, P333 + P313, P362 + P364
<b>Immediate or Delayed Symptoms</b>	<i>redness, irritation, dry skin, allergic contact dermatitis</i>
<b>Response</b>	Wash with plenty of water.  If skin irritation or rash occurs: Get medical advice/attention.  Take off contaminated clothing and wash it before reuse.
<b>IF INHALED</b>	P304 + P340, P312, P308 + P313
<b>Immediate Symptoms</b>	<i>cough, irritation of the respiratory track</i>
<b>Response</b>	Remove person to fresh air and keep comfortable for breathing.
<b>IF SWALLOWED</b>	P301 + P330, P331
<b>Immediate Symptoms</b>	<i>Irritation</i>
<b>Response</b>	Rinse mouth. Do NOT induce vomiting.

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

<b>In case of fire</b>	P370 + P378
<b>Extinguishing Media</b>	Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
<b>Specific Hazards</b>	Not flammable or combustible, but burns if involved in a fire. Produces irritating smoke of unknown toxicity in fires.  Prevent fire-fighting wash from entering waterway or sewer system.
<b>Combustion Products</b>	Produces carbon oxides (CO,CO <sub>2</sub> ) and toxic fumes.
<b>Fire-Fighter</b>	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

**Section 6: Accidental Release Measures**

<b>Personal Protection</b>	See personal protection recommendations in Section 8.
<b>Precautions for Response</b>	Avoid breathing the fumes/mist/vapors. Remove or keep away all sources of extreme heat or open flames.
<b>Environmental Precautions</b>	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
<b>Containment Methods</b>	Contain with inert and non-flammable absorbent (such as soil, sand, vermiculite).
<b>Cleaning Methods</b>	Collect liquid in a sealable, chemical-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wash residue with a paper towel wetted with alcohol, ethyl lactate, or another suitable organic solvent; and place dirty towels in container. Use soap and water to remove the last traces of residue.
<b>Disposal Methods</b>	Dispose of spill waste according to Section 13.

**TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND 832C-PART A****Section 7: Handling and Storage**

- Prevention**      Keep out of reach of children.  
Avoid breathing fumes/mist/vapors or contact with skin or eyes.  
Do not eat, drink, or smoke when using this product.  
Avoid release to the environment.
- Handling**        Wear protective gloves/clothing/eye protection.  
Take off contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace.  
Wash hands thoroughly after handling.  
Collect spillage.
- Storage**         Keep away from incompatible materials.

**Section 8: Exposure Controls/Personal Protection****Routes of Entry**

Skin contact and Eye contact

**Substances with Occupational Exposure Limit Values**

Contains no substances with occupational exposure limits.

*Note:* The ACGIH<sup>1</sup>, OSHA, and Canadian provinces exposure limits were consulted. Limits from by RTECS database<sup>2</sup> of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted.

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**TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND 832C-PART A****Engineering Controls**

**Ventilation** General ventilation is adequate for normal use; keep overall exposure as low as possible.

**Personal Protective Equipment**

**Eye protection** Wear appropriate protective eyeglasses or chemical safety goggles.

**Recommendation:** Ensure that glasses have side shields for lateral protection.

**Skin Protection** For likely contacts, use of protective butyl rubber or other chemically resistant gloves.

For incidental contacts, use nitrile or other chemically resistant gloves.

**Respiratory Protection** Not normally required under normal conditions.

If the product is heated or worker has a known allergic reaction, consider using a full mask with organic vapor cartridge or with an independent air supply.

**RECOMMENDATION:** Consult your local safety supply store to ensure your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in section 3 of this SDS, 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.

**TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND 832C-PART A**

**Section 9: Physical and Chemical Properties**

<b>Physical State</b>	Liquid	<b>Lower Flammability Limit</b>	Not available
<b>Appearance</b>	Clear	<b>Upper Flammability Limit</b>	Not available
<b>Odor</b>	Mild	<b>Vapor Pressure @20 °C</b>	Not available
<b>Odor Threshold</b>	Not available	<b>Vapor Density</b>	>>1 (Air =1)
<b>pH</b>	Not available	<b>Specific Gravity @25 °C</b>	1.13
<b>Freezing/Melting Point</b>	Not available	<b>Solubility in Water</b>	Negligible
<b>Boiling Point <sup>a)</sup></b>	≥150 °C [≥302 °F]	<b>Partition Coefficient</b>	Not available
<b>Flash Point <sup>b)</sup></b>	>142 °C [>287 °F]	<b>Auto-ignition Temperature <sup>b)</sup></b>	≥235 °C [≥455 °F]
<b>Evaporation Rate</b>	Not available	<b>Decomposition Temperature</b>	Not available
<b>Flammability (solid, gas)</b>	Not available	<b>Viscosity @25 °C</b>	1 700 mm <sup>2</sup> /s

a) Component with the lowest value—bisphenol-A epoxy resin (reaction product)

b) Component with the lowest value—alkyl glycidyl ether closed cup

**Section 10: Stability and Reactivity**

<b>Reactivity</b>	Reacts exothermically with amines.
<b>Chemical Stability</b>	Chemically stable at normal temperatures and pressures
<b>Conditions to Avoid</b>	Avoid ignition sources, open flames, and incompatible substances.
<b>Incompatibilities</b>	Strong oxidizing agents, strong acids, alkaly
<b>Polymerization</b>	Will not occur
<b>Decomposition</b>	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.



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

Skin contact and Eye contact

**Symptoms Summary**

<b>Eyes</b>	May cause redness, severe irritation, or pain.
<b>Skin</b>	May cause skin redness, irritation, dry skin, or allergic contact dermatitis.
<b>Inhalation</b>	May cause cough and respiratory irritation.
<b>Ingestion</b>	May cause irritation (see inhalation symptoms).
<b>Chronic</b>	Prolonged and repeated exposure may lead to skin sensitization.

**Acute Toxicity (Lethal Exposure Concentrations)**

<b>Chemical Name</b>	<b>LD50 oral</b>	<b>LD50 dermal</b>	<b>LC50 inhalation</b>
reaction products: bisphenol-A-(epichlorhydrin) and epoxy resin <sup>a)</sup>	11 400 mg/kg Rat	Not available	Not available
alkyl glycidyl ether	19 200 mg/kg Rat	4 500 mg/kg Rat	Not available

*Note:* Toxicity data from the RTECS database accessed through the Canadian Centre for Occupational Health and Safety (CCOHS)<sup>2</sup> were consulted. The data from supplier (M)SDS were also consulted.

a) Referred to as bisphenol-A epoxy resin (reaction product)

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**TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND 832C-PART A****Other Toxicological Effects**

<b>Skin corrosion/irritation</b>	Moderate skin irritant.
<b>Serious eye damage/irritation</b>	Serious to moderate eye irritant
<b>Sensitization</b> (allergic reactions)	The epoxy resin tested positive as a skin sensitizer based on animal studies.
<b>Carcinogenicity</b> (risk of cancer)	None of the ingredients are classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP.
<b>Mutagenicity</b> (risk of heritable genetic effects)	Based on available data, the classification criteria are not met.
<b>Reproductive Toxicity</b> (risk to sex functions)	Based on available data, the classification criteria are not met.
<b>Teratogenicity</b> (risk of fetus malformation)	Based on available data, the classification criteria are not met.
<b>STOT-single exposure</b>	Based on available data, the classification criteria are not met.
<b>STOT-repeated exposure</b>	Based on available data, the classification criteria are not met.
<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met. There is no category 1 components, and the kinematic viscosity is $>20.5 \text{ mm}^2/\text{s}$ at $40 \text{ }^\circ\text{C}$ .

**Section 12: Ecological Information**

The IMDG Code criteria, the raw-material safety data sheets, and supporting data from the European Chemical Agency database (<http://echa.europa.eu>) were used to support the classification.

In Europe, similar epoxy resin mixtures with CAS# 25068-38-6 and average molecular weight of less than 700 are generally classified as chronic category 2 marine pollutant due to LC50 96 h of  $>1 \text{ mg/L}$  but  $\leq 10 \text{ mg/L}$ .

Based on available data, alkyl glycidyl ether is not classified as environmental hazard according to GHS criteria.

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## TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND **832C-PART A**

### Acute Ecotoxicity

Category 2

H402: Toxic to aquatic life

### Chronic Ecotoxicity

Category 2

H412: Toxic to aquatic life with long lasting effect

Avoid release to the environment.

### Biodegradability

Not available

### Bioaccumulation

Not available

## Section 13: Disposal Information

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 DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Sizes 5 liters and under

**Limited Quantity**



Sizes greater than 5 liters

**UN number:** UN3082

**Shipping Name:**

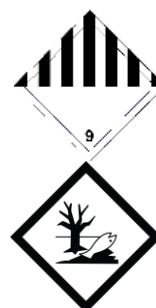
ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S.

(Reaction product: bisphenol-A-  
(epichlorhydrin))

**Class:** 9

**Packing Group:** III

**Marine Pollutant:** Yes



*Section continued on the next page*

**TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND 832C-PART A**

**Air**

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 5 liters and under

Limited Quantity



Excepted Quantity E2 ≤30 mL

Sizes greater than 5 liters

**UN number:** UN3082

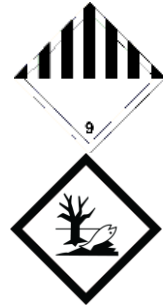
**Shipping Name:**

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

**Class:** 9

**Packing Group:** III

**Marine Pollutant:** Yes



**Sea**

Refer to IMDG regulations.

Sizes 5 liters and under

Limited Quantity



Sizes greater than 5 liters

**UN number:** UN3082

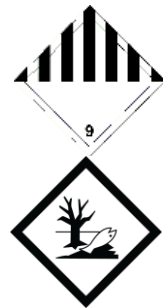
**Shipping Name:**

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

**Class:** 9

**Packing Group:** III

**Marine Pollutant:** Yes



**Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.**

**TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND 832C-PART A****Section 15: Regulatory Information****Canada****WHMIS 1988 Classification**

D2B – Toxic Other (Skin Sensitizer, Eye and Skin Irritant)

**Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)**

All hazardous ingredients are listed on the DSL.

**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 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, June 06, 2014 revision, USA).

This product does not contain any listed substances in California.

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**TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND 832C-PART A****Europe****RoHS** (Restriction of Hazardous Substances Directive)

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

**WEEE** (Waste Electrical and Electronic Equipment Directive)

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

**Section 16: Other Information**

**SDS Prepared by** Michel Hachey

**Date of Review** 28 May 2015

**Supersedes** 14 August 2013

**Reason for Changes:** Formatting change to better meet HCS 2012 and WHMIS 2015 requirements and removal of spurious statements in section 2 and 4.

**Reference**

- 1) ACGIH 2013 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 (2013).
- 2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

**Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

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Quality System Certified to ISO 9001:2008

SAI Global File #004008  
Burlington, Ontario, Canada

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## TRANSLUCENT EPOXY ENCAPSULATING AND POTTING COMPOUND **832C-PART A**

**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](http://www.mgchemicals.com).

Email: [support@mgchemicals.com](mailto:support@mgchemicals.com)

**Mailing Addresses** *Manufacturing & Support*  
1210 Corporate Drive  
Burlington, Ontario, Canada  
L7L 5R6

*Head Office*  
9347-193rd Street  
Surrey, British Columbia, Canada  
V4N 4E7

**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.

EPOXY HARDENER

8320-PART B

# Safety Data Sheet

## Section 1: Product and Company Identification

### Product Identifier and Other Means of Identification

**Product Name:** Epoxy Hardener**SDS Code:** 8320-Part B**Related Part #:** 8320-125ML, 8320-1L, 8320-20L (See also products with SDS Codes: 832B-Part B, 832C-Part B, 832HT-Part B)

### Recommended Use and Restriction on Use

**Use:** Epoxy hardener for use with resins to pot devices or encapsulate components**Uses Advised Against:** Not for use as a spray coating

### Details of Manufacturer or Importer

#### Manufacturer

MG Chemicals  
1210 Corporate Drive  
Burlington, Ontario L7L 5R6  
CANADA

MG Chemicals (Head Office)  
9347-193 Street  
Surrey, British Columbia V4N 4E7  
CANADA

☎ 1-800-340-0772

FAX 1-800-340-0773

E-MAIL: [support@mgchemicals.com](mailto:support@mgchemicals.com)WEB [www.mgchemicals.com](http://www.mgchemicals.com)

☎ 1-905-331-1396

FAX 1-905-331-2682

E-MAIL: [info@mgchemicals.com](mailto:info@mgchemicals.com)E-MAIL (Competent Person): [sds@mgchemicals.com](mailto:sds@mgchemicals.com)

### Emergency Phone Number

**For hazardous material incidents ONLY**—leaks, spills, fires, exposures or accidents  
USA or CANADA: Call CHEMTREC ☎: **1-800-424-9300****For emergencies involving dangerous goods;** Collect 24/7  
CANADA: Call CANUTEC ☎: **1-613-996-6666** or **\*666** on cellular phones



**EPOXY HARDENER**

**8320-PART B**

**Section 2: Hazards Identification**

**Classification of Hazardous Chemical**

**WHMIS Classification**



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

**GHS Categories**

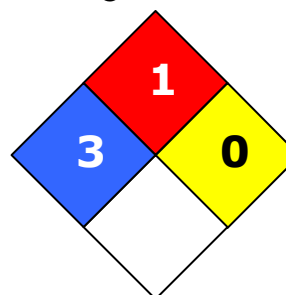
Criteria	Category	Signal Word	Pictograms
Serious Eye Damage	1B	Danger	
Skin Corrosion	1	Danger	
Sensitization	Skin sensitizer	1	
Acute Toxicity	Dermal	4	
Environmental Hazard	Acute Aqua. Tox.	2	No Symbol Mandated
Environmental Hazard	Chronic Aqua. Tox.	3	

**Other Classifications**

**HMIS® RATING**

<b>HEALTH:</b>	<b>3</b>
<b>FLAMMABILITY:</b>	<b>1</b>
<b>PHYSICAL HAZARD:</b>	<b>0</b>
<b>PERSONAL PROTECTION:</b>	

**NFPA® 704 CODES**



*Approximate HMIS and NFPA Risk Ratings Legend:*



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

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**EPOXY HARDENER**

**8320-PART B**

**Label Elements**

<b>Signal Word</b>	<b>DANGER</b>
<b>Pictograms</b>	<b>Hazard Statements</b>
	H314: Causes severe skin burns and eye damage
	H312: Harmful in contact with skin H317: May cause allergic skin reaction
No Symbol Mandated	H401: Toxic to aquatic life H412: Harmful to aquatic life with long lasting effects
	<b>Precautionary Statements</b>
<b>Prevention</b>	P102: Keep out of reach of children. P280: Wear protective gloves/protective clothing/eye protection. P260: Do not breathe vapors. P264: Wash hands thoroughly after handling. P272: Contaminated clothing should not be allowed out of the workplace. P273: Avoid release to the environment.
<b>Response</b>	P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310: Immediately call a POISON CENTER or doctor. P363: Wash contaminated clothing before reuse.
<b>Storage</b>	P405: Store locked up.
<b>Disposal</b>	P501: Dispose of contents/container in accordance to local/regional/national/international regulations.

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**EPOXY HARDENER**

**8320-PART B**

**Other Hazards**

Not applicable

**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%

**Section 4: First Aid Measures**

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
<b>IF IN EYES</b>	P305
<b>Symptoms</b>	Immediate: <i>burns, severe irritation, redness, pain</i>
<b>Response</b>	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
<b>IF ON SKIN (or hair)</b>	P303
<b>Symptoms</b>	Immediate: <i>burns, blistering, tears, redness, pain</i>
<b>Response</b>	P353: Rinse skin with water/shower. P361: Take off immediately all contaminated clothing. P363: Wash contaminated clothing before reuse. P310 : Immediately call a POISON CENTRE/doctor
<b>IF INHALED</b>	P304 ( <i>Not a likely route of exposure under normal use</i> )
<b>Symptoms</b>	Immediate: <i>burning sensation, irritation, cough</i>
<b>Response</b>	P340: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing. P310 : Immediately call a POISON CENTRE/doctor
<b>IF SWALLOWED</b>	P301 ( <i>Not a likely route of exposure under normal use</i> )
<b>Symptoms</b>	Immediate: <i>Abdominal pain, irritation, nausea, vomiting, diarrhea</i>
<b>Response</b>	P330: Rinse mouth. P331: Do NOT induce vomiting. P310 : Immediately call a POISON CENTRE/doctor

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**Section 5: Fire Fighting Measures**

<b>Auto-ignition Temperature</b>	Not Established	<b>Flash Point</b> <sup>a)</sup>	>122 °C [>252 °F]	<b>LFL [LEL]<sup>b)</sup></b>	Not Established
				<b>UFL [UEL]</b>	Established

<b>In case of fire</b>	P370
<b>Response</b>	P378: Use dry chemical, carbon dioxide, or chemical foam to extinguish. Use water spray to cool containers.
<b>Combustion Products</b>	Produces CO, CO <sub>2</sub> , and nitrogen oxides.
<b>Fire-Fighter</b>	Wear self-contained breathing apparatus for fire fighting
<b>General Information</b>	Prevent fire-fighting wash from entering waterway or sewer system.

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.

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**Section 7: Handling and Storage**

**Prevention** P260: Do not breathe vapors.

P272: Contaminated work clothing should not be allowed out of the workplace.

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

P272: Contaminated clothing should not be allowed out of the workplace.

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

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

**RECOMMENDATION:** Wear neoprene, butyl rubber, nitrile or other impervious gloves with breakthrough time greater than intended use period.

P264: Wash hands thoroughly after handling.

**Storage** P405: Store locked up.

**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 <sup>a)</sup>	0.5 ppm	—

*Note:* Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH<sup>2</sup>, OSHA, and Canadian provinces exposure limits were consulted. Limits from by RTECS database<sup>1</sup> 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.

*Continued on the next page*

**EPOXY HARDENER****8320-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 vapors, 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.

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**Section 9: Physical and Chemical Properties**

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

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

b) Literature value for triethylenetetramine

**Section 10: Stability and Reactivity**

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

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**Section 11: Toxicological Information**

**Routes of Exposure**

Eyes, ingestion, inhalation, and skin

**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** *Not a likely route of exposure due to low volatility.* 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** *Not a likely route of exposure.* 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).

**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)<sup>1</sup> data from supplier MSDS were also consulted.  
a) Supplier MSDS

*Continued on the next page*



**EPOXY HARDENER****8320-PART B**

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

**EPOXY HARDENER****8320-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.

**EPOXY HARDENER****8320-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).

All sizes less than 1 liter

**Limited Quantity**

**Note:** The 8320-125ML and 8320-1L 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.**

All sizes less than 1 liter

**Limited Quantity**

**Note:** The 8320-125ML and 8320-1L are composed of separate containers which meet this inner packaging limit.



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**EPOXY HARDENER****8320-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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**EPOXY HARDENER****8320-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** 14 August 2013  
**Supersedes** Not applicable  
**Reason for Changes:** Change to GHS format

**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

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Quality System Certified to ISO 9001:2008

SAI Global File #004008  
Burlington, Ontario, Canada

## EPOXY HARDENER

## 8320-PART B

**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](http://www.mgchemicals.com).

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