

OPTICALLY CLEAR CONFORMAL COATING EPOXY

4224-PART B

Safety Data Sheet

Section 1: Product and Company Identification

Product Identifier and Other Means of Identification

Product Name: Optically Clear Conformal Coating Epoxy**SDS Code:** 4224-Part B**Related Part #** 4224-1, 4224-2, 4224-3

Recommended Use and Restriction on Use

Use: Epoxy conformal coating hardener**Uses Advised Against:** Not available

Details of Manufacturer or Importer

Manufacturer

MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADAMG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA**☎** 1-800-340-0772**FAX** 1-800-340-0773**E-MAIL:** support@mgchemicals.com**WEB** www.mgchemicals.com**☎** 1-905-331-1396**FAX** 1-905-331-2682**E-MAIL:** info@mgchemicals.com**E-MAIL** (Competent Person): sds@mgchemicals.com

Emergency Phone Number

For hazardous material incidents ONLY—leaks, spills, fires, exposures or accidents
USA or CANADA: Call CHEMTREC ☎: **1-800-424-9300****For emergencies involving dangerous goods:** Collect 24/7
CANADA: Call CANUTEC ☎: **1-613-996-6666** or ***666** on cellular phones

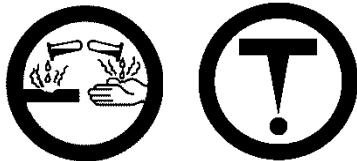
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Section 2: Hazards Identification

Classification of Hazardous Chemical

WHMIS Classification



E – Corrosive; D2B – Toxic Material (Skin Sensitization in Humans)

GHS Categories

Criteria		Category	Signal Word	Pictograms
Serious Eye Damage		1B	Danger	Corrosion
Skin Corrosion		1	Danger	Corrosion
Sensitization	Skin sensitizer	1	Warning	Exclamation
Acute Toxicity	Oral	4	Warning	Exclamation
Environmental Hazard	Acute Aqua. Tox.	3	—	<i>none</i>

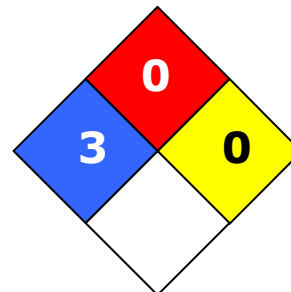
Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity). Severity categories do not allow comparisons between classes.

Other Classifications

HMIS® RATING

HEALTH:	3
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)

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Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H314: Causes severe skin burns and eye damage
	H302: Harmful if swallowed H317: May cause allergic skin reaction
No Symbol Mandated	H402: Toxic to aquatic life
	Precautionary Statements
Prevention	P102: Keep out of reach of children. P280: Wear protective gloves/protective clothing/eye protection. P260: Do not breathe vapors. P264: Wash hands thoroughly after handling. P272: Contaminated clothing should not be allowed out of the workplace. P273: Avoid release to the environment.
Response	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 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse. P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P301+ P312 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P310: Immediately call a POISON CENTER or doctor.
Storage	P405: Store locked up.
Disposal	P501: Dispose of contents/container in accordance to local/regional/national/international regulations.

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Other Hazards

Not applicable

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
2855-13-2	isophorone diamine	100%

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
IF IN EYES	P305 + P351 + P338, P310
Immediate Symptoms	<i>burns, irritation, tearing, redness, pain</i>
Response	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE/doctor.
IF ON SKIN (or hair)	P303 + P353 + P361, P310, P363
Immediate Symptoms	<i>burns, blistering, pain, rash, redness</i>
Response	Rinse skin with water/shower. Take off immediately all contaminated clothing. Immediately call a POISON CENTRE/doctor. Wash contaminated clothing before reuse.
Delayed Symptoms	<i>rash, redness</i>
If skin irritation or rash occurs	Get medical advice/attention.
IF SWALLOWED	P301 + P330 + P331, P310 <i>(Not a likely route of exposure under normal use)</i>
Immediate Symptoms	<i>Burns to mouth, throat, stomach, abdominal pain</i>
Response	Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTRE/doctor.
IF INHALED	P304 + P340, P312 <i>(Not a likely route of exposure under normal use)</i>
Immediate Symptoms	<i>cough, respiratory tract irritation</i>
Response	Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.
If feeling unwell	Call a POISON CENTRE/doctor.

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Section 5: Fire-Fighting Measures

Auto-ignition Temperature	Not available	Flash Point ^{a)}	112 °C [234 °F]	LFL [LEL] UFL [UEL] ^{b)}	Not available
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In case of fire P370 + P378

Response Use dry chemical, carbon dioxide, or chemical foam to extinguish. Use water spray to cool containers.

Combustion Products Produces carbon oxides (CO, CO₂), nitrogen oxides (NOx)

Fire-Fighter Wear self-contained breathing apparatus for fire fighting

General Information Produces irritating and toxic fumes in fires or in contact with hot surfaces.

a) Based on Pensky-Martens closed cup value

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 vapors.

Containment Remove all sources of ignition.
Prevent spill from entering drains and waterways. Contain with inert absorbent (such as soil, sand, vermiculite).

Cleaning Collect liquid in a sealable, chemically-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wipe up further residue with paper towel 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

Keep out of reach of children.
Do not eat, drink, or smoke when using this product.
Wear protective gloves/protective clothing/eye protection. Wear butyl rubber, nitrile or other impervious gloves with breakthrough time greater than intended use period.
Do not breathe vapors.
Wash hands thoroughly after handling.
Contaminated clothing should not be allowed out of the workplace.
Avoid release to the environment.

Handling

Wear protective gloves/clothing/eye protection.
Wash hands thoroughly after handling.

Storage

Keep container tightly closed. Store in a well-ventilated area. Protect from sunlight.

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)
	ACGIH	None established	None established
	U.S.A. OSHA PEL	None established	None established
	Canada	None established	None established

Note: The ACGIH¹, OSHA, and Canadian provinces exposure limits were consulted. Limits from by RTECS database² of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

Engineering Controls

Ventilation

Keep airborne concentrations below exposure limits.

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OPTICALLY CLEAR CONFORMAL COATING EPOXY**4224-PART B****Personal Protective Equipment****Eye protection**

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety goggles or faceshield. At a minimum, wear glasses with lateral protection (side shields).

Skin Protection

Use of protective gloves chemically resistant gloves.

For incidental exposure, you may use nitrile rubber gloves.

For prolonged exposure, use nitrile rubber, polyvinyl alcohol (PVA) or Viton gloves and aprons.

Respiratory Protection

If exposed to vapors or mist, wear a full face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respiratory cartridge.

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.

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	Appearance	Colorless
Odor	None	Odor Threshold	Not available
pH	Not available	Specific Gravity @25 °C	0.922
Solubility in Water	Not available	Freezing/Melting Point^{a)}	Not available
Flash Point	112 °C [234 °F]	Vapor Pressure @ 20 °C	Not available
Boiling Point	≥247 °C [≥477 °F]	Evaporation Rate	Not available
Lower Flammability Limit^{a)}	Not available	Upper Flammability Limit^{b)}	Not available
Auto-ignition Temperature	Not available	Decomposition Temperature	Not available
Viscosity @40 °C	<20 mm ² /s	Vapor Density	>1 (Air = 1)
Partition Coefficient^{a)}	Log Pow 0.8 @23 °C [73 °F]		

a) Literature

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	High temperatures, misting
Incompatibilities	Strong oxidizing agents
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

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Section 11: Toxicological Information

Routes of Exposure

Eyes, ingestion, inhalation, and skin

Symptoms Summary

- Eyes** Causes severe eye irritation and may cause chemical burns. Also cause eye redness or pain.
- Skin** May cause chemical burns and serious skin irritation. May cause allergic skin reactions.
- Inhalation** *Not a likely route of exposure due to low volatility.* Inhalation of vapors may cause irritation to the nose, throat and lung (upper respiratory tract).
When heated, vapors may also result in itching of the face with skin redness (erythema) and swelling (edema).
- Ingestion** *Not a likely route of exposure.* May cause severe irritation or corrosive burns to the mouth, throat, esophagus, and stomach. May cause allergic reactions.
- Chronic** Prolonged or repeated exposure to the uncured epoxy hardener may cause sensitization (allergies).

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
isophorone diamine	1030 mg/kg Rat	Not available	Not available	Not available

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.

Other Toxicological Effects

- Skin corrosion/irritation** Isophorone diamine (CAS# 2855-13-2) can cause skin burns.
- Serious eye damage/irritation** Isophorone diamine (CAS# 2855-13-2) can cause severe eye damage.
- Sensitization**
(allergic reactions) Isophorone diamine (CAS# 2855-13-2) may cause skin sensitization in humans

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Carcinogenicity (risk of cancer)	Not classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP
Mutagenicity (risk of heritable genetic effects)	No data available
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	Not a Cat 1 or 2 aspiration toxicants

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.

Isophorone diamine (CAS# 2855-13-2) is an acute category 3 environmental toxicant (with minimal LC50 of 110 mg/L for *Leuciscus idus* (Golden orfe); EC50 17.4 mg/L 48 h *Daphnia magna* (water flea), EC50 37 mg/L 72 h *Desmodesmus subspicatus* (green algae)).

Acute Ecotoxicity

Category 3

GHS Code: Hazard Statement

H403: Harmful to aquatic life

P273: Avoid release to the environment

P391: Collect spillage

Chronic Ecotoxicity

Not available

Biodegradability

Not available

Other Effects

VOC (Regulated Volatile Organic Content) = 100% [1055 g/L]

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Section 13: Disposal Information

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



Sizes greater than 5 liter

UN number: UN2289
Shipping Name:
ISOPHORONEDIAMINE
Class: 8
Packing Group: III
Marine Pollutant: No



Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 1 liter and under

Limited Quantity



Packing Instr. Y841

Sizes greater than 1 liters up to 5 L

UN number: UN2289
Shipping Name:
ISOPHORONEDIAMINE
Class: 8
Packing Group: III
Marine Pollutant: No
Packing Instr. A803



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Sizes 5 liter and under

Limited Quantity

Sizes greater than 5 liter

UN number: UN2289
Shipping Name:
ISOPHORONEDIAMINE
Class: 8
Packing Group: III
Marine Pollutant: No



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.

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 not contain substances that are listed as hazardous air pollutants.
pollutants.

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

This product does not contain substance subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

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OPTICALLY CLEAR CONFORMAL COATING EPOXY**4224-PART B****TSCA** (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

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

This product does not contain any of the listed substances.

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 Revision	19 March 2014
Supersedes	21 November 2013
Reason for Changes:	Catalogue number change in Section 1

References

- 1) ACGIH *2013 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices*, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2013).
- 2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

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OPTICALLY CLEAR CONFORMAL COATING EPOXY**4224-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.

Email: support@mgchemicals.com

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