

HIGH TEMPERATURE EPOXY

832HT-PART A

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: High Temperature Epoxy: Encapsulating and Potting Compound

SDS Code: 832HT-Part A

Related Part # 832HT-375ML, 832HT-3L, 832HT-60L

Recommended Use and Restriction on Use

Use: Epoxy resin for use with hardeners 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

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E-MAIL support@mgchemicals.com

WEB www.mgchemicals.com

☎ +1-905-331-1396

FAX +1-905-331-2682

E-MAIL info@mgchemicals.com

E-MAIL (Competent Person): 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

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Section 2: Hazard(s) Identification

Classification of Hazardous Chemical

GHS Categories

| Criteria | | Category | Signal Word | Pictograms |
|----------------------|--------------------|----------|-------------|-------------|
| Carcinogenicity | | 2 | Warning | Health |
| Sensitization | Skin sensitizer | 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> |

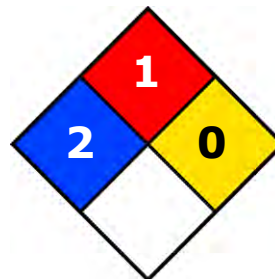
Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

Other Classifications

HMIS® RATING

| | |
|-----------------------------|------------|
| 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)

Section continued on the next page

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Label Elements

| Signal Word | WARNING |
|--|--|
| Pictograms | Hazard Statements |
|  | H319: Causes serious eye irritation H315: Causes skin irritation H317: May cause an allergic skin reaction |
|  | H351: Suspected of causing cancer |
|  | H411: Toxic to aquatic life with long lasting effects |
| Prevention | Precautionary Statements |
| P102 | Keep out of reach of children. |
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| 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. |

Section continued on the next page

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Continued...

| Prevention | Precautionary Statements |
|--------------------|--|
| 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. |
| P332 + P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P362 + P364 | Take off contaminated clothing and wash it before reuse. |
| P308 + P313 | IF INHALED: IF exposed or concerned: Get medical advice/attention. |
| P391 | Collect spillage. |
| Storage | Precautionary Statements |
| P405 | Store locked up. |
| Disposal | Precautionary Statements |
| P501 | Dispose of contents/container in accordance to local/regional/international regulations. |

Hazards Not Otherwise Classified

| Other Criteria | Hazard Statements/Precautionary Statement | Signal Word | Pictograms |
|-----------------------|---|--------------------|-------------------|
| Defats skin | Repeated exposure may cause skin dryness or cracking. | None | None |

Section 3: Composition/Information on Ingredients

| CAS # | Chemical Name | %(weight) |
|--------------|---|------------------|
| 28064-14-4 | phenyl glycidyl ether/ formaldehyde copolymer | 98% |
| 25068-38-6 | bisphenol-A epoxy resin (reaction product) | 1% |
| 1333-86-4 | carbon black | 0.4% |

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Section 4: First-Aid Measures

| <i>Exposure Condition</i> | <i>GHS Code/Symptoms/Precautionary Statements</i> |
|--------------------------------------|---|
| IF IN EYES | P305 + P351 + P338, P337 + P313 |
| Immediate Symptoms | <i>redness, irritation, pain</i> |
| Response | Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| IF ON SKIN | P302 + P352, P332 + P313, P362 + P364 |
| Immediate or Delayed Symptoms | <i>redness, irritation, dry skin, allergic contact dermatitis</i> |
| Response | Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. |
| IF INHALED | P304 + P340, P312, P308 + P313 |
| Immediate Symptoms | <i>cough, irritation of the respiratory track</i> |
| Response | Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Get medical advice/attention. |
| IF SWALLOWED | P301 + P330, P331 |
| Immediate Symptoms | <i>Irritation</i> |
| Response | Rinse mouth. Do NOT induce vomiting. |

HIGH TEMPERATURE EPOXY**832HT-PART A****Section 5: Fire-Fighting Measures**

| | |
|----------------------------|--|
| In case of fire | P370 + P378 |
| Extinguishing Media | Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. |
| Specific Hazards | 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. |
| Combustion Products | Produces carbon oxides (CO, CO ₂) and toxic fumes. |
| Fire-Fighter | Wear self-contained breathing apparatus and full fire-fighting turn-out gear. |

Section 6: Accidental Release Measures

| | |
|----------------------------------|---|
| Personal Protection | See personal protection recommendations in Section 8. |
| Precautions for Response | Avoid breathing the fumes/mist/vapors. Remove or keep away all sources of extreme heat or open flames. |
| Environmental Precautions | Avoid releasing to the environment. Prevent spill from entering drains and waterways. |
| Containment Methods | Contain with inert and non-flammable absorbent (such as soil, sand, vermiculite). |
| Cleaning Methods | 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. |
| Disposal Methods | Dispose of spill waste according to Section 13. |

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Section 7: Handling and Storage

| | |
|-------------------|--|
| Prevention | <p>Keep out of reach of children.</p> <p>Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.</p> <p>Avoid breathing fumes/mist/vapors or contact with skin or eyes.</p> <p>Avoid release to the environment.</p> |
| Handling | <p>Wear protective gloves/clothing/eye protection.</p> <p>Contaminated work clothing should not be allowed out of the workplace.</p> <p>Wash hands thoroughly after handling.</p> <p>Collect spillage.</p> |
| Storage | <p>Store locked up.</p> |

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Skin contact, Inhalation, and Eye contact

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 | Not established |
| | U.S.A. OSHA PEL | 3.5 mg/m ³ | Not established |
| | Canada AB | 3.5 mg/m ³ | Not established |
| | Canada BC | 3 mg/m ³ | Not established |
| | Canada ON | 3.5 mg/m ³ | Not established |
| | Canada QC | 3.5 mg/m ³ | Not established |

Note: The ACGIH¹, OSHA, and Canadian provinces exposure limits were consulted. Limits from by RTECS database² 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

Section continued on the next page

HIGH TEMPERATURE EPOXY**832HT-PART A****Engineering Controls****Ventilation**

Keep airborne concentrations below the occupational exposure limits (OEL).

Because the carbon black is bound to the liquid mixture, it does not present an airborne hazard under normal use. Ensure adequate ventilation if the product is mechanically misted or aerosolized.

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

For over-exposures up to 10 x OEL of mist/vapors/spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator has 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.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

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Section 9: Physical and Chemical Properties

| | | | |
|----------------------------------|----------------------|----------------------------------|----------------------------|
| Physical State | Liquid | Lower Flammability Limit | Not available |
| Appearance | Black | Upper Flammability Limit | Not available |
| Odor | Mild | Vapor Pressure @20 °C | Not available |
| Odor Threshold | Not available | Vapor Density | Not available |
| pH | Not available | Specific Gravity @25 °C | 1.17 |
| Freezing/Melting Point | Not available | Solubility in Water | Insoluble |
| Boiling Point | ≥150 °C [≥302 °F] | Partition Coefficient | Not available |
| Flash Point | >150 °C [>302 °F] | Auto-ignition Temperature | Not available |
| Evaporation Rate | Not available | Decomposition Temperature | Not available |
| Flammability (solid, gas) | Not available | Viscosity @25 °C | ≥44 000 mm ² /s |

Section 10: Stability and Reactivity

| | |
|----------------------------|--|
| Reactivity | Reacts exothermically with amines. |
| Chemical Stability | Chemically stable at normal temperatures and pressures |
| Conditions to Avoid | Avoid ignition sources, open flames, and incompatible substances. Do not use in away that forms mist or aerosolizes the product. |
| Incompatibilities | Strong oxidizing agents, strong acids, alkaly |
| Polymerization | Will not occur |
| Decomposition | Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5. |

HIGH TEMPERATURE EPOXY**832HT-PART A****Section 11: Toxicological Information****Routes of Exposure**

Skin contact, Inhalation, and Eye contact

Symptoms Summary

| | |
|-------------------|---|
| Eyes | May cause redness, severe irritation, or pain. |
| Skin | May cause skin redness, irritation, dry skin, or allergic contact dermatitis. |
| Inhalation | May cause cough and respiratory irritation. |
| Ingestion | No acute oral toxicity effects known (see inhalation symptoms). |
| Chronic | Prolonged and repeated exposure may lead to skin sensitization. |

Acute Toxicity (Lethal Exposure Concentrations)

| Chemical Name | LD50 oral | LD50 dermal | LC50 inhalation |
|--|-------------------------------------|--------------------|-------------------------------------|
| phenyl glycidyl ether/ formaldehyde copolymer | 4 000 mg/kg Rabbit ^{a)} | Not available | 6 000 mg/kg Rabbit ^{a)} |
| reaction products: bisphenol- A-(epichlorhydrin) and epoxy resin ^{b)} | 11 400 mg/kg Rat | Not available | Not available |
| carbon black | >15 g/kg Rat | >3 g/kg Rabbit | Not established |

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

a) Supplier MSDS

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

Section continued on the next page

HIGH TEMPERATURE EPOXY**832HT-PART A****Other Toxicological Effects**

| | |
|--|--|
| Skin corrosion/irritation | Moderate skin irritant. |
| Serious eye damage/irritation | Causes serious eye irritation. |
| Sensitization (allergic reactions) | Skin sensitizer based on animal studies on the epoxy components |
| Carcinogenicity (risk of cancer) | <p>The carbon black [1333-86-4] is possibly carcinogenic by airborne routes of exposures under WHMIS.</p> <p>Because the carbon black is bound in the epoxy liquid mixture, it is not 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</p> <p>ACGIH A4: Not classified as a human carcinogen</p> <p>CA Prop 65: Listed as a carcinogen (airborne, as unbound particles of respirable size)</p> <p>NTP: Not listed</p> |
| Mutagenicity (risk of heritable genetic effects) | Based on available data, the classification criteria are not met. |
| Reproductive Toxicity (risk to sex functions) | Based on available data, the classification criteria are not met. |
| Teratogenicity (risk of fetus malformation) | Based on available data, the classification criteria are not met. |
| STOT-single exposure | Based on available data, the classification criteria are not met. |
| STOT-repeated exposure | Based on available data, the classification criteria are not met. |
| Aspiration hazard | 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 $40 \text{ }^\circ\text{C}$. |

HIGH TEMPERATURE EPOXY**832HT-PART A****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# 28064-14-4 and CAS# 25068-38-6 are generally classified as chronic category 2 marine pollutant due to LC50 96 h of >1 mg/L but ≤10 mg/L.

Based on available data, carbon black is not classified as environmental hazard according to GHS criteria.

Acute Ecotoxicity

Category 2

Toxic to aquatic life

Chronic Ecotoxicity

Category 2

Toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

Biodegradability

Not readily biodegradable

Bioaccumulation

Not available

Section 13: Disposal Information

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

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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

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



Sizes greater than 5 liters

UN number: UN3082

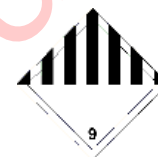
Shipping Name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Reaction product: phenyl glycidyl ether/ formaldehyde copolymer)

Class: 9

Packing Group: III

Marine Pollutant: Yes



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

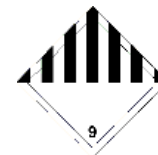
Shipping Name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Reaction product: phenyl glycidyl ether/ formaldehyde copolymer)

Class: 9

Packing Group: III

Marine Pollutant: Yes



Section continued on the next page

HIGH TEMPERATURE EPOXY

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Sea

Refer to IMDG regulations.

Sizes 5 liters and under

Limited Quantity

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



Sizes greater than 5 liters

UN number: UN3082

Shipping Name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Reaction product: phenyl glycidyl ether/ formaldehyde copolymer)

Class: 9

Packing Group: III

Marine Pollutant: Yes



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

Section 15: Regulatory Information

Canada

WHMIS 1988 Classification



D2A - Very Toxic (Carcinogen IARC: 2B);

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.

Section continued on the next page

HIGH TEMPERATURE EPOXY**832HT-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, June 06, 2014 revision, USA).

This product contains carbon black, which is listed as a carcinogenic substances when airborne, as unbound particles of respirable size.

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 19 May 2015

Supersedes 03 July 2013

Reason for Changes: Changes to better meet HCS 2012 and WHMIS 2.0 requirements.

Section continued on the next page

HIGH TEMPERATURE EPOXY**832HT-PART A****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 |

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*
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.

HIGH TEMPERATURE EPOXY**832HT-PART B**

Safety Data Sheet

Section 1: Identification**Product Identifier and Other Means of Identification****Product Name:** High Temperature Epoxy Encapsulating and Potting Compound**SDS Code:** 832HT-Part B**Related Part #** 832HT-375ML, 832HT-3L, 832HT-60L; 8320-1L, 8320-20L**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
CANADAMG 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**WEB** www.mgchemicals.com**☎** +1-905-331-1396**FAX** +1-905-331-2682**E-MAIL** info@mgchemicals.com**E-MAIL** (Competent Person): sds@mgchemicals.com**Emergency Phone Number****For hazardous material incidents ONLY**—leaks, spills, fires, exposures or accidentsUSA or CANADA: Call CHEMTREC ☎: **+1-800-424-9300****For emergencies involving dangerous goods:** Collect 24/7CANADA: Call CANUTEC ☎: **+1-613-996-6666** or ***666** on cellular phones

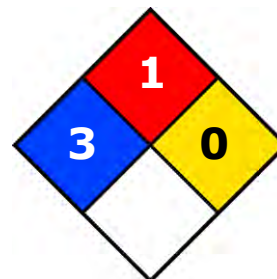
HIGH TEMPERATURE EPOXY
832HT-PART B
Section 2: Hazard(s) Identification
Classification of the Chemical Material
GHS Categories

| Criteria | | Category | Signal Word | Pictograms |
|----------------------|--------------------|----------|-------------|-------------|
| Serious Eye Damage | | 1 | Danger | Corrosion |
| Skin Corrosion | | 1B | Danger | Corrosion |
| Sensitization | Skin sensitizer | 1 | Warning | Exclamation |
| Acute Toxicity | Dermal | 4 | 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

| | |
|-----------------------------|------------|
| 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)

Section continued on the next page

HIGH TEMPERATURE EPOXY
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Label Elements

| Signal Word | DANGER |
|--|---|
| Pictograms | Hazard Statements |
|  | H314: Causes severe skin burns and eye damage |
|  | H312: Harmful in contact with skin H317: May cause an allergic skin reaction |
|  | H411: Toxic to aquatic life with long lasting effects |
| Prevention | Precautionary Statements |
| P102 | Keep out of reach of children. |
| P260 | Do not breathe fumes/mist/vapors. |
| P280 | Wear protective gloves/protective clothing/eye protection. |
| P264 | Wash hands thoroughly after handling. |
| P272 | Contaminated work clothing should not be allowed out of the workplace. |
| P273 | Avoid release to the environment. |

Section continued on the next page

HIGH TEMPERATURE EPOXY
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Continued...

| Response | Precautionary Statements |
|--------------------------|---|
| P305 + P351 + P338, P310 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. |
| P303 + P361 + P353, P310 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER/doctor. |
| P333 + P313 P363 | If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. |
| P301 + P330 + P331, P310 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. |
| P304 + P340, P310 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. |
| P391 | Collect spillage. |
| Storage | Precautionary Statements |
| P405 | Store locked up. |
| Disposal | Precautionary Statements |
| P501 | Dispose of contents/container in accordance to local/regional/international regulations. |

Hazards Not Otherwise Classified

None known

Section 3: Composition/Information on Ingredients

| CAS # | Chemical Name | % (weight) |
|--------------|---|-------------------|
| 68410-23-1 | fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines | 88% |
| 112-24-3 | triethylenetetramine | 12% |

HIGH TEMPERATURE EPOXY
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Section 4: First-Aid Measures

| <i>Exposure Condition</i> | <i>GHS Code: Precautionary Statement</i> |
|--------------------------------------|---|
| IF IN EYES | P305 + P351 + P338, P310 |
| Immediate Symptoms | <i>redness, severe irritation, pain, burns</i> |
| Response | Rinse cautiously with water for 30 minutes or more. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. |
| IF ON SKIN (or hair) | P303 + P361 + P353, P310, P333 + P313, P363 |
| Immediate or Delayed Symptoms | <i>redness, irritation, rash (allergic contact dermatitis), pain, chemical burns, blistering</i> |
| Response | Take off immediately all contaminated clothing. Wash with plenty of water [shower]. Immediately call a POISON CENTRE/doctor. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. |
| IF INHALED | P304 + P340, P310 |
| Immediate Symptoms | <i>cough, irritation of the respiratory track, burning sensation</i> |
| Delayed Symptoms | <i>asthma, difficulty breathing</i> |
| Response | Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. |
| IF SWALLOWED | P301 + P330 + P331, P310 |
| Immediate Symptoms | <i>Irritation, abdominal pain, nausea, vomiting, burns to the digestive tract</i> |
| Response | Rinse mouth. Do not induce vomiting. Immediately call a POISON CENTER/doctor. |

Advice to Physicians

In case of exposure to nitrogen oxides (NOx) combustion products or triethylenetetramine vapors during a fire, the symptoms may be delayed. For significant exposures, the exposed person should be kept under medical surveillance for 48 hours.

HIGH TEMPERATURE EPOXY**832HT-PART B****Section 5: Fire-Fighting Measures**

| | |
|----------------------------|--|
| In case of fire | P370 + P378 |
| Extinguishing Media | Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers. |
| Specific Hazards | <p>Not flammable or combustible, but burns if involved in a fire. Produces irritating and toxic fumes in fires or in contact with hot surfaces.</p> <p>Inhalation of toxic smoke during fire may have delayed effects. Exposed person may need to be put under surveillance for 48 h.</p> <p>Toxic for aquatic environment: Prevent fire-fighting wash from entering waterway or sewer system.</p> |
| Combustion Products | Produces carbon oxides (CO, CO ₂) and nitrogen oxides (NO _x). |
| Fire-Fighter | Wear self-contained breathing apparatus and full fire-fighting turn-out gear. |

Section 6: Accidental Release Measures

| | |
|----------------------------------|--|
| Personal Protection | Use personal protection recommended in Section 8. |
| Precautions for Response | Avoid breathing the fumes/mist/vapors. |
| Environmental Precautions | Avoid releasing to the environment. Prevent spill from entering drains and waterways. Do not flush to sewer. |
| Containment Methods | Contain with inert absorbent (such as soil, sand, vermiculite). |
| Cleaning Methods | Collect liquid in a sealable container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wipe residue with a paper towel wetted with a suitable organic solvent such as alcohol or ethyl lactate, and place dirty towels in container. Wash spill area with soap and water to remove the last traces of residue. |
| Disposal Methods | Dispose spill waste according to Section 13. |

HIGH TEMPERATURE EPOXY
832HT-PART B
Section 7: Handling and Storage
Prevention

Keep out of reach of children.

Avoid breathing fumes/mist/vapors or contact with skin or eyes.

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

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

Avoid release to the environment.

Handling

Wear protective gloves/protective clothing/eye protection/face protection.

Take off contaminated clothing and wash it before reuse.

Wash hands thoroughly after handling.

Collect spillage.

Storage

Store locked up.

Section 8: Exposure Controls/Personal Protection
Routes of Entry

Eye Contact, Skin Contact, Inhalation, Ingestion

Substances with Occupational Exposure Limit Values

| Chemical Name | Country or Vendor | Long Term Exposure Limits (PEL) | Short Term Exposure Limits (STEL) |
|----------------------|-------------------|--|-----------------------------------|
| triethylenetetramine | ACGIH | Not established | Not established |
| | U.S.A. OSHA PEL | Not established | Not established |
| | U.S.A (WEEL) | 1 ppm | Not established |
| | Canada AB | Not established | Not established |
| | Canada BC | Not established | Not established |
| | Canada ON | 0.5 mg/m ³ (Skin) ^{a)} | Not established |
| | Canada QC | Not established | Not established |

Note: The ACGIH¹, OSHA, and Canadian provinces exposure limits were consulted. Limits from by RTECS database² 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) Skin—can be absorbed through the skin.

Section continued on the next page

HIGH TEMPERATURE EPOXY**832HT-PART B****Engineering Controls****Ventilation**

Keep airborne concentrations below the occupational exposure limits (OEL).

Due to low vapor pressure of the product, general ventilation should be adequate for normal use. If the product is heated at high temperatures or worker is allergic, use local ventilation and 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

For likely contacts, use of protective butyl rubber, neoprene, or other chemically resistant gloves.

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

Respiratory Protection

For over-exposures up to 10 x OEL of mist/vapors/spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus.

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 with water and soap after use.

HIGH TEMPERATURE EPOXY
832HT-PART B
Section 9: Physical and Chemical Properties

| | | | |
|----------------------------------|----------------------|---|----------------------------|
| Physical State | Liquid | Lower Flammability Limit | Not available |
| Appearance | Clear, amber | Upper Flammability Limit | Not available |
| Odor | Musty | Vapor Pressure @20 °C^{b)} | <0.001 kPa [<0.01 mmHg] |
| Odor Threshold | Not available | Vapor Density | >5 (Air = 1) |
| pH | Not available | Specific Gravity @25 °C | 0.96 |
| Freezing/Melting Point | Not available | Solubility in Water | Insoluble |
| Boiling Point | Not available | Partition Coefficient | Not available |
| Flash Point^{a)} | >122 °C [>252 °F] | Auto-ignition Temperature | Not available |
| Evaporation Rate | Not available | Decomposition Temperature | Not available |
| Flammability (solid, gas) | Not available | Viscosity @25 °C | 6 000 mm ² /s |

a) Component with the lowest closed cup value—triethylenetetramine

b) Literature value for triethylenetetramine

HIGH TEMPERATURE EPOXY**832HT-PART B****Section 10: Stability and Reactivity**

| | |
|----------------------------|---|
| Reactivity | Reacts exothermically with ketones, halogenated hydrocarbons, cyanides, nitriles, and epoxides. May attack metals such as aluminum, zinc, copper, and their alloys. |
| Chemical Stability | Chemically stable at normal temperatures and pressures |
| Conditions to Avoid | 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 | For thermal decomposition, see combustion products in Section 5. |

Section 11: Toxicological Information**Routes of Exposure**

Eye Contact, Skin contact, Inhalation, and Ingestion

Symptoms Summary

| | |
|-------------------|--|
| Eyes | May cause chemical burns. Also can cause eye irritation, redness or pain. |
| Skin | May cause redness, serious skin irritation, allergic contact dermatitis, and chemical burns. Triethylenetetramine can be absorbed through skin leading to toxic effects. When heated, hot triethylenetetramine vapors may also result in itching of the face with skin redness (erythema) and swelling (edema). |
| Inhalation | Inhalation of vapors or mist may cause irritation to the nose, throat and lung (upper respiratory tract). |
| Ingestion | May cause severe irritation or corrosive burns to the mouth, throat, esophagus, and stomach. May cause allergic reactions. (See inhalation symptoms.) |
| Chronic | Prolonged and repeated exposure to uncured epoxy hardener may lead to skin sensitization. |

Section continued on the next page

HIGH TEMPERATURE EPOXY
832HT-PART B
Lethal Exposure Concentrations

| Chemical Name | LD50 oral | LD50 dermal | LC50 inhalation |
|---|----------------------------|----------------------------|-----------------|
| fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines | >5 000 mg/kg ^{a)} | >5 000 mg/kg ^{a)} | Not available |
| triethylenetetramine | 2 500 mg/kg Rat | 805 mg/kg Rabbit | Not available |

Note: Representative toxicity data from by RTECS database² of the Canadian Centre for Occupational Health and Safety (CCOHS) data from supplier (M)SDS were also consulted.
a) Supplier MSDS

Other Toxicological Effects
Skin corrosion/irritation

Triethylenetetramine (CAS# 112-24-3) causes skin burns.

Serious eye damage/irritation

Triethylenetetramine (CAS# 112-24-3) causes severe eye damage.

Respiratory and skin sensitization (allergic reactions)

The epoxy hardener components (CAS# 68410-23-1, and 112-24-3) may cause skin sensitization according to animal studies.

Carcinogenicity
(risk of cancer)

None of the ingredients are classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP.

Mutagenicity
(risk of heritable genetic effects)

Based on available data, the classification criteria are not met.

Reproductive Toxicity
(risk to sex functions)

Based on available data, the classification criteria are not met.

Teratogenicity
(risk of fetus malformation)

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met. There is no category 1 components, and the kinematic viscosity is >20.5 mm²/s at 40 °C.

HIGH TEMPERATURE EPOXY**832HT-PART B****Section 12: Ecological Information**

The IMDG Code criteria and the raw-material (M)SDS 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) were classified as a chronic category 2 environmental toxicant (not readily biodegradable, LC50 range of 1—10 mg/L for fish; EC0 bacterial >10 and ≤100 mg/L).

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

Acute Ecotoxicity

Category 2

Toxic to aquatic life

Chronic Ecotoxicity

Category 2

Toxic to aquatic life with long lasting effect

Avoid release to the environment. Collect spillage.

Biodegradability

Not readily biodegradable

Bioaccumulation

Not available

Other Effects

Not available

Section 13: Disposal Considerations

Dispose of contents in accordance with all local, provincial, state, and federal regulations.

HIGH TEMPERATURE EPOXY
832HT-PART B
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 1 L and under

Limited Quantity

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



Sizes greater than 1 L

UN number: UN2259

Shipping Name:

TRIETHYLENETETRAMINE SOLUTION,
 N.O.S. (containing dimer fatty acid
 (C18) poly amido amine resin)

Class: 8

Packing Group: II

Marine Pollutant: Yes

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 0.5 L and under

Limited Quantity


Sizes greater than 0.5 L up to 1 L

UN number: UN2259

Shipping Name:

TRIETHYLENETETRAMINE SOLUTION,
 N.O.S. (containing dimer fatty acid
 (C18) poly amido amine resin)

Class: 8

Packing Group: II

Marine Pollutant: Yes

Excepted Quantity E2 ≤30 mL

Section continued on the next page

HIGH TEMPERATURE EPOXY
832HT-PART B
Sea
Refer to IMDG regulations.

Sizes 1 L and under

Limited Quantity

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



Sizes greater than 1 L

UN number: UN2259

Shipping Name: TRIETHYLENETETRAMINE SOLUTION, N.O.S. (containing dimer fatty acid (C18) poly amido amine resin)

Class: 8

Packing Group: II

Marine Pollutant: Yes


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

Section 15: Regulatory Information
Canada
WHMIS 1988 Classification


E – Corrosive (Chemical burns); D1B – Toxic (Skin Absorption);
D2B – Toxic Other (Skin Sensitizer)

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.

Section continued on the next page

HIGH TEMPERATURE EPOXY**832HT-PART B****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 that 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 does not contain any listed substances in California.

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 Revision 19 May 2015

Supersedes 03 July 2013

Reason for Changes: Changes to better meet HCS 2012 and WHMIS 2015 requirements.

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®)

Section continued on the next page

HIGH TEMPERATURE EPOXY**832HT-PART B****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 |

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.

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