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 available

Details of Manufacturer or Importer

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

☎ +1-800-340-0772
FAX +1-800-340-0773
E-MAIL support@mgchemicals.com
WEB www.mgchemicals.com

MG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA

☎ +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 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 the Hazardous Material

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

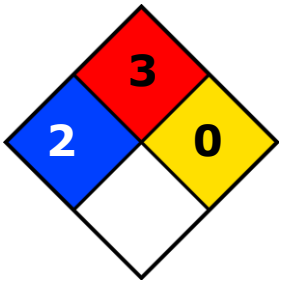
Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

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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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
Prevention	**Precautionary Statements**
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing fumes/mist/vapors.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/eye protection/face protection.
P264	Wash hands thoroughly after handling.

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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 attention.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water (or shower).
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P403 + P235	In case of fire: Use dry chemical, carbon dioxide, water fog, or chemical foam to extinguish.
Storage	**Precautionary Statements**
P403 + P233	Store in well-ventilated area. Keep container tightly closed.
P405	Store locked up.
Disposal	**Precautionary Statements**
P501	Dispose of contents/container in accordance to local/regional/international regulations.

Hazards Not Otherwise Classified

Prolonged or repeated exposure may cause skin dryness or cracking

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 IN EYES	P305 + P351 + P338, P337 + P313
Immediate Symptoms	*redness, severe irritation, tearing, pain*
Response	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
IF INHALED	P304 + P340, P312
Immediate Symptoms	*cough, irritation of the respiratory track*
Response	Remove person to fresh air and keep comfortable for breathing. If feeling unwell: Call a POISON CENTER/doctor.
IF ON SKIN	P303 + P352, P362 + P364, P333 + P313
Immediate Symptoms	*mild irritation, redness*
Response	Wash with plenty of water/shower. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention.
IF SWALLOWED	P301 + P330 + P331
Immediate Symptoms	*abdominal pain, burning sensation*
Response	Rinse mouth. Do not induce vomiting. Call a POISON CENTRE/doctor if you feel unwell.

Section 5: Fire-Fighting Measures

Auto-ignition Temperature a)	363 °C [685 °F]	**Flash Point** b)	12 °C [54 °F]	**LFL [LEL]**	3%
				UFL [UEL] c)	18%

In case of fire	P370 + P378
Extinguishing Media	Use dry chemical, carbon dioxide, alcohol resistant foam or water spray to extinguish. Use water spray to cool containers.
Specific Hazards	Vapors may accumulate in low-lying areas. They can cause flash fire or ignite explosively.
Combustion Products	Produces carbon oxides (CO, CO_2).
Fire-Fighter	Wear self-contained breathing apparatus for fire fighting

a) Auto-ignition value based on the literature value for ethanol, which is the component with the lowest value
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
LFL = Lower Flammability [or Explosion] Limit (in volume %);
UFL = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

Personal Protection	Use personal protection recommended in Section 8.
Precautions for Response	Remove all sources of ignition. Avoid breathing the vapors/mist/fumes. Do not flush to sewer.
Environmental Precautions	Avoid releasing to the environment.
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.
Disposal Methods	Dispose spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
	For metal containers, ground/bond container and receiving equipment.
	Take precautionary measures against static discharge. Use explosion-proof electrical/ventilating/lighting equipment.
	Avoid breathing fumes/mist/vapors.
	Use only outdoors or in well-ventilated area. In cases of inadequate ventilation wear respiratory protection.
	Do not eat, drink, or smoke when using this product.
Handling	Wear protective gloves/eye protection.
	Wash hands thoroughly after handling.
Storage	Keep container tightly closed. Keep away from oxidizing materials.
	Store in a well-ventilated area. Keep cool.
	Store locked up.

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Eyes, ingestion, inhalation, and skin

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

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Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
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: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH[2], OSHA, 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 usually for 15 min and long term permissible exposure limits (PEL) for 8 h.

Engineering Controls

Ventilation Keep airborne concentrations below exposure limits with a general or local exhaust system.

Personal Protective Equipment

Eye protection Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection.

Skin Protection Wear appropriate protective clothing to prevent skin contact.

RECOMMENDATION: Use nitrile, polyvinyl chloride (PVC), butyl rubber, or other chemically resistant gloves.

Respiratory Protection Not normally required, but if exposed to high levels of mist/vapors/fumes, wear respirator such as a half-mask respirator.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator has a NIOSH (U.S.) approved 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 vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands with water and soap after use.

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** [c]	43 mmHg [5.7 kPa]
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	May for explosive mixture with aluminum when heated at temperatures ≥ 49 °C [≥120 °F].
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, excessive heat, direct sunlight, and incompatible substances.
Incompatibilities	Strong oxidizing agents, strong acids, strong bases, alkali or alkali earth metals, peroxides
Polymerization	Will not occur.
Decomposition	For thermal decomposition, see combustion products in Section 5

Section 11: Toxicological Information

Routes of Exposure

Eyes, ingestion, inhalation, and skin

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.

Severe overexposure may cause narcotic effects, weakness, headaches, and unconsciousness.

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.

Lethal Exposure Concentrations

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
isopropyl alcohol	3 600 mg/kg Rat	12 800 mg/kg Rabbit	16 000 ppm 8 h Rat	35 ppm Human
ethanol	7,060 mg/kg Rat	Not available	20 000 ppm 10 h Rat	2,500 mg/m^3 20 min Human

Note: Representative toxicity data from by RTECS database[2] of the Canadian Centre for Occupational Health and Safety (CCOHS) data from supplier (M)SDS were also consulted.

Other Toxicological Effects

Skin corrosion/irritation Draize tests on ethanol and propan-2-ol cause mild irritation for Rabbits

Serious eye damage/irritation Draize tests with ethanol and propan-2-ol cause severe eye irritation for Rabbits

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Respiratory and skin sensitization (allergic reactions)	No known effects
Carcinogenicity (risk of cancer)	Evidence of carcinogenicity of ethanol relates to excessive alcoholic beverage consumption. It doesn't relate to exposure risks when used in the workplace or as a consumer product. **Ethanol [64-17-5]** IARC Group 1: Possibly carcinogenic to humans in the form of alcoholic beverages (not ethanol) ACGIH A4: Not classified as a human carcinogen CA Prop 65: Listed as a carcinogen when consumed as a beverage NTP: When in alcoholic beverage consumption, it is listed as a known carcinogen
Mutagenicity (risk of heritable genetic effects)	No known effects
Reproductive Toxicity (risk to sex functions)	Evidence of reproductive toxictiy of ethanol relates to excessive alcoholic beverage consumption, and doesn't relate to exposure risks when used in the workplace or as a consumer product. By inhalation, no fertility or developmental effects are observed for exposures of up to 16 000 ppm. **Ethanol [64-17-5]** CA Prop 65: Listed as a carcinogen when consumed as a beverage
Teratogenicity (risk of fetus malformation)	No known effects
STOT-single exposure	Ethanol and propan-2-ol and can affect the central nervous system by inhalation causing drowsiness or dizziness.
STOT-repeated exposure	No known effects.
Aspiration hazard	Mixture does not contain components classified as a Cat 1 aspiration hazards; therefore, the mixture is not a Cat 1 aspiration hazard. It does meet the criteria of a Cat 2 aspiration hazard, which has not been adopted by OSHA nor WHMIS.

Section 12: Ecological Information

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

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

Chronic Ecotoxicity

Available toxicity data does not meet classification thresholds

Persistence and Biodegradability

Not available

Bioaccumulative Potential

Not available

Mobility in Soil

Not available

Other Effects

Regulated Volatile Organic Content (VOC) = 100% (794 g/L)

Section 13: Disposal Considerations

Dispose of contents in accordance with all local, provincial, state, and federal 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 liter and under	Sizes greater than 1 liter
Limited Quantity 	**UN number**: UN1987 **Shipping Name:** ALCOHOLS, N.O.S. (Ethanol, Isopropanol) **Class:** 3 **Packing Group**: II **Marine Pollutant:** No 

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

	Sizes up to 5L (Passenger); 60 L (cargo)
	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 liter and under	Sizes greater than 1 liter
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

WHMIS Classification

B2 – Flammable Liquid; D2B – Toxic Material (Eye Irritant)

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 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, Sept 2, 2011 revision, USA).

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

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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

SDS Prepared by	Michel Hachey
Date of Creation	26 July 2014
Date of Revision	Not applicable
Supersedes	Not applicable

Reason for Changes: New product

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)
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

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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

Mailing Addresses

Manufacturing & Support
1210 Corporate Drive
Burlington, Ontario, Canada
L7L 5R6

Head Office
9347–193rd Street
Surrey, British Columbia, Canada
V4N 4E7

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