MATERIAL SAFETY DATA SHEET

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 Z400.1-1993 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.

I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Liquid Gasflux (SpeedFlux) LABEL NAME : Methyl Borate Azeo
Supplier: Aufhauser Corporation 39 West Mall Plainview New York 11803 Tel. 516-694-8696
Infotrac Emergency 1-800-535-5053.

II. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS#	VOLUME % (APPROX)
Trimethyloxyborane (Methyl Borate)	121-43-7	70
Methyl Alcohol (Methanol)	67-56-1	30

HAZARDOUS COMPONENTS - LIMITS FOR AIR CONTAMINANTS

	ACGIH TWA	ACGIH STEL	OSHA TWA	OSHA STEL
Methy1 borate (Methy1 Borate)	200 ppm	250 ppm	200 ppm	---
Methy1 Alcohol (methanol)	200ppm	250 ppm	200 ppm	---

(s) - skin designation

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 VIII.

III. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Clear, colorless liquid with characteristic odor. Flammable Liquid, vapors from open containers also flammable. Harmful if inhaled. May be fatal if swallowed. May cause blindness if swallowed. Contact may cause eye or skin irritation.

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

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INHALATION: Remove victim to fresh air. Administer oxygen or artificial respiration only on physician's recommendation.

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

V. FIRE FIGHTING MEASURES

29 CFR 1910.1200 FLASH POINT (C.O.C.)	FLAMMABLE LIMITS	
FLAMMABLE LIQUID 23° F / -5° C	LEL 6.0	UEL 36.5

EXTINGUISHING MEDIA: Dry chemical, $C0_2$, 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 : 3 FIRE : 3 REACTIVITY : 3

VI. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAREN IF MATERIAL IS RELEASED OR SPILLED

Extinguish all sources of ignition within 35 feet (llm) 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.

VII. HANDLING AND STORAGE

SPECIAL HANDLING CONSIDERATIONS

Always wear proper protective clothing when handling. 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 (llm) of an open flame. Protect containers from physical damage or punctures resulting in leakage. To reduce potential of static discharge, effectively bond and ground containers when transferring material. Keep container tightly closed when not in use. Do not reuse shipping container. Empty containers retain vapors which must be treated as having the same hazards as containers full of liquid.

SPECIAL STORAGE CONSIDERATIONS

Store in compliance with *29 CFR §1910.106 Flammable and Combustible Liquids, BOCA National Fire Prevention Code and NFPA 30 Flammable and Combustible Liquids Code.* Store in a cool, well ventilated area at least 35 feet (11 m) 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.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

RESPIRATORY PROTECTION (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.

RESPIRATORY PROTECTION (DURING BRAZING)

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 of 5 mg/m3 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 American Conference of Governmental Industrial Hygienists (ACGIH).

As outlined by the *ANSI/AWS A5.31-92 (A4.1), Specifications for Fluxes for Brazing and Braze Weldlng,* 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.

PLEASE NOTE: 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.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

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 sideshields should be worn. WHEN BRAZING: Always wear welding glasses, goggles or full face shield with shade 5 lenses when brazing. Protective eyewear and eye safety program should comply with *ANSI Standard Z87.1 "Occupatlonal 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.

IX. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid
APPEARANCE: Clear, colorless liquid with characteristic odor

VAPOR PRESSURE: 100 mm hg	SOLUBILITY IN WATER: decomposes @ 10%
VAPOR DENSITY (air=l):1.6	SPECIFIC GRAVITY (H_2O=1): .855
BOILING POINT: 137°F (58°C)	EVAPORATION RATE (butyl acetate=l): 16
MELTING POINT: -26°F (-32°C)	pH: n/d

X. STABILITY AND REACTIVITY
STABILITY: Stable

CONDITIONS TO AVOID: Water, moist air or aqueous liquids will liberate boric acid from the mixture, rendering it unusable. 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. Hydrolyzes 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 on the base metal such as 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 II. Fume ingredients of normal operation include those originating from volatilization, reaction, or oxidization 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

XI. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA

TRIMETHYL BORATE		METHYL ALCOHOL	
ORAL LD_{50} (MOUSE)	1290mg/kg	ORAL LD_{50} (RAT)	13,000mg/kg

DERMAL LD_{50} (RABBIT)	1980mg/kg	DERMAL LD_{50} (RABBIT)	20,000mg/kg
INHAL LC_{50} (RAT)	6400mg/kg	INHAL LD_{50} (MONKEY)	l000 ppm
SC LD_{50} (M0USE)	9,800mg/kg		

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

XII. ECOLOGICAL INFORMATION

ECOTOXICITY : N/D
ENVIRONMENTAL FATE : N/D
PHYSICAL / CHEMICAL (water solubility / vapor pressure referenced in section IX.)

XIII. 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.

XIV. TRANSPORTATION INFORMATION
D.O.T. INFORMATION

SHIPPING NAME : Flammable Liquid, N.O.S. HAZARD CLASS : 3 UN NUMBER : 1993
PACKING GROUP : II REQUIRED LABELS : Flammable Liquid

EMERGENCY RESPONSE GUIDE BOOK NO. 27

XV. 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%
Sara hazard categories : acute health hazard (yes) / chronic health hazard (yes)

HMIS HEALTH : 3 FIRE : 3 REACTIVITY : 0

XVI. 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	1400-2200 ^{O}F 760-120 ^{O}C	Carbon stells, low alloy steels, cast iron, copper and copper alloys, nickel and nickel alloys and precious metals. Used on all brazeable ferrous and nonferrous metals

	is applied by the flame where needed.	excpet those w/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), *1992-1993 Threshold* Limit *Values for Chemical Substances and physical* Agents ° Copyright 1992

• American Welding Society, *ANSI/AWS A5.31-92* An American *National Standard Specification for Fluxes for* Brazing and Braze Welding ° Copyright 1992

• Labelmaster on behalf of the United Nations , *Transport of* Dangerous *Goods 6th Revised* Edition ° Copyright 1990

• American National Standards (ANSI) ANSI Z400.1-1993 *Material safety* Data *Sheets* Preparation ° Copyright 1993

• U.S. Department of Transportation, *1993 emergency response Guidebook DOT (RSPA P 5800.6)* ° Copyright 1993

• J.J. Keller & Associates, Inc. , *Hazardous Materials 181: The Guide for shippers. Handlers & transports* p Copyright 1992

• Code of Federal Regulations, *Title 29. CFR - Labor (part* 1910 § 1910.1000 to End) Revised July 1, 1993

• Code of Federal Regulations, *Title 49, CFR - transportation (section* 172.101) ° Copyright 1990

• American Welding Society, *ANSI /AWS Z49.1-88 Safety* in *Welding* and *Cutting* ° Copyright 1988

• J.J. Keller & Associates, Inc., *1910 OSHA Guide - Plant Safety Regulations & Index* ° Copyright 1989, 1990, 1991, 1992, 1993, 1994, 1995

• American Welding Society, *ANSI/AWS F2.2-89 Lens Shade* Selector ° Copyright 1989

• *Dangerous properties of Industrial Materials* °Copyright 1979

• BOCA *National Fire Prevention Code / l993* °Copyright 1993

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The above form is to be used with Liquid GASFLUX (aka Speed Flux) and is not to be substituted as a material safety data sheet for any other liquid brazing flux.

GFC-9012 based on OSHA 174, Sept. 1985