

**FLAME RETARDANT EPOXY**

**834FRB-PART A**

# Material Safety Data Sheet

## Section 1: Product and Company Identification

**Product Name:** Flame Retardant Epoxy

**MSDS Code:** 834FRB-Part A

**Related Part #:** 834FRB-375ML; 834FRB-3L; 834FRB-60L

**Use:** Encapsulating and potting epoxy compound

**Emergency Contact:** CANUTECH ☎: 1-613-996-6666, Collect 24/7

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

## Section 2: Hazards Identification

### GHS Classification



Warning  
Skin sensitizer



Warning  
Suspected human  
carcinogen

**Note:** The carcinogenic warning applies mainly with respect to possible grinding and cutting of the final cured epoxy product. It is not an expected route of entry during processing.

### WHMIS Classification



D2A - Very Toxic (Skin Sensitizer; Carcinogen IARC class 2B)

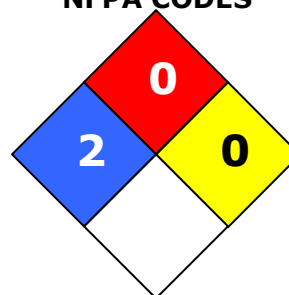
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### HMIS RATING

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

### NFPA CODES



### Physical Hazards

*GHS Code: Hazard Statement*  
 None known

### Health Hazards

*GHS Code: Hazard Statement*  
 H320: Causes eye irritation  
 H351: Suspected of causing cancer  
 H315 + H317: May cause skin irritation or allergic skin reaction  
 H335: May cause respiratory irritation.  
 H360: May damage fertility or unborn child.

<b>Eyes</b>	Causes eye irritation if splashed in eyes. May also cause eye redness or pain.
<b>Skin</b>	May cause mild to moderate skin irritation. May cause skin sensitization.
<b>Inhalation</b>	<i>Not a likely route of exposure.</i> May cause nose, throat and lung irritation. Inhalation of vapors, dust, or mist may cause irritation to the upper respiratory tract.
<b>Ingestion</b>	<i>Not a likely route of exposure.</i> <sup>a)</sup> Single dose oral toxicity is low. It may cause irritation of digestive tract.
<b>Chronic<sup>b)</sup></b>	Prolonged and repeated exposure may cause dermatitis, defatting of the skin, and skin sensitization reactions. Long term exposure to carbon black or antimony trioxide dust or mist may cause cancer.  Prolonged ingestion of the antimony trioxide component may cause gastrointestinal upset, ulcers, blood effects, liver effects, and neurological effects.

- a) The volatility of the components is extremely low, heating the product may irritate respiratory tract.
- b) Chronic inhalation danger for carbon black and antimony trioxide assume dust inhalation are mainly with respect to possible grinding and cutting of the final cured epoxy product. It is not an expected route of entry during processing.

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**Section 3: Hazardous Ingredients**

CAS #	Chemical Name	Wt%	ACGIH TWA	OSHA PEL	STEL
28064-14-4	Oxiranemethanamine, N,N''-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)-	40-70%	N/E	N/E	N/A
84852-53-9	1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromobenzene	10-30%	N/E	N/E	N/A
1309-64-4	Antimony trioxide	7-13%	N/E <sup>a)</sup>	N/E	N/A
68609-97-2	Alkyl glycidyl ether	3-7%	N/E	N/E	N/A
25068-38-6	Bisphenol-A epoxy resin	1-5%	N/E	N/E	N/A
64741-65-7	Naphtha, petroleum, heavy distillate	0.1-1%	N/E	N/E	N/A
1333-86-4	Carbon black	0.1-1%	3.5 mg/m <sup>3</sup>	3.5 mg/m <sup>3</sup>	N/A

*Note:* Limits from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS). Data from suppliers' MSDS were also consulted.

a) Keep exposure by all routes as low as possible. The related TWA for antimony dust is 0.5 mg (Sb)/m<sup>3</sup>.

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<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
<b>IF IN EYES</b>	P305
<b>Response</b>	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do. Continue rinsing.
<b>If eye irritation persists</b>	P332: Get medical attention.
<b>IF ON SKIN (or hair)</b>	P303
<b>Response</b>	P361: Take off immediately all contaminated clothing. P353: Rinse skin with water/shower.
<b>If skin irritation or rash persists</b>	P332: Get medical attention.
<b>IF INHALED</b>	P304 ( <i>Not a likely route of exposure under normal use</i> )
<b>Response</b>	P340: Remove person to fresh air and keep comfortable for breathing.
<b>If experiencing respiratory symptoms</b>	P301: Immediately call a poison centre or physician. P332: Get medical attention.
<b>If exposed or concerned</b>	P332: Get medical advice.
<b>IF SWALLOWED</b>	P301 ( <i>Not a likely route of exposure under normal use</i> )
<b>Response</b>	P301: Immediately call a poison centre or physician. P330: Rinse mouth. P332: Get medical attention.

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

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### Section 5: Fire Fighting Measures

<b>Autoignition Temperature</b>	Not established	<b>Flash Point*</b>	>150 °C [> 302 °F]	<b>LFL [LEL]**</b>	Not established
				<b>UFL [UEL]</b>	Not established

**In case of fire** P370

**Response** P378: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.  
 Wear self-contained breathing apparatus and protection suit.

**Combustion Products** Produces carbon oxides (CO, CO<sub>2</sub>), hydrogen bromine (HBr), bromine oxides, nitrous oxides (NO<sub>x</sub>), and smoke.

**General Information** Liberates toxic gases at temperatures greater than 320 °C [608 °F]. Will burn if involved in a fire, but it will self extinguish when removed from external flame source.

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

\* *Flashpoint based on lowest values from component supplier safety data sheet*

\*\**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.

**Containment** Remove all sources of ignition.

**Cleaning** Scoop residue into a plastic or metal container. Wipe up further residue with paper towel and place in container. Wash spill area with soap and water to remove the last traces of residue.

**Disposal** Dispose of spill waste according to Section 13.

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### Section 7: Handling and Storage

**Handling** P201+ P280 + P264: Do not handle until all safety precautions have been read and understood. Wear protective gloves/clothing/eye protection. Wash thoroughly after handling.

**Storage** P403 + P405: Store locked up. Store in a well-ventilated place. Keep container tightly closed.  
Store in dry area.

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

### Section 8: Exposure Controls/Personal Protection

#### Routes of Entry

Eyes, ingestion, inhalation, and skin

#### Engineering Controls

**Ventilation** Keep airborne concentrations below exposure limits.

#### Personal Protective Equipment

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

**Skin Protection** Wear appropriate protective clothing to prevent skin contact.

**Respiratory Protection** If exposed to dust or particulates, 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. Ensure 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.

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### Section 9: Physical and Chemical Properties

<b>Physical State</b>	Liquid	<b>Odor</b>	Mild aromatic	<b>Odor Threshold<sup>a</sup></b>	Not established
<b>Appearance</b>	Black	<b>Specific Gravity</b>	1.32	<b>Freezing Point</b>	Not established
<b>Boiling Point</b>	>150 °C [>302 °F]	<b>Vapor Pressure @ 20 °C</b>	Not established	<b>Evaporation Rate</b>	slow
<b>Autoignition Temperature<sup>a)</sup></b>	465 °C [869 °F]	<b>Flash Point<sup>a)</sup></b>	>150 °C [>302 °F]	<b>Vapor Density<sup>a)</sup></b>	Not applicable
<b>Lower Flammability Limit</b>	Not applicable	<b>Upper Flammability Limit</b>	Not applicable		
<b>pH</b>	Not established	<b>Partition Coefficient</b>	Not established	<b>Solubility in Water</b>	Partially soluble

a) Based on lowest reported value in component supplier safety data sheets.

### Section 10: Stability and Reactivity

<b>Stabilities</b>	Chemically stable at normal temperatures and pressures
<b>Conditions to Avoid</b>	Temperatures over 346 °C [608 °F] and incompatible substances
<b>Incompatibilities</b>	Strong oxidizing agents, strong acids, strong bases, and amines
<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

**Sensitization**  
(effects of repeated exposure)

May cause skin sensitization and other allergic reactions

**Carcinogenicity**  
(risk of cancer)

**ANTIMONY TRIOXIDE [1309-64-4]** (See Note A)

IARC Group 2B: Possibly carcinogenic to humans. This finding is based on a long term dust inhalation study for female rats.

ACGIH A2: Suspected human carcinogen causing lung cancer

CA Prop 65: Listed as a carcinogen

NTP: Not listed

**CARBON BLACK [1333-86-4]** (See Note A)

IARC Group 2B: Possibly carcinogenic to humans. This finding is based long term on dust inhalations studies on rats.

ACGIH A4: Not classified as a human carcinogen

CA Prop 65: Listed as a carcinogen

NTP: Not listed

**Reproductive Toxicity**  
(risk to sex functions)

Not known

**Teratogenicity**  
(risk of fetus malformation)

Inhalation of antimony trioxide leads to fetal death between  $82 \mu\text{g}/\text{m}^3$  to  $270 \mu\text{g}/\text{m}^3$

**Mutagenicity**  
(risk of heritable genetic effects)

Antimony trioxide damages human DNA at 0.12 ng/L 1 y

**Tumorigen**  
(risk of tumors)

Antimony trioxide increases of lungs, thorax, or respiratory tumors in rats at inhalation doses of  $45 \text{ mg}/\text{m}^3$  52 w (intermittent)

*Note A:* Neither carbon black nor antimony trioxide are considered volatile in the liquid part or in the final product; therefore, the chronic inhalation danger relative to dusts applies mainly to possible grinding and cutting of the final cured epoxy product.



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**Lethal Exposure Concentrations**

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
Oxiranemethanamine, N,N''-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)-	Not available	Not available	Not available	Not available
1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromo-benzene	>5000 mg/kg Rat	>2000 mg/kg Rabbit	Not established	Not established
Antimony trioxide	>34 600 mg/kg Rat	>2000 mg/kg Rabbit	Not established	Not established
Alkyl glycidyl ether	>17 100 mg/kg Rat <sup>a)</sup>	Not established	Not established	Not established
Bisphenol-A epoxy resin	11.4 g/kg Rat	100 pph 7 h Rabbit <sup>b)</sup>	Not established	Not established
	15.6 g/kg Mouse			
Naphtha, petroleum, heavy alkylate	34 600 mg/kg Rat <sup>c)</sup>	15 400 mg/kg Rabbit <sup>c)</sup>	>3684 ppm 4h Rat <sup>c)</sup>	Not established
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	N/E	1.6 mg/m <sup>3</sup> 7 h Rat

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

a) The MSDS of one of the supplier for this ingredient reports no death at >4500 mg/kg

b) Lowest published lethal toxic dose

c) Data from supplier MSDS

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### Section 12: Ecological Information

#### Acute Ecotoxicity

Category 2

*GHS Code: Hazard Statement*

H402: Harmful to aquatic life.

P273: Avoid release to the environment.

The bisphenol A epoxy resin (CAS# 25068-38-6) has a LC50 for aquatic organisms 1 mg/L to 10 mg/L. Antimony trioxide (CAS# 1309-64-4) has a LC50 of 833 mg/L for flathead minnow (*pimpehales promelas*) 96 h. These give a LC50 of 3.1 mg/L for the mixture.

#### Chronic Ecotoxicity

Unknown

#### Biodegradability

Not readily biodegradable

### Section 13: Disposal Information

*GHS Code: Precaution Statement*

P501: Dispose of contents in accordance with all local, provincial, state, and federal regulations.

### Section 14: Transport Information

#### Ground

DOT (US) and TDG (Canada)

Not regulated

#### Air

DOT (US) and TDG (Canada)

Not regulated

#### Sea

DOT (US) and TDG (Canada)

Not regulated

## Section 15: Regulatory Information

### Canada

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

All hazardous substances are listed except for CAS# 25068-38-6 and 84652-53-9.

#### 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 contain an "antimony compound", which is listed as hazardous air pollutants.

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

Antimony trioxide (CAS# 1309-64-4) has a reportable quantity of 1000 lb.

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

This product does not contains antimony trioxide (CAS# 1309-64-4) 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, except for CAS# 25068-38-6 and 84652-53-9.

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**California Proposition 65** (Chemicals known to cause cancer or reproductive toxicity, Sept 2, 2011 revision, USA).

This product contains carbon black (CAS# 1333-86-4; airborne, unbound particles of respirable size), which is listed as a carcinogen.

This product contains antimony trioxide (CAS# 1309-64-4) 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.

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### Section 16: Other Information

**MSDS Prepared by** Michel Hachey  
**Date of Preparation** 06 October 2011  
**Reference** All toxicological data were checked against the RTECS  
(Registry of Toxic Effects of Chemical Substances®)

#### **Abbreviations**

GHS: Globally Harmonized System of Classification of Labeling of Chemicals  
LC50 Lethal Concentration 50%  
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](http://www.mgchemicals.com).

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