

ACRYLIC LACQUER CONFORMAL COATING

419B-LIQUID

Safety Data Sheet

Section 1: Product and Company Identification

Product Identifier and Other Means of Identification

Product Name: Acrylic Lacquer Conformal Coating**SDS Code:** 419B-Liquid**Related Part #:** 419B-55ML, 419B-1L, 419B-4L, 419B-20L

Recommended Use and Restriction on Use

Use: protective dielectric coating for printed circuit boards**Uses Advised Against:** Not applicable

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**☎** +1-905-331-1396**FAX** +1-800-340-0773**FAX** +1-905-331-2682**E-MAIL** support@mgchemicals.com**E-MAIL** info@mgchemicals.com**WEB** www.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 24/7CANADA: Call CANUTEC ☎: **+1-613-996-6666** or ***666** on cellular phones




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Section 2: Hazards Identification

Classification of Hazardous Chemical

GHS Categories

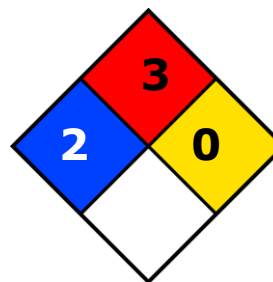
Criteria	Category	Signal Word	Pictograms
Flammable liquid	2	Danger	
Eye irritation	2	Warning	
Skin irritation	2	Warning	
Specific target organ toxicity Single exposure	3	Warning	
Reproductive toxicity	2	Warning	
Specific target organ toxicity Repeated exposure	2	Warning	
Environmental Hazard Acute Aqua. Tox.	3	—	No Symbol mandated

Other Classifications

HMIS® RATING

HEALTH:	* 2
FLAMMABILITY:	3
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
	H225: Highly flammable liquid and vapour
	H315: Causes skin irritation H319: Causes severe eye irritation H336: May cause drowsiness and dizziness
	H373: May cause damage to central nervous system or inner ear through prolonged or repeated exposure H361: Suspected of damaging fertility or the unborn child
No Symbol Mandated	H402: Harmful to aquatic life
	Precautionary Statements
Prevention	P201 + P202: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233: Keep container tightly closed. P240: Ground/bond container and receiving equipment. P242 + P241 + P243: Use only non-sparking tools. Use explosion-proof electrical/ventilating/lighting equipment. Take precautionary measures against static discharge. P280: Wear protective gloves/eye protection. P264: Wash hands thoroughly after handling. P261: Avoid breathing gas/vapors/mist/spray. P271: Use outdoors or in a well-ventilated area. P273: Avoid release to the environment.

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P370 + P378: In case of fire: Use dry chemical, carbon dioxide, or chemical foam to extinguish.

P304+ P340 + P312: IF INHALED: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell or concerned.

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/shower.

P332 + P337+ P313: If eye or skin irritation occurs or persists: Get medical advice/attention.

Storage

P403 + P235: Store in well ventilated place. Keep cool.

P405: Store locked up.

Disposal

P501: Dispose of contents/container in accordance to local/regional/national/international regulations.

Other Hazards

Repeated exposure may cause skin dryness or cracking.

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
108-88-3	toluene	32-35%
110-19-0	isobutyl acetate	9-10%
110-43-0	heptan-2-one	9-10%
64-17-5	ethanol	9-10%
141-78-6	ethyl acetate	4.5-5%

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Section 4: First Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF INHALED	P304 +P340, P312
Symptoms	Immediate: <i>dizziness, drowsiness, headaches, cough, sore throat, short breath</i>
Response	Remove person to fresh air and keep comfortable for breathing. If you feel unwell: Call a POISON CENTRE or physician
IF IN EYES	P305 + P351 +P338, P313
Symptoms	Immediate: <i>irritation, redness, pain, blurred vision</i>
Response	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
IF ON SKIN (or hair)	P303 + P361+ P364, P352, P313
Symptoms	Immediate: <i>irritation, redness, dry skin</i>
Response	Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of water/shower. If skin irritation occurs: Get medical attention.
IF SWALLOWED	P301 +P330 + P331, P312: (<i>Not a likely route of exposure under normal use</i>)
Symptom	Immediate: <i>nausea, vomiting, abdominal cramps, irritation, or burning sensation</i>
Response	Rinse mouth. Do NOT induce vomiting. If you feel unwell or concerned: Call a POISON CENTRE or physician

ACRYLIC LACQUER CONFORMAL COATING**419B-LIQUID****Section 5: Fire Fighting Measures**

Auto-ignition Temperature ^{a)}	≥363 °C [685 °F]	Flash Point ^{b)}	-3 °C [-27 °F]	LFL [LEL] ^{c)}	1%
				UFL [UEL]	11%

In case of fire P370

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

Combustion Products Produces CO and CO₂.

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

a) Ethanol literature value, which is the lowest auto-ignition component.

b) Ethyl acetate literature value, which is the component with the lowest flash point.

c) 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 fume/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. Wash spill area with soap and water to remove the last traces of residue.

RECOMMENDATION: A metal container is suggested.

Disposal Dispose of spill waste according to Section 13.

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- Prevention** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting equipment. Take precautionary measures against static discharge.
- Avoid breathing fume/mist/vapors. Use only outdoors or in well ventilated area.
- Handling** Wear protective gloves/eye protection. Wash thoroughly after handling.
- Do not eat, drink, or smoke when using this product.
- Storage** Store in a well-ventilated and dry area. Keep cool.

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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)
		ppm	ppm
toluene	ACGIH	20 (TWA)	Not established
	U.S.A. OSHA PEL	100	150
	Canada AB	50	—
	Canada BC	20	—
	Canada ON	50	—
	Canada QC	100	150
heptan-2-one	ACGIH	50	Not established
	U.S.A. OSHA PEL	100	Not established
	Canada AB	50	Not established
	Canada BC	50	Not established
	Canada ON	25	Not established
	Canada QC	50	Not established
isobutyl acetate	ACGIH	150	Not established
	U.S.A. OSHA PEL	150	Not established
	Canada AB	150	Not established
	Canada BC	150	Not established
	Canada ON	150	Not established
	Canada QC	150	Not established
ethanol	ACGIH	1 000	Not established
	U.S.A. OSHA PEL	1 000	Not established
	Canada AB	1 000	Not established
	Canada BC	Not established	1 000
	Canada ON	Not established	1 000
	Canada QC	1 000	500
ethyl acetate	ACGIH	400	Not established
	U.S.A. OSHA PEL	400	Not established
	Canada AB	400	Not established
	Canada BC	150	Not established
	Canada ON	Not established	Not established
	Canada QC	400	Not established

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

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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.

RECOMMENDATION: Respect the time weighted average of 20 ppm for toluene.

Personal Protective Equipment**Eye protection**

Wear appropriate protective eyeglasses or chemical safety goggles.

Skin Protection

Wear appropriate protective clothing to prevent skin contact.

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

Respiratory Protection

If exposed to vapor or mist, wear respirator such as a half-mask respirator with an organic vapor 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 SDS, and that the respirator is fitted to the employee by a professional. Ensure that 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	Aromatic, ethereal like	Odor Threshold	~0.14 ppm
pH	Not available	Specific Gravity	0.925
Solubility in Water	Partially soluble	Melting Point	Not available
Boiling Point ^{a)}	≥77 °C [180 °F]	Evaporation Rate	>1.4 (ButAc = 1)
Flash Point ^{a)}	-3°C [27 °F]	Vapor Pressure ^{b)} @ 20 °C	41 hPa
Lower Flammability Limit	1%	Upper Flammability Limit	11 %
Auto-ignition Temperature ^{c)}	≥363 °C [≥685 °F]	Decomposition Temperature	Not available
Viscosity @40 °C	34 mm ² /s	Vapor Density	>1.6 (Air = 1)
Partition Coefficient	Not available		

a) Lowest component literature value, which corresponds to ethyl acetate

b) Calculated using Raoult's Law

c) Lowest component auto-ignition literature value, which corresponds to ethanol

d) Kinematic viscosity at 40 °C

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Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, extreme temperatures, and incompatible substances
Incompatibilities	Strong oxidizing agents, strong reducing agents, 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**Routes of Exposure**

Eyes, ingestion, inhalation, and skin

Symptoms Summary

Eyes	Causes severe eye irritation if splashed in eyes or exposed to vapors. May also cause eye redness or pain.
Skin	May causes mild to moderate skin irritation.
Inhalation	May cause nose, throat and lung irritation. Inhalation of mist may cause irritation to the upper respiratory tract. Overexposure may lead to visual impairment and central nervous system effects such as dizziness, drowsiness, or weakness.
Ingestion	Harmful if swallowed. It may cause irritation and burning sensation. See inhalation symptoms.
Chronic	Prolonged and repeated exposure may cause dermatitis, defatting of the skin and adverse central nervous systems effects. Ingestion or inhalation of paint material, mist, or vapor during pregnancy may increase the chances fetal death and developmental defects.

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Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
toluene	636 mg/kg Rat	12 124 mg/kg Rabbit	49 g/m ³ 4h Rat	200 ppm Human
isobutyl acetate	13 400 mg/kg Rat	>17 400 mg/kg Rabbit	Not available	8 000 ppm 4h Rat LCLo ^{a)}
heptan-2-one	1 670 mg/kg Rat	12 600 µL/kg Rabbit	Not available	7 000 mg/m ³ 4 h Guinea pig
ethanol	7 060 mg/kg Rat	Not available	20 000 ppm 10 h Rat	2 500 mg/m ³ 20 min Human
ethyl acetate	5 620 mg/kg Rat	>20 000 µL/kg Rabbit	45 g/m ³ 2 h Mouse	400 ppm Human

Note: Representative toxicity data from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS)¹ data from supplier (M)SDS were also consulted.

a) Lowest published lethal concentration

Skin corrosion/irritation

Toluene is a skin irritant. Prolonged or repeated skin contact with the mixture may cause dermatitis.

Serious eye damage/irritation

Heptan-2-one and ethyl acetate are known serious eye irritant

Sensitization (allergic reactions)

No sensitization effects known

Carcinogenicity (risk of cancer)

No known components listed in IARC, ACGIH, CA Prop 65, or NTP

Mutagenicity (risk of heritable genetic effects)

Not known

Reproductive Toxicity (risk to sex functions)

At high doses, toluene and ethanol present a reproductive and developmental hazard.

Teratogenicity (risk of fetus malformation)

At high doses, fetotoxicity is observed in animal studies for inhalation and oral exposures for toluene.

STOT-single exposure

Inhalation of toluene, isobutyl acetate, heptan-2-one, and ethyl acetate can affect the central nervous system leading to dizziness and drowsiness.

STOT-repeated exposure

Toluene may cause damage to the central nervous system through prolonged and repeated exposure. Toluene is listed as an ototoxic according to animal studies, exposure to toluene and noise may lead to hearing loss.

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Mixture viscosity at 40°C is >20.5 mm²/s; therefore, it is not classified as aspiration hazard due despite the contribution of 35% toluene category 1 aspiration hazard.

Section 12: Ecological Information

The IMDG Code criteria and the raw-material (M)SDS along with supporting data for the classification of registered substances from the European Chemical Agency database (<http://echa.europa.eu>) were used.

Toluene is an acute category 2 environmental toxicant (with minimal LC50 of 7.63 mg/L for *Oncorhynchus mykiss* (rainbow trout); 8.9 mg/L 24 h *Daphnia magna* (water flea); 10 mg/L 24 h *Pseudokirchneriella subcapitata* (green algae)).

Ethanol is not classifiable as an environmental toxicant (with minimal LC50 of 12 000 mg/L 96 h for *Oncorhynchus mykiss* (rainbow trout) and 5 770 mg/L for *Pimephales promelas* (fathead minnow); LC 50 48 h of 5 012 mg/L for *Ceriodaphnia* sp.)

Ethyl acetate is not classifiable as an environmental toxicant (biodegradable, with minimal LC50 of 220 mg/L for fathead minnow).

isobutyl acetate and heptan-2-one are not classifiable as an environmental toxicant (with minimal LC50 of >100 mg/L).

Acute Ecotoxicity

Category 3

GHS Code: Hazard Statement

H402: Harmful to aquatic life

P273: Avoid release to the environment

Chronic Ecotoxicity

Not available

Biodegradability

Not available

VOC (EPA, WHIMS, and Europe) = 67% [581 g/L]

*VOC = *Volatile Organic Content*

Section 13: Disposal Information

Dispose of contents in accordance with all local, provincial, state, and federal regulations.

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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 5 liter and under

Limited Quantity



Sizes greater than 5 liter

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: No
 Flash Point = -3 °C [27 °C]



Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes up to 5 L (Passenger), 60 L (Cargo)

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: No
 Flash Point = -3 °C [27 °C]



Sea

Refer to IMDG regulations.

Sizes 5 liter and under

Limited Quantity



Packing Instr. P001

Sizes greater than 5 liter

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: No
 Flash Point = -3 °C [27 °C]



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

ACRYLIC LACQUER CONFORMAL COATING**419B-LIQUID****Section 15: Regulatory Information****Canada****WHMIS Classification**

B2 – Flammable Liquid;

D2A – Very Toxic Material (Teratogenicity/Embryotoxicity);

D2B – Toxic Material (Central nervous system intoxicant; Skin/eye irritation)

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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ACRYLIC LACQUER CONFORMAL COATING**419B-LIQUID****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 toluene that is listed as hazardous air pollutants.

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

This product contains toluene (CAS# 108-88-3; reportable quantity = 1000 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.

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

This product contains toluene, which is listed as reproductively toxic.

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.

ACRYLIC LACQUER CONFORMAL COATING**419B-LIQUID****Section 16: Other Information****SDS Prepared by** Michel Hachey**Date of Revision** 30 July 2014**Supersedes** 01 August 2013**Reason for Changes:** Corrected shipping name in Section 14 and made minor format changes.**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.Email: support@mgchemicals.com*Continued on the next page*



Quality System Certified to ISO 9001:2008

SAI Global File #004008
Burlington, Ontario, Canada

ACRYLIC LACQUER CONFORMAL COATING

419B-LIQUID

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