

SILICONE CONFORMAL COATING

422B-AEROSOL

Safety Data Sheet

Section 1: Product and Company Identification

Product Identifier and Other Means of Identification

Product Name: Silicone Conformal Coating**MSDS Code:** 422B-Aerosol**Related Part #:** 422B-340G

Recommended Use and Restriction on Use

Use: Conformal coating for printed circuit boards and electronic components**Uses Advised Against:** Not applicable

Details of Manufacturer or Importer

Manufacturer

MG Chemicals
1220 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA

MG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA

☎ 1-800-340-0772

FAX 1-800-340-0773

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☎ 1-905-331-1396

FAX 1-905-331-2682

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

Emergency Phone Number

For hazardous material incidents ONLY—leaks, spills, fires, exposures or accidentsUSA or CANADA: Call CHEMTREC ☎: **1-800-424-9300****For emergencies involving dangerous goods;** Collect 24/7CANADA: 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



A – Aerosol Container; B5 – Flammable Aerosol;
 D2A – Very Toxic Material (Carcinogen IARC: 2B; Teratogenicity/Embryotoxicity);
 D2B – Toxic Material (Eye and Skin Irritation)

GHS Categories

Criteria	Category	Signal Word	Pictograms
Flammable Aerosol	1	Danger	
Gas Under Pressure Liquefied Gas		Warning	
Eye Irritation	2A	Warning	
Skin Irritation	2	Warning	
Specific Target Organ Toxicity Single Exposure	3	Warning	
Aspiration Hazard	1	Danger	
Carcinogenicity	2	Warning	
Environmental Hazard Acute Aqua. Tox.	3	None	No Symbol mandated

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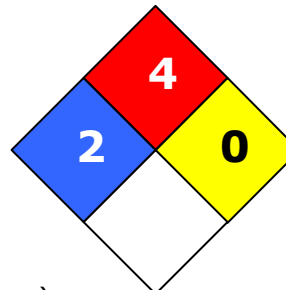
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Other Classifications

HMIS® RATING

HEALTH:	2
FLAMMABILITY:	4
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	





NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H222: Extremely flammable aerosol
	H280: Contains gas under pressure; may explode if heated
	H315: Causes skin irritation H319: Causes serious eye irritation H336: May cause drowsiness and dizziness
	H304: may be fatal if swallowed and enters airways H351: Suspected of causing cancer
No Symbol Mandated	H402: Harmful to aquatic life

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	Precautionary Statements
	<p>P405: Store locked up</p> <p>P102: Keep out of reach of children.</p> <p>P202: Do not handle until all safety precautions have been read and understood.</p> <p>P210 + P211: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not spray on an open flame or other ignition source.</p> <p>P243: Take precautions against static discharge.</p> <p>P251: Do not pierce or burn, even after use.</p> <p>P280: Wear protective gloves/eye protection</p> <p>P261 + P271: Avoid breathing gas/mist/vapors/spray. Use only outdoors or in well ventilated area.</p> <p>P301 + 310 + P331: IF SWALLOWED: Immediately call a Poison Center/doctor. Do NOT induce vomiting.</p> <p>P302 + P361 + P352: IF ON SKIN: Take off immediately all contaminated clothing. Wash with plenty of water.</p> <p>P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>

Other Hazards

Repeated exposure may cause skin dryness or cracking.

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
115-10-6	dimethyl ether	33-37%
67-64-1	acetone	20-22%
1330-20-7	xylene (mixed isomers)	18-20%
108-65-6	1-methoxy-2-propanol acetate	1-3%
100-41-4	ethylbenzene	1-3%

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Section 4: First Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF IN EYES	P305
Symptoms	Immediate: <i>severe irritation, redness, pain, blurred vision</i>
Response	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists	P313: Get medical advice/attention
IF ON SKIN	P302
Symptoms	Immediate: <i>irritation, dry skin</i>
Response	P352: Wash with plenty of water. P362+P364: Take off contaminated clothing and wash before reuse.
If skin irritation or rash occurs	P313: Get medical advice/attention
IF INHALED	P304
Symptoms	Immediate: <i>irritation, headache, drowsiness, dizziness, cough</i>
Response	P340: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.
If feeling unwell	P312: Call a POISON CENTRE/doctor
IF SWALLOWED	P301
Symptoms	Immediate: <i>Irritation, burning sensation, abdominal pain</i>
Response	P310: Immediately call a Poison Center/doctor P331: Do NOT induce vomiting.

SILICONE CONFORMAL COATING**422B-AEROSOL****Section 5: Fire Fighting Measures**

Auto-ignition Temperature ^{a)}	≥240 °C [≥464 °F]	Flash Point ^{a)}	-41 °C [-42 °F]	LFL [LEL] ^{a,b)}	1% (v)
				UFL [UEL]	27% (v)

In case of fire P370

Response P378: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers.

Combustion Products Produces CO and CO₂.

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

General Information Vapors may accumulate in low-lying areas. They can cause flash fire or ignite explosively.

a) Based on dimethyl ether propellant literature values; closed cup

b) LFL = Lower Flammability [or Explosion] Limit (in volume %);

UFL = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

Personal Protection: See Section 8. Avoid breathing the mist/vapors.

Containment Remove all sources of ignition.

Cleaning Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wipe up further residue with paper towel and place dirty towels in container. Wash spill area with soap and water to remove the last traces of residue.

RECOMMENDATION: Use a grounded stainless steel or carbon steel container.

Disposal Dispose of spill waste according to Section 13.

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Prevention P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P251: Do not pierce or burn, even after use.

P243: Take precautions against static discharge.

P262: Do not get in eye, on skin, or on clothing.

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

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

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

RECOMMENDATION: Wear neoprene, butyl rubber, nitrile or other impervious gloves with breakthrough time greater than intended use period.

P264: Wash hands thoroughly after handling.

Storage P410 + P412: Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F]

P405: Store locked up.

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

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Section 8: Exposure Controls/Personal Protection

Substances with Occupational Exposure Limit Values

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
dimethyl ether	ACGIH	Not established	Not established
	U.S.A. WEEL	1 000 ppm	Not established
	Canada AB	Not established	Not established
	Canada BC	1 000 ppm	Not established
	Canada ON	Not established	Not established
	Canada QC	Not established	Not established
acetone	ACGIH	750 ppm	1 000 ppm
	U.S.A. OSHA PEL	100 ppm	150 ppm
	Canada AB	500 ppm	750 ppm
	Canada BC	250 ppm	500 ppm
	Canada ON	500 ppm	750 ppm
	Canada QC	750 ppm	1 000 ppm
xylene (mixed isomers)	ACGIH	100 ppm	Not established
	U.S.A. OSHA PEL	100 ppm	150 ppm
	Canada AB	500 ppm	150 ppm
	Canada BC	100 ppm	150 ppm
	Canada ON	100 ppm	150 ppm
	Canada QC	100 ppm	150 ppm
1-methoxy-2-propanol acetate	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	U.S.A. California ^{a)}	100 ppm	150 ppm
	Canada AB	Not established	Not established
	Canada BC	50 ppm	75 ppm
	Canada ON	50 ppm	Not established
Canada QC	Not established	Not established	
ethylbenzene	ACGIH	100 ppm	Not established
	U.S.A. OSHA PEL	100 ppm	125 ppm
	Canada AB	150 ppm	200 ppm
	Canada BC	20 ppm	Not established
	Canada ON	100 ppm	125 ppm
	Canada QC	100 ppm	125 ppm

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH², OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database¹ of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

a) California Code of Regulations, Title 8, Section 5155. Airborne Contaminants. Can be absorbed through skin.

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SILICONE CONFORMAL COATING**422B-AEROSOL****Engineering Controls**

Ventilation Keep airborne concentrations below exposure limits.

Personal Protective Equipment

Eye protection Wear appropriate protective eyeglasses or chemical safety goggles.

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

Skin Protection Wear appropriate protective clothing to prevent skin contact.

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

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

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

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

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Section 9: Physical and Chemical Properties

Physical State	Liquid	Appearance	Clear
Odor	Ethereal	Odor Threshold	Not available
pH	Not available	Specific Gravity	0.85
Solubility in Water	Partially soluble	Melting Point	Not available
Boiling Point ^{a)}	-24.8 °C [-12.6 °F]	Evaporation Rate	fast
Flash Point ^{a)}	-41 °C [-42 °F]	Vapor Pressure @ 20 °C	Not available
Lower Flammability Limit ^{a)}	1%	Upper Flammability Limit ^{a)}	27%
Auto-ignition Temperature ^{b)}	≥240 °C [464 °F]	Decomposition Temperature	Not available
Viscosity @40 °C	<20.5 mm ² /s	Vapor Density	Not available
Partition Coefficient	Not available		

a) Values for flash point and other threshold based on dimethyl ether

b) Values for based on the component with the lowest auto-ignition value

Section 10: Stability and Reactivity

Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, temperatures above 50 °C [122 °F]), and incompatible substances.
Incompatibilities	Nitrates, strong oxidizing agents, strong reducing agents, strong acids, strong bases
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

Likely Routes of Exposure

Eyes, ingestion, inhalation, and skin

Symptoms Summary

- Eyes** Causes serious eye irritation if splashed in eye or exposed to vapors.
- Skin** Causes moderate skin irritation.
- Inhalation** May cause nose, throat and lung irritation. Overexposure may lead to visual impairment and central nervous system effects such as dizziness, drowsiness, or weakness.
- Ingestion** See inhalation symptoms.
- Chronic** The ethylbenzene component is a possible carcinogen.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
dimethyl ether	Not available	Not available	308 g/m ³ Rat	200 000 ppm 17 min Human
acetone	5 800 mg/kg Rat	>9 400 µL/kg Guinea pig	44 g/m ³ 4 h Rat	10 mg/m ³ 6 h Human
xylene	4 350 mg/kg Rat	>1 700 mg/kg Rabbit	5 000 ppm 4 h Rat	200 ppm Human
1-methoxy-2-propanol acetate	8,532 mg/kg Rat	>5 g/kg Rabbit	Not established	400 ppm Human
ethylbenzene	3 500 mg/kg Rat	>5 000 mg/kg Rabbit	35 500 mg/m ³ 2h Mouse	100 ppm 8h Human

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.

- Skin corrosion/irritation** Causes skin irritation based on Draize tests on animals. Prolonged or repeated skin contact may cause dermatitis
- Serious eye damage/irritation** Causes severe eye irritation based on Draize tests on animals.
- Sensitization (allergic reactions)** No data available

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Carcinogenicity (risk of cancer)	Ethylbenzene [100-414-4] IARC Group 2B: Possibly carcinogenic to humans ACGIH A3: Confirmed animal carcinogen with unknown relevance to humans CA Prop 65: Listed as a carcinogen NTP: Not listed
Mutagenicity (risk of heritable genetic effects)	No data available
Reproductive Toxicity (risk to sex functions)	No data available
Teratogenicity (risk of fetus malformation)	Xylene is a suspected teratogen in large doses, but animal studies do not support classification.
STOT-single exposure	Xylene and acetone can affect the central nervous system by inhalation causing drowsiness or dizziness.
STOT-repeated exposure	No data available
Aspiration hazard	Mixture containing more than 10% Class 1 aspiration toxicant and having a viscosity <math><20.5 \text{ mm}^2/\text{s}</math>

Section 12: Ecological Information

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.

Acetone and 1-methoxy-2-propanol acetate have low fish ecotoxicity between 100 and 1000 mg/L for fish.

Xylene isomers mixture are expected to be acute category 2 environmental toxicant (with minimal LC50 of 2.5 mg/L for fish)

Ethylbenzene is an acute category 2 environmental toxicant (with minimal LC50 of 4.2 mg/L for *Oncorhynchus mykiss* (rainbow trout); 2.9 mg/L 48 h *Daphnia magna* (water flea)).

Acute Ecotoxicity

Category 3

GHS Code: Hazard Statement

H402: Harmful to aquatic life

P273: Avoid release to the environment

P391: Collect spillage

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SILICONE CONFORMAL COATING**422B-AEROSOL****Chronic Ecotoxicity**

Not data available

Biodegradability

Not data available

Other Effects

Regulated Volatile Organic Content (VOC) = 32% (289 g/L)

Section 13: Disposal Information

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

Section 14: Transport Information**Ground**

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

Limited Quantity**IMDG marking:** LTD QTY**Air****Refer to ICAO-IATA Dangerous Goods Regulations.****UN number:** UN1950**Shipping Name:** AEROSOL, flammable**Class:** 2.1**Packing Group:** not applicable**Marine Pollutant:** No

SILICONE CONFORMAL COATING**422B-AEROSOL****Sea****Refer to IMDG regulations.****IMDG Marking:** LTD QTY**UN number:** UN1950**Shipping Name:** AEROSOL, flammable**Class:** 2.1**Packing Group:** not applicable**Marine Pollutant:** No

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

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

All hazardous ingredients are listed on the DSL/NDSL.

Industry and Science Canada

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

Health Canada

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

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SILICONE CONFORMAL COATING**422B-AEROSOL****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 contains ethylbenzene and xylene that are listed as hazardous air pollutants.

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

This product contains ethylbenzene (CAS # 100-41-4; reportable quantity = 1000 lb) and xylene (CAS# 1330-20-7, reportable quantity = 100 lb), which 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, USA).

This product contains ethylbenzene (CAS # 100-41-4), which is listed as a carcinogen.

Europe**RoHS**

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

WEEE

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

MSDS Prepared by	Michel Hachey
Date of Issue	07 May 2013
Supersedes	23 May 2012
Reason for Changes:	Change to GHS format

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SILICONE CONFORMAL COATING**422B-AEROSOL****Reference**

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

Abbreviations

ACGIH American Conference of Governmental Industrial Hygienists
GHS: Globally Harmonized System of Classification of Labeling of Chemicals
LC50 Lethal Concentration 50%
LCLo Lowest published lethal concentration
LD50 Lethal Dose 50%
N/A Not Applicable
N/E Not Estimated
PEL Permissible Exposure Limit
STEL Short-Term Exposure Limit
TCLo Lowest published toxic concentration
TWA Time Weighted Average
VOC Volatile Organic Content
WEEL Workplace Environmental Exposure Levels

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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