

4140A

FLUX REMOVER FOR PC BOARDS

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 4140A**Other Means of Identification:** Flux Remover for PC Boards**Related Part #** 4140A-945ML, 4140A-3.78L

Recommended Use and Restriction on Use

Use: Flux Remover for PC Boards**Uses Advised Against:** FOR INDUSTRIAL USE ONLY

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 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 Hazardous Chemical
GHS Categories

Criteria	Category	Signal Word	Pictograms
Aspiration Hazard	1	Danger	Health
Flammable Liquid	2	Danger	Flame
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). Severity categories rankings do not allow comparisons between classes.

Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H304: May be fatal if swallowed and enters airways
	H225: Highly flammable liquid and vapor
	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

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Prevention	Precautionary Statements
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 or vapors.
P271	Use only outdoors or in a well-ventilated area.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves, protective clothing, and eye protection.
P273	Avoid release to the environment.
Response	Precautionary Statements
P370 + P378	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
P301 + P310, P331	IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting
P303 + P361 + P352	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of water or shower.
P332 + P313	If skin irritation occurs: 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 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE or doctor if you feel unwell.
P391	Collect spillage.
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)
142-82-5	n-heptane	50%
67-63-0	propan-2-ol ^{a)}	50%

a) Commonly known as isopropyl alcohol (IPA)

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF SWALLOWED	P301 + P310, P331
Immediate Symptoms	<i>nausea, headaches, dizziness, weakness, unconsciousness</i>
Response	Immediately call a POISON CENTER or doctor. Do not induce vomiting.
IF ON SKIN (or hair)	P303 + P361 + P352
Immediate Symptoms	<i>dry skin, redness</i>
Response	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of water or shower. If skin irritation occurs: Get medical advice or attention.

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IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	<i>irritation, tearing, redness, pain</i>
Response	Rinse cautiously with water for 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>cough, dizziness, drowsiness, headaches, weakness, unconsciousness</i>
Response	Remove person to fresh air and keep comfortable for breathing. If feeling unwell: Call a POISON CENTRE or doctor.

Section 5: Fire-Fighting Measures

Response	In case of fire: Use dry chemical, carbon dioxide, water fog, or chemical foam to extinguish. Use water spray to cool containers.
Specific Hazards	Vapor may accumulate in low-lying areas. It can cause flash fire or ignite explosively.
Combustion Products	Produces carbon oxides (CO, CO ₂)
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

4140A**FLUX REMOVER FOR PC BOARDS****Section 6: Accidental Release Measures**

Personal Protection	Use personal protection recommended in Section 8.
Precautions for Response	Remove all sources of ignition. Avoid breathing the vapors and mist. Do not flush to sewer.
Environmental Precautions	Avoid releasing to the environment.
Containment Methods	Contain with inert 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 water.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep away from children. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. For metal containers, ground or bond container and receiving equipment. Take action to prevent static discharges. Use explosion-proof electrical, ventilating, and lighting equipment. Avoid breathing mist or vapors. Use only outdoors or in a well-ventilated area. Keep container tightly closed.
Handling	Wear protective gloves, protective clothing, and eye protection. Wash hands thoroughly after handling.
Storage	Store in a well-ventilated area. Keep cool. Store locked up.

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Section 8: Exposure Controls/Personal Protection
Substances with Occupational Exposure Limit Values

Chemical Name	Country	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
propan-2-ol	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

Note: The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS database² and from suppliers' SDSs were also consulted. Short term exposure limits (STEL) are usually 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: Use safety glasses with lateral protection (side shields).

Skin Protection For likely contacts, use of protective butyl rubber, nitrile, neoprene, polyethylene gloves or other chemically resistant gloves.

For incidental contacts, use disposable nitrile or neoprene gloves, or other chemically resistant gloves.

Do NOT use latex rubber, polyvinyl alcohol (PVA) or PVC gloves.

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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)}	1.5%
Appearance	Colorless	Upper Flammability Limit ^{b)}	9.2%
Odor	Alcohol like	Vapor Pressure @20 °C	4.5 kPa [33 mmHg]
Odor Threshold	Not available	Vapor Density	>2.0 (Air =1)
pH	Not available	Relative Density @25 °C	0.74
Freezing/Melting Point	-90 °C [-130 °F]	Solubility in Water	Partially miscible
Initial Boiling Point	>83 °C [181 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point ^{a)}	-4 °C [24 °F]	Auto-ignition Temperature	285 °C [545 °F]
Evaporation Rate	>1 (ButAc = 1)	Decomposition Temperature	Not available
Flammability	Highly Flammable	Viscosity @20 °C	<20.5 mm ² /s

a) Tag closed cup value

b) Lower and Upper Explosive Limits of mixture calculated using Le Chatelier principle and liquid component LFL and UFL limits

4140A**FLUX REMOVER FOR PC BOARDS****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, excessive heat, 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.

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

Eyes	Causes serious eye irritation, tearing, redness or pain.
Skin	Causes dry skin and redness.
Inhalation	May cause drowsiness or dizziness. Excessive exposure may cause narcotic effects, weakness, headaches, and unconsciousness.
Ingestion	May be harmful if swallowed. See inhalation symptoms.
Chronic	Prolonged or repeated exposure may defat skin and cause skin dryness and cracking, and local redness and discomfort.

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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

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

4140A**FLUX REMOVER FOR PC BOARDS****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).

Acute Ecotoxicity

See chronic ecotoxicity.

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

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

Regulated Volatile Organic Compound (VOC) content = 100% (735 g/L)

Section 13: Disposal Information

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 (Canadian Transportation of Dangerous Goods regulations) and USA DOT 49 CFR (Parts 100 to 185) Regulations.

Sizes 1 L and under

4140A-945ML

Limited Quantity



Sizes greater than 1 L

4140A-3.78L

UN number: UN1993

Shipping Name: Flammable liquid, n.o.s. (n-heptane, propan-2-ol)

Class: 3

Packing Group: II

Marine Pollutant: Yes



Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 0.5 L and under

Limited Quantity

Max Net Qty/Outer Pkg = 1 L



Sizes up to 5 L (passenger), 60 L (cargo)

4140A-945ML, 4140A-3.78L

UN number: UN1993

Shipping Name: Flammable liquid, n.o.s. (n-heptane, propan-2-ol)

Class: 3

Packing Group: II

Marine Pollutant: Yes






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Sea

Refer to IMDG regulations.	
<p>Sizes 1 L and under 4140A-945ML Limited Quantity</p> 	<p>Sizes greater than 1 L 4140A-3.78L UN number: UN1993 Shipping Name: Flammable liquid, n.o.s. (n-heptane, propan-2-ol) Class: 3 Packing Group: II Marine Pollutant: Yes</p>  

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/NDSL.

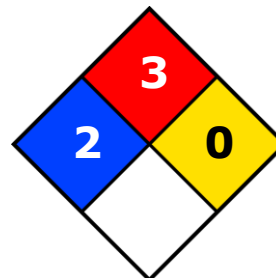
Hazardous Products Act (R.S.C., 1985, c. H-3)

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

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4140A**FLUX REMOVER FOR PC BOARDS****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.

4140A**FLUX REMOVER FOR PC BOARDS****Section 16: Other Information****SDS Prepared by** MG Chemicals' Regulatory Department**Date of Revision** 24 July 2019**Supersedes** Not applicable**Reason for Changes:** First release according to Hazcom2012 and WHMIS 2015.**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

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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.

Email: support@mgchemicals.com

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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