

419E

(AEROSOL)

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 419E**Other Means of Identification:** Premium Acrylic Conformal Coating (Aerosol) /
Premium Vernis Acrylique de Tropicalisation (Aérosol)**Related Part #** 419E-340G

Recommended Use and Restriction on Use

Use: Protective coating for printed circuit boards**Uses Advised Against:** Not available

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**Fax** +1-800-340-0773**E-mail** support@mgchemicals.com**Web** www.mgchemicals.com**☎** +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

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Section 2: Hazard(s) Identification
Classification of Hazardous Chemical
GHS Categories

Criteria	Category	Signal Word	Pictograms
Flammable Aerosol Gas Under Pressure	2 Liquefied Gas	Warning Warning	Flame Gas cylinder
Eye Irritation Specific Target Organ Toxicity Single Exposure	2 3	Warning Warning	Exclamation Exclamation

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
	H319: Causes serious eye irritation H336: May cause drowsiness or dizziness

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Prevention	Precautionary Statements
P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, 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 mist, vapors, and spray.
P271	Use only outdoors or in a well-ventilated area.
P264	Wash hands thoroughly after handling.
P280	Wear eye protection or face protection.
Response	Precautionary Statements
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, P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE or doctor if you feel unwell.
Storage	Precautionary Statements
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F].
P403	Store in a well-ventilated place.
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents and container in accordance to local, regional, and international regulations.

Hazards Not Otherwise Classified

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

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Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
115-10-6	dimethyl ether	40%
123-86-4	n-butyl acetate	33%
78-93-3	butan-2-one ^{a)}	12%
107-21-1	ethylene glycol	6%

a) Also known as methyl ethyl ketone (MEK)

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	<i>redness, irritation, pain</i>
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 or attention.
IF INHALED	P304 + P340, P312
Immediate Symptoms	<i>dizziness, drowsiness, cough, headaches, sore throat, nausea</i>
Response	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE or doctor if you feel unwell.
IF SWALLOWED	P301 + P330, P331
Immediate Symptoms	<i>nausea, sore throat, diarrhea, drowsiness, dizziness, vomiting</i>
Response	Rinse mouth. Do NOT induce vomiting.
IF ON SKIN	P302 + P352, P333 + P313, P362 + P364
Immediate Symptoms	<i>redness, dry skin</i>
Response	Wash with plenty of water.

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(AEROSOL)**Section 5: Fire-Fighting Measures**

Extinguishing Media	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers.
Specific Hazards	Aerosols containers 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.
Combustion Products	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 mist, spray, and vapors. Remove or keep away all sources of ignition or extreme heat.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
Containment Methods	Not applicable
Cleaning Methods	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.
Disposal Methods	Dispose of spill waste according to Section 13.

419E**(AEROSOL)****Section 7: Handling and Storage****Prevention**

Keep out of reach of children.

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

Handling

Wear eye protection or face 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/Province	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
dimethyl ether	ACGIH U.S.A. WEEL Canada AB Canada BC Canada ON Canada QC	Not established 1 000 ppm Not established 1 000 ppm Not established Not established	Not established Not established Not established Not established Not established Not established
n-butyl acetate	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	150 ppm 150 ppm 150 ppm 20 ppm 150 ppm 150 ppm	Not established Not established 200 ppm 200 ppm Not established 200 ppm
butan-2-one	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	200 ppm 200 ppm 200 ppm 50 ppm 200 ppm 150 ppm	125 ppm 300 ppm 300 ppm 100 ppm 300 ppm 300 ppm
ethylene glycol (aerosol) (vapor) (particulate) (mist/vapor)	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada BC Canada BC Canada ON Canada QC	25 ppm Not established 100 ppm Not established 50 ppm 10 mg/m ³ Not established Not established	50 ppm; 10 mg/m ³ Not established 100 mg/m ³ 100 mg/m ³ 50 mg/m ³ 20 mg/m ³ 100 mg/m ³ 127 mg/m ³

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS database² and from suppliers' SDS were also consulted. Short term exposure limits (STEL) are usually for 15 min and long term permissible exposure limits (PEL) for 8 h.

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(AEROSOL)**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 nitrile or other chemically resistant gloves.

Respiratory Protection For over-exposures up to 10 x OEL of mist, vapors, 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.

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Section 9: Physical and Chemical Properties

Physical State	Liquid, in aerosol format	Lower Flammability Limit ^{c)}	1.6%
Appearance	Colorless	Upper Flammability Limit ^{c)}	10.6%
Odor	Ester-like, fruity	Vapor Pressure @20 °C ^{c)}	35 hPa [26 mmHg]
Odor Threshold	Not available	Vapor Density	>2 (Air =1)
pH	Not available	Relative Density @25 °C	0.9
Freezing/Melting Point	Not available	Solubility in Water	Slightly soluble
Initial Boiling Point ^{a)}	≥80 °C [≥176 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point ^{a) b)}	-9 °C [15.8 °F]	Auto-ignition Temperature ^{d)}	≥200 °C [≥392 °F]
Evaporation Rate	Not available	Decomposition Temperature	Not available
Flammability	Flammable	Viscosity @25 °C	>20.5 mm ² /s

a) Values based on butan-2-one component.

b) Pensky-Martens closed cup

c) Calculated based on liquid content without propellant.

d) Values based on dimethyl ether, which is the component with the lowest auto-ignition value.

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Temperatures above 50 °C [122 °F], open flames, 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

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Section 11: Toxicological Information
Summary of Effects and Symptoms by Routes of Exposure

Eyes	Cause redness, severe irritation, and pain.
Skin	May cause redness, and dry skin.
Inhalation	May cause dizziness, drowsiness, cough, headaches, sore throat or nausea.
Ingestion	May cause nausea and vomiting.
Chronic	Prolonged or repeated exposure may cause skin dryness, cracking, as well as defatting the skin.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
dimethyl ether	Not available	Not available	308 g/m ³ Rat
n-butyl acetate	>10 768 mg/kg Rat	>17 600 mg/kg Rabbit	>21.1 mg/L 4 h Rat
butan-2-one	2 737 mg/kg Rat	6 480 mg/kg Rabbit	23 500 mg/m ³ 8 h Rat
ethylene glycol	7 712 mg/kg Rat	10 626 mg/kg Rabbit	Not available

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier SDS 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	Butan-2-one causes serious eye irritation.
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)	Based on available data, the classification criteria are not met.
Teratogenicity (risk of fetus malformation)	Based on available data, the classification criteria are not met.
STOT-single exposure	The n-butyl acetate and butan-2-one components can affect the central nervous system by inhalation causing drowsiness or dizziness.
STOT-repeated exposure	Based on available data, the classification criteria are not met. If swallowed, prolonged or repeated over-exposure ethylene glycol can cause damage to kidneys.
Aspiration hazard	Based on available data, the classification criteria are not met. There are no Cat 1 substances, and the kinematic viscosity is $>20.5 \text{ mm}^2/\text{s}$ at $40 \text{ }^\circ\text{C}$.

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.

The n-butyl acetate ingredient is an acute category 3 environmental toxicant (biodegradable, with minimal LC50 96 h of 18 mg/L for fathead minnow).

The butan-2-one (MEK) and ethylene glycol ingredients are not classified as an environmental hazard according to GHS criteria.

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419E**(AEROSOL)****Acute Ecotoxicity**

Category 3

Harmful to aquatic life

Avoid release to the environment

Chronic Ecotoxicity

Based on available data, the classification criteria are not met.

Biodegradability

Expected to be biodegradable. The volatile solvent constituents will oxidize rapidly in air by photochemical reaction.

Other Effects

Volatile Organic Compounds (VOC) = 92% [839 g/L]

Product-weighted Maximal Incremental Reactivity (MIR) = 0.93 O₃/g de product**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 CFR 49 (Parts 100 to 185) **Regulations.****Limited Quantity***Section continued on the next page*

419E**(AEROSOL)****Air****Refer to ICAO-IATA Dangerous Goods Regulations.****Limited Quantity**See package
instruction Y203**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 trained and certified 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.

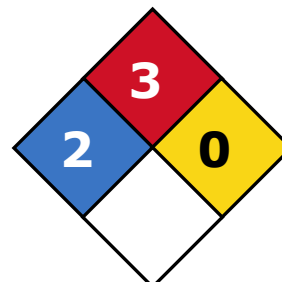
Hazardous Products Act (R.S.C., 1985, c. H-3)

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

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419E**(AEROSOL)****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 does not contain substances, which are listed as hazardous air pollutants.

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

This product contains ethylene glycol (CAS# 107-21-1; reportable quantity = 5 000 lb), which is subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

This product contains n-butyl acetate (CAS# 123-86-4) and 2-butanone (CAS# 78-93-3), which are subject to the CERCLA reporting requirements at the 5 000 lb (2 268 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, USA).

This product contains ethylene glycol (ingested), which is listed as a developmental toxic substance in California.

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419E**(AEROSOL)****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 electronics equipment and is therefore not governed by this regulation.

Section 16: Other Information**Prepared by the** Regulatory Affairs Department**Date of Revision** 27 February 2020**Supersedes** 03 January 2019**Reason for Changes:** Update to emergency contact information and general revision.**Reference**

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®)

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419E**(AEROSOL)****Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content
Wt	Weight

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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