

HEAVY DUTY FLUX REMOVER

413B-AEROSOL

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 413B**Other Means of Identification:** Heavy Duty Flux Remover (Aerosol)**Related Part #:** 413B-425G, 413B-425GCA

Recommended Use and Restriction on Use

Use: Flux remover for electronics**Uses Advised Against:** Not available

Details of Manufacturer or Importer

ManufacturerMG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADAMG Chemicals (Head Office)
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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 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	2	Warning	Flame
Gas Under Pressure	Liquefied Gas	Warning	Gas cylinder
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). Severity categories do not allow comparisons between classes.

Label Elements

Signal Word	WARNING
Pictograms	Hazard Statements
	H223: Flammable aerosol
	H280: Contains gas under pressure; may explode if heated
	H319: Causes serious eye 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.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P261	Avoid breathing mist, vapors, or 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
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
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 and container in accordance to local, regional, national, and international regulations.

Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
Simple Asphyxiants	May displace oxygen and cause rapid suffocation.	Warning	None
Defats skin	Repeated exposure may cause skin dryness or cracking.	None	None

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Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
141-78-6	ethyl acetate	44%
811-97-2	1,1,1,2-tetrafluoroethane ^{a)}	30%
67-64-1	acetone	17%
67-63-0	propan-2-ol ^{b)}	9%

a) Also known HFC-134a

b) Commonly known as isopropyl alcohol (IPA)

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	<i>redness, 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 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.
IF SWALLOWED	P301 +P330, P331
Immediate Symptoms	<i>nausea, headache, dizziness, drowsiness, weakness, abdominal pain, unconsciousness</i>
Response	Rinse mouth. Do NOT induce vomiting.
IF ON SKIN	P302 + P353
Immediate Symptoms	<i>dry skin, mild irritation</i>
Response	Rinse skin with water or shower.

HEAVY DUTY FLUX REMOVER**413B-AEROSOL****Section 5: Fire-Fighting Measures**

Extinguishing Media	Use extinguishing media suitable for surrounding materials. 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) halogenated compounds, and hydrogen fluoride (HF).
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 the mist, spray, or vapors. Remove or keep away all sources of extreme heat or open flames.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
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. RECOMMENDATION: Use a grounded stainless steel or carbon steel container.
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 spray on an open flame or other ignition source. Do not pierce or burn, even after use. Avoid breathing the mist, spray, or vapors. Use only outdoors or in a well-ventilated area.
Handling	Wear protective gloves, protective clothing, and eye protection. Wash hands thoroughly after handling.
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	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	Not established	Not established
	Canada QC	400 ppm	Not established
1,1,1,2-tetrafluoroethane	<i>MG Chemicals</i> ^{a)}	1 000 ppm	Not established
	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	Canada	Not established	Not established
acetone	ACGIH	500 ppm	750 ppm
	U.S.A. OSHA PEL	1000 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

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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 ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS² database and from suppliers' SDSs were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

MG Chemicals recommended limit corresponding to prevalent international threshold values

Engineering Controls
Ventilation

Keep airborne concentrations below exposure limits.

Personal Protective Equipment
Eye protection

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection (side shields).

Skin Protection

Wear appropriate protective clothing to prevent skin contact.

For incidental contacts, use of protective gloves in nitrile 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.

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General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

Section 9: Physical and Chemical Properties

Physical State	Liquid in aerosol format	Lower Flammability Limit ^{b)}	2%
Appearance	Colorless	Upper Flammability Limit ^{b)}	13%
Odor	Ethereal	Vapor Pressure ^{b)} @20 °C	134 hPa [101 mmHg]
Odor Threshold	Not available	Vapor Density	≥2 (Air =1)
pH	Not available	Relative Density @25 °C	0.83
Freezing/Melting Point	Not available	Solubility in Water	Partially miscible
Initial Boiling Point ^{a)}	≥56 °C [132 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point ^{a)}	-17 °C [1.4 °F]	Auto-ignition Temperature ^{c)}	425 °C [797 °F]
Evaporation Rate	Not available	Decomposition Temperature	Not available
Flammability	Flammable	Viscosity @20 °C	<20.5 mm ² /s

a) Based on acetone boiling point and closed cup value

b) Calculated value using Raoult's Law

c) Propan-2-ol auto-ignition value, which is the lowest among the mixture components.

HEAVY DUTY FLUX REMOVER**413B-AEROSOL****Section 10: Stability and Reactivity**

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Temperatures above 50 °C [122 °F], open flames, and incompatible substances
Incompatibilities	Strong oxidizing agents, strong acids, aluminum powder 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, severe 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.

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Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
ethyl acetate	5 620 mg/kg Rat	>20 000 µL/kg Rabbit	45 g/m ³ 2 h Mouse
1,1,1,2-tetrafluoroethane	Not available	Not available	1 500 g/m ³ 4 h Rat
acetone	5 800 mg/kg Rat	20 mL/kg Rabbit ^{a)}	16 000 ppm 6h 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.

a) Supplier SDS

Other Toxicological Effects

Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/irritation	Ethyl acetate, acetone, and 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.
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	Ethyl acetate, acetone, 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 does not meet the aspiration hazard criteria. The mixture doesn't contain category 1 substances.

HEAVY DUTY FLUX REMOVER**413B-AEROSOL****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 1,1,1,2-tetrafluoroethane substance is not classifiable as an environmental toxicant.

Acetone, ethyl acetate, and propan-2-ol are not classifiable as an environmental toxicant (with minimal LC50 of >100 mg/L).

- Ethyl acetate is biodegradable and has a minimal LC50 96 h of 220 mg/L for *Pimephales promelas* (fathead minnow); LC50 24 h of 560 mg/L and an EC50 48 h of 2 300 mg/L for *Daphnia magna* (water flea); and an EC50 72 h of 1 800 mg/L for *Selenastrum* (green algae).
- Acetone is readily biodegradable and has a minimal LC50 96 h of 5 540 mg/L for *Oncorhynchus mykiss* (rainbow trout); EC50 48 h 13 500 mg/L *Daphnia magna* (water flea).
- 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

Based on available data, the classification criteria are not met.

Chronic Ecotoxicity

Based on available data, the classification criteria are not met.

Biodegradability

The constituents are volatile and readily biodegradable.

Other Effects

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

VOC = 53% [509 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 regulations (Canadian Transportation of Dangerous Goods regulations);
USA DOT 49 CFR (Parts 100 to 185) **Regulations.**

Limited Quantity



UN number: UN1950
Shipping Name: AEROSOL,
flammable
Class: 2.1
Packing Group: Not applicable
Marine Pollutant: No

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Limited Quantity
Max Net Qty/Pkg =
30 kg Gross



UN number: UN1950
Shipping Name: AEROSOL,
flammable
Class: 2.1
Packing Group: Not applicable
Marine Pollutant: No

Sea

Refer to IMDG regulations.

Limited Quantity



UN number: UN1950
Shipping Name: AEROSOL,
flammable
Class: 2.1
Packing Group: Not applicable
Marine Pollutant: No

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

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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.

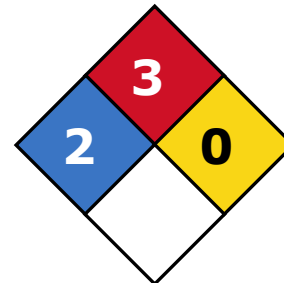
USA

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 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 up to 9% 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.

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.

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HEAVY DUTY FLUX REMOVER**413B-AEROSOL****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.

Section 16: Other Information

Prepared by the	Regulatory Affairs Department
Date of Revision	05 March 2020
Supersedes	27 April 2018
Reason for Changes:	Change to emergency phone numbers

References

- 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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HEAVY DUTY FLUX REMOVER**413B-AEROSOL****Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
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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