

4140A

AEROSOL

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 4140A**Other Means Of Identification:** Flux Remover for PC Boards (Aerosol) / Nettoyant de Flux pour Cartes PC (Aérosol)**Related Part #** 4140A-375G

Recommended Use and Restriction on Use

Use: Flux Remover for PC 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**TEL** +1-800-340-0772**FAX** +1-800-340-0773**E-MAIL** support@mgchemicals.com**WEB** www.mgchemicals.com**TEL** +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 | 1 | Danger | Flame |
| Aspiration Hazard | 1 | Danger | Health |
| Gas under pressure | Liquefied gas | Warning | Gas cylinder |
| Eye Irritation | 2 | Warning | Exclamation |
| Skin Irritation | 2 | Warning | Exclamation |
| Specific Target Organ Toxicity Single Exposure | 3 | Warning | Exclamation |
| Hazardous to the aquatic environment Chronic | 1 | Warning | Environment |

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 |
|  | H222: Extremely flammable aerosol |
|  | H304: May be fatal if swallowed and enters airways |
|  | H280: Contains gas under pressure; may explode if heated |

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| Pictograms | Hazard Statements |
|--|--|
|  | H319: Causes serious eye irritation H315: Causes skin irritation H336: May cause drowsiness or dizziness |
|  | H410: Very toxic to aquatic life with long lasting effects |
| Prevention | Precautionary Statements |
| P102 P210 P211 P251 P261 P271 P280 P264 P273 | Keep out of reach of children. Keep away from heat, hot surfaces, sparks, 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 or spray. Use only outdoors or in a well-ventilated area. Wear protective gloves and eye protection. Wash hands thoroughly after handling. Avoid release to the environment. |
| Response | Precautionary Statements |
| P301 + P310, P331 P302 + P352 P332 + P313 P362 + P364 P305 + P351 + P338 P337 + P313 P304 + P340 | IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. |

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| Response | Precautionary Statements |
|-----------------|--|
| P312 | Call a POISON CENTER or doctor if you feel unwell. |
| P391 | Collect spillage. |
| 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. |

Hazards Not Otherwise Classified

| Other Criteria | Hazard Statements/Precautionary Statement | Signal Word | Pictograms |
|-----------------------|---|--------------------|-------------------|
| Simple Asphyxiant | May displace oxygen and cause rapid suffocation. | Warning | Not applicable |
| Defats skin | Repeated exposure may cause skin dryness or cracking. | Not applicable | Not applicable |

Section 3: Composition/Information on Ingredients

| CAS # | Chemical Name | %(weight) |
|--------------|----------------------------------|------------------|
| 142-82-5 | n-heptane | 37.5% |
| 67-63-0 | isopropanol | 37.5% |
| 75-37-6 | 1,1-difluoroethane ^{a)} | 25% |

a) Also known as HFC-152a

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Section 4: First-Aid Measures

| <i>Exposure Condition</i> | <i>GHS Code/Symptoms/Precautionary Statements</i> |
|---------------------------|--|
| IF SWALLOWED | P301 + P310, P331 |
| Immediate Symptoms | <i>burning sensation, abdominal pain, nausea, vomiting, headaches, dizziness, drowsiness (see inhalation symptoms)</i> |
| Response | Get emergency medical help immediately. Do NOT induce vomiting. |
| IF IN EYES | P305 + P351 + P338, P337 + P313 |
| Immediate Symptoms | <i>redness, severe 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 ON SKIN | P302 + P352, P332 + P313, P362 + P364 |
| Immediate Symptoms | <i>redness, irritation, dry skin</i> |
| Response | Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. |
| IF INHALED | P304 + P340, P312, P308 + P313 |
| Immediate Symptoms | <i>cough, dizziness, drowsiness, headaches, sore throat</i> |
| Response | Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell |

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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]. Produces irritating and toxic fumes in fires or in contact with hot surfaces. 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 mist, spray or vapors. Remove or keep away all sources of extreme heat or open flames. |
| Environmental Precautions | Avoid releasing to the environment. |
| 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. |

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

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

Avoid release to the environment.

Handling

Wear protective gloves and eye protection.

Take off contaminated clothing and wash it before reuse.

Wash hands thoroughly after handling.

Collect spillage.

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/ Provinces | Long Term Exposure Limits (PEL) | Short Term Exposure Limits (STEL) |
|---------------|-----------------------|---------------------------------------|---|
| n-heptane | ACGIH | 400 ppm | 500 ppm |
| | U.S.A. OSHA PEL | 500 ppm | Not established |
| | Canada AB | 400 ppm | 500 ppm |
| | Canada BC | 400 ppm | 500 ppm |
| | Canada ON | 400 ppm | 500 ppm |
| | Canada QC | 400 ppm | 500 ppm |
| isopropanol | ACGIH | 200 ppm (TWA) | 400 ppm |
| | U.S.A. OSHA PEL | 400 ppm | Not established |
| | Canada AB | 200 ppm | 400 ppm |
| | Canada BC | 200 ppm | 400 ppm |
| | Canada ON | 200 ppm | 400 ppm |
| | Canada QC | 400 ppm | 500 ppm |

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| Chemical Name | Country/ Provinces | Long Term Exposure Limits (PEL) | Short Term Exposure Limits (STEL) |
|--------------------|---------------------------------------|---|---|
| 1,1-difluoroethane | ACGIH U.S.A. OSHA PEL Canada AB | 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 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).

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, fluorinated rubber, or other chemically resistant gloves.

For incidental contacts, 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.

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Section 9: Physical and Chemical Properties

| | | | |
|--|--------------------------|--|--------------------------|
| Physical State | Liquid in aerosol format | Lower Flammability Limit ^{b)} | 1% |
| Appearance | Colorless | Upper Flammability Limit ^{b)} | 9% |
| Odor | Alcohol like | Vapor Pressure @21 °C | Not available |
| Odor Threshold | Not available | Vapor Density | >2 (Air = 1) |
| pH | Not available | Relative Density @25 °C | 0.77 |
| Freezing/Melting Point | Not available | Solubility in Water | Partially miscible |
| Initial Boiling Point ^{a)} | >83 °C [>181 °F] | Partition Coefficient n-octanol/water | Not available |
| Flash Point ^{a)} | -4 °C [24 °F] | Auto-ignition Temperature ^{c)} | ≥285 °C [≥545 °F] |
| Evaporation Rate | >1 (ButAc = 1) | Decomposition Temperature | Not available |
| Flammability | Extremely flammable | Viscosity @40 °C | <20.5 mm ² /s |

a) Values based on isopropanol

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 | At elevated temperatures, may react with aluminum and generate hydrogen gas. |
| Chemical Stability | Chemically stable at normal temperatures and pressures |
| Conditions to Avoid | Ignition sources, open flames, temperatures above 50 °C [122 °F], and incompatible substances. Vapors may form explosive mixture with air. |
| Incompatibilities | Strong oxidizing agents, strong acids, strong bases, halogenated compounds, aluminum at temperatures ≥49 °C [≥120 °F] |
| 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

| | |
|-------------------|--|
| Ingestion | May cause a burning sensation, abdominal pain, nausea, vomiting, headaches, dizziness, and drowsiness. (See also inhalation symptoms.) |
| Inhalation | May cause cough, dizziness, drowsiness, and sore throat. |
| Skin | May cause skin redness, irritation, and dry skin. |
| Eyes | Causes serious eye irritation, redness or pain. |
| 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 |
|----------------------|---------------------|------------------------|-------------------------|
| n-heptane | ≥5 000 mg/kg Rat | ≥2 000 mg/kg Rabbit | 103 mg/L 4 h Rat |
| propan-2-ol | 3 600 mg/kg Rat | 12 800 mg/kg Rabbit | 16 000 ppm 8 h Rat |
| 1,1-difluoroethane | Not available | Not available | >437 500 ppm 4 h Rat |

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

Other Toxicological Effects

| | |
|--|--|
| Skin corrosion/irritation | N-heptane causes skin irritation. |
| Serious eye damage/irritation | Propan-2-ol causes severe eye irritation based on Draize tests on rabbits. |
| Sensitization (allergic reactions) | Based on available data, the classification criteria are not met. |
| Carcinogenicity (risk of cancer) | Not classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP. |

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| | |
|--|--|
| 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 | n-heptane and propan-2-ol 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 | The liquid content is classified as Cat 1 aspiration hazard. |

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 a chronic category 1 aquatic toxicant with minimal LC50 96 h of 4 mg/L for *Carassius auratus* (gold fish); EC50 48 h of 13 500 mg/L for *Daphnia magna* (water flea).

The propan-2-ol component is not classifiable as an environmental toxicant with a minimal LC50 96 h of 9 640 mg/L for *Pimephales promelas* (fathead minnow); EC50 24 h of 5 102 mg/L for *Daphnia magna* (water flea); EC50 24 h of >2 000 mg/L for *Pseudokirchneriella subcapitata* (green algae).

The 1,1-difluoroethane substance is not classifiable as an environmental toxicant (with minimal LC50 96 h of 296 mg/L for unspecified fish; 147 mg/L 24 h *Daphnia magna* (water flea); 48 mg/L calculated for algae).

Acute Ecotoxicity

See chronic ecotoxicity.

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4140A**AEROSOL****Chronic Ecotoxicity**

Category 1

Very toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

Biodegradability

Not available.

Other Effects

Actual VOC (Volatile Organic Compounds) content according to the US (EPA) and Canadian (CEPA) authorities.

Actual VOC = 75% [578 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 CFR 49 Regulations (Parts 100 to 185).Sizes 1 L and under
Limited Quantity**UN number:** UN1950
Shipping Name: AEROSOLS, flammable
Class: 2.1
Packing Group: Not applicable
Marine Pollutant: Yes*Section continued on the next page*

4140A**AEROSOL****Air****Refer to ICAO-IATA Dangerous Goods Regulations.**

Sizes 1 L and under

Limited Quantity

Max Net Qty/Pkg

30 kg G

**UN number:** UN1950**Shipping Name:** AEROSOLS, flammable**Class:** 2.1**Packing Group:** Not applicable**Marine Pollutant:** Yes**Sea****Refer to IMDG regulations.**

Sizes 1 L and under

Limited Quantity**UN number:** UN1950**Shipping Name:** AEROSOLS, flammable**Class:** 2.1**Packing Group:** Not applicable**Marine Pollutant:** Yes

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.

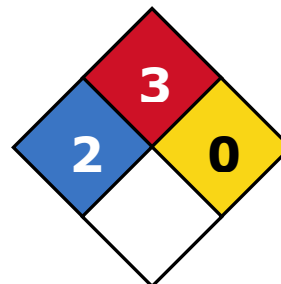
Hazardous Products Act (R.S.C., 1985, c. H-3)

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

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4140A**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 that are listed as hazardous air pollutants.

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

This product contains propan-2-ol (CAS # 67-63-0) 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 of the listed substances.

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.

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Section 16: Other Information**SDS Prepared by** MG Chemicals' Regulatory Department**Date of Review** 26 February 2020**Supersedes** Not applicable**Reason for Changes:** First release**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) |
| 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.

Email: support@mgchemicals.com

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Disclaimer

This safety data sheet is provided as an information resource only. *M.G. Chemicals, Ltd.* believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to query and verify any information seeming suspect where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, regional, national, and international regulations.