NO CLEAN FLUX, HALOGEN FREE **8351-LIQUID**

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: No Clean Flux, Halogen Free

SDS Code: 8351-Liquid

Related Part # 8351-125ML, 8351-1L, 8351-4L, 8351-20L, 8351-55G

Recommended Use and Restriction on Use

Use: Halogen free organic flux

Uses Advised Against: Not applicable

Details of Manufacturer or Importer

Manufacturer
MG Chemicals
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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 ☎: ***+1-800-424-9300***

For emergencies involving dangerous goods—Collect 24/7
CANADA: Call CANUTEC ☎: ***+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 Liquid	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 drowsiness and dizziness

Section continued on the next page

Continued…

Prevention	**Precautionary Statements**
P102	Keep out of reach of children.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof equipment.
P243	Take action to prevent static discharges.
P261	Avoid breathing vapors.
P271	Use only outdoors or in well-ventilated area.
P280	Wear protective gloves/eye protection/face 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 skin with water.
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/attention.
P304 + P340, P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE/doctor if you feel unwell.
Storage	**Precautionary Statements**
P403 + P235	Store in well-ventilated place. Keep cool.
P405	Store locked up.
Disposal	**Precautionary Statements**
P501	Dispose of contents/container in accordance to local/regional/international regulations.

Section continued on the next page

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)
64-17-5	ethanol	75-80%
67-63-0	propan-2-ol	15-20%

Section 4: First-Aid Measures

Exposure Condition	*GHS Code: Precautionary Statement*
IF ON SKIN (or hair)	P303 + P361 + P353
Immediate Symptoms	*mild irritation, redness*
Response	Take off immediately all contaminated clothing. Rinse skin with water or shower.
IF IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	*redness, severe irritation, tearing, pain*
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/attention
IF INHALED	P304 + P340, P312
Immediate Symptoms	*cough, irritation of the respiratory track*
Response	Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing. Call a POISON CENTRE/doctor if you feel unwell.
IF SWALLOWED	P301 + P330, P331
Immediate Symptoms	*abdominal pain, burning sensation*
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 the fumes/mist/vapors. Remove or keep away all sources of ignition or extreme heat.
Environmental Precautions	Prevent spill from entering drains and waterways.
Containment	Contain with inert absorbent (such as soil, sand, vermiculite).
Cleaning	Sprinkle inert absorbent compound onto spill, then sweep into the container. Use soap and water to remove the last traces of residue. Collect the liquid in a sealable, chemical-resistant container. **RECOMMENDATION:** Use a grounded stainless steel or carbon steel 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/sparks/open flames/hot surfaces. No smoking.
	Ground and bond container and receiving equipment. Take action to prevent static discharges. Use explosion-proof equipment.
	Keep container tightly closed.
	Avoid breathing vapors/mist/spray. Use only outdoors or in a well-ventilated area.
Handling	Wear protective gloves/protective clothing/eye protection/face protection.
	Wash hands thoroughly after handling.
Storage	Store in a well-ventilated area. 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)
ethanol	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	1 000 ppm 1 000 ppm 1 000 ppm Not established Not established 1 000 ppm	Not established Not established Not established 1 000 ppm 1 000 ppm 500 ppm
propan-2-ol	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	200 ppm (TWA) 400 ppm 200 ppm 200 ppm 200 ppm 400 ppm	400 ppm Not established 400 ppm 400 ppm 400 ppm 500 ppm

Note: The ACGIH[1], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the 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 neoprene, natural latex rubber, or other chemically resistant gloves.
Respiratory Protection	For over-exposures up to 10 x OEL of mist/vapors/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** [c]	3%
Appearance	Colorless	**Upper Flammability Limit** [c]	18%
Odor	Alcohol-like	**Vapor Pressure @20 °C** [b]	5.7 hPa [43 mmHg]
Odor Threshold	>1 ppm	**Vapor Density**	≥1.6 (Air = 1)
pH	Not available	**Specific Gravity @25 °C**	0.81
Freezing / Melting Point	Not available	**Solubility in Water**	Miscible
Boiling Point [a]	78 °C [173 °F]	**Partition Coefficient**	Not available
Flash Point [b]	12 °C [54 °F]	**Auto-ignition Temperature** [a]	363 °C [685 °F]
Evaporation Rate	Not available	**Decomposition Temperature**	Not available
Flammability (solid, gas)	Not available	**Viscosity @40 °C**	<3 mm^2/s

a) Auto-ignition and boiling point values based on the literature values for ethanol, which is the component with the lowest values.
b) Flash point (closed cup) value based on propan-2-ol literature value
c) Calculated based on Raoult's Law and using Le Chatelier principle

Section 10: Stability and Reactivity

Reactivity	Acetone reacts exothermically with phosphorous oxychloride, which can lead to an explosion.
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Avoid flames, sparks, other ignition sources and incompatible substances.
Incompatibilities	Phosphorous oxychloride, strong oxidizing agents, strong bases, 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

Eye contact, Inhalation, Skin contact, and Ingestion

Symptoms Summary

Eyes	Causes redness, severe eye irritation, tearing, or pain if splashed in eyes or exposed to vapors.
Skin	May cause mild skin irritation.
Inhalation	May cause drowsiness or dizziness. Exposure to soldering fumes may cause nose, throat and lung irritation.
Ingestion	It may cause irritation and burning sensation. (See inhalation symptoms.)
Chronic	Prolonged or repeated dermal exposure may defat skin and cause skin dryness and cracking, and local redness and discomfort.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
acetone	5 800 mg/kg Rat	20 mL/kg Rabbit [a)]	16 000 ppm 4 h Rat [a)]
ethanol	7 060 mg/kg Rat	Not available	20 000 ppm 10 h Rat

Note: Toxicity data from the RTECS[2] and ECHA were consulted. The data from supplier (M)SDS were also consulted.

a) Supplier safety data sheet

Other Toxicological Effects

Skin corrosion / irritation	Based on available data, the classification criteria are not met.
Serious eye damage / irritation	Draize tests with ethanol and propan-2-ol cause severe eye irritation for rabbits
Sensitization (allergic reactions)	Based on available data, the classification criteria are not met.

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Carcinogenicity (risk of cancer)	**Ethanol [64-17-5]** IARC Group 1: Carcinogenic to human when consumed as beverage. ACGIH A3: Confirmed animal carcinogen with unknown relevance to humans CA Prop 65: Listed as a carcinogen when consumed as a beverage NTP: Not listed
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	Ethanol and propan-2-ol and 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	Based on available data, the classification criteria are not met. There are no category 1 components.

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.

Ethanol is not classifiable as an environmental toxicant with minimal LC50/EC greater than 1 000 mg/L 96 h for fish, invertebrates, and algae

The 2-propanol component is not classifiable as an environmental toxicant with minimal LC50 of 9 640 mg/L 96 h for Pimephales promelas (fathead minnow); EC50 of 5 102 mg/L 24 h Daphnia magna (water flea); EC50 >2 000 mg/L 72 h Desmodesmus subcapitatus (green algae).

Acute Ecotoxicity

Available toxicity data does not meet classification thresholds.

Section continued on the next page

Chronic Ecotoxicity

Available toxicity data does not meet classification thresholds.

Biodegradability

Not available

Other Effects

Volatile Organic Compound (VOC) content = 100% [794 g/L] by VOC-Exemption

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
Limited Quantity 	**UN number**: UN1987 **Shipping Name:** ALCOHOLS, N.O.S. (Ethanol, Isopropanol) **Class:** 3 **Packing Group**: II **Marine Pollutant:** No 

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Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 1 L and under	Sizes greater than 1 L
Limited Quantity 	**UN number**: UN1987 **Shipping Name:** ALCOHOLS, N.O.S. (Ethanol, Isopropanol) **Class:** 3 **Packing Group**: II **Marine Pollutant:** No 

Sea

Refer to IMDG regulations.

Sizes 1 L and under	Sizes greater than 1 L
Limited Quantity 	**UN number**: UN1987 **Shipping Name:** ALCOHOLS, N.O.S. (Ethanol, Isopropanol) **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.

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.

Section continued on the next page

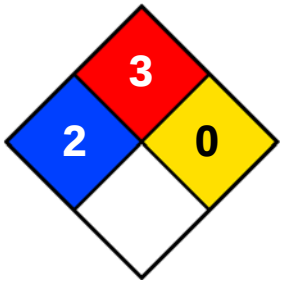
USA

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 20% 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, June 06, 2014 revision, USA).

This product contains ethanol, which is listed as reproductively toxic. It is also listed as a carcinogen when in an alcoholic beverage.

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	Michel Hachey
Date of Revision	29 June 2017
Supersedes	26 July 2014
Reason for Changes:	Updated to the latest format to comply with Hazcom2012 and WHMIS 2015.

Reference

1) ACGIH 2013 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 (2013).

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

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

Section continued on the next page

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