

## ACRYLIC CONFORMAL COATING

## 419C-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:** 419C-Liquid**Related Part #:** 419C-55ML, 419C-1L, 419C-4L, 419C-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****Manufacturer**MG Chemicals  
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E-MAIL: [info@mgchemicals.com](mailto:info@mgchemicals.com)E-MAIL (Competent Person): [sds@mgchemicals.com](mailto: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

**ACRYLIC CONFORMAL COATING**

**419C-LIQUID**

**Section 2: Hazards Identification**

**Classification of Hazardous Chemical**

**WHMIS Classification**



B2 – Flammable Liquids; D1B – Toxic (Aspiration Hazard);  
D2B – Toxic (Skin/Eye Irritation)

**GHS Categories**

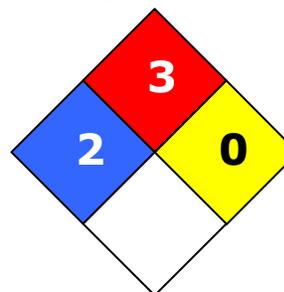
Criteria	Category	Signal Word	Pictograms
Flammable liquid	2	Danger	
Aspiration Hazard	1	Danger	
Eye irritation	2	Warning	
Skin irritation	2	Warning	
Specific target organ toxicity	3	Warning	
Environmental Hazard	3	—	No Symbol mandated

**Other Classifications**

**HMIS® RATING**

<b>HEALTH:</b>	<b>2</b>
<b>FLAMMABILITY:</b>	<b>3</b>
<b>PHYSICAL HAZARD:</b>	<b>0</b>
<b>PERSONAL PROTECTION:</b>	

**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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**ACRYLIC CONFORMAL COATING**

**419C-LIQUID**

**Label Elements**

<b>Signal Word</b>	<b>DANGER</b>
<b>Pictograms</b>	<b>Hazard Statements</b>
	H225: Highly flammable liquid and vapour
	H315: Causes skin irritation H319: Causes severe eye irritation H336: May cause drowsiness and dizziness
	H304: May be fatal if swallowed and enters airways
No Symbol Mandated	H402: Harmful to aquatic life
	<b>Precautionary Statements</b>
<b>Prevention</b>	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 vapors/mist/spray. P271: Use outdoors or in a well-ventilated area. P273: Avoid release to the environment.

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**ACRYLIC CONFORMAL COATING**

**419C-LIQUID**

<b>Precautionary Statements (Continued)</b>	
<b>Response</b>	<p>P370 + P378: In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.</p> <p>P301 + P310 + P331: IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.</p> <p>P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>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.</p> <p>P332 + P337+ P313: If eye or skin irritation occurs or persists: Get medical advice/attention.</p> <p>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.</p>
<b>Storage</b>	<p>P403 + P235: Store in well ventilated place. Keep cool.</p> <p>P405: Store locked up.</p>
<b>Disposal</b>	<p>P501: Dispose of contents/container in accordance to local/regional/national/international regulations.</p>

**Other Hazards**

Repeated exposure may cause skin dryness or cracking.

**Section 3: Hazardous Ingredients**

<b>CAS #</b>	<b>Chemical Name</b>	<b>Wt%</b>
141-78-6	ethyl acetate	49-50%
67-64-1	acetone	16-17%
142-82-5	n-heptane	12-13%
108-65-6	1-methoxy-2-propanol acetate <sup>a)</sup>	5-6%

a) Commonly known as propylene glycol methyl ether acetate (PGMEA)

**ACRYLIC CONFORMAL COATING**

**419C-LIQUID**

**Section 4: First Aid Measures**

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
<b>IF INHALED</b>	P304
<b>Symptoms</b>	Immediate: <i>dizziness, drowsiness, headaches, cough, sore throat, short breath</i>
<b>Response</b>	P340: Remove person to fresh air and keep comfortable for breathing.
<b>If you feel unwell</b>	P312: Call a POISON CENTRE or physician
<b>IF IN EYES</b>	P305
<b>Symptoms</b>	Immediate: <i>irritation, redness, pain, blurred vision</i>
<b>Response</b>	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do. Continue rinsing.
<b>If eye irritation persists</b>	P313: Get medical attention.
<b>IF ON SKIN (or hair)</b>	P303
<b>Symptoms</b>	Immediate: <i>irritation, redness, dry skin</i>
<b>Response</b>	P361+ P364: Take off immediately all contaminated clothing and wash it before reuse. P352: Wash with plenty of water/shower.
<b>If skin irritation occurs</b>	P313: Get medical attention.
<b>IF SWALLOWED</b>	P301 ( <i>Not a likely route of exposure under normal use</i> )
<b>Symptom</b>	Immediate: <i>nausea, vomiting, abdominal cramps, irritation</i>
<b>Response</b>	P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor. P331: Do NOT induce vomiting.

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

<b>Auto-ignition Temperature</b> <sup>a)</sup>	≥233 °C [451 °F]	<b>Flash Point</b> <sup>b)</sup>	-18 °C [-0.4 °F]	<b>LFL [LEL]</b> <sup>c)</sup>	1.2%
				<b>UFL [UEL]</b>	13.1%

**In case of fire** P370

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

**Combustion Products** Produces carbon oxides (CO, CO<sub>2</sub>.) and smoke

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

a) Literature value for n-heptane, which is the lowest auto-ignition component.

b) Closed cup literature value for acetone, which is the lowest component 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 vapors/mist/spray.

**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.

**ACRYLIC CONFORMAL COATING****419C-LIQUID****Section 7: Handling and Storage**

- Prevention** 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.  
P261 + P271: Avoid breathing vapors/mist/spray. Use only outdoors or in well ventilated area.
- Handling** P280 + P264: Wear protective gloves/eye protection. Wash thoroughly after handling.  
P270: Do not eat, drink, or smoke when using this product.
- Storage** P403 + P235: Store in a well-ventilated and dry area. Keep cool.

**ACRYLIC CONFORMAL COATING**

**419C-LIQUID**

**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
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
acetone	ACGIH	500 (TWA)	750
	U.S.A. OSHA PEL	1 000	—
	Canada AB	500	750
	Canada BC	250	500
	Canada ON	500	750
	Canada QC	750	1 000
n-heptane	ACGIH	400	500
	U.S.A. OSHA PEL	400	500
	Canada AB	400	500
	Canada BC	400	500
	Canada ON	400	500
	Canada QC	400	500
1-methoxy-2-propanol acetate	ACGIH	Not established	Not established
	U.S.A. WEEL	50	Not established
	Canada AB	Not established	Not established
	Canada BC	50	75
	Canada ON	50	Not established
	Canada QC	Not established	Not established

*Note:* Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH<sup>2</sup>, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database<sup>1</sup> 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.

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**ACRYLIC CONFORMAL COATING****419C-LIQUID****Engineering Controls****Ventilation**

Keep airborne concentrations below exposure limits.

**RECOMMENDATION:** Respect the time weighted average of 400 ppm for ethyl acetate.

**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 MSDS, 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.

**ACRYLIC CONFORMAL COATING**
**419C-LIQUID**
**Section 9: Physical and Chemical Properties**

<b>Physical State</b>	Liquid	<b>Appearance</b>	Clear
<b>Odor</b>	Ethereal	<b>Odor Threshold</b>	Not available
<b>pH</b>	Not available	<b>Specific Gravity</b>	0.874
<b>Solubility in Water</b>	Partially soluble	<b>Melting Point</b>	Not available
<b>Boiling Point</b> <sup>a)</sup>	≥56 °C [180 °F]	<b>Evaporation Rate</b>	>1 (ButAc = 1)
<b>Flash Point</b> <sup>a,b)</sup>	-18°C [-0.4 °F]	<b>Vapor Pressure</b> <sup>c)</sup> @ 20 °C	~13 hPa [~98 mmHg]
<b>Lower Flammability Limit</b>	1.2%	<b>Upper Flammability Limit</b>	13.1 %
<b>Auto-ignition Temperature</b> <sup>d)</sup>	≥233 °C [≥451 °F]	<b>Decomposition Temperature</b>	Not available
<b>Viscosity @20 °C</b>	8 mm <sup>2</sup> /s	<b>Vapor Density</b>	>2 (Air = 1)
<b>Partition Coefficient</b>	Not available		

a) Lowest component literature value, which corresponds to acetone

b) Closed cup

c) Calculated using Raoult's Law

d) Lowest component auto-ignition literature value, which corresponds to n-heptane

**ACRYLIC CONFORMAL COATING****419C-LIQUID****Section 10: Stability and Reactivity**

<b>Stabilities</b>	Chemically stable at normal temperatures and pressures
<b>Conditions to Avoid</b>	Ignition sources, extreme temperatures, and incompatible substances
<b>Incompatibilities</b>	Strong oxidizing agents, strong reducing agents, strong acids, strong bases
<b>Polymerization</b>	Will not occur
<b>Decomposition</b>	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**

<b>Eyes</b>	Causes severe eye irritation if splashed in eyes or exposed to vapors. May also cause eye redness, pain, and blurred vision.
<b>Skin</b>	May causes mild to moderate skin irritation, redness, and dry skin.
<b>Inhalation</b>	May cause nose, throat and lung irritation leading to cough or sore throat, and shortness of breath. Overexposure may lead to visual impairment and central nervous system effects such as dizziness, drowsiness, or weakness.
<b>Ingestion</b>	If swallowed, it may nausea, vomiting, abdominal cramps, irritation. See inhalation symptoms.
<b>Chronic</b>	Prolonged and repeated exposure may cause dermatitis and defatting of the skin.

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**ACRYLIC CONFORMAL COATING**

**419C-LIQUID**

**Acute Toxicity (Lethal Exposure Concentrations)**

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
ethyl acetate	5 620 mg/kg Rat	>20 000 µL/kg Rabbit	45 g/m <sup>3</sup> 2 h Mouse	400 ppm Human
acetone	5 800 mg/kg Rat	>9 400 µL/kg Guinea pig	44 g/m <sup>3</sup> 4 h Rat	10 mg/m <sup>3</sup> 6 h Human
n-heptane	Not established	Not established	29.29 g/ m <sup>3</sup> 4 h Rat	1 000 ppm 6 m human
1-methoxy-2-propanol acetate	8 532 mg/kg Rat	>5 g/kg Rabbit	Not established	400 ppm Human

*Note:* Representative toxicity data from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS)<sup>1</sup> data from supplier MSDS were also consulted.

a) Lowest published lethal concentration

<b>Skin corrosion/irritation</b>	The n-heptane component is a skin irritant. Prolonged or repeated skin contact with the mixture may cause dermatitis
<b>Serious eye damage/irritation</b>	Acetone, ethyl acetate are known serious eye irritant
<b>Sensitization</b> (allergic reactions)	No sensitization effects known
<b>Carcinogenicity</b> (risk of cancer)	No known components listed in IARC, ACGIH, CA Prop 65, or NTP
<b>Mutagenicity</b> (risk of heritable genetic effects)	Not known
<b>Reproductive Toxicity</b> (risk to sex functions)	Not known
<b>Teratogenicity</b> (risk of fetus malformation)	Not known
<b>STOT-single exposure</b>	Inhalation of ethyl acetate, acetone, n-heptane, and 1-methoxy-2-propanol acetate may affect the central nervous system
<b>STOT-repeated exposure</b>	At very large dosed, n-heptane may impair liver function

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**ACRYLIC CONFORMAL COATING****419C-LIQUID****Aspiration hazard**

Mixture viscosity at 40°C is  $<< 8 \text{ mm}^2/\text{s}$ ; therefore, it is classified as aspiration hazard due to the contribution of 12% n-heptane category 1 aspiration hazard.

**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.

Ethyl acetate is not classifiable as an environmental toxicant (biodegradable, with minimal LC50 of 220 mg/L for fathead minnow; LC50 24 h of 560 mg/L and EC50 24 h of 2300 mg/L Daphnia magna (water flea)).

Acetone is not classifiable as an environmental toxicant (with minimal LC50 96 h of 5,540 mg/L for Oncorhynchus mykiss (rainbow trout); EC 50 48 h 13,500 mg/L Daphnia magna (water flea)).

The n-heptane component is an acute category 2 environmental toxicant (with minimal LC50 of 4 mg/L for Carassius auratus (gold fish); EC 50 48 h 13,500 mg/L Daphnia magna (water flea)).

1-methoxy-2-propanol acetate is an acute category 3 environmental toxicant (with minimal LC50 96 h of  $\geq 100 \text{ mg/L}$  Salmo gairdneri).

**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

**Other Effects**

Volatile Organic Content (VOC) = 67% [585 g/L]

*Note:* Using acetone exemption in accordance with EPA and WHIMS

**ACRYLIC CONFORMAL COATING****419C-LIQUID****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).

Sizes 5 liter and under

**Limited Quantity**

Sizes greater than 5 liter

**UN number:** UN1263

**Shipping Name:** PAINT RELATED MATERIAL,  
Flammable Liquid

**Class:** 3

**Packing Group:** II

**Marine Pollutant:** No

**Air**

**Refer to ICAO-IATA Dangerous Goods Regulations.**

All sizes

**UN number:** UN1263

**Shipping Name:** PAINT RELATED MATERIAL,  
Flammable Liquid

**Class:** 3

**Packing Group:** II

**Marine Pollutant:** No



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**ACRYLIC CONFORMAL COATING****419C-LIQUID****Sea**

Refer to IMDG regulations.

Sizes 5 liter and under

**Limited Quantity**

Sizes greater than 5 liter

**UN number:** UN1263

**Shipping Name:** PAINT RELATED MATERIAL,  
Flammable Liquid

**Class:** 3

**Packing Group:** II

**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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**ACRYLIC CONFORMAL COATING****419C-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 does not contain substances that are listed as hazardous air pollutants.

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

This product contains ethyl acetate (CAS# 141-78-6) and acetone (CAS# 67-64-1), which are subject to the CERCLA reporting requirements at the 5000 lb (2268 kg) threshold.

**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.

**ACRYLIC CONFORMAL COATING****419C-LIQUID****Section 16: Other Information**

**MSDS Prepared by** Michel Hachey  
**Date of Issue** 04 August 2013  
**Supersedes** 09 November 2010  
**Reason for Changes:** Change to GHS format and update of properties

**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](http://www.mgchemicals.com).

Email: [support@mgchemicals.com](mailto:support@mgchemicals.com)

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Quality System Certified to ISO 9001:2008

SAI Global File #004008  
Burlington, Ontario, Canada

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**ACRYLIC CONFORMAL COATING**

**419C-LIQUID**

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