

FLAME RETARDANT EPOXY

833FRB-PART A

Safety Data Sheet

Section 1: Product and Company Identification

Product Identifier and Other Means of Identification

Product Name: Flame Retardant Epoxy Encapsulating and Potting Compound**MSDS Code:** 833FRB-Part A**Related Part #:** 833FRB-375ML; 833FRB-3L; 833FRB-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
1220 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.comWEB www.mgchemicals.com

☎ 1-905-331-1396

FAX 1-905-331-2682

E-MAIL: info@mgchemicals.comE-MAIL (Competent Person): sds@mgchemicals.com

Emergency Phone Number

Emergency Contact

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

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

CANADA: Call CANUTEC ☎: 1-613-996-6666 or *666 on cellular phones, Collect 24/7

(For emergencies involving dangerous goods)

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Section 2: Hazards Identification

Classification of Hazardous Chemical

WHMIS Classification



D2A – Very Toxic Material (Carcinogen IARC Class 2B)

D2B – Toxic Material (Skin/Eye Irritation; Skin Sensitization in Humans)




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

GHS Pictograms



Signal Word
WARNING

GHS Categories

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

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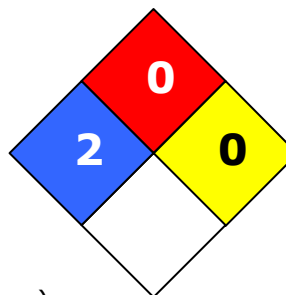
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HMIS® RATING

HEALTH:	2
FLAMMABILITY:	0
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)

Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H319: Causes serious eye irritation H315: Causes skin irritation H317: May cause an allergic skin reaction
	H351: Suspected of causing cancer
	H410: Very toxic to aquatic life with long lasting effects
	Precautionary Statements
	P102: Keep out of reach of children. P260 + P271: Do not breathe fume/gas/vapors/spray. Use only outdoors or in well ventilated area. P280: Wear protective gloves/eye protection P305 + P351 + P358: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P302 + P352 + P361 + P353: IF ON SKIN: Wash with plenty of water. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

Other Hazards

Prolonged or repeated exposure to the uncured epoxy resins used may cause dermatitis

FLAME RETARDANT EPOXY**833FRB-PART A****Exposure Routes and Symptoms Summary**

Eyes	Causes serious eye irritation. May also cause eye redness or pain.
Skin	May cause mild to moderate skin irritation and allergic skin reactions.
Inhalation	May cause nose, throat and lung irritation.
Ingestion	No acute toxicity effect known. See skin and inhalation symptoms.
Chronic	Prolonged or repeated exposure to the uncured epoxy resins used may cause dermatitis and sensitization. Long term exposure to carbon black or antimony trioxide dust may cause cancer.

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
28064-14-4	phenol, polymer with formaldehyde, glycidyl ether diglycidyl ether of bisphenol F	60-70%
84852-53-9	1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromo-benzene	10-15%
68609-97-2	alkyl glycidyl ether	7-13%
1309-64-4	antimony trioxide	3-7%
25068-38-6	bisphenol-A epoxy resin	1-5%
64741-65-7	naphtha, petroleum, heavy distillate	0.1-1%
1333-86-4	carbon black	0.1-1%
872-50-4	1-methyl-2-pyrrolidone	0.1-1%

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Section 4: First Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF IN EYES	P305
Symptoms	Immediate: <i>irritation, redness, pain</i>
Response	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists	P313: Get medical attention.
IF ON SKIN	P302
Symptoms	Immediate: <i>irritation, redness;</i> Delayed: <i>rash</i>
Response	P353: Rinse skin with water/shower. P362+ P364 + P272: Take off contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace.
If skin irritation, rash occurs, or concerned	P313: Get medical advice/attention.
IF INHALED	P304 (<i>Not a likely route of exposure under normal use</i>)
Symptoms	Immediate: <i>cough, respiratory system irritation</i>
Response	P340: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.
If feeling unwell	P312: Call a POISON CENTRE/doctor.
IF SWALLOWED	P301 (<i>Not a likely route of exposure under normal use</i>)
Symptoms	Immediate: <i>irritation</i>
Response	P330: Rinse mouth. P331: Do NOT induce vomiting.
If feeling unwell	P312: Call a POISON CENTRE/doctor.

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Section 5: Fire Fighting Measures

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

In case of fire	P370
Response	P378: Use dry chemical, carbon dioxide, or chemical foam to extinguish. Use water spray to cool containers.
Combustion Products	Produces carbon oxides (CO, CO ₂), hydrogen bromide (HBr), bromines, and toxic fumes.
Fire-Fighter	Wear self-contained breathing apparatus for fire fighting
General Information	Liberates toxic gases at temperature greater than 320 °C [608 °F]. Will burn if involved in a fire, but it will self extinguish when removed from external flame sources. Prevent fire-fighting wash from entering waterway or sewer system.

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

- a) Closed cup value for the alkyl glycidyl ether resin component
- b) LFL = Lower Flammability [or Explosion] Limit (in volume %);
UFL = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

- Personal Protection:** See Section 8. Avoid breathing the mist/vapors.
- Containment** Remove all sources of ignition. Prevent spill from entering drains and waterways.
- 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 P262: Do not get in eye, on skin, or on clothing.

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

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

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

P264: Wash hands thoroughly after handling.

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

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

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation, and skin

Substances with Occupational Exposure Limit Values

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

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

a) Respirable airborne particles.

b) Keep airborne concentration as low as possible.

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FLAME RETARDANT EPOXY**833FRB-PART A****Engineering Controls****Ventilation**

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

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

Personal Protective Equipment**Eye protection**

Wear appropriate protective eyeglasses or chemical safety goggles.

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

Skin Protection

Wear appropriate protective clothing to prevent skin contact.

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

Respiratory Protection

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

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

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

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Section 9: Physical and Chemical Properties

Physical State	Liquid	Odor	Mild	Odor Threshold	Not established
Appearance	Black	Specific Gravity	1.35	Freezing Point	Not established
Boiling Point	Not established	Vapor Pressure @ 20 °C	Not established	Evaporation Rate	Not established
Autoignition Temperature	Not established	Flash Point^{a)}	>142°C [>288 °F]	Vapor Density	>1 (Air = 1)
Lower Flammability Limit	Not established	Upper Flammability Limit	Not established	Decomposition Temp.	Not available
Viscosity @25 °C	1200 cSt	Partition Coefficient	Not established	Solubility in Water	Negligible
pH	Not available				

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

Section 10: Stability and Reactivity

Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, excessive heat (above 320 °C [608 °F]), and incompatible substances. Do not use in a way that forms a mist or aerosolize the product.
Incompatibilities	Strong oxidizing agents, strong acids, strong bases. <i>Note:</i> React with amines.
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

FLAME RETARDANT EPOXY**833FRB-PART A****Section 11: Toxicological Information****Routes of Exposure**

Eyes, ingestion, inhalation, and skin

Skin corrosion/irritation Skin irritant

Serious eye damage/irritation Causes serious eye irritation.

Sensitization (allergic reactions) The epoxy resin components (CAS# 25068-38-6 and 68609-97-2) may cause skin sensitization in humans

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

Note A: Neither carbon black nor antimony trioxide are considered volatile in the liquid part or in the final product; therefore, the inhalation hazard applies to intentional aerosolization, misting, or to possible dust from grinding and cutting of the final cured epoxy product.

Mutagenicity (risk of heritable genetic effects) Data does not give rise to classification. Antimony trioxide damages human DNA at 0.12 ng/L 1 y

Reproductive Toxicity (risk to sex functions) No data available

Teratogenicity (risk of fetus malformation) No data available

STOT-single exposure No data available

STOT-repeated exposure No data available

Aspiration hazard Viscosity at 40 °C is >>20.5 mm²/s, thus not classified as aspiration hazard.

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Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
phenol, polymer with formaldehyde, glycidyl ether diglycidyl ether of bisphenol F	4 000 mg/kg Rabbit ^{a)}	Not available	Not available	Not available
1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromo-benzene	>5 000 mg/kg Rat ^{a)}	>2 000 mg/kg Rabbit ^{a)}	Not available	Not available
antimony trioxide	>34 600 mg/kg Rat	>2 000 mg/kg Rabbit	Not available	Not available
alkyl glycidyl ether	19 200 mg/kg Rat ^{a)}	4 500 mg/kg Rat ^{a)}	Not available	Not available
reaction products: bisphenol-A-(epichlorhydrin) and epoxy resin	11 400 mg/kg Rat	100 pph 7 h Rabbit ^{b)}	Not available	Not available
naphtha, petroleum, heavy alkylate	34 600 mg/kg Rat ^{a)}	15 400 mg/kg Rabbit ^{a)}	>3 684 ppm 4h Rat ^{a)}	Not available
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	Not available	1.6 mg/m ³ 7 h Rat

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

a) Data from supplier MSDS

b) Lowest published lethal toxic dose

FLAME RETARDANT EPOXY**833FRB-PART A****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 bisphenol A and bisphenol F epoxy resins (CAS# 25068-38-6 and CAS# 28064-14-4) have 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. The calculated LC50 is between 1.0 and 1.5 mg/L for the mixture.

Acute Ecotoxicity

Category 2

GHS Code: Hazard Statement

H401: Very toxic to aquatic life

Chronic Ecotoxicity

Category 2

GHS Code: Hazard Statement

H410: Very toxic to aquatic life with long lasting effects

P273: Avoid release to the environment

P391: Collect spillage

Biodegradability

The content is not biodegradable.

FLAME RETARDANT EPOXY**833FRB-PART A****Section 13: Disposal Information**

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

Section 14: Transport Information**Ground**

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

Sizes 5 liter and under

Limited Quantity

Note: The 833FRB-375ML, 833FRB-3L and 833FRB-12L are composed of separate containers which meet this inner packaging limit.



All sizes greater than 5 liter

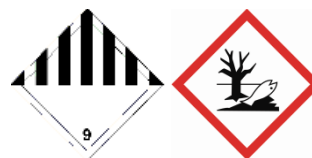
UN number: UN3082

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

Class: 9

Packing Group: III

Marine Pollutant: Yes

**Air**

Refer to IATA Dangerous Goods Regulations.

All sizes

UN number: UN3082

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

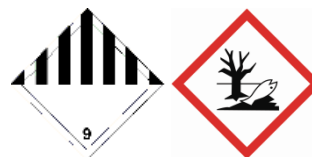
Class: 9

Packing Group: III

Marine Pollutant: Yes

Pkg Inst: 964. ERG Code: 9L

Flash Point: >142 °C [>287 °F]



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FLAME RETARDANT EPOXY**833FRB-PART A****Sea****Refer to IMDG regulations.**

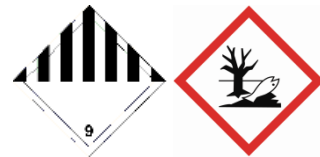
Sizes 5 liter and under

Limited Quantity**Note:** The 833FRB-375ML, 833FRB-3L and 833FRB-12L are composed of separate containers which meet this inner packaging limit.

All sizes greater than 5 liter

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

Flash Point: >142 °C [>287 °F]



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

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

All hazardous ingredients are listed on the DSL/NDSL.

Industry and Science Canada

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

Health Canada

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

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.

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

This product does not contain antimony trioxide (CAS# 1309-64-4) which has a 1,000 lb reporting quantity requirements in section 313 Title III of the SARA of 1986 and 40 CFR part 372.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

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

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

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FLAME RETARDANT EPOXY**833FRB-PART A****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	28 March 2013
Supersedes	04 November 2011
Reason for Changes:	Change to GHS classification and format

References

- 1) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)
- 2) ACGIH 2011 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2011).

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

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Quality System Certified to ISO 9001:2008

SAI Global File #004008
Burlington, Ontario, Canada

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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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