419C **(AEROSOL)**

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 419C Acrylic Conformal Coating (Aerosol)

Other Means of Identification: 419C Vernis Acrylique de Tropicalisation (Aérosol)

Related Part # 419C-340G

Recommended Use and Restriction on Use

Use: Protective dielectric coating for printed circuit boards

Uses Advised Against: Not available

Details of Manufacturer or Importer

Manufacturer
MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
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 Verisk 3E at ***+1-866-519-4752*** or ***+1-760-476-3962***
(Service access code: 335388)

For emergencies involving the transport of dangerous goods; 24/7 service
CANADA—Call CANUTEC collect at ***+1-613-996-6666*** or ****666*** on cellular phones

Section 2: Hazard(s) Identification

Classification of Hazardous Chemical

GHS Categories

Criteria		Category	Signal Word	Pictograms
Flammable Aerosol		2	Warning	Flame
Gas Under Pressure		Liquefied gas	Warning	Gas cylinder
Reproductive Toxicity		2	Warning	Health
Eye Irritation		2	Warning	Exclamation
Specific Target Organ Toxicity	Single Exposure	3	Warning	Exclamation
Hazardous to the Aquatic Environment	Chronic	3	*none*	*none*

Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

Label Elements

Signal Word	**WARNING**
Pictograms	**Hazard Statements**
	H223: Flammable aerosol
	H280: Contains gas under pressure; may explode if heated
	H361: Suspected of damaging fertility or the unborn child

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Pictograms	Hazard Statements
	H319: Causes serious eye irritation H336: May cause drowsiness and dizziness
none	H412: Harmful to aquatic life with long lasting effects
Prevention	**Precautionary Statements**
P102	Keep out of reach of children.
P201, P202	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P261	Avoid breathing vapors, mist, or spray.
P271	Use only outdoors or in well-ventilated area.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves and eye protection.
P273	Avoid release to the environment.
Response	**Precautionary Statements**
P308 + P313	IF exposed or concerned for all routes of exposure: Get medical advice or attention.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTRE or doctor if you feel unwell.

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Storage	Precautionary Statements
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F].
P403	Store in well-ventilated place.
P405	Store locked up.
Disposal	**Precautionary Statements**
P501	Dispose of contents and container in accordance to local, regional, national and international regulations.

Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
Simple Asphyxiants	May displace oxygen and cause rapid suffocation	Warning	none
Defats skin	Repeated exposure may cause skin dryness or cracking.	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
67-64-1	acetone	30%
141-78-6	ethyl acetate	27%
74-98-6	propane	13%
75-28-5	isobutane	7%
108-65-6	1-methoxy-2-propyl acetate	2%
110-82-7	cyclohexane	0.3%
108-88-3	toluene	0.3%

Section 4: First-Aid Measures

Exposure Condition	*GHS Code/Symptoms/Precautionary Statements*
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	*redness, irritation, pain, blurred vision*
Response	Rinse cautiously with water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.
IF INHALED	P304 + P340, P312, P308 + P313
Immediate Symptoms	*dizziness, drowsiness, headaches, cough, sore throat, nausea, weakness*
Response	Remove person to fresh air and keep comfortable for breathing. If feeling unwell: Call a POISON CENTRE or doctor. IF exposed or concerned: Get medical advice.
IF ON SKIN	P302 + P353, P308 + P313
Immediate Symptoms	*mild irritation*, *redness, dry skin*
Response	Rinse with water or shower. IF exposed or concerned: Get medical advice.
IF SWALLOWED	P301 + P330, P310, P308 + P313
Immediate Symptoms	*nausea, vomiting, abdominal cramps, diarrhea, irritation*
Response	Rinse mouth. Do NOT induce vomiting. IF exposed or concerned: Get medical advice.

Section 5: Fire-Fighting Measures

Extinguishing Media	In case of fire: Use dry chemical, carbon dioxide, or chemical foam to extinguish. Use water spray to cool containers.
Specific Hazards	Aerosol container may erupt with force at temperatures above 50 °C [122 °F]. The vapors are heavier than air and may accumulate in low-lying areas. Vapors may travel long distances and ignite at an ignition source, which can cause a flashback or an explosion. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Combustion produces carbon oxides (CO, CO_2).
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

Section 6: Accidental Release Measures

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Avoid breathing the spray, mist or vapors. Remove or keep away all sources of extreme heat or open flames.
Environmental Precautions	Prevent spill from entering drains and waterways.
Containment Methods	Not applicable
Cleaning Methods	Sprinkle inert absorbent compound onto spill, then sweep into the container. Collect liquid in a sealable, chemical-resistant container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention

Keep out of reach of children.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use.

Avoid breathing vapors, mist, or spray. Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

Handling

Wear protective gloves and eye protection. Wash hands thoroughly after handling.

Storage

Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F].

Store in well-ventilated place.

Store locked up.

Section 8: Exposure Controls/Personal Protection

Substances with Occupational Exposure Limit Values

Chemical Name	Country/Region	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
acetone	ACGIH	500 ppm	750 ppm
	U.S.A. OSHA PEL	1 000 ppm	Not established
	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
ethyl acetate	ACGIH	400 ppm	Not established
	U.S.A. OSHA PEL	400 ppm	Not established
	Canada AB	400 ppm	Not established
	Canada BC	150 ppm	Not established
	Canada ON	400 ppm	Not established
	Canada QC	400 ppm	Not established

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Chemical Name	Country/Region	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
propane	ACGIH	See footnote a)	Not established
	U.S.A. OSHA PEL	1 000 ppm	Not established
	Canada AB	1 000 ppm	Not established
	Canada BC	1 000 ppm	Not established
	Canada ON	1 000 ppm	Not established
	Canada QC	1 000 ppm	Not established
isobutane	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	Canada AB	Not established	Not established
	Canada BC	Not established	Not established
	Canada ON	1 000 ppm	Not established
	Canada QC	Not established	Not established
1-methoxy-2-propyl acetate	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	Canada AB	Not established	Not established
	Canada BC	50 ppm	75 ppm
	Canada ON	50 ppm	Not established
	Canada QC	Not established	Not established
cyclohexane	ACGIH	100 ppm	Not established
	U.S.A. OSHA PEL	300 ppm	Not established
	Canada AB	100 ppm	Not established
	Canada BC	100 ppm	Not established
	Canada ON	100 ppm	Not established
	Canada QC	300 ppm	Not established
toluene	ACGIH	20 ppm	Not established
	U.S.A. OSHA PEL	200 ppm	300 ppm
	Canada AB	50 ppm	Not established
	Canada BC	20 ppm	Not established
	Canada ON	20 ppm	Not established
	Canada QC	100 ppm	150 ppm

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH[1], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS[2] database and 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) Refer to the ACGIH Appendix F: Minimum Oxygen Content for Asphyxia TLV Basis

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Engineering Controls

Ventilation	Keep airborne concentrations below the occupational exposure limits (OEL).

Personal Protective Equipment

Eye protection	Wear appropriate protective eyeglasses or chemical safety goggles. **RECOMMENDATION:** Ensure that glasses have side shields for lateral protection.
Skin Protection	For likely contacts, use of protective butyl rubber or other chemically resistant gloves. For incidental contacts, use disposable nitrile, neoprene or other chemically resistant gloves.
Respiratory Protection	For over-exposures up to 10 x OEL of mist, vapors, or spray, wear respirator such as a half-mask respirator with organic vapor cartridges. Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus. **RECOMMENDATION:** Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be 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.

Section 9: Physical and Chemical Properties

Physical State	Liquid, in aerosol format	**Lower Flammability Limit** [b]	2%
Appearance	Colorless	**Upper Flammability Limit** [b]	10%
Odor	Ethereal	**Vapor Pressure** [b] **@20 °C**	~13 kPa [~94 mmHg]
Odor Threshold	Not available	**Vapor Density**	≥2 (Air =1)
pH	Not available	**Relative Density @25 °C**	0.88
Freezing/Melting Point	Not available	**Solubility in Water**	Partially miscible
Initial Boiling Point [a]	≥56 °C [133 °F]	**Partition Coefficient-n-octanol/water**	Not available
Flash Point [a]	-17 °C [1.4 °F]	**Auto-ignition Temperature** [c]	427 °C [433 °F]
Evaporation Rate	Not available	**Decomposition Temperature**	Not available
Flammability	Flammable	**Viscosity @25 °C**	Not available

a) Estimated based on acetone value
b) Calculated based on Raoult's Law and Le Chatelier's principle
c) Literature value for component with lowest auto-ignition: acetone

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Avoid open flames, ignition sources, temperatures above 50 °C [122 °F], and incompatible substances.
Incompatibilities	Strong oxidizing agents, strong acids, and 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

Summary of Effects and Symptoms by Routes of Exposure

Eyes	Causes eye redness, irritation, blurred vision, and pain.
Skin	May cause dry skin, redness and/or mild irritation.
Inhalation	May cause dizziness, drowsiness, cough, or nausea. For extreme overexposures, it may cause sore throat, headaches, weakness, or unconsciousness.
Ingestion	May cause nausea, vomiting, abdominal cramps, diarrhea or irritation.
Chronic	Prolonged and repeated exposure may cause dermatitis and defatting of the skin.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
acetone	5 800 mg/kg Rat	20 mL/kg Rabbit	16 000 ppm Rat 6 h
ethyl acetate	5 620 mg/kg Rat	>20 000 mg/kg Rabbit	45 g/m^3 Mouse 2 h
propane	Not applicable	Not applicable	>800 000 ppm Rat 4 h
isobutane	Not applicable	Not applicable	>570 000 ppm Rat 4 h
1-methoxy-2-propanol acetate	8 532 mg/kg Rat	>5 g/kg Rabbit	Not available
cyclohexane	>5 000 mg/kg Rat	6 240 mg/kg Rabbit	>32.88 mg/L Rat 4 h
toluene	5 580 mg/kg Rat	>5 000 mg/Kg Rabbit	49 mg/L Rat 4 h

Note: Toxicity data from the RTECS[2] and ECHA databases were consulted. The data from supplier SDSs were also consulted.

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Other Toxicological Effects

Skin Corrosion/Irritation	Based on available data, the classification criteria are not met.
Serious Eye Damage/Irritation	Acetone and ethyl acetate are serious eye irritants.
Sensitization (allergic reactions)	Based on available data, the classification criteria are not met.
Carcinogenicity (risk of cancer)	None of the ingredients are classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP.
Mutagenicity (risk of heritable genetic effects)	Based on available data, the classification criteria are not met.
Reproductive Toxicity (risk to sex functions)	At high doses, spermatogenisis was observed in male rat by inhalation of toluene.
Teratogenicity (risk of fetus malformation)	Fetotoxicity is observed in animal studies for inhalation and oral exposures for toluene. Extreme consumption of ethanol also presents risks for the newborn.
STOT-Single Exposure	Inhalation of ethyl acetate, acetone, cyclohexane, and toluene may affect the central nervous system. At very large dosed.
STOT-Repeated Exposure	Based on available data, the classification criteria are not met. At very large doses, n-heptane may impair liver function.
Aspiration Hazard	Based on available data, the classification criteria are not met. There is less than 10% category 1 components.

Section 12: Ecological Information

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (http://echa.europa.eu), and other reliable sources.

Cyclohexane is an acute category 1 and chronic category 1 environmental toxicant. It has a minimal LC50 96 h of 4.53 mg/L for Pimephales promelas (fathead minnow) and an EC50 48 h of 0.9 mg/L for Daphnia magna.

Toluene is an acute category 2 aquatic environmental toxicant. It has a minimal LC50 96 h of 7.63 mg/L for Oncorhynchus mykiss (rainbow trout); EC50 24 h of 8.9 mg/L Daphnia magna (water flea); and EC50 24 h of 10 mg/L Pseudokirchneriella subcapitata (green algae).

Ethyl acetate, acetone and 1-methoxy-2-propyl acetate are not classifiable as an environmental toxicant with minimal LC50 of >100 mg/L.

- Ethyl acetate is biodegradable and has a minimal LC50 96 h of 220 mg/L for Pimephales promelas (fathead minnow); and a LC50 24 h of 560 mg/L and EC50 24 h of 2 300 mg/L for Daphnia magna (water flea).
- Acetone has a minimal LC50 96 h of 5 540 mg/L for Oncorhynchus mykiss (rainbow trout) and an EC50 48 h of 13 500 mg/L for Daphnia magna (water flea).
- The 1-methoxy-2-propyl acetate ingredient has a minimal LC50 96 h of ≥100 mg/L for Oncorhynchus mykiss (rainbow trout) and an EC50 48 h of >500 mg/L for Daphnia magna (water flea).

Acute Ecotoxicity

See Chronic Ecotoxicity.

Chronic Ecotoxicity

Category 3

Harmful to the aquatic life with long lasting effects.

Avoid release to the environment.

Biodegradability

Not available

Other Effects

Volatile Organic Compound *(*VOC) content = 60% [524 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 Regulations** (Parts 100 to 185).

Limited Quantity

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Limited Quantity
Max Net Qty/Pkg
30 kg Gross

UN number: UN1950
Shipping Name: AEROSOL, flammable
Class: 2.1
Packing Group: Not applicable
Marine Pollutant: No

Sea

Refer to IMDG regulations.

Limited Quantity

UN number: UN1950
Shipping Name: AEROSOL, flammable
Class: 2.1
Packing Group: Not applicable
Marine Pollutant: No

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

Section 15: Regulatory Information

Canada

Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)

All hazardous ingredients are listed on the DSL/NDSL.

Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

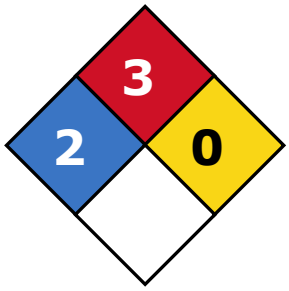
USA

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)

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, which is listed as hazardous air pollutants.

EPCRA (Emergency Planning and 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 5 000 lb (2 268 kg) threshold.

This product contains toluene (CAS# 108-88-3; reportable quantity = 1 000 lb), which is subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

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TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity).

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

Europe

RoHS (Restriction of Hazardous Substances Directive)

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

WEEE (Waste Electrical and Electronic Equipment Directive)

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

Section 16: Other Information

MSDS Prepared by	Regulatory Department
Date of Revision	26 February 2020
Supersedes	22 August 2018

Reason for Changes: Update to the emergency phone numbers.

References

1) ACGIH *2017 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 (2017).

2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®), MDL Information Systems, Inc.

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Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
NOELR	No observable effect loading ratio
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

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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