



Kit Revision Date: 12 March 2020

834FRB FLAME RETARDANT EPOXY KIT

MG Chemicals Multipart Product Kit

This product is a kit made up of multiple parts. Each part is an independently packaged chemical component and has independent hazard assessments.

Kit Content

<i>Part</i>	<i>Product Name</i>	<i>Product Use</i>
A	Flame Retardant Epoxy	Epoxy resin for use with hardeners
B	Flame Retardant Epoxy	Epoxy hardener for use with resins

Safety Data Sheets for each part listed above follow this cover sheet.

Transportation Instruction

Before offering this product kit for transport, read Section 14 for all parts listed above.

834FRB-A

FLAME RETARDANT EPOXY (PART A)

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 834FRB-A**Other Means of Identification:** Flame Retardant Epoxy (Part A)**Related Part #** 834FRB-375ML, 834FRB-3L, 834FRB-60L

Recommended Use and Restriction on Use

Use: Resin for use with epoxy hardener**Uses Advised Against:** Not for use as spray coating

Details of Manufacturer or Importer

ManufacturerMG 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 accidents)
USA or CANADA—Call Verisk 3E at **+1-866-519-4752** or **+1-760-476-3962**
(Service access code: 335388)**For emergencies involving the transport of dangerous goods;** 24/7 service
CANADA—Call CANUTEC collect at **+1-613-996-6666** or ***666** on cellular phones

834FRB-A
FLAME RETARDANT EPOXY (PART A)
Section 2: Hazard(s) Identification
Classification of the Chemical Material
GHS Categories

Criteria		Category	Signal Word	Pictograms
Sensitization	Skin	1	Warning	Exclamation
Eye Irritation		2	Warning	Exclamation
Skin Irritation		2	Warning	Exclamation
Carcinogenicity		2	Warning	Health
Hazardous to the Aquatic Environment	Chronic	2	<i>none</i>	Environment

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.

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

Section continued on the next page

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FLAME RETARDANT EPOXY (PART A)
Continued...

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 and vapors.
P280	Wear protective gloves, eye protection, and face 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.
Response	Precautionary Statements
P308 + P313	IF exposed or concerned: Get medical advice or attention.
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 or attention.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.
Storage	Precautionary Statements
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents in accordance to local, regional, national, and international regulations.

Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
None	None	None	None

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FLAME RETARDANT EPOXY (PART A)
Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
28064-14-4	phenol, polymer with formaldehyde, glycidyl ether	60%
84852-53-9	1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromo-benzene	18%
1309-64-4	antimony trioxide	8%
68609-97-2	alkyl glycidyl ether	6%
25068-38-6	bisphenol-A-(epichlorhydrin) epoxy resin	6%
64741-65-7	naphtha, petroleum, heavy distillate	1%
1333-86-4	carbon black	0.6%

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	<i>redness, severe irritation, pain</i>
Response	Rinse cautiously with water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
IF ON SKIN	P302 + P352, P333 + P313, P362 + P364
Immediate Symptoms	<i>redness, irritation, rash, dry skin, allergic contact dermatitis</i>
Response	Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse.
IF INHALED	P304 + P340, 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 or attention.
IF SWALLOWED	P301 + P330 + P331, P308 + P313
Immediate Symptoms	<i>irritation, stomach/abdominal discomfort or pain</i>
Response	Rinse mouth. Do NOT induce vomiting. IF exposed or concerned: Get medical advice or attention.

834FRB-A**FLAME RETARDANT EPOXY (PART A)****Section 5: Fire-Fighting Measures**

Extinguishing Media	In case of fire: Use extinguishing media suitable for surrounding materials.
Specific Hazards	Not flammable or combustible, but will burn if involved in a fire. It should self-extinguishes when removed from external flame sources. Liberates toxic gases at temperature greater than 320 °C [608 °F]. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO ₂), hydrogen bromide (HBr), bromines, 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 fumes and 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 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. Wipe off residues with paper towels and place the used towels in the waste 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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FLAME RETARDANT EPOXY (PART A)
Section 7: Handling and Storage
Prevention

Keep out of reach of children.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Contaminated work clothing should not be allowed out of the workplace. Take off contaminated clothing and wash it before reuse.

Avoid breathing fumes and vapors.

Handling

Wear protective gloves, eye protection, and face protection.

Wash hands thoroughly after handling.

Avoid release to the environment.

Collect spillage.

Storage

Store locked up.

Section 8: Exposure Controls/Personal Protection
Substances with Occupational Exposure Limit Values

Chemical Name	Country or Vendor	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromo-benzene	manufacturer	2 mg/m ³	Not established
antimony trioxide ^{a)}	ACGIH	0.5 mg/m ³	Not established
	U.S.A. OSHA PEL	0.5 mg/m ³	Not established
	Canada AB	0.5 mg/m ³	Not established
	Canada BC	0.5 mg/m ³ (Carcinogen)	Not established
	Canada ON	0.5 mg/m ³ ^{b)}	Not established
	Canada QC	0.5 mg/m ³	Not established
naphtha, petroleum, heavy distillate	ACGIH	100 ppm (525 mg/m ³)	Not established
	U.S.A. OSHA PEL	500 ppm (2 900 mg/m ³)	Not established
	Canada AB	572 mg/m ³	Not established
	Canada BC	290 mg/m ³	580 mg/m ³
	Canada ON	100 ppm	Not established
	Canada QC	525 mg/m ³	Not established

Section continued on the next page

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FLAME RETARDANT EPOXY (PART A)
Continued ...

Chemical Name	Country or Vendor	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: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS² database and 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) Respirable airborne particles

Engineering Controls

Ventilation

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

Because the carbon black and antimony trioxide are 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: 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.

Section continued on the next page

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FLAME RETARDANT EPOXY (PART A)
Respiratory Protection

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.

Generally, for emergencies and exposure above 0.5 mg/m³, use a self-contained breathing apparatus with full face piece operated in a pressure positive mode.

RECOMMENDATION: Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be 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.

Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit	Not applicable
Appearance	Black	Upper Flammability Limit	Not applicable
Odor	Mildly aromatic	Vapor Pressure @25 °C	Not available
Odor Threshold	Not available	Vapor Density	Not available
pH	Not available	Relative Density @25 °C	1.39
Freezing/Melting Point	>150 °C [>302 °F]	Solubility in Water	Partially water soluble
Initial Boiling Point	Not available	Partition Coefficient n-octanol/water	Not available
Flash Point	Not available	Auto-ignition Temperature ^{a)}	>465 °C [>869 °F]
Evaporation Rate	Slow	Decomposition Temperature	Not available
Flammability	Non flammable	Viscosity @25 °C	1 600 cP [1 150 mm ² /s]

a) Supplier value for the component with the lowest known auto-ignition

834FRB-A**FLAME RETARDANT EPOXY (PART A)****Section 10: Stability and Reactivity**

Reactivity	Reacts exothermically with amines.
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	Excessive heat (especially above 320 °C [608 °F]). Avoid ignition sources, open flames, and incompatible substances. Do not use in a way that forms a mist or aerosolize the product.
Incompatibilities	Strong oxidizing agents, strong bases, strong acids
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

Section 11: Toxicological Information**Summary of Effects and Symptoms by Routes of Exposure**

Eyes	May cause redness, severe eye irritation, and pain.
Skin	May cause redness, irritation, dry skin, or allergic contact dermatitis.
Inhalation	Mist may cause irritation to the nose, throat and lung (upper respiratory tract).
Ingestion	It may cause irritation or abdominal discomfort (see inhalation symptoms).
Chronic	Prolonged and repeated exposure may lead to skin sensitization. Long term exposure to 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.

Section continued on the next page

834FRB-A
FLAME RETARDANT EPOXY (PART A)
Lethal Exposure Concentrations

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
phenol, polymer with formaldehyde, glycidyl ether	>2 000 mg/kg ^{a)}	>2 000 mg/kg ^{a)}	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
antimony trioxide	>34 600 mg/kg Rat	>2 000 mg/kg Rabbit	Not available
alkyl glycidyl ether	19 200 mg/kg Rat ^{a)}	4 500 mg/kg Rat ^{a)}	Not available
bisphenol-A epoxy resin (reaction product)	11 400 mg/kg Rat	100 pph 7 h Rabbit ^{a)}	Not available
naphtha, petroleum, heavy alkylate	Not available	Not available	Not available
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	Not available

Note: Toxicity data from RTECS² and ECHA databases were consulted. The data from supplier SDS were also consulted.

a) Data from supplier SDS

Other Toxicological Effects
Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/irritation

Causes serious eye irritation.

Respiratory and skin sensitization (allergic reactions)

The epoxy resin components (CAS# 28064-14-4, 68609-97-2, and 25068-38-6) may cause skin sensitization in humans.

Section continued on the next page

834FRB-A**FLAME RETARDANT EPOXY (PART A)****Carcinogenicity**
(risk of cancer)

The carbon black and antimony trioxide are possibly carcinogenic by airborne routes of exposures. Because they are both bound in the epoxy liquid mixture, it is not expected to be available as an airborne hazard (dust, mist, or spray) under normal use.

Antimony Trioxide [1309-64-4]

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]

IARC Group 2B: Possibly carcinogenic to humans

ACGIH A4: Not classified as a human carcinogen

CA Prop 65: Listed as a carcinogen (airborne, as unbound particles of respirable size)

NTP: Not listed

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 <1% category 1 component and the kinematic viscosity is >20.5 mm²/s at 40 °C.

Section 12: Ecological Information

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (<http://echa.europa.eu>), and other reliable sources.

The epoxy resins (CAS# 28064-14-4, 68609-97-2, and 25068-38-6) have a LC50 for aquatic organisms 1 mg/L to 10 mg/L.

Antimony trioxide (CAS# 1309-64-4) is not classifiable under GHS because it has a LC50 of 833 mg/L for flathead minnow (*pimpehales promelas*) 96 h.

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 available

Bioaccumulation

Not available

Section 13: Disposal Considerations

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

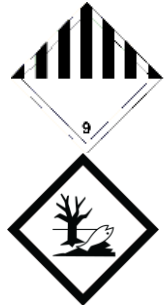
834FRB-A

FLAME RETARDANT EPOXY (PART A)

Section 14: Transport Information

Ground

Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations);
USA DOT 49 CFR (Parts 100 to 185) **Regulations.**

<p>Sizes under 450 L <i>Part A of all 834FRB kits</i> NOT REGULATED in TDG per Special Provisions 99</p>	<p>49 CFR: Sizes greater than 5 L <i>Part A of 834FRB-60L kit</i> 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</p>
<p>Sizes 5 L and under <i>Part A of 834FRB-375ML, 834FRB-3L kits</i> NOT REGULATED in 49 CFR per exception 171.4 (c)(2)</p>	

Special Provision 99 (2): These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of less than 450 kg of UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., or less than 450 L of UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., on a road vehicle or a railway vehicle. The dangerous goods must be contained in one or more small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods that could endanger public safety.

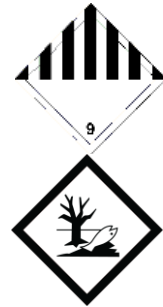
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834FRB-A**FLAME RETARDANT EPOXY (PART A)****Air****Refer to ICAO-IATA Dangerous Goods Regulations.**

Sizes 5 L and under

*Part A of 834FRB-375ML/3L kits***NOT REGULATED**Not Restricted, as per
Special Provisions A197

Sizes greater than 5 L

*Part A of 834FRB-60L kit***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

Special Provision A197: These substances when transported in single or combination packagings containing net quantity per single or inner packaging of less than 5 L or less for liquids or having a net mass of 5 kg or less for solids, are not subject to any other provisions of these Regulations provided the packaging's meet the general provisions 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

Section continued on the next page

834FRB-A**FLAME RETARDANT EPOXY (PART A)****Sea****Refer to IMDG regulations.**

Sizes 5 L and under
Part A of 834FRB-375ML/3L kits
NOT REGULATED
per 2.10.2.7

Sizes greater than 5 L
Part A of 834FRB-60L kit
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



2.10.2.7: Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to any other provision of this Code relevant to marine pollutants provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. In the case of marine pollutants also meeting the criteria for inclusion in another hazard class, all provisions of this Code relevant to any additional hazards continue to apply.

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

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

All hazardous ingredients are listed on the DSL/NDSL.

Ministerial conditions apply to 1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromo-benzene (CAS # 84852-53-9). See Canada Gazette, Part 1, Vol. 151, No. 41, October 14, 2017.

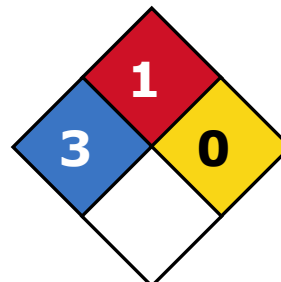
Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

Section continued on the next page

834FRB-A**FLAME RETARDANT EPOXY (PART A)****USA****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)

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 contains antimony trioxide (CAS# 1309-64-4); reportable quantity = 1 000 lb), which is 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.

Contains 18% 1,1'-(1,2-ethanediyl)bis[2,3,4,5,6-pentabromo-benzene, with CAS# 84852-53-9, which is subject to a Significant New Use Rule (SNUR) 40 CFR 721.536.

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

This product contains carbon black, but it is bound and exposures during normal conditions of uses are below the Safe Harbor Threshold.

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

Section continued on the next page

834FRB-A**FLAME RETARDANT EPOXY (PART A)****Europe****RoHS** (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP 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

Prepared by Regulatory department

Date of Revision 12 March 2020

Supersedes 11 March 2019

Reason for Changes: Update to the emergency phone number information.

Reference

1) ACGIH 2017 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 (2017).

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
NOELR	No observable effect loading ratio
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

Section continued on the next page

834FRB-A**FLAME RETARDANT EPOXY (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.

Email: support@mgchemicals.com

Mailing Addresses *Manufacturing & Support*
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Disclaimer This 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.

834FRB-B

FLAME RETARDANT EPOXY (PART B)

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 834FRB-B**Other Means of Identification:** Flame Retardant Epoxy (Part B)**Related Part #** 834FRB-375ML, 834FRB-3L, 834FRB-60L

Recommended Use and Restriction on Use

Use: Hardener for use with epoxy resin**Uses Advised Against:** Not for use as spray coating

Details of Manufacturer or Importer

ManufacturerMG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADAMG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA**TEL** +1-800-340-0772**FAX** +1-800-340-0773**E-MAIL** support@mgchemicals.com**WEB** www.mgchemicals.com**TEL** +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 Verisk 3E at **+1-866-519-4752** or **+1-760-476-3962**

(Service access code: 335388)





For emergencies involving the transport of dangerous goods; 24/7 serviceCANADA—Call CANUTEC collect at **+1-613-996-6666** or ***666** on cellular phones

834FRB-B
FLAME RETARDANT EPOXY (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	1	Warning	Exclamation
Carcinogenicity		2	Warning	Health
Hazardous to the Aquatic Environment	Chronic	2	<i>none</i>	Environment

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.

Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H314: Causes severe skin burns and eye damage
	H351: Suspected of causing cancer
	H317: May cause an allergic skin reaction
	H411: Toxic to aquatic life with long lasting effects

Section continued on the next page

834FRB-B
FLAME RETARDANT EPOXY (PART B)
Continued...

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.
P260	Do not breathe fumes or vapors.
P280	Wear protective gloves, protective clothing, eye protection, and face 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.
Response	Precautionary Statements
P308 + P313	IF exposed or concerned: Get medical advice or attention.
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 + P352	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of water [or shower].
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P363	Wash contaminated clothing before reuse.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310	Immediately call a POISON CENTER or doctor.
P391	Collect spillage.
Storage	Precautionary Statements
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents in accordance to local, regional, national and international regulations.

Section continued on the next page

834FRB-B
FLAME RETARDANT EPOXY (PART B)
Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
None	None	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
68410-23-1	fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	63%
84852-53-9	1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromo-benzene	18%
112-24-3	triethylenetetramine	8%
1309-64-4	antimony trioxide	7%
108-65-6	2-methoxy-1-methylethyl acetate	0.8%
1333-86-4	carbon black	0.7%

Section 4: First-Aid Measures
Exposure Condition
GHS Code: Precautionary Statement
IF IN EYES

P305 + P351 + P338, P310

Immediate Symptoms
redness, severe irritation, pain, burns
Response

Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor

IF ON SKIN (or hair)

P303 + P361+ P352, P333 + P313, P363

Immediate Symptoms
redness, irritation, rash, pain, burns, blistering
Response

Take off immediately all contaminated clothing. Wash with plenty of water [or shower]. Immediately call a POISON CENTRE or doctor.

If skin irritation or rash occurs: Get medical advice or attention.

Wash contaminated clothing before reuse.

Section continued on the next page

834FRB-B**FLAME RETARDANT EPOXY (PART B)***Continued...*

IF INHALED	P304 + P340, P310, P308 + P313
Immediate Symptoms	<i>cough, irritation of the respiratory track, burning sensation</i>
Response	Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF exposed or concerned: Get medical advice or attention
IF SWALLOWED	P301 + P330 + P331, P310
Immediate Symptoms	<i>burns to mouth, throat, stomach, abdominal pain, nausea, vomiting, diarrhea</i>
Response	Rinse mouth. Do not induce vomiting. Immediately call a POISON CENTRE or doctor.

Section 5: Fire-Fighting Measures

Extinguishing Media	In case of fire: Use extinguishing media suitable for surrounding materials.
Specific Hazards	Not flammable or combustible but will burn if involved in a fire. It should self-extinguish when removed from external flame sources. Liberates toxic gases at temperature greater than 320 °C [608 °F]. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO ₂), nitrogen oxides (NO _x), hydrogen bromide (HBr), bromines, and toxic fumes.
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

834FRB-B**FLAME RETARDANT EPOXY (PART B)****Section 6: Accidental Release Measures**

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Do not breathe the fumes or 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 absorbent (such as soil, sand, vermiculite).
Cleaning Methods	Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wipe off residues with paper towels and place the used towels in the waste container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep out of reach of children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Contaminated work clothing should not be allowed out of the workplace. Do not breathe fumes or vapors. Avoid release to the environment.
Handling	Wear protective gloves, protective clothing, eye protection, and face protection. Take off contaminated clothing and wash it before reuse. Wash hands thoroughly after handling. Collect spillage.
Storage	Store locked up.

834FRB-B
FLAME RETARDANT EPOXY (PART B)
Section 8: Exposure Controls/Personal Protection
Substances with Occupational Exposure Limit Values

Chemical Name	Country or Vendor	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
triethylenetetramine	ACGIH U.S.A. OSHA PEL U.S.A (WEEL) Canada AB Canada BC Canada ON Canada QC	Not established Not established 1 ppm Not established Not established 0.5 mg/m ³ (Skin) Not established	Not established Not established Not established Not established Not established Not established Not established
1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromo-benzene antimony trioxide ^{a)}	manufacturer	2 mg/m ³	Not established
	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	0.5 mg/m ³ 0.5 mg/m ³ 0.5 mg/m ³ 0.5 mg/m ³ (Carcinogen) 0.5 mg/m ³ ^{b)} 0.5 mg/m ³	Not established Not established Not established Not established Not established Not established
1-methoxy-2-propanol acetate	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	Not established 50 ppm Not established 50 ppm 50 ppm Not established	Not established Not established Not established 75 ppm Not established Not established
carbon black ^{a)}	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	3.5 mg/m ³ 3.5 mg/m ³ 3.5 mg/m ³ 3 mg/m ³ 3.5 mg/m ³ 3.5 mg/m ³	Not established Not established Not established Not established Not established Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS database² and 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) Respirable airborne particles

b) Exposure should be controlled to levels as low as possible.

Section continued on the next page

834FRB-B**FLAME RETARDANT EPOXY (PART B)****Engineering Controls****Ventilation**

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

Because the carbon black and antimony trioxide are 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: 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

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.

Generally, for emergencies and exposure above 0.5 mg/m³, use a self-contained breathing apparatus with full face piece operated in a pressure positive mode.

RECOMMENDATION: Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be 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.

834FRB-B
FLAME RETARDANT EPOXY (PART B)
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 @25 °C	Not available
Odor Threshold	Not available	Vapor Density	Not available
pH	Not available	Relative Density @25 °C	1.16
Freezing/Melting Point	Not available	Solubility in Water	Practically insoluble
Initial Boiling Point	Not available	Partition Coefficient n-octanol/water	Not available
Flash Point	Not available	Auto-ignition Temperature	Not available
Evaporation Rate	Slow	Decomposition Temperature	Not available
Flammability	Non flammable	Viscosity @25 °C	3 600 cP [3 100 mm ² /s]

Section 10: Stability and Reactivity

Reactivity	Reacts exothermically with epoxides.
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	Excessive heat (especially 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, and amines.
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

834FRB-B**FLAME RETARDANT EPOXY (PART B)****Section 11: Toxicological Information****Summary of Effects and Symptoms by Routes of Exposure**

Eyes	May cause chemical burns or severe eye irritation, redness, and pain.
Skin	May cause chemical burns and serious skin irritation. May cause skin sensitization. Triethylenetetramine can be absorbed through skin.
Inhalation	Hot triethylenetetramine vapors may result in respiratory tract irritation and itching of the face with erythema and edema. May cause nose, throat and lung irritation. Inhalation of vapors, dust, or mist may cause irritation to the upper respiratory tract.
Ingestion	Single dose oral toxicity is low. It may cause burns or severe irritation to the digestive tract.
Chronic	Prolonged and repeated exposure may lead to skin sensitization reactions. Long term exposure to 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.

Section continued on the next page

834FRB-B
FLAME RETARDANT EPOXY (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
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
triethylenetetramine	2 500 mg/kg Rat	805 g/kg Rabbit	Not available
antimony trioxide	>34 600 mg/kg Rat	>2 000 mg/kg Rabbit	Not available
2-methoxy-1-methylethyl acetate	8 532 mg/kg Rat	>5 g/kg Rabbit	Not available
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	Not available

Note: Toxicity data from the RTECS² and ECHA were consulted. The data from supplier SDS were also consulted.

a) Supplier SDS

Other Toxicological Effects

Skin corrosion/irritation	Triethylenetetramine (CAS# 112-24-3) can cause skin burns.
Serious eye damage/irritation	Triethylenetetramine (CAS# 112-24-3) can cause severe eye damage.
Respiratory and skin sensitization (allergic reactions)	The epoxy hardener components (CAS# 68410-23-1, and 112-24-3) may cause skin sensitization in humans.

Section continued on the next page

834FRB-B**FLAME RETARDANT EPOXY (PART B)****Carcinogenicity**

(risk of cancer)

The carbon black and antimony trioxide are possibly carcinogenic by airborne routes of exposures. Because they are both bound in the epoxy liquid mixture, it is not expected to be available as an airborne hazard (dust, mist, or spray) under normal use.

Antimony Trioxide [1309-64-4]

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]

IARC Group 2B: Possibly carcinogenic to humans

ACGIH A4: Not classified as a human carcinogen

CA Prop 65: Listed as a carcinogen (airborne, as unbound particles of respirable size)

NTP: Not listed

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. The kinematic viscosity is $>20.5 \text{ mm}^2/\text{s}$ at $40 \text{ }^\circ\text{C}$.

Section continued on the next page

834FRB-B**FLAME RETARDANT EPOXY (PART B)****Section 12: Ecological Information**

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (<http://echa.europa.eu>), and other reliable sources.

The fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines (CAS# 68410-23-1) was classified as a chronic category 2 environmental toxicant (supplier reports LC50 range of 1–10 mg/L for fish; EC0 bacterial >10 and ≤100 mg/L; not readily biodegradable).

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

The 1-methoxy-2-propanol acetate component is an acute category 3 environmental toxicant (with minimal LC50 96 h of ≥100 mg/L *Salmo gairdneri*).

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

Acute Ecotoxicity

See chronic ecotoxicity

Chronic Ecotoxicity

Category 2

Toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

Biodegradability

Not available

Bioaccumulation

Not available

834FRB-B

FLAME RETARDANT EPOXY (PART B)

Section 13: Disposal Considerations

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

Section 14: Transport Information

Ground

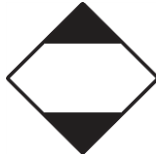
Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations); **USA DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Sizes 1 L and under

Part B of 834FRB-375ML, 834FRB-3L kits

Limited Quantity

Note: The 834FRB-375ML and 834FRB-3L kits are composed of separate containers which meet this inner packaging limit.



Sizes greater than 1 L (Cargo only)

Part B of 834FRB-60L kit

UN number: UN2735

Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (triethylenetetramine)

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: UN2735

Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (triethylenetetramine)

Class: 8

Packing Group: II

Marine Pollutant: Yes



Section continued on the next page

834FRB-B**FLAME RETARDANT EPOXY (PART B)****Sea****Refer to IMDG regulations.**Sizes 1 L and under
Limited QuantitySizes greater than 1 L
UN number: UN2735
Shipping Name: AMINES,
LIQUID, CORROSIVE, N.O.S.
(triethylenetetramine)
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****Domestic Substance List (DSL)/Non-Domestic Substance Lists (NDSL)**

All hazardous ingredients are listed on the DSL/NDSL.

Ministerial conditions apply to 1,1'-(1,2-ethanediyl) bis[2,3,4,5,6-pentabromobenzene (CAS # 84852-53-9). See Canada Gazette, Part 1, Vol. 151, No. 41, October 14, 2017.

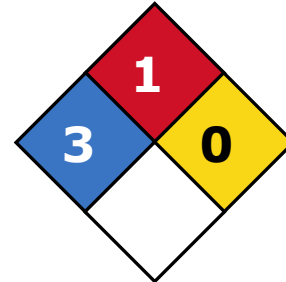
Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

Section continued on the next page

834FRB-B**FLAME RETARDANT EPOXY (PART B)****USA****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)

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 contains antimony trioxide (CAS# 1309-64-4; reportable quantity = 1 000 lb), which is 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.

Contains 18% 1,1'-(1,2-ethanediyl)bis[2,3,4,5,6-pentabromo-benzene, with CAS# 84852-53-9, which is subject to a Significant New Use Rule (SNUR) 40 CFR 721.536.

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

This product contains carbon black, but it is bound and exposures during normal conditions of uses are below the Safe Harbor Threshold.

This product contains antimony trioxide (airborne, unbound particles of respirable size), which are listed as carcinogens.

Section continued on the next page

834FRB-B**FLAME RETARDANT EPOXY (PART B)****Europe****RoHS** (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP 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

MSDS Prepared by Regulatory Department

Date of Revision 12 March 2020

Supersedes 11 March 2019

Reason for Changes: Update to the emergency phone number information.

Reference

- 1) ACGIH 2017 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 (2017).
- 2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

Section continued on the next page

834FRB-B**FLAME RETARDANT EPOXY (PART B)****Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
NOELR	No observable effect loading ratio
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
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.

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