

MATERIAL SAFETY DATA SHEET

Issue Date : February 1, 2001

May be used to comply with OSHA's Hazard Communication Standard 29 CFR 1910.1200. Standard must be consulted for specific requirements. Based on ANSI Z400.1-1998 Material Safety Data Sheets - Preparation. **IMPORTANT!** Read and understand this Material Safety Data Sheet and the Gasfluxer Operator's Manual before handling or using this product. The reader should consult reference works or individuals who are authorities on safety, fire prevention, ventilation, toxicology, etc. as necessary or appropriate to use and comprehend the data contained in this MSDS.

User Responsibility: The information in this Material Safety Data Sheet cannot be expected to cover all potential, individual workplace conditions. The user of the product has a responsibility to provide and maintain a safe workplace. All areas of operation should be examined to determine if, or where, safeguards - in addition to those described in this *Material Safety Data Sheet* - are required. Health hazards and safety information contained within this document should be passed on to your customers and/or employees as the case may be.

1. Chemical / Product and Company IdentificationProduct Name : **Liquid Gasflux®**Label Name : **Type "W" Liquid Gasflux®**

Manufacturer : The Gasflux Company
32 Hawthorne Street
P. O. Box 1170
Elyria, Ohio 44036 U.S.A.

Information: (440) 365-1941 (8am - 4:30pm est M-F)
Chemtrec: (800) 424-9300 (24 hours/day 7 days/week)
Chemtrec International: (01) (703) 527-3887

2. Composition**Information on Ingredients**

Ingredient Name	CAS#	Weight % (approx)
Trimethylborate	121-43-7	55 %
Acetone	67-64-1	25 %
Methanol	67-56-1	20 %

3. Hazards Identification**EMERGENCY OVERVIEW:**

Clear, colorless liquid with characteristic odor. **Flammable liquid**, keep away from heat, sparks and flame. Vapors from open containers also flammable. Harmful if inhaled. Use adequate ventilation. May be fatal if swallowed. May cause blindness if swallowed. Contact may cause eye or skin irritation. Keep containers tightly closed when not in use.

Potential Health Effects

Inhalation : High vapor concentrations may cause irritation of eyes, nose and throat. Prolonged inhalation may cause headaches, nausea and drowsiness.

Eye contact : Contact may cause irritation to the eyes and mucous membranes.

Skin contact : Prolonged contact causes dryness and irritation.

Ingestion : Ingestion may cause headache, fatigue, nausea, circulatory and/or respiratory failure and death.

Chronic : Repeated and/or prolonged exposure by inhalation / absorption may cause systemic poisoning, blindness and death.

Medical conditions generally aggravated by exposure : N/D

Important ! : This section covers the materials from which the product is manufactured. Reasonably expected fumes and gases produced during the brazing process are covered in *Section 8 - Exposure Controls / Personal Protection (when brazing)*.

4. First Aid Measures

Inhalation : Remove victim to fresh air. Administer oxygen or artificial respiration only on physician's recommendation. Seek medical attention.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Seek medical attention.

Skin contact : Copiously flush skin with plenty of water for several minutes.

Ingestion : If swallowed, immediately give several glasses of warm water and induce vomiting. Do not give liquids if victim is unconscious or very drowsy. Seek medical attention immediately.

☆ **Always contact physician or poison center in case of medical emergency. Treatment may vary with condition of victim and specifics of incident**

5. Fire Fighting Measures

29 CFR 1910.1200
Flammable Liquid

Flash Point (C.O.C.)
18° F / -7.7° C

Flammable Limits
LEL 6.0% UEL 36.5%

Extinguishing Media
Dry chemical, CO₂, Water spray or foam

Special Fire Fighting Procedures :

This product burns with a clear flame which is virtually invisible in daylight. Evacuate nonessential personnel from the fire area. Use standard fire fighting techniques to extinguish fires involving this material. Vapors can travel to source of ignition and flash back. Prevent human exposure to fire, smoke, fumes or products of combustion. Fire fighters should wear full face, positive pressure, self contained breathing apparatus and impervious protective clothing. Keep containers which are exposed to heat or fire cool with water spray to prevent rupture or build-up of pressure.

Unusual Fire and Explosion Hazards :

Do not use welding or cutting torch on or near any shipping / storage container of this material, full or empty - explosion may occur. This product is sensitive to sparks of electricity due to static discharge. Vapors are heavier than air and can travel long distances to source of ignition and flash back.

NFPA Ratings :

Health : 1

Fire : 3

Reactivity : 0

6. Accidental Release Measures

Steps to be taken if material is released or spilled :

Extinguish all sources of ignition within 35 feet (11m) of spill or vapor release. Provide adequate ventilation. If spill is of significant or unknown quantity, use self-contained breathing apparatus during clean-up. Always wear proper protective clothing to prevent skin or eye contact. Released product which has evaporated forms smooth, slippery surface on floors, posing an accident risk. Absorb small spills with sand or fullers earth, and place in appropriate waste container. Large spills should be diluted and pumped into approved containers for disposal in accordance with all local, state, and federal laws and regulations.

7. Handling and Storage

Special handling considerations :

Always wear proper protective clothing when handling. Avoid breathing vapor. Avoid eye, skin and clothing contact when transferring from container. **Flammable liquid** - keep away from heat, sparks and flame. **Never transfer liquid within 35 feet (11m) of an open flame.** To reduce potential of sudden release of pressure, loosen closures slowly and cautiously before opening. To reduce potential of static discharge, effectively bond and ground containers when transferring material. Protect containers from physical damage or punctures resulting in leakage. Keep containers tightly closed when not in use. Do not reuse shipping containers. Empty containers retain vapors and must be treated as having the same hazards as containers full of liquid. Many plastics are attacked by this product.

Special storage considerations :

Store in accordance with 29 CFR §1910.106 Flammable and Combustible Liquids, BOCA National Fire Prevention Code, NFPA 30 Flammable and Combustible Liquids Code and all local codes and regulations. Store in a cool, well ventilated area at least 35 feet (11m) from open flames or other sources of ignition. Always store product in the original shipping container. Tightly close storage containers after transfer. Vapors can travel to a source of ignition and flash back. Moisture, in any form will contaminate this product, rendering it unusable. Retain all original labels. Store away from food stuffs or animal feed. Prevent container damage.

8. Exposure Controls / Personal Protection

Respiratory Protection

When Transferring / Handling : Ventilation may be required when handling or using this product to keep exposure to airborne contaminants below permissible exposure limits. If adequate ventilation is not available during handling or transfer of this product, use NIOSH approved organic vapor respirators with dust, mist and fume filters to reduce the potential of inhalation exposure. Protection provided by air-purifying respirators is limited. Use a positive pressure, air supplied respirator if there is any potential for uncontrolled release, unknown exposure levels, or any other circumstances where air-purifying respirators may not provide adequate protection. Respiratory protection programs must follow OSHA's 29 CFR 1910.134 And ANSI Z88.2 requirements where there may be the potential for airborne exposure.

Hazardous Components Limits for Air Contaminants	ACGIH		OSHA	
	TWA	STEL	TWA	STEL
Trimethylborate	N/D	N/D	N/D	N/D
Acetone	750 ppm	1000 ppm	1000 ppm	-
Methanol (s) (s) - skin designation	200 ppm	250 ppm	200 ppm	-

When Brazing : Use enough ventilation and local exhaust at the flame site to keep the fumes and gases below the TLV-TWA (Threshold Limit Value - Time Weighted Average) for welding fumes in the brazer's breathing zone and in the general air. Use an approved air-purifying or air-supplied respirator when brazing in a confined space or where local exhaust or ventilation does not keep exposure below the TLV-TWA. Refer to the current American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Chemical Substances and Physical Agents for the most updated exposure limits.

As outlined by the ANSI/AWS A5.31-92 (A4.1), Specifications For Fluxes For Brazing And Braze Welding, there are five predominant variables which contribute to the quality and quantity of fumes in the affected area which brazing operators and bystanders are exposed to during the brazing process. These include (but are not limited to):

- 1) Dimension of the brazing area - with attention to ceiling height.
- 2) The total number of brazers working in the given space.
- 3) Depending on the material and process utilized, the rate of formation of fumes, gases or dusts from the process.
- 4) The location of the brazer in relation to the fumes in the affected area.
- 5) Exhaust and/or ventilation available in the brazing area.

Important ! : Read and understand the manufacturer's instructions and precautionary labels on the product. The installation, operation, and maintenance of welding equipment should conform to ANSI Standard Z49.1 Safety in Welding and Cutting, ANSI Standard Z87.1 Occupational and Educational Eye and Face Protection, and OSHA Standard, 29 CFR 1910.

Eye Protection

When Transferring / Handling : Due to the possibility of eye contact during material transfer, chemical safety goggles, full face shield, or safety glasses with side shields should be worn.

When Brazing : Always wear protective glasses, goggles or full face shield with shade 5 lenses when brazing. Protective eyewear and eye safety programs should comply with ANSI Standard Z87.1 Occupational and Educational Eye and Face Protection.

Skin Protection

To prevent contact with skin, wear impervious clothing such as gloves, apron, boots, or full-body suits made from neoprene, as appropriate.

9. Physical and Chemical Properties

Physical State: Liquid

Appearance: Clear, colorless liquid with characteristic odor

Vapor Pressure : 161 mm Hg
pH : n/d
Melting Point : -26°F (-32°C)

Solubility in Water : decomposes @ 10%
Boiling Point : 137°F (58°C)
Specific Gravity (H₂O=1) : .850 - .865

Vapor Density (air=1) : 1.6
Evaporation Rate (butyl acetate=1) : 16

Note : The physical data listed above are typical values and should not be read as a product specification.

10. Stability and Reactivity

Stability : Stable

Conditions to Avoid : Water, moist air or aqueous liquids will liberate boric acid from the mixture, rendering it unusable. Keep containers tightly closed when not in use. This product is not sensitive to physical impact.

Incompatibility : Avoid strong oxidizing agents, such as peroxides, nitrates and hypochlorites; aluminum and zinc. Deteriorates many plastics. Will hydrolyze in the presence of water, liberating boric acid.

Hazardous Decomposition By-products (During Brazing)

Brazing fumes and gases cannot be classified simply. The composition and quantity of the fumes and gases are dependent upon the base metal, the flux and filler metal being used. Coatings or residue on the base metal such as cleaning or degreasing agents, paint, galvanizing or plating will produce fumes as well. Other conditions which influence the composition and quality of the fumes and gases to which workers may be exposed are: the number of operators relative to the volume of the work area, the quality and amount of ventilation, the position of the brazer's head in respect to the fume plume, as well as the presence of contaminants in the atmosphere such as halogenated hydrocarbon vapors from cleaning and degreasing activities. When brazing, the composition of the fumes and gases are usually different from the composition of the ingredients mentioned in *Section 2 - Composition Information on Ingredients*. Fume ingredients of normal operation include those originating from volatilization, reaction, or oxidation of the materials noted in the above paragraph. Reasonably expected fume constituents include boric oxide (CAS Number 1303-86-2) with OSHA TWA and ACGIH TLV listings of 10 mg/m³, and oxides of carbon.

Hazardous Polymerization : Not expected to occur

11. Toxicological Information

Acute Toxicity Data :

Trimethylborate
Oral LD₅₀ (rat) 6140mg/kg
Dermal LD₅₀ (rabbit) 1980mg/kg
Inhal LC₅₀ (rat) 6400mg/kg

Acetone
Oral LD₅₀ (rat) 5800mg/kg
Dermal LD₅₀ (rabbit) 20,000mg/kg
IP LD₅₀ (mouse) 1297mg/kg

Methanol
Oral LD₅₀ (rat) 5628mg/kg
Dermal LD₅₀ (rabbit) 20ml/kg
Inhal LC₅₀ (rat) 64,000ppm

Carcinogenicity : The component chemicals of this product have **not** been classified as a carcinogen by IARC, NTP, OSHA or ACGIH.

Eye Effects : Chronic eye exposure effects for this product are not known.

Skin Effects : Chronic dermal exposure effects for this product are not known.

Mutagenicity : N/D

12. Ecological Information

Ecotoxicity : N/D

Environmental Fate : N/D

Physical / Chemical : (Water Solubility / Vapor Pressure referenced in *Section 9 - Physical and Chemical Properties*.)

13. Disposal Considerations

Raw material and/or empty containers may require special disposal considerations, depending on local controls. Contact reliable, licensed chemical waste disposal firm. Disposal regulations vary from state to state. Disposal must be made in accordance with applicable regulations. State and local regulations may be more stringent than federal controls. It is the responsibility of the waste generator to evaluate whether his wastes are hazardous by characteristics or listings.

14. Transportation Information

D.O.T. Information : Shipping Name : Flammable Liquids, N.O.S. (Contains Trimethylborate, Acetone and Methanol)
Hazard Class : 3 UN Number : 1993 Packing Group : II
Required Labels : Flammable Liquid 1996 North American ERG Book No. 128

15. Regulatory Information

EPCRA (Sara Title III) This product contains the following chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know-Act of 1986 (40 CFR 372):

C.A.S. # 67-56-1 Chemical Name : Methanol Percent by Weight : 20%

Ozone Depleting Chemicals : No regulated ingredients

SARA Title III Section 311/312 Hazard Categories : Health Hazard (yes) / Sudden Release of Pressure Hazard (no) / Acute Health Hazard (yes) / Chronic Health Hazard (yes) / Reactivity Hazard (no)

HMIS :

Health : 3

Fire : 3

Reactivity : 0

16. Other Information

American Welding Society (AWS) Specification

Class	Form	Filler Metal	Typical Ingredients	Application	Activity Temp. Range	Recommended Base Metals
FB3-K	Liquid	Bag RBCuZn BCuP	Borates	Exclusively used in torch brazing by passing fuel gas through a container of flux, entraining flux in the fuel gas. The flux is applied by the flame where needed.	1400 - 2200 °F 760 - 1205 °C	Carbon steels, low alloy steels, cast iron, copper and copper alloys, nickel and nickel alloys and precious metals. Used on all brazeable ferrous and nonferrous metals except those with aluminum or magnesium as a constituent. Used on carbides.

WHMIS (Canada) : This product falls into Division 2 of Class B - (Flammable Liquids)

Publications for Reference

- American Conference of Governmental Industrial Hygienists (ACGIH), 1998 Threshold Limit Values For Chemical Substances And Physical Agents / Biological Exposure Indices © Copyright 1998
- American National Standards (ANSI) ANSI Z400.1-1998 Material Safety Data Sheets - Preparation © Copyright 1998
- American Welding Society, ANSI/AWS A5.31-92 An American National Standard - Specification For Fluxes For Brazing And Braze Welding © Copyright 1992
- American Welding Society, ANSI/ASC Z49.1-88 Safety in Welding and Cutting © Copyright 1988
- American Welding Society, ANSI/AWS F2.2-89 Lens Shade Selector © Copyright 1989
- BOCA National Fire Prevention Code/1993 © Copyright 1993
- Code of Federal Regulations, Title 29, CFR - Labor (part 1910 § 1910.1000 To End) revised July 1, 1998
- Code of Federal Regulations, Title 49, CFR - Transportation (Section 172.101) revised July 1, 1998
- Labelmaster on behalf of the United Nations, Transport Of Dangerous Goods 10th Revised Edition © Copyright 1997
- J.J. Keller & Associates, Inc., Hazardous Materials 181: The Guide For Shippers, Handlers & Transporters © Copyright 1992 - 1998
- J.J. Keller & Associates, Inc., 1910 OSHA Guide - Plant Safety Regulations & Index © Copyright 1989 through 1998
- NFPA Fire Protection Guide to Hazardous Materials, 12th edition © Copyright 1997
- U.S. Department of Health & Human Services, NIOSH Pocket Guide to Chemical Hazards © Copyright 1997
- U.S. Department Of Transportation, 1996 North American Emergency Response Guidebook DOT (RSPA P 5800.7) © Copyright 1996

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