

834B-B

BLACK FLAME RETARDANT EPOXY

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 834B-B**Other Product Identifier:** Black Flame Retardant Epoxy**Related Part #** 834B-375ML, 834B-2.7L, 834B-10.8L, 834B-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**☎** +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 CHEMTREC at **+1-800-424-9300****For emergencies involving the transport of dangerous goods;** 24/7 serviceCANADA—Call CANUTEC collect at **+1-613-996-6666** or ***666** on cellular phones

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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
Reproductive Toxicity	Oral	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
	H361: Suspected of damaging fertility or the unborn child
	H317: May cause an allergic skin reaction
	H411: Toxic to aquatic life with long lasting effects

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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/vapors.
P280	Wear protective gloves/protective clothing/eye protection/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
P310	Immediately call a POISON CENTER/doctor.
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 + P364 + P352	IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of water or shower.
P333 + P313	If skin irritation or rash occurs: Get medical advice/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.
P308 + P313	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.

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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)
68082-29-1	fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids and triethylenetetramine	38%
68333-79-9	ammonium polyphosphate	19%
21645-51-2	aluminum trihydrate	18%
1344-28-1	aluminum oxide	12%
112-24-3	triethylenetetramine	5%
138265-88-0	zinc borate	5%
1333-86-4	carbon black	0.5%

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, loss of vision</i>
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/doctor.
IF ON SKIN (or hair)	P303 + P361+ P352, P333 + P313, P363
Immediate Symptoms	<i>redness, irritation, rash, pain, burns, blistering</i>
Response	Take off immediately all contaminated clothing. Wash with plenty of water or shower. Immediately call a POISON CENTRE/doctor. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

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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/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/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. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO ₂), zinc oxides, boron oxides, nitrogen oxides (NO _x), ammonia, and other toxic fumes.
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

834B-B**BLACK FLAME RETARDANT EPOXY****Section 6: Accidental Release Measures**

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Do not breathe the fumes/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 residue with a paper towel and place dirty towels in 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/vapors. 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
Substances with Occupational Exposure Limit Values

Chemical Name	Country or Vendor	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
aluminum metal and insoluble compounds ^{a)}	ACGIH	1 mg/m ³	Not established
	U.S.A. OSHA PEL	15 mg/m ³	Not established
	Canada AB	10 mg/m ³	Not established
	Canada BC	1 mg/m ³	Not established
	Canada ON	1 mg/m ³	Not established
triethylenetetramine	Canada QC	10 mg/m ³	Not established
	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
carbon black ^{a)}	Canada BC	Not established	Not established
	Canada ON	0.5 mg/m ³ (Skin)	Not established
	Canada QC	Not established	Not established
	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
			3.5 mg/m ³

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

Engineering Controls
Ventilation

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

Because the carbon black and aluminum compounds 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.

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834B-B***BLACK FLAME RETARDANT EPOXY*****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 butyl rubber, neoprene, 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.

834B-B**BLACK FLAME RETARDANT EPOXY****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	Specific Gravity @25 °C	1.40
Freezing/Melting Point	Not available	Solubility in Water	Practically insoluble
Boiling Point	Not available	Partition Coefficient	Not available
Flash Point	Not available	Auto-ignition Temperature	Not available
Evaporation Rate	Not available	Decomposition Temperature	Not available
Flammability (solid, gas)	Not available	Viscosity @25 °C	2 100 cP [1 500 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 and incompatible substances. Do not use in a way that forms a mist or aerosolize the product.
Incompatibilities	Strong oxidizing agents, strong acids, and strong bases.
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 chemical burns or severe eye irritation, redness, loss of vision and pain.
Skin	May cause pain, rash, chemical burns, blistering 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 nausea, vomiting, diarrhea, burns or severe irritation to the digestive tract.
Chronic	Prolonged and repeated exposure may lead to skin sensitization reactions. Long term exposure to carbon black dust or mist may cause cancer.

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Lethal Exposure Concentrations

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids and triethylenetetramine	Not available	Not available	Not available
ammonium polyphosphate	300 mg/kg Rat	Not available	Not available
aluminum trihydrate	79 000 mg/kg Rat	Not available	Not available
aluminum oxide	Not available	Not available	Not available
triethylenetetramine	2 500 mg/kg Rat	805 mg/kg Rabbit	Not available
zinc borate	10 000 mg/kg Rat	10 000 mg/kg Rat	Not available
carbon black	>15 g/kg Rat	>3 g/kg Rabbit	Not available

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier (M)SDSs were also consulted.

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.

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834B-B**BLACK FLAME RETARDANT EPOXY****Carcinogenicity**

(risk of cancer)

The carbon black is 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.

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)

Animal ingestion studies show that high doses of zinc borate cause reproductive and developmental effects.

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 hazardBased on available data, the classification criteria are not met. The kinematic viscosity is $>20.5 \text{ mm}^2/\text{s}$ at $40 \text{ }^\circ\text{C}$.

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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, polymers with tall-oil fatty acids and triethylenetetramine (CAS# 68082-29-1) was classified as a chronic category 2 environmental toxicant.

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 zinc borate is classified as a chronic category 1 environmental toxicant with a M-Factor of 1 (with minimal LC50 96 h of 2.4 mg/L for *Oncorhynchus mykiss* (rainbow trout); LC50 48 h of 76 mg/L *Daphnia magna* (water flea); and transformation/dissolution endpoint for zinc borate powder that release of 0.452 mg/L of zinc ion, which is higher than zinc's NOEC limit).

Based on available data, ammonium polyphosphate, aluminum trihydrate, aluminum oxide and 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

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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 834B-375ML, 834B-2.7L kits

Limited Quantity

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



Sizes greater than 1 L

Part B of 834B-10.8L, 834B-60L kits

UN number: UN2735

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



Excepted Quantity

E2 ≤30 mL

Sizes greater than 0.5 L up to 1 L

UN number: UN2735

Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (triethylenetetramine, dimer fatty acid (c18)poly amido amine resin)

Class: 8

Packing Group: II

Marine Pollutant: Yes



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Sea

Refer to IMDG regulations.

Sizes 1 L and under

Limited Quantity



Sizes greater than 1 L

UN number: UN2735

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

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

All hazardous ingredients are listed on the DSL/NDSL.

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.

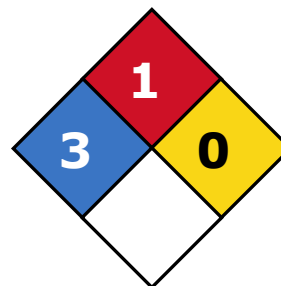
USA

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)

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834B-B**BLACK FLAME RETARDANT EPOXY****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.

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

This product does not contain ingredients 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 contains carbon black, but it is bound and exposures during normal conditions of uses are below the Safe Harbor Threshold.

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 Michel Hachey

Date of Revision 13 October 2017

Supersedes 20 September 2017

Reason for Changes: Change in classification due to corrected data.

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834B-B**BLACK FLAME RETARDANT EPOXY****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

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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