419E

Safety Data Sheet

Section 1: Product and Company Identification

Product Identifier and Other Means of Identification

Product Identifier: 419E

Other Means of Identification: Premium Acrylic Conformal Coating

Related Part # 419E-55ML, 419E-1L, 419E-4L, 419E-20L

Recommended Use and Restriction on Use

Use: Protective coating for printed circuit boards

Uses Advised Against: Not applicable

Details of Manufacturer or Importer

Manufacturer
MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
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FAX +1-800-340-0773
E-MAIL support@mgchemicals.com
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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: Hazards Identification

Classification of Hazardous Chemical

GHS Categories

Criteria		Category	Signal Word	Pictograms
Flammable Liquid		2	Danger	Flame
Sensitization	Skin	1	Warning	Exclamation
Eye irritation		2	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	**DANGER**
Pictograms	**Hazard Statements**
	H225: Highly flammable liquid and vapor
	H317: May cause an allergic skin reaction H319: Causes serious eye irritation H335: May cause respiratory irritation H336: May cause drowsiness and dizziness

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Prevention	**Precautionary Statements**
P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical, ventilating, and lighting equipment.
P243	Take action to prevent static discharges.
P261	Avoid breathing mist, vapors, and spray.
P271	Use only outdoors or in well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves, protective clothing, and eye protection.
Response	**Precautionary Statements**
P370 + P378	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
P303 + P361 + P352	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of water or shower.
P333 + P313	If skin irritation or rash occur: Get medical advice or attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
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 or attention.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER or doctor if you feel unwell.
Storage	**Precautionary Statements**
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

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Disposal	Precautionary Statements
P501	Dispose of contents in accordance to local, regional, and international regulations.

Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
Defats skin	Repeated exposure may cause skin dryness or cracking.	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
78-93-3	2-butanone	46%
97-85-8	isobutyl isobutyrate	24%
119-36-8	methyl salicylate	1%
80-62-6	methyl methacrylate	0.1%
97-88-1	n-butyl methacrylate	0.1%

Section 4: First Aid Measures

Exposure Condition	*GHS Code: Precautionary Statement*
IF ON SKIN (or hair)	P303 + P361 +P352, P333 + P313, P363
Immediate Symptoms	*redness, dry skin, allergic dermatitis*
Response	Take off immediately all contaminated clothing. Wash with plenty of water or shower. If skin irritation or rash occurs: Get medical advice or attention. Wash contaminated clothing before reuse.

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IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	*redness, severe irritation, pain*
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	*irritation of the respiratory track, cough, dizziness, drowsiness, headaches*
Response	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
IF SWALLOWED	P301 + P330 + P331
Immediate Symptoms	*abdominal pain, nausea, vomiting, headaches, dizziness, drowsiness, cough, headache*
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	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	Produces carbon oxides (CO, CO_2), and other toxic fumes.
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	Remove or keep away all sources of extreme heat or open flames. Avoid breathing mist, vapors, spray.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
Containment Methods	Contain with inert and non-flammable absorbent (such as soil, sand, vermiculite).
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. **RECOMMENDATION:** Use a grounded stainless steel or carbon steel container.
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. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting equipment. Take action to prevent static discharges. Avoid breathing mist, vapors, spray. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Contaminated work clothing should not be allowed out of the workplace.
Handling	Wear protective gloves, protective clothing, and eye protection. Take off immediately all contaminated clothing and wash it before reuse. Wash hands thoroughly after handling.
Storage	Store in well-ventilated place. Keep cool. Store locked up.

Section 8: Exposure Controls/Personal Protection

Substances with Occupational Exposure Limit Values

Chemical Name	Country/ Provinces	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
butan-2-one *(methyl ethyl ketone)*	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	200 ppm 200 ppm 200 ppm 50 ppm 200 ppm 50 ppm	300 ppm Not established 300 ppm 100 ppm 300 ppm 100 ppm
methyl methacrylate	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	50 ppm (S) 100 ppm 50 ppm 50 ppm (S) 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 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.

S—Sensitizer

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:** Use safety glasses with lateral protection (side shields).
Skin Protection	For likely contacts, use of protective butyl rubber, fluorinated rubber, or other chemically resistant gloves. For incidental contacts, nitrile, neoprene, PVC, or other chemically resistant gloves.
Respiratory Protection	For over-exposures up to 10 x OEL of mist, vapors, and 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	**Lower Flammability Limit** [b]	1.8%
Appearance	Clear	**Upper Flammability Limit** [b]	11.6%
Odor	Sweet butterscotch-like	**Vapor Pressure @20 °C** [b]	60 hPa
Odor Threshold	Not available	**Vapor Density**	>2.14 (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]	80 °C [176 °F]	**Partition Coefficient n-octanol/water**	Not available
Flash Point [a]	-9 °C [15.8 °F]	**Auto-ignition Temperature** [c]	400 °C [752 °F]
Evaporation Rate	Not available	**Decomposition Temperature**	Not available
Flammability	Highly flammable	**Viscosity @40 °C**	>20.5 mm^2/s

a) Values for flash point and other threshold based on 2-butanone
b) Calculated using Raoult's Law and Le Chatelier Principle
c) Values for based on the component with the lowest auto-ignition value

Section 10: Stability and Reactivity

Reactivity	Not applicable
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Avoid flames, sparks, other ignition sources and incompatible substances.
Incompatibilities	Avoid oxidizing 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

Summary of Effects and Symptoms by Routes of Exposure

Skin	May cause redness, dry skin and dermatitis.
Eyes	Causes redness, severe irritation, and pain.
Ingestion	May cause abdominal pain, nausea, vomiting, headaches, dizziness, drowsiness, cough, and headaches.
Inhalation	May cause irritation of the respiratory track, cough, dizziness, drowsiness, and headaches.
Chronic	Prolonged or repeated exposure may cause skin dryness and cracking, defat skin, local redness, discomfort.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
2-butanone	2 737 mg/kg Rat	6 400 mg/kg Rabbit	23 500 mg/m^3 8 h Rat
isobutyl isobutyrate	>6 400 mg/kg Rat	>8.5 mg/kg Rabbit	5 423 ppm 6 h Rat
methyl salicylate	877 mg/kg Rat	Not available	Not available
methyl methacrylate	7 872 mg/kg Rat	5 000 mg/kg Rabbit	78 mg/L 4 h Rat
n-butyl methacrylate	>2 000 mg/kg Rat	>2 000 mg/kg Rabbit	29 mg/L 4 h Rat
ATE Mixture	>4 585 mg/kg	13 840 mg/kg	50 mg/L (vapour)

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	2-butanone and methyl salicylate cause eye irritation.
Sensitization (allergic reactions)	Methyl methacrylate and n-butyl methacrylate are known skin sensitizers.
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	Inhalation of butan-2-one, isobutyl isobutyrate, and methyl salicylate may affect the central nervous system, causing drowsiness, dizziness, and cause respiratory irritation.
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.

Based on available data, no ingredients are classified as aquatic environmental toxicants according to GHS criteria.

- The butan-2-one has minimal LC50 96 h of 3 130 mg/L for Pimephales promelas (fathead minnow); EC50 48 h 520 mg/L Daphnia magna (water flea).

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Acute Ecotoxicity

Available toxicity data does not meet classification thresholds.

Chronic Ecotoxicity

Available toxicity data does not meet classification thresholds.

Biodegradability

Not Available

Other Effects

Regulated Volatile Organic Content (VOC) = 71% (626 g/L)

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 L and under	Sizes greater than 5 L
419E-55ML, 419E-1L, 419E-4L **Limited Quantity** 	*419E-20L* **UN number**: UN1263 **Shipping Name:** PAINT **Class:** 3 **Packing Group**: II **Marine Pollutant:** No 

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Air

Refer to ICAO-IATA Dangerous Goods Regulations.	
Sizes 0.5 L and under *419E-55ML* **Limited Quantity** Total Net QTY per package 1 L  	Sizes up to 5 L (Passenger), 60 L (Cargo) *419E-1L, 419E-4L 419E-20L* **UN number**: UN1263 **Shipping Name**: PAINT **Class**: 3 **Packing Group**: II **Marine Pollutant**: No 

Sea

Refer to IMDG regulations.	
Sizes 5 L and under *419E-55ML, 419E-1L, 419E-4L* **Limited Quantity** Packing Instr. P001 	Sizes greater than 5 L *419E-20L* **UN number**: UN1263 **Shipping Name**: PAINT **Class**: 3 **Packing Group**: II **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.

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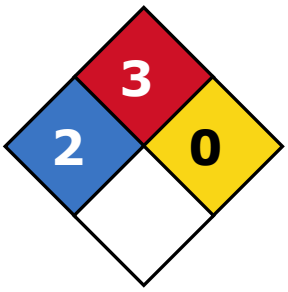
USA

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 does not contain substances that are listed as hazardous air pollutants.

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

This product contains 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 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).

This product does not contain any substances on the California Proposition 65 list.

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

SDS Prepared by	Regulatory Department
Date of Revision	05 July 2021
Supersedes	27 February 2020
Reason for Changes:	Classification change based on new supplier ingredients.

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

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
ECHA	European Chemicals Agency
EU	European Union
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

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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