413C

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 413C

Other Means of Identification: Heavy Duty Flux Remover

Related Part # 413C-1L, 413C-4L, 413C-20L

Recommended Use and Restriction on Use

Use: Flux remover for electronics

Uses Advised Against: For industrial use only

Details of Manufacturer or Importer

Manufacturer
MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA

☎	+1-800-340-0772	☎	+1-905-331-1396
FAX	+1-800-340-0773	**FAX**	+1-905-331-2682
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 liquids	2	Danger	Flame
Eye Irritation	2A	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). Severity categories rankings do not allow comparisons between classes.

Label Elements

Signal Word	**DANGER**
Pictograms	**Hazard Statements**
	H225: Highly flammable liquid and vapor
	H319: Causes serious eye irritation H336: May cause dizziness or drowsiness
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.

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Prevention	**Precautionary Statements**
P243	Take action to prevent static discharges.
P261	Avoid breathing mist, vapors, and spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing, and eye protection.
P264	Wash hands thoroughly after handling.
Response	**Precautionary Statements**
P370 + P378	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas 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 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.
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**
Defats skin	Repeated exposure may cause skin dryness or cracking.	Not applicable	Not applicable

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
67-63-0	propan-2-ol [a)]	75%
616-38-6	dimethyl carbonate	25%

a) Commonly known as isopropyl alcohol (IPA)

Section 4: First-Aid Measures

Exposure Condition	*GHS Code/Symptoms/Precautionary Statements*
IF ON SKIN (or hair)	P303 + P361 + P353
Immediate Symptoms	*dry skin, mild irritation*
Response	Take off immediately all contaminated clothing. Rinse affected areas with water or shower.
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	*redness, serious 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	*cough, dizziness, drowsiness, headaches, weakness, unconsciousness*
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	*nausea, headache, dizziness, drowsiness, weakness, abdominal pain, unconsciousness*
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.
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 equipment in Section 8.
Precautions for Response	Avoid breathing mist, spray, or vapors. Remove or keep away all sources of ignition or extreme heat.
Environmental Precautions	Prevent spill from entering drains and waterways.
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 soap and water to remove the last traces of residue. **RECOMMENDATION:** Use a grounded stainless steel or carbon steel container or a solvent resistant plastic 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, and lighting equipment. Take action to prevent static discharges.
	Avoid breathing mist, vapors, and spray. 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 place. Keep cool.
	Store locked up.

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)
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: 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 by 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.

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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, fluorinated rubber, or other chemically resistant gloves. For incidental contacts, use nitrile, natural latex rubber, 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	**Lower Flammability Limit** [b]	2%
Appearance	Colorless	**Upper Flammability Limit** [b]	12%
Odor	Alcohol like	**Vapor Pressure @20 °C** [b]	30 hPa [22 mmHg]
Odor Threshold	Not available	**Vapor Density**	≥2 (Air =1)
pH	Not available	**Relative Density @25 °C**	0.84
Freezing/Melting Point	Not available	**Solubility in Water**	Miscible
Initial Boiling Point [a]	83 °C [181 °F]	**Partition Coefficient n-octanol/water**	Not available
Flash Point [a]	11 °C [51 °F]	**Auto-ignition Temperature** [c]	456 °C [852 °F]
Evaporation Rate	Not available	**Decomposition Temperature**	Not available
Flammability	Highly Flammable	**Viscosity @40 °C**	<20.5 mm^2/s

a) Based on acetone boiling point and closed cup value
b) Calculated value using Raoult's Law and LeChatelier principle
c) Propan-2-ol auto-ignition value, which is the lowest among the mixture components.

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Avoid ignition sources, excessive heat, and incompatible substances.
Incompatibilities	Strong oxidizing agents, strong acids, strong bases, halogenated compounds, potassium tert-butoxide, 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 redness, serious irritation, or pain.
Inhalation	May cause cough, dizziness, drowsiness, and headaches. A severe overexposure can cause weakness and unconsciousness.
Ingestion	May cause nausea, headaches, dizziness, drowsiness, weakness, abdominal pain, and unconsciousness.
Skin	May cause dry skin and mild irritation.
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
propan-2-ol	3 600 mg/kg Rat	12 800 mg/kg Rabbit	16 000 ppm 8 h Rat
dimethyl carbonate	13 000 mg/kg Rat	>5 000 mg/kg Rabbit	>5.36 mg/L 4 h Rat (vapors)
ATE Mixture	6 773 mg/kg	17 067 mg/kg	29 mg/L (vapors)

Note: Toxicity data from the RTECS[2] and ECHA were consulted. The data from supplier SDSs' were also consulted.

Other Toxicological Effects

Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/irritation	Propan-2-ol 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.

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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	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 does not meet the aspiration hazard criteria. The mixture doesn't contain category 1 substances.

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.

Propan-2-ol and dimethyl carbonate are not classifiable as toxic for the aquatic environment (with minimal LC50 of >100 mg/L).

- Propan-2-ol is readily biodegradable and has a minimal LC50 96 h of 9 640 mg/L for Pimephales promelas (fathead minnow); an EC50 24 h of 5 102 mg/L Daphnia magna (water flea); and an EC50 72 h of >2 000 mg/L Desmodesmus subspicatus (green algae).

Acute Ecotoxicity

Available toxicity data does not meet classification thresholds.

Chronic Ecotoxicity

Available toxicity data does not meet classification thresholds.

Biodegradability

The constituents are volatile and readily biodegradable.

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Other Effects

Actual Volatile Organic Compound (VOC) = 75% (784 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 1 L and under	Sizes greater than 1 L
413C-1L **Limited Quantity** 	*413C-4L, 413C-20L* **UN number**: UN1993 **Shipping Name:** FLAMMABLE LIQUID, N.O.S. (propan-2-ol, dimethyl carbonate) **Class:** 3 **Packing Group**: II **Marine Pollutant:** No 

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

	Sizes greater than 0.5 L up to 5 L (passenger), 60 L (cargo)
	413C-1L, 413C-4L, 413C-20L **UN number**: UN1993 **Shipping Name:** FLAMMABLE LIQUID, N.O.S. (propan-2-ol, dimethyl carbonate) **Class:** 3 **Packing Group**: II **Marine Pollutant**: No 

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Sea

Refer to IMDG regulations.	
Sizes 1 L and under *413C-1L* **Limited Quantity** 	Sizes greater than 1 L *413C-4L, 413C-20L* **UN number**: UN1993 **Shipping Name:** FLAMMABLE LIQUID, N.O.S. (propan-2-ol, dimethyl carbonate) **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.

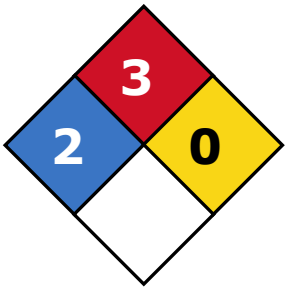
USA

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)

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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 substances known to be listed in California.

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	MG Chemicals' Regulatory Department
Date of Revision	12 September 2024
Supersedes	03 June 2021
Reason for Changes:	Added new part number

References

1) ACGIH *2023 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 (2023).

2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®), MDL Information Systems, Inc.

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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%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
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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