

Material Safety Data Sheet

Revision Date Jan 6, 2003	Prepared by Pedram Golshani	Technical Information 1-800-201-8822 or support@mgchemicals.com
Head Office 9347 - 193 Street, Surrey, B.C., V4N 4E7		Emergency Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 8331 - Part A Name: Epoxy - Electrically Conductive Adhesive

Related Part Numbers: 8331-14G; 8331-454G

Use: Electrically conductive adhesive.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
54208-63-8	reaction product of epichlorohydrin and bisphenol F	30 - 50	n/e	n/e	n/e
7440-22-4	silver	50 - 70	0.01mg/m ³	0.01mg/m ³	n/e

Section 3: Hazards Identification

Eyes: Causes irritation.

Skin: Prolonged exposure may cause skin irritation. May cause allergic reaction in some individuals.

Inhalation: At room temperature, exposure to vapors is unlikely due to physical property of low volatility. Higher temperatures may generate vapor levels sufficient to cause irritation to the respiratory tract (nose, throat, and lungs).

Ingestion: Single dose oral toxicity is low. Amounts ingested incidental to industrial handling are not likely to cause injury; however, ingestion of large amounts may be harmful.

Chronic: Chronic inhalation or ingestion of silver salts may cause argyria characterized by a permanent blue-gray discoloration of the eyes, skin, mucous membranes, and internal organs. Inhalation and/or of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count

Section 4: First Aid Measure

Eyes: Remove contact lenses if worn. Flush with water or saline for 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Thoroughly wash skin with soap. Remove contaminated clothing and wash before reuse. Solvents should not be used to clean hands or skin because they increase the penetration of the material into the skin. Get medical aid if symptoms persist.

Inhalation: Immediately remove from exposure to fresh air. Get medical aid if symptoms persist.

Ingestion: Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid.

Section 5: Fire Fighting Measures

Autoignition Temperature:	n/e	Flash Point:	n/e	LEL / UEL:	n/e
Extinguishing Media:	Use water spray, dry chemical, carbon dioxide, or chemical foam.				
General Information:	n/a				
NFPA Ratings:	Health 2	Flammability 1	Reactivity 0		
HMIS Ratings:	Health 2	Flammability 1	Reactivity 0	WHMIS Codes B3, D2B	

Section 6: Accidental Release Measures

Spill Procedure: Remove all sources of ignition. Provide adequate ventilation. Wear appropriate personal protection. Wipe up with paper towel and place in container. Wash spill area with soap and water.

Section 7: Handling and Storage

Handling: Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. Do not ingest or inhale. Do not expose container to heat or flame.

Storage: Keep away from sources of ignition. Store closed container in a cool, dry, and well ventilated area away from incompatible substances.

Section 8: Exposure Controls

Routes of entry: Eyes, ingestion, inhalation, and skin.

Ventilation: Use adequate general or local exhaust ventilation to keep airborne concentrations below exposure limits.

Personal Protection: Wear appropriate protective eyeglasses or chemical safety goggles. Wear appropriate protective clothing to prevent skin contact. Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State:	liquid	Odor:	slightly aromatic	Solubility:	none	Evaporation Rate:	n/e
Boiling Point:	n/e	Specific Gravity:	2.47	Vapor Pressure:	n/e	Vapor Density:	>1 (Air=1)
						pH:	n/a

Section 10: Stability and Reactivity

Stability: Stable at normal temperatures and pressures.

Conditions to avoid: n/a

Incompatibilities: Avoid strong oxidizing agents, mineral acids, ethyleneimine, and strong mineral and organic bases.

Polymerization: Will undergo hazardous polymerization at elevated temperatures.

Decomposition: Carbon dioxide, carbon monoxide, hydrocarbons and silver fumes.

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure)	This product is a skin sensitizer.		
Carcinogenicity: (risk of cancer)	This material does not contain 0.1% or more of any chemical listed by IARC, NTP, or OSHA as a carcinogen.		
Teratogenicity: (risk of malformation in an unborn fetus)	No		
Reproductive Toxicity: (risk of sterility)	No		
Mutagenicity: (risk of heritable genetic effects)	No		
Lethal Exposure Concentrations:	Ingestion (LD50): n/e	Inhalation (LC50): n/e	Skin (LD50): n/e

Section 12: Ecological Information

General Information: Avoid runoff into storms and sewers which lead into waterways. Water runoff can cause environmental damage.

Environmental Impact Data: (percentage by weight)

CFC: 0 **HFC:** 0 **Cl.Solv.:** 0 **VOC:** 0 **HCFC:** 0 **ODP:** 0

Section 13: Disposal Information

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

Section 14: Transportation Information

Ground:

Non-regulated

Air:

Non-regulated

Sea:

Non-regulated

Section 15: Regulatory Information

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

None of the chemicals in this product have a reportable quantity.

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

This product does not contain any chemicals 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.

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depletors.

This product does not contain any class 2 ozone depletors.

This product does not contain any chemicals listed as hazardous air pollutants.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)

This product does not contain any chemicals listed.



Section 15: Regulatory Information Cont.

Health Canada

Labeling and containers used in this product are listed in compliance with Consumer Chemicals and Container regulations.

Environment Canada

Chemicals in this product are listed on the Domestic Substances List in the Canadian Environmental Protection Act

This product does not contain any ozone depleting substances.

Industry and Science Canada

Labeling, product identity, net quantity declaration, minimum printing type size heights, and packaging of this product is in compliance with the Consumer Packaging and Labeling Act and Regulations. This product is not slack filled in accordance to chapter 4 prohibitions.

Section 16: Other Information

Definitions: n/a = not applicable, n/e = not established

Disclaimer: This material safety data sheet is provided as an information resource only. M.G. Chemicals believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.

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MSDS Code: 8331 - Part B Name: Epoxy - Electrically Conductive Adhesive

Related Part Numbers: 8331-14G; 8331-454G

Use: Electrically conductive adhesive.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
140-31-8	1-(2-aminoethyl)-piperazine	2 - 5	n/e	n/e	n/e
84852-15-3	nonyl phenol	20-30	n/e	n/e	n/e
9046-10-0	poly[oxy(methyl-1,2-ethanediy)]	3 - 8	n/e	n/e	n/e
68411-71-2	reaction product with diglycidyl ether of bisphenol A	1.0	n/e	n/e	n/e
80-05-7	4,4'-isopropylidenediphenol	0.1-1.0	n/e	n/e	n/e
111-40-0	diethylenetriamine	1.0	1ppm	n/e	n/e
7440-22-4	silver	40 - 70	0.1 mg/m ³	0.01 mg/m ³	n/e

Section 3: Hazards Identification

Eyes: Direct contact will cause severe burns and may cause permanent damage, including blindness.

Skin: Contact may cause skin irritation. May cause an allergic reaction of the skin.

Inhalation: Harmful if inhaled. May cause severe irritation to the respiratory tract.

Ingestion: Harmful if swallowed. Moderately toxic. Swallowing may burn mouth, throat and stomach.

Chronic: Repeated skin contact may cause dermatitis. Inhalation or ingestion of silver compounds may cause argyria (permanent blue-gray discoloration of the eyes, skin, mucous membranes, and internal organs). At high concentrations inhalation of fumes may cause metal fume fever and may cause central nervous system depression. Material is harmful and may cause chemical pneumonia and lung damage or fatal if liquid is aspirated into the lungs

Section 4: First Aid Measure

Eyes: Remove contact lenses (if worn) and flush eyes with large quantities of clean water for at least 15 minutes. Get immediate medical attention.

Skin: Thoroughly wash skin with soap. Remove contaminated clothing and wash before reuse. Solvents should not be used to clean hands or skin because they increase the penetration of the material into the skin. Get medical aid if symptoms persist.

Inhalation: Remove from exposure area to fresh air immediately. If not breathing give artificial respiration. If breathing is difficult give oxygen by trained personnel. Get immediate medical attention if symptoms persist.

Ingestion: Do not induce vomiting. If conscious rinse mouth and give 1-2 glasses of water. Get medical attention.

Section 5: Fire Fighting Measures

Auto ignition Temperature: n/e
Flash Point:: >93°C
LEL / UEL:: n/e

Extinguishing Media: Use carbon dioxide, foam, dry chemical or water fog.

General Information: Hazardous combustion may produce carbon monoxide, carbon dioxide, irritating or toxic vapors and gases, oxides of nitrogen and ammonia.

NFPA Ratings: Health 3 Flammability 1 Reactivity 1

HMIS Ratings: Health 3 Flammability 1 Reactivity 1 WHMIS Codes D2A, D2B, E

Section 6: Accidental Release Measures

Spill Procedure: Remove all sources of ignition. Provide adequate ventilation. Wear appropriate personal protection. Wipe up with paper towel and place in container. Wash spill area with soap and water.

Section 7: Handling and Storage

Handling: Wash hands thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Do not ingest or inhale. Do not expose full or empty container to heat or flame.

Storage: Keep away from sources of ignition. Store under 26°C (80°F) in a dry, well ventilated area, away from incompatible substances.

Section 8: Exposure Controls

Routes of entry: Eyes, ingestion, inhalation, and skin.

Ventilation: Use adequate general or local exhaust ventilation to keep airborne concentrations below exposure limits.

Personal Protection: Wear appropriate protective eyeglasses or chemical safety goggles. (Wear appropriate protective clothing to prevent skin contact such as, at least, latex gloves). Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State: liquid
Odor: Amine
Solubility: none
Evaporation Rate: n/e

Boiling Point: n/e
Specific Gravity: 2.20
Vapor Pressure: n/e
Vapor Density: >1 (Air=1)
pH: n/a

Section 10: Stability and Reactivity

Stability: Stable at normal temperatures and pressures.

Conditions to avoid: Contamination by those materials referred to under Incompatibility. Avoid temperatures above 26°C (80°F).

Incompatibilities: Strong oxidizers, bases, acids, peroxides, chlorates and permanganates.

Polymerization: Hazardous polymerization will not occur.

Decomposition: Carbon dioxide, carbon monoxide, hydrocarbons, ammonia, and oxides of nitrogen

Section 11: Toxicological Information



Sensitization: (effects of repeated exposure)	This product is a skin sensitizer.		
Carcinogenicity: (risk of cancer)	This material does not contain 0.1% or more of any chemical listed by IARC, NTP or OSHA as a carcinogen.		
Teratogenicity: (risk of malformation in an unborn fetus)	No		
Reproductive Toxicity: (risk of sterility)	No		
Mutagenicity: (risk of heritable genetic effects)	No		
Lethal Exposure Concentrations:	Ingestion (LD50): n/e	Inhalation (LC50): n/e	Skin (LD50): n/e

Section 12: Ecological Information

General Information: Avoid runoff into storms and sewers which lead into waterways. Water runoff can cause environmental damage.

Environmental Impact Data: (percentage by weight)

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