419D **(AEROSOL)**

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 419D

Other Means of Identification: Acrylic Conformal Coating (Aerosol) / Vernis Acrylique de Tropicalisation (Aérosol)

Related Part # 419D-340G

Recommended Use and Restriction on Use

Use: Protective 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

☎ +1-800-340-0772
Fax +1-800-340-0773
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 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
Sensitization	Skin	1	Warning	Exclamation
Specific Target Organ Toxicity	Single Exposure	3	Warning	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
	H317: May cause an allergic skin reaction 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.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves and eye protection.
Response	**Precautionary Statements**
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P362 + P364	Take of contaminated clothing and wash it before reuse.
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 in accordance to local, regional, national, and international regulations.

Other Hazards

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)
115-10-6	dimethyl ether	40%
123-86-4	n-butyl acetate	35%
78-93-3	butan-2-one [a)]	7%
108-65-6	1-methoxy-2-propanol acetate	4%
80-62-6	methyl methacrylate	0.1%
97-88-1	n-butyl methacrylate	0.1%

a) Also known as methyl ethyl ketone (MEK)

Section 4: First-Aid Measures

Exposure Condition	*GHS Code/Symptoms/Precautionary Statements*
IF ON SKIN	P302 + P352, P333 + P313, P362 + P364
Immediate Symptoms	*redness, mild irritation, dry skin, allergic reaction*
Response	Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. Take of contaminated clothing and wash it before reuse.
IF INHALED	P304 + P340, P312
Immediate Symptoms	*dizziness, drowsiness, cough, headaches, sore throat, nausea*
Response	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE or doctor if you feel unwell.
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	*redness, mild irritation, pain*
Response	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.
IF SWALLOWED	P301 + P330, P331
Immediate Symptoms	*Low toxicity: nausea, vomiting*
Response	Rinse mouth. Do NOT induce vomiting.

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. Wipe off residues with paper towels and place the used towels in the waste 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.

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 protective gloves and eye protection.

Take off contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace.

Wash hands thoroughly after handling.

Storage

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

Store in a 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

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Chemical Name	Country/Province	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
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
1-methoxy-2-propanol acetate	ACGIH U.S.A. OSHA PEL U.S.A. California [a)] Canada AB Canada BC Canada ON Canada QC	Not established Not established 100 ppm Not established 50 ppm 50 ppm Not established	Not established Not established 150 ppm Not established 75 ppm Not established Not established
methyl methacrylate	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	50 ppm [b)] 100 ppm 50 ppm 50 ppm [b)] 50 ppm 100 ppm	100 ppm Not established 100 ppm 100 ppm 100 ppm Not established
n-butyl methacrylate	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	Not established Not established Not established 50 ppm Not established Not established	Not established Not established Not established Not established Not established Not established

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 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.

a) California Code of Regulations, Title 8, Section 5155. Airborne Contaminants. Can be absorbed through skin.

b) Sensitizer (S)

Engineering Controls

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

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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, 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** c)	2%
Appearance	Clear	**Upper Flammability Limit** c)	11%
Odor	Ester-like, fruity	**Vapor Pressure @20 °C** c)	35 hPa [26 mmHg]
Odor Threshold	Not available	**Vapor Density**	>1.59 (Air =1)
pH	Not available	**Relative Density @25 °C**	0.91
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 b)	9 °C [48 °F]	**Auto-ignition Temperature** d)	≥226 °C [≥439 °F]
Evaporation Rate	<1 (ButAc = 1)	**Decomposition Temperature**	Not available
Flammability	Flammable	**Viscosity @25 °C**	110 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 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

Summary of Effects and Symptoms by Routes of Exposure

Eyes	May cause redness, mild irritation and pain.
Skin	Causes skin redness, mild irritation, dry skin, and allergic rash.
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. Prolonged or repeated exposure may cause skin allergies.

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
1-methoxy-2-propanol acetate	8 532 mg/kg Rat	>5 g/kg Rabbit	Not available
methyl methacrylate	7 872 mg/kg Rat	>5 000 mg/kg Rabbit	78 000 mg/m^3 4 h Rat
n-butyl methacrylate	16 000 mg/kg Rat	113 000 µL/kg Rabbit	29 mg/L 4 h Rat

Note: Toxicity data from the ECHA database 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	Based on available data, the classification criteria are not met.
Sensitization (allergic reactions)	The n-butyl methacrylate and methyl methacrylate may cause skin sensitization according to animal studies.
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, butan-2-one, 1-methoxy-2-propanol acetate, n-butyl methacrylate, and methyl methacrylate 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.
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 mm^2/s at 40 °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), methyl methacrylate, and n-butyl methacrylate ingredients are not classified as an environmental hazard according to GHS criteria.

- The 1-methoxy-2-propanol acetate component has a minimal LC50 96 h of ≥100 mg/L Salmo gairdneri; and EC50 48 h >500 mg/L Daphnia magna (water flea).

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Acute Ecotoxicity

Category 3

Harmful to aquatic organisms

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) = 87% [794 g/L]

Product-weighted Maximum Incremental Reactivity (MIR) = 0.76 O_3/g of 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 	*FOR REFERENCE ONLY* **UN number**: UN1950 **Shipping Name:** AEROSOL, flammable **Class:** 2.1 **Packing Group**: Not applicable **Marine Pollutant:** No

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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.

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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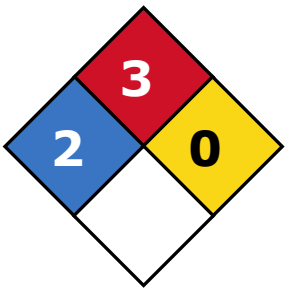
USA

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 methyl methacrylate, which is listed as hazardous air pollutants.

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

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.

This product contains 0.2% of methyl methacrylate (CAS# 80-62-4; 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.

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 does not contain any substances known to be listed in California.

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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	04 April 2024
Supersedes	26 February 2020

Reason for Changes: Update to the emergency phone number information and general revisions.

Reference

1) ACGIH *2024 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 (2024).

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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.

Email: support@mgchemicals.com

Phone: +1-905-331-1396

Mailing Addresses

Manufacturing & Support
1210 Corporate Drive
Burlington, Ontario, Canada
L7L 5R6

Head Office
9347–193rd Street
Surrey, British Columbia, Canada
V4N 4E7

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