



Quality System Certified to ISO 9001:2008

SAI Global File #004008

Burlington, Ontario, Canada

ACRYLIC CONFORMAL COATING

419C-LIQUID

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: Acrylic 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
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA

MG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA

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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 at **+1-800-424-9300**

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 the Hazardous Chemical

GHS Categories

| Criteria | Category | Signal Word | Pictograms |
|--|----------|-------------|-------------|
| Flammable Liquid | 2 | Danger | Flame |
| Reproductive Hazard | 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 | DANGER |
| Pictograms | Hazard Statements |
|  | H225: Highly flammable liquid and vapor |
|  | H361: Suspected of damaging fertility or the unborn child |
|  | H319: Causes serious eye irritation H336: May cause drowsiness or dizziness |
| none | H412: Harmful to aquatic life with long lasting effects |

Section continued on the next page

ACRYLIC CONFORMAL COATING**419C-LIQUID***Continued...*

| 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. |
| P233 | Keep container tightly closed. |
| P240 | Ground/bond container and receiving equipment. |
| P241 | Use explosion-proof electrical/ventilating/lighting equipment. |
| P243 | Take action to prevent static discharges. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P264 | Wash hands thoroughly after handling. |
| P261 | Avoid breathing vapors/mist/spray. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P273 | Avoid release to the environment. |
| Response | Precautionary Statements |
| P308 + P313 | IF exposed or concerned for all routes of exposure: Get medical advice/attention. |
| P370 + P378 | In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. |
| P303 + P361 + P364, P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before use. Rinse skin with water or shower. |
| 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/attention. |
| P304 + P340, P312 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. |
| Storage | Precautionary Statements |
| P403 + P235 | Store in a well-ventilated place. Keep cool. |
| P405 | Store locked up. |
| Disposal | Precautionary Statements |
| P501 | Dispose of contents/container in accordance to local/regional/international regulations. |

ACRYLIC CONFORMAL COATING**419C-LIQUID***Section continued on the next page***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) |
|----------|---------------|------------|
| 141-78-6 | ethyl acetate | 45% |
| 67-64-1 | acetone | 20% |
| 110-82-7 | cyclohexane | 0.6% |
| 108-88-3 | toluene | 0.6% |

Section 4: First-Aid Measures

| <i>Exposure Condition</i> | <i>GHS Code: Precautionary Statement</i> |
|-----------------------------|---|
| IF ON SKIN (or hair) | P303 + P361 + P364, P353 |
| Immediate Symptoms | <i>redness, dry skin</i> |
| Response | Take off immediately contaminated clothing. Wash contaminated clothing before reuse. Rinse with water or shower. |
| IF IN EYES | P305 + P351 + P338, P337 + P313 |
| Immediate Symptoms | <i>redness, irritation, pain, blurred vision</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 attention. |

Section continued on the next page

ACRYLIC CONFORMAL COATING**419C-LIQUID***Continued...*

| | |
|---------------------------|---|
| IF INHALED | P304 + P340, P312, P308 + P313 |
| Immediate Symptoms | <i>dizziness, drowsiness, headaches, cough, sore throat, nausea, weakness, unconsciousness</i> |
| Response | Remove person to fresh air and keep comfortable for breathing. If you feel unwell: Call a POISON CENTER/doctor If exposed or concerned: Get medical advice/attention. |
| IF SWALLOWED | P301 + P310, P331, P308 + P313 |
| Immediate Symptoms | <i>nausea, vomiting, abdominal cramps, diarrhea, irritation</i> |
| Response | Immediately call a POISON CENTRE/doctor. Do NOT induce vomiting. If exposed or concerned: Get medical advice/attention. |

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 | 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) and smoke. |
| Fire-Fighter | Wear self-contained breathing apparatus and full fire-fighting turn-out gear. |

Section 6: Accidental Release Measures

| | |
|----------------------------------|---|
| Personal Protection | See personal protection equipment in Section 8. |
| Precautions for Response | Avoid breathing mist/spray/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 | Contain with inert absorbent (such as soil, sand, vermiculite). |

Section continued on the next page

ACRYLIC CONFORMAL COATING**419C-LIQUID****Cleaning Methods**

Sprinkle inert absorbent compound onto spill, then sweep into the container. Collect the liquid in a sealable, chemical-resistant container. Use 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.

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.

Ground/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.

Avoid release to the environment.

Handling

Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling.

Storage

Store in a well-ventilated place. Keep cool.

Store locked up.

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Section 8: Exposure Controls/Personal Protection

Substances with Occupational Exposure Limit Values

| Chemical Name | Country or Vendor | Long Term Exposure Limits (PEL) | Short Term Exposure Limits (STEL) |
|---------------|-------------------|---------------------------------|-----------------------------------|
| 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 |
| 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 |
| 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 ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS² 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.

Engineering Controls

Ventilation

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

RECOMMENDATION: Respect the time weighted average of 400 ppm for ethyl acetate.

Section continued on the next page

ACRYLIC CONFORMAL COATING**419C-LIQUID****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, use nitrile, neoprene, PVC gloves, 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.

Respiratory Protection

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.

ACRYLIC CONFORMAL COATING**419C-LIQUID****Section 9: Physical and Chemical Properties**

| | | | |
|-------------------------------------|--------------------|--|------------------------|
| Physical State | Liquid | Lower Flammability Limit | 2% |
| Appearance | Clear | Upper Flammability Limit | 12% |
| Odor | Ethereal | Vapor Pressure @20 °C ^{c)} | ~15 kPa [~112 mmHg] |
| Odor Threshold | Not available | Vapor Density | >2 (Air = 1) |
| pH | Not available | Specific Gravity @25 °C | 0.88 |
| Freezing/Melting Point | Not available | Solubility in Water | Partly soluble |
| Boiling Point ^{a)} | ≥56 °C [133 °F] | Partition Coefficient | Not available |
| Flash Point ^{a, b)} | -17°C [1.4 °F] | Auto-ignition Temperature ^{d)} | 427 °C [801 °F] |
| Evaporation Rate | Not available | Decomposition Temperature | Not available |
| Flammability (solid, gas) | Not applicable | Viscosity @25 °C | Not available |

a) Lowest component literature value, which corresponds to acetone

b) Closed cup

c) Estimated using Raoult's Law and Le Chatelier Principle calculation for solvent

d) Lowest component auto-ignition literature value, which corresponds to ethyl acetate

ACRYLIC CONFORMAL COATING**419C-LIQUID****Section 10: Stability and Reactivity**

| | |
|----------------------------|--|
| Reactivity | Not available |
| Chemical Stability | Chemically stable at normal temperatures and pressures |
| Conditions to Avoid | 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**Summary of Effects and Symptoms by Routes of Exposure**

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

Lethal Exposure Concentrations

| Chemical Name | LD50 oral | LD50 dermal | LC50 inhalation |
|----------------------|---------------------|----------------------------------|-------------------------------------|
| ethyl acetate | 5 620 mg/kg Rat | >20 000 mg/kg Rabbit | 45 g/m ³ Mouse 2 h |
| acetone | 5 800 mg/kg Rat | 20 mL/kg Rabbit ^{a)} | 16 000 ppm Rat 6 h ^{a)} |
| cyclohexane | >5 000 mg/kg Rat | >2 000 mg/kg Rabbit | >33 mg/L Rat 4 h |
| toluene | 5 580 mg/kg Rat | >5 g/kg Rabbit | 49 mg/L Rat 4 h |

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier (M)SDS were also consulted.

a) LCLo value

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ACRYLIC CONFORMAL COATING**419C-LIQUID****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 known 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, spermatogenesis 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 doses. |
| 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 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.

The n-heptane component is an acute category 1 and chronic category 1 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).

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

- Ethyl acetate is biodegradable and has minimal LC50 96 h of 220 mg/L for *Pimephales promelas* (fathead minnow); LC50 24 h of 560 mg/L and EC50 24 h of 2 300 mg/L *Daphnia magna* (water flea).

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- 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).
- 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).

Acute Ecotoxicity

See chronic ecotoxicity.

Chronic Ecotoxicity

Category 3

Harmful to aquatic life with long lasting effects.

Avoid release to the environment.

Biodegradability

Not available

Other Effects

Volatile Organic Compound (VOC) content = 63% [552 g/L]

Note: Using acetone exemption in accordance with EPA and WHIMS

Section 13: Disposal Considerations

Dispose of contents in accordance with all local, regional, national, and international regulations.

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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

Limited Quantity



Sizes greater than 5 L (Cargo)

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes



Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 0.5 L and under

Part 419C-55ML

Limited Quantity

Max Net QTY/Pkg
1 L gross



Sizes up to 5 L (Passenger), 60 L (Cargo)

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes



Sea

Refer to IMDG regulations.

Sizes 5 L and under

Limited Quantity



Sizes greater than 5 L (Cargo)

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes



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

ACRYLIC CONFORMAL COATING**419C-LIQUID****Section 15: Regulatory Information****Canada****Domestic Substance List (DSL)/Non-Domestic Substance Lists (NDSL)**

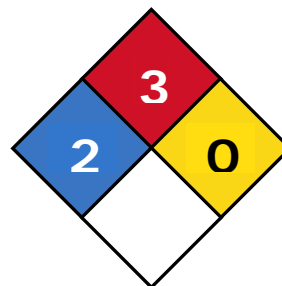
All hazardous ingredients are listed on the DSL/NDSL.

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 a hazardous air pollutant.

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 5 000 lb (2 268 kg) threshold.

This product contains toluene (CAS# 108-88-3; reportable quantity = 1 000 lb) and xylene (CAS# 1330-20-7, reportable quantity = 100 lb), which are 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.

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ACRYLIC CONFORMAL COATING**419C-LIQUID****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 electronics equipment and is therefore not governed by this regulation.

Section 16: Other Information

SDS Prepared by Michel Hachey
Date of Revision 15 January 2018
Supersedes 06 December 2017
Reason for Changes: Classification change.

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®)

Abbreviations

ACGIH American Conference of Governmental Industrial Hygienists (USA)
EC50 Half maximal effective concentration
EL50 Half maximal effective loading
NOELR No observable effect loading ratio
GHS Globally Harmonized System of Classification of Labeling of Chemicals
LC50 Lethal Concentration 50%
LD50 Lethal Dose 50%
PEL Permissible Exposure Limit
STEL Short-Term Exposure Limit
TWA Time Weighted Average
VOC Volatile Organic Content

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Quality System Certified to ISO 9001:2008

SAI Global File #004008

Burlington, Ontario, Canada

ACRYLIC CONFORMAL COATING

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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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