HEAVY DUTY FLUX REMOVER **413B**

Safety Data Sheet

Section 1: Product and Company Identification

Product Name: Heavy Duty Flux Remover **MSDS Code:** 413B

Related Part #: 413B-1L, 413B-4L, 413B-20L

Use: Flux remover solvent

Emergency Contact

CHEMTREC ☎: 1-800-424-9300 (**For hazardous material incidents ONLY**—leaks, spills, fires, exposures or accidents)

Manufacturer: MG Chemicals (Head Office), 9347–193 Street, Surrey, B.C., V4N 4E7

Technical Contacts: ☎ 1-800-201-8822 **FAX** 1-800-708-9888

E-MAIL: sds@mgchemicals.com **WEB** www.mgchemicals.com

Section 2: Hazards Identification

WHMIS Classification

B2 – Flammable Liquid; D2B – Toxic Material (Moderate eye irritation)

GHS Pictograms

Signal Word
Warning

Continued on the next page

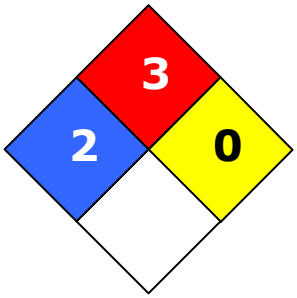
GHS Categories

Criteria	Category	Signal Word	Pictograms
Flammable liquid	2	Danger	
Eye irritation	2	Warning	
Specific Target Organ Toxicity Single Exposure	3	Warning	
Skin irritation	3	Warning	No Symbol Mandated

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)

Physical Hazards

GHS Code: Hazard Statement
H225: Highly flammable liquid and vapor

Health Hazards

GHS Code: Hazard Statement
H319: Causes serious eye irritation

H336: May cause drowsiness and dizziness (affected organ: central nervous system)

Environmental Hazards

GHS Code: Hazard Statement
Not applicable

Other Hazards

EUH066: Repeated exposure may cause skin dryness or cracking.

Precautionary Statements

P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P261 + P271: Avoid breathing vapors. Use only outdoors or in well ventilated area.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Exposure Routes and Symptoms Summary

Eyes	Causes serious eye irritation and possible corneal injury.
Skin	Does not meet classification criteria. If skin is abraded, may cause stinging or pain sensation. May cause skin dryness.
Inhalation	May cause irritation of nose and throat and upper respiratory system. May cause central nervous system effects leading to drowsiness and dizziness.
Ingestion	Does not meet classification criteria. See inhalation.
Chronic	Prolonged or repeated exposure may defat skin and cause skin dryness and cracking.

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
141-78-6	ethyl acetate	55–65%
67-64-1	acetone	20–30%
67-63-0	propan-2-ol	10–15%

Section 4: First Aid Measures

Exposure Condition	*GHS Code: Precautionary Statement*
IF IN EYES	P305
Symptoms	Immediate: *moderate to severe irritation, redness, pain*
Response	P351: Rinse cautiously with water for several minutes. P338: Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists	P310: Get medical advice/attention
IF ON SKIN	P302
Symptoms	Immediate: *dry skin*
Response	P361 + P353: Take off immediately all contaminated clothing. Rinse skin with water.
If skin irritation or rash occurs	P310: Get medical advice/attention
IF INHALED	P304
Symptoms	Immediate: *irritation, headache, drowsiness, dizziness, cough, nausea*
Response	P340: Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.
If feeling unwell	P312: Call a POISON CENTRE/doctor
IF SWALLOWED	P301
Symptoms	Immediate: *Irritation, burning sensation, abdominal pain, nausea*
Response	P330: Rinse mouth. P331: Do NOT induce vomiting.
If feeling unwell	P312: Call a POISON CENTRE/doctor

Section 5: Fire Fighting Measures

Autoignition Temperature [a]	425 °C [797 °F]	**Flash Point** [b]	-18 °C [0.4 °F]	**LFL [LEL]** [c]	2% (v)
				UFL [UEL]	13% (v)

In case of fire	P370
Response	P378: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers.
Combustion Products	Produces CO and CO_2.
Fire-Fighter	Wear self-contained breathing apparatus for fire fighting
General Information	Vapors may accumulate in low-lying areas. They can cause flash fire or ignite explosively.

Note: The GHS codes and the GHS precaution statements are used. The format is *GHS Codes: Statements*.

a) Propan-2-ol auto-ignition value, which is the lowest among the mixture components.
b) Closed cup value for acetone, which is the component with the lowest flash point.
c) LF[E]L = Lower Flammability [or Explosion] Limit (in volume %);
UF[E]L = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

Personal Protection: See Section 8. Avoid breathing the mist/vapors.

Containment Remove all sources of ignition.

Cleaning Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wash spill area with water to remove the last traces of residue.

Disposal Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P241 + P243: Use only non-sparking tools. Take precautionary measures against static discharge.

P262: Do not get in eye, on skin, or on clothing.

P261 + P271 + P284: Avoid breathing breath mist/gas/vapors/spray. Use only outdoors or in well ventilated area. In cases of inadequate ventilation wear respiratory protection.

P270: Do not eat, drink, or smoke when using this product.

Handling P280: Wear protective gloves/clothing/eye protection.

RECOMMENDATION: Wear neoprene, butyl rubber, nitrile or other impervious gloves with breakthrough time greater than intended use period.

P264: Wash hands thoroughly after handling.

Storage P403 + P233+ P235: Keep container tightly closed. Store in a well-ventilated area. Keep cool.

RECOMMENDATION: Keep in a dry and clean area, away from incompatible substances.

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation, and skin

Continued on the next page

Substances with Occupational Exposure Limit Values

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
ethyl acetate	ACGIH	400 ppm (TWA)	—
	U.S.A. OSHA PEL	400 ppm	—
	Canada AB	400 ppm	—
	Canada BC	150 ppm	—
	Canada ON	400 ppm	—
	Canada QC	400 ppm	—
acetone	ACGIH	500 ppm (TWA)	750 ppm
	U.S.A. OSHA PEL	1,000 ppm	—
	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
Propan-2-ol	ACGIH	200 ppm (TWA)	400 ppm
	U.S.A. OSHA PEL	400 ppm	—
	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[2], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database[1] of the Canadian Centre for Occupational Health and Safety (CCOHS) a data 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 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.

RECOMMENDATION: Use of protective gloves in butyl rubber, latex, neoprene, or other chemically resistant gloves.

Continued on the next page

Respiratory Protection If exposed to mist, wear respirator such as a half-mask respirator.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator has filter cartridges appropriate for the ingredients listed in section 3 of this MSDS, and that the respirator is 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	**Odor**	Ethereal	**Odor Threshold**	Not available
Appearance	Clear	**Specific Gravity**	0.83	**Freezing Point**	Not available
Boiling Point [a]	≥56 °C [132 °F]	**Vapor Pressure** [b] **@ 20 °C**	102 mmHg [13.6 kPa]	**Evapora-tion Rate**	Not available
Autoignition Temperature	425 °C [797 °F]	**Flash Point** [a]	-18 °C [-0.4 °F]	**Vapor Density**	2.7 (Air =1)
Lower Flammability Limit	2%	**Upper Flammability Limit**	13%	**Decompos-ition Temp.**	Not available
Viscosity	Not available	**Partition Coefficient**	Not available	**Solubility in Water**	Partially soluble
pH	Not available				

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.

Section 10: Stability and Reactivity

Stabilities	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
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

Section 11: Toxicological Information

Routes of Exposure

Eyes, ingestion, inhalation, and skin

Skin corrosion/irritation	Causes mild skin irritation based on Draize tests on rabbits. Prolonged or repeated skin contact may cause dermatitis
Serious eye damage/irritation	Causes moderate to severe eye irritation based on Draize tests on rabbits
Sensitization (allergic reactions)	No data available
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)	No data available
Reproductive Toxicity (risk to sex functions)	No data available
Teratogenicity (risk of fetus malformation)	No data available
STOT-single exposure	Mixture can affect the central nervous system by inhalation causing drowsiness or dizziness.
STOT-repeated exposure	Not applicable
Aspiration hazard	None of the components present a aspiration hazard

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
ethyl acetate	5,620 mg/kg Rat	>20,000 µL/kg Rabbit	45 g/m^3 2 h Mouse	1,105 mg/m^3 4 h Rat
acetone	5,800 mg/kg Rat	>9 400 µL/kg Guinea pig	44 g/m^3 4 h Rat	10 mg/m^3 6 h Human
isopropyl alcohol	3,600 mg/kg Rat	12,800 mg/kg Rabbit	16,000 ppm 8 h Rat	35 ppm Human

Note: Representative toxicity data from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS)[1] data from supplier MSDS were also consulted.

Section 12: Ecological Information

The IMDG Code criteria and the raw-material MSDS along with supporting data for the classification of registered substances from the European Chemical Agency database (http://echa.europa.eu) were used.

Ethyl acetate is not classifiable as an environmental toxicant (with minimal LC50 of ≥220 mg/L 96 h for Pimephales promelas (fathead minnow); 2,300 mg/L 24 h Daphnia magna (water flea); 4,200 mg/L 72 h green algae).

Acetone is not classifiable as an environmental toxicant (with minimal LC50 of 5,540 mg/L 96 h for Oncorhychu mykiss (rainbow trout); 13,500 mg/L 24 h Daphnia magna (water flea).

The 2-propanol substance is not classifiable as an environmental toxicant (with minimal LC50 of 9,640 mg/L 96 h for Pimephales promelas (fathead minnow); 5,102 mg/L 24 h Daphnia magna (water flea); >2,000 mg/L 24 h green algae).

Acute Ecotoxicity

Available toxicity data does not meet classification thresholds

Chronic Ecotoxicity

Not data available

Biodegradability

Not data available

Other Effects

VOC (EPA and WHIMS) = 75% (623 g/L)

**VOC = Regulated Volatile Organic Content*

Section 13: Disposal Information

P501: 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). **ADR** (European Agreement Concerning the International Carriage of Dangerous Goods by Road, and **ADN** (Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways).

All sizes less than 1 liter:
Limited Quantity

Sizes greater than 1 liter:
UN number: UN1993;
Shipping Name: FLAMMABLE LIQUID, N.O.S. (ethyl acetate, acetone)
Class: 3,
Packing Group: II,
Marine Pollutant: No

Air

Refer to IATA dangerous goods regulations.

UN number: UN1993;
Shipping Name: FLAMMABLE LIQUID, N.O.S. (ethyl acetate, acetone)
Class: 3,
Packing Group: II,
Marine Pollutant: No

Sea

Refer to IMDG regulations.

UN number: UN1993;
Shipping Name: FLAMMABLE LIQUID, N.O.S. (ethyl acetate, acetone)
Class: 3,
Packing Group: II,
Marine Pollutant: No

Note: Component supplier SDS transportation sections and labeling were consulted. All involved staff of shipper must be appropriately trained before involvement with the transport of this product, or work under direct supervision of a trained person.

Section 15: Regulatory Information

Canada

Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)

All hazardous ingredients are listed on the DSL/NDSL.

Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

Health Canada

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling Regulations.

USA

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 15% 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 5000 lb (2268 kg) threshold.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, Sept 2, 2011 revision, USA).

This product does not contain any of the listed substances.

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Europe

RoHS

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

WEEE

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

MSDS Prepared by Michel Hachey

Date of Issue 13 Decembe 2013

Supersedes 03 March 2013

Reason for Changes: Fix part numbers in Section 1

Reference

1) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

2) ACGIH *2011 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 (2011).

Abbreviations

ACGIH American Conference of Governmental Industrial Hygienists
GHS: Globally Harmonized System of Classification of Labeling of Chemicals
LC50 Lethal Concentration 50%
LCLo Lowest published lethal concentration
LD50 Lethal Dose 50%
N/A Not Applicable
N/E Not Estimated
PEL Permissible Exposure Limit
STEL Short-Term Exposure Limit
TCLo Lowest published toxic concentration
TWA Time Weighted Average
VOC Volatile Organic Content

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HEAVY DUTY FLUX REMOVER 413B

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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