HEAVY DUTY FLUX REMOVER 413B-LIQUID

Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifier

Name: Heavy Duty Flux Remover SDS Code: 413B-Liquid

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

1.2 Relevant Identified Uses of the Substance and Mixture and Uses Advised Against

Intended Uses: Flux remover solvent

Uses Advised Against: Not applicable

1.3 Details of the Supplier of the Safety Data Sheet

1.3 Details of the Supplier of the Safety Data Sheet

Manufacturer

MG Chemicals
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CANADA

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Distribution

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☎ +44 1663 362888
E-MAIL: sales@mgchemicals.com

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1.4 Emergency Telephone Number

Call CHEMTREC ☎: +(44)-870-8200418, or international ☎: +(1) 703-527-3887
(For hazardous material incidents ONLY—leaks, spills, fires, exposures or accidents)

For updates, visit www.mgchemicals.com/msds and select 413B from the European section.

Section 2: Hazards Identification

2.1 Classification of the Substance or Mixture

DSD-DPD Classification for Mixture (EU Directives 67/548/EEC or 1999/45/EC)

CHIP Symbols	Hazard Codes & Risk Phrases
	F: Highly flammable R11 – Highly Flammable
	Xi: Irritant R36 - irritating to eyes
No Symbol Mandated	R66 - Repeated exposure may cause skin dryness or cracking R67 - vapours may cause drowsiness and dizziness

CLP Categorization for Mixture (Regulation (EC) 1272/2008)

Pictograms	Criteria	Category	Signal Word
	Flammable Liquid	2	Danger
	Eye Irritation	2	Warning
	Specific Target Organ Toxicity Single Exposure	3	Warning
No Symbols Mandated	Skin Irritation	3	Warning

Continued on the next page

2.2 Label Elements

Regulation (EC) No. 1272/2008 [CLP]

Signal Word	DANGER
Pictograms	Hazard Statements
	H225: Highly flammable liquid and vapour
	H319: Causes serious eye irritation H336: May cause drowsiness and dizziness (narcotic effect by inhalation)
No Pictograms Mandated	EUH066: Repeated exposure may cause skin dryness and cracking
	Precautionary Statements
	P102: Keep out of reach of children. P261 + P271: Avoid breathing fume/mist/vapours. Use only outdoors or in well ventilated area. P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking. P305 + P351 + P358: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

Not applicable. None of the mixture components are known PBT or vPvB.

Section 3: Composition/Information on Ingredients

3.2 Mixtures

EC Number CAS #	Chemical Name	Wt%	CLP Classification [DSD Classification]
205-500-4 141-78-6	ethyl acetate	55–65%	Flam. Liquid 2 H225; Eye Irrit. 2 H319; STOT Single Exp. 3 H336 (CNS effect by inhalation)[a)] F: R11; Xi: R36-66-67
200-662-2 67-64-1	acetone	20–30%	Flam. Liquid 2 H225; Eye Irrit. 2 H319; STOT Single Exp. 3 H336 (CNS effect by inhalation); EUH066: repeated exposure may cause skin dryness or cracking F: R11; Xi: R36-66-67
200-661-7 67-63-0	propan-2-ol	10–15%	Flam. Liquid 2 H225; Eye Irrit. 2 H319; STOT Single Exp. 3 H336 (CNS effect by inhalation and ingestion) F: R11; R66-67

Note: Individual component classifications verified against the Classification and Labelling (C&L) Inventory online database (http://echa.europa.eu) and supplier SDSs. R-codes and H-statements not already spelled out in Section 2 are given in Sect. 16.

a) Narcotic effect on the central nervous system (CNS) by inhalation route.

Section 4: First Aid Measures

4.1 Description of First Aid Measures

IF IN EYES	P305
Symptoms (4.2)	Immediate: irritation, redness, pain, blurred vision
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	P313: Get medical attention.
IF ON SKIN	P302
Symptoms (4.2)	Immediate: dry skin
Response	P362+ P364: Take off contaminated clothing and wash it before reuse. P352: Wash with plenty of water.
If skin irritation or rash persists	P313: Get medical attention.
IF INHALED	P304
Symptoms (4.2)	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 doctor
IF SWALLOWED	P301 (Not a likely route of exposure under normal use)
Symptoms (4.2)	Immediate: irritation, burning sensation, abdominal pain, nausea
Response	P312: Call a doctor if you feel unwell. P330: Rinse mouth. P331: Do NOT induce vomiting.

Note: Section (4.2) symptoms are merged herein.

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4.2 Most Important Symptoms and Effects, Both Acute and Delayed
Causes severe eye irritation if splashed in eyes or exposed to vapours. May also cause eye redness or pain. Swallowing or inhaling has narcotic effects and may depress the central nervous system. See section 11 for other possible symptoms.

4.3 Indication If Any Medical Attention and Special Treatment Needed
Not applicable

Section 5: Fire Fighting Measures

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

In case of fire	P370
5.1 Extinguishing Media	P378: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers
5.2 Special Hazards Arising from Mixture	Produces CO and CO_2
5.3 Advice for Fire-fighters	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.
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

6.1 Personal Precautions, Protective Equipment and Emergency Procedures
Personal Precautions: Avoid breathing the mist/vapours.

Protective Equipment: See section 8.

Emergency Procedure: Remove all sources of ignition.

6.2 Environmental Precautions
Avoid release to the environment. Prevent material from reaching sewage system.

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6.3 Methods and Material for Containment and Cleanup

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.

RECOMMENDATION: A metal container is suggested.

6.4 Reference to Other Section

For protective equipment, see Section 8.

For disposal of spill waste, see Section 13.

Section 7: Handling and Storage

7.1 Precautions for Safe Handling

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.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

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.

7.3. Specific End Use(s)

No further relevant information available.

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation, and skin

8.1 Control Parameters

Ventilation — Keep airborne concentrations below exposure limits provided in the table below.

Chemical Name	Country	Long Term Exposure Limits	Short Term Exposure Limits	Comments [b)]
ethyl acetate	UK Ireland	200 ppm 200 ppm	400 ppm 400 ppm	— —
acetone	UK Ireland	500 ppm 500 ppm	1 500 ppm —	— IOELV
propan-2-ol	UK Ireland	400 ppm 400 ppm	500 ppm 500 ppm	— —

Note: The UK and Ireland regulation exposure limits were consulted [Ref 1 and 2 in Sect. 16]. Ingredients are listed in descending weight contribution order (from greatest to least). Short term exposure limits (STEL) are usually for 15 min and long term workplace exposure limits (WEL) for 8 h. Limits from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted [Ref. 2 in Sect. 16].

b) IOELV stands for Indicative Occupational Exposure Limit Value

8.2 Exposure Controls

Personal Protective Equipment

Eye/Face 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.

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 SDS, and that the respirator is fitted to the employee by a professional. Ensure vapour 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

9.1 Information on Basic Physical and Chemical Properties

Property	Value	Notes
a) Appearance (Physical State)	Liquid	
a) Appearance (Colour)	Clear	
b) Odour	Ethereal	
c) Odour Threshold	Not available	
d) pH	Not available	
e) Melting Point/Freezing Point	Not established	
f) Initial Boiling Point/Boiling Range	≥56 °C	1)
h) Evaporation Rate	Not available	
i) Flammability (solid, gas)	Highly flammable	
j) Lower Flammability or Explosive Limits	2%	
j) Upper Flammability or Explosive Limits	13%	
k) Vapour Pressure	136 hPa @20 °C	2)
l) Vapour Density	2.7 (Air = 1)	
m) Relative Density	0.83	
n) Solubility(ies)	Partially water soluble	
o) Partition Coefficient: n-octanol/water	Not established	
p) Auto-ignition Temperature	425 °C	3)
q) Decomposition Temperature	Not available	
r) Viscosity	Not available	
s) Explosive Properties	Not classifiable	
t) Oxidizing Properties	Not classifiable	

1) Based on acetone boiling point and closed cup value
2) Calculated value using Raoult's Law
3) Propan-2-ol auto-ignition value, which is the lowest among the mixture components

9.2 Other Information

Not applicable

Section 10: Stability and Reactivity

10.1 Reactivity
This mixture may be reactive with certain materials under certain conditions—see subsections 10.2 to 10.6

10.2 Chemical Stability
Chemically stable at normal temperatures and pressures

10.3 Possibility of Hazardous Reactions
Does not polymerize

10.4 Conditions to Avoid
Ignition sources, excessive heat, and incompatible substances (see 10.5)

10.5 Incompatible Materials
Strong oxidizing agents, strong acids

10.6 Hazardous Decomposition Products
Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

Section 11: Toxicological Information

11.1 Information on Toxicological Effects

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation [a)]
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
	4,100 mg/kg Mouse			
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
	5,340 mg/kg Rabbit		50.1 g/m^3 8 h Rat	30 g/m^3 2 h Rat
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) data from supplier SDS were also consulted [Ref 3 in Sect. 16].

a) Lowest published lethal concentration;

b) Lethal concentration low

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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, 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 known aspiration hazard

Section 12: Ecological Information

12.1 Toxicity

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

Available toxicity data does not meet classification thresholds

12.2 Persistence and Biodegradability

No data available

12.3 Bioaccummulative Potential

No data available

12.4 Mobility in Soil

No data available

12.5 PBT and vPvB Assessment

Not performed since none of the mixture components are suspected or listed as PBT or vPvB and no reaction products are expected.

12.6 Other Adverse Effects

VOC (Volatile Organic Content) = 100%

VOC is in accordance to Europe regulations

Section 13: Disposal Considerations

13.1 Waste Treatment Methods

P501: Dispose of contents in accordance with all local, regional, national, and international regulations.

See the UK Hazardous Waste (England and Wales) Regulation 2005 and the Ireland Wastes Management Acts 1996 to 2011.

Do not dispose in with household garbage. Do not allow product to reach sewage system.

Section 14: Transport Information

Ground

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 1 liter and under:
Limited Quantity

Sizes greater than 1 liter:
14.1 UN number: UN1993
14.2 Shipping Name: FLAMMABLE LIQUID, N.O.S. (ethyl acetate, acetone)
14.3 Transport Hazard Class: 3
14.4 Packing Group: II
14.5 Environment Hazard/Marine Pollutant: No
14.6 Special Precautions for Users: No

Air

Refer to IATA dangerous goods regulations.

14.1 UN number: UN1993
14.2 Shipping Name: FLAMMABLE LIQUID, N.O.S. (ethyl acetate, acetone)
14.3 Transport Hazard Class: 3
14.4 Packing Group: II
14.5 Environment Hazard/Marine Pollutant: No
14.6 Special Precautions for Users: No

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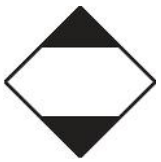
Sea

Refer to IMDG regulations.

All sizes 1 liter and under:
Limited Quantity



Sizes greater than 1 liter:
14.1 UN number: UN1993
14.2 Shipping Name: FLAMMABLE LIQUID, N.O.S. (ethyl acetate, acetone)
14.3 Transport Hazard Class: 3
14.4 Packing Group: II
14.5 Environment Hazard / Marine Pollutant: No
14.6 Special Precautions for Users: No

All Transportation Modes

14.7 Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Codes

Not applicable

14.8 Other Information

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

Europe

15.1 Safety, health, and environmental regulations specific for the substance or mixture

Not applicable

In reference to the Regulations (EC) No 1907/2006, the Control of Substances to Health Regulations (COSHH) and the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR)

15.2 Chemical Safety Assessment

Not required since all substances are under the REACH 10 tonnes registration threshold.

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RoHS Directive Compliant

This product is fully compliant with the directive on the restriction and use of certain hazardous material in electrical and electronic equipment. It has passed the European Directive 2011/65/EU Annex II (RoHS); recasting 2002/95/EC/. It does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's.

WEEE

This product is not a piece of electrical or electronics equipment, and is therefore not governed by Directive 2002/96/EC on waste electrical and electronic equipment (WEEE).

Section 16: Other Information

SDS Prepared by	Michel Hachey
Date of Revision	16 April 2013 Version 2.00
Supersedes	09 November 2010
Reasons for Changes	GHS format for EU region

Abbreviations
ACGIH American Conference of Governmental Industrial Hygienists
CNS Central nervous system
F or Flam. Flammable
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
PBT Persistent Bioaccumulative and Toxic
WEL Workplace Exposure Limit
Single Exp.: Single Exposure
STEL Short-Term Exposure Limit
STOT Specific Target Organ Toxicity
TCLo Lowest published toxic concentration
vPvB very Persistent and very Bioaccumulative
Xi or Irrit. irritant

Full text of H-Statement and R-Phrases that were not spelled out

H225: Highly flammable liquid and vapour
H319: Causes serious eye irritation
H336: May cause drowsiness and dizziness (narcotic effect by inhalation)H332: Harmful if inhaled
R11: highly flammable
R36: irritating to eyes
R66: Repeated exposure may cause skin dryness or cracking
R67: vapours may cause drowsiness and dizziness

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References

1) EH40/2005 Workplace exposure limits: Containing the list of workplace exposure limits for use with the Control Substances Hazardous to Health Regulation (as amended) (2nd edition), HSE Book 2011, ISBN 978 7176 6446 www.hse.gov.uk/pubns/books/eh40.htm

2) 2011 Code of Practice for the Safety, Health, and Welfare at Work [chemical Agents] Regulation 2011 (S.I. No. 619 of 2001], HSA0373, ISBN 978 1 84496 155 9 http://www.hsa.ie/eng/Publications_and_Forms/Publications/Chemical_and_Hazardous_Substances/Code_of_Practice_Chemical_Agent_Regulations_2011.pdf

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

Classification by Regulation (EC) No. 1272/2008: Classification Procedure

Flam. Liq. 2 H225:	Calculation method (with lowest known flashpoint and boiling point)
STOT RE 1 H372:	Calculation method
Eye Irrit. 2 H319:	Calculation method
Skin Sens. H317:	Calculation method
Carc. 2 H351:	Calculation method
Repr. Tox 2 H361:	Calculation method
STOT SE 1 H336:	Calculation method
Skin Irrit. 3 H315:	Calculation method
Chron. Aqua. H412:	Calculation method

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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