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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CANADA

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FAX +1-800-340-0773
E-MAIL support@mgchemicals.com
WEB www.mgchemicals.com

MG Chemicals (Head Office)
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Surrey, British Columbia V4N 4E7
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☎ +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

Section 2: Hazards Identification

Classification of Hazardous Chemical

GHS Categories

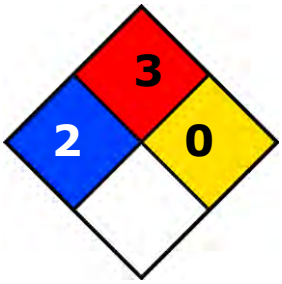
Criteria		Category	Signal Word	Pictograms
Flammable liquid		2	Danger	
Aspiration Hazard		1	Danger	
Eye irritation		2	Warning	
Skin irritation		2	Warning	
Specific target organ toxicity	Single exposure	3	Warning	
Environmental Hazard	Acute Aqua. Tox.	3	—	No Symbol mandated

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
	H304: May be fatal if swallowed and enters airways
No Symbol Mandated	H402: Harmful to aquatic life
	Precautionary Statements
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. 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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	Precautionary Statements *(Continued)*
Response	P370 + P378: In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. P301 + P310 + P331: IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. 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. 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.
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%
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 [a)]	5–6%

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

Section 4: First Aid Measures

Exposure Condition	*GHS Code: Precautionary Statement*
IF INHALED	P304 + P340, P312
Symptoms	Immediate: *dizziness, drowsiness, headaches, cough, sore throat, short breath*
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: *irritation, redness, pain, blurred vision*
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: *irritation*, *redness, dry skin*
Response	Take off immediately all contaminated clothing and wash it before reuse. P352: Wash with plenty of water/shower. If skin irritation occurs: Get medical attention.
IF SWALLOWED	P301 + P301 + P310, P331 (*Not a likely route of exposure under normal use*)
Symptom	Immediate: *nausea, vomiting, abdominal cramps, irritation*
Response	Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.

Section 5: Fire Fighting Measures

Auto-ignition Temperature [a]	≥233 °C [451 °F]	**Flash Point** [b]	-18 °C [-0.4 °F]	**LFL [LEL]** [c]	1.2%
				UFL [UEL]	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_2.) 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.

Section 7: Handling and Storage

Prevention 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 vapors/mist/spray. 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.

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[2], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database[1] 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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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 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.

Section 9: Physical and Chemical Properties

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

Section 10: Stability and Reactivity

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, strong bases
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, pain, and blurred vision.
Skin	May causes mild to moderate skin irritation, redness, and dry skin.
Inhalation	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.
Ingestion	If swallowed, it may nausea, vomiting, abdominal cramps, irritation. See inhalation symptoms.
Chronic	Prolonged and repeated exposure may cause dermatitis and defatting of the skin.

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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^3 2 h Mouse	400 ppm 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
n-heptane	Not established	Not established	29.29 g/ m^3 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)[1] data from supplier (M)SDS were also consulted.

a) Lowest published lethal concentration

Skin corrosion/irritation — The n-heptane component is a skin irritant. Prolonged or repeated skin contact with the mixture may cause dermatitis

Serious eye damage/irritation — Acetone, 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) — Not known

Teratogenicity (risk of fetus malformation) — Not known

STOT-single exposure — Inhalation of ethyl acetate, acetone, n-heptane, and 1-methoxy-2-propanol acetate may affect the central nervous system

STOT-repeated exposure — At very large dosed, n-heptane may impair liver function

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Aspiration hazard	Mixture viscosity at40°C is <<8 mm^2/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 (M)SDS 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 Oncorhychu 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 Carrassius 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 ≥100 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

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 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 = -18°C [-0.4 °F]

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 = -18°C [-0.4 °F]

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 = -18°C [-0.4 °F]

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

Section 15: Regulatory Information

Canada

WHMIS Classification

B2 – Flammable Liquids; D1B –Toxic (Aspiration Hazard);
D2B – Toxic (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.

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.

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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

SDS Prepared by Michel Hachey

Date of Revision 30 July 2014

Supersedes 03 August 2013

Reason for Changes: Change to shipping name in Section 14 and format adjustments.

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

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