

MATERIAL SAFETY DATA SHEET

ETHANOL

FILE NO.: 026
MSDS DATE: 8/21/06



SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Ethanol
SYNONYMS: Ethyl Alcohol
CATALOG CODES: VXB & VXC
MANUFACTURER: Volu-Sol Incorporated
DIVISION: Business Services
ADDRESS: 5095 West 2100 South
Salt Lake City, UT 84120
EMERGENCY PHONE: (800) 535-5053
CHEMTREC PHONE: (800) 424-9300
OTHER CALLS: (801) 974-9474
FAX PHONE: (801) 974-9553
CHEMICAL NAME: N/A
CHEMICAL FAMILY: N/A
CHEMICAL FORMULA: Mixture
PRODUCT USE: Laboratory Reagent
PREPARED BY: ASH

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.
ETHANOL	64-17-5
DEIONIZED WATER	7732-18-5

SARA 313 REPORTABLE

None

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. VAPORS CAUSE COUGH, HEADACHE, FATIGUE, AND DROWSINESS.

ROUTES OF ENTRY: Inhalation/Ingestion/Skin/Eyes

Eye:

May cause eye irritation. Causes redness and pain.

Skin:

May cause skin irritation. Contact with the skin defats the skin.

Ingestion:

Symptoms may include: headache, excitement, fatigue, nausea, vomiting, stupor, and coma. May cause muscle tremor and impaired motor function. May cause cardiac disturbances.

Inhalation:

May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. May cause central nervous system effect including vertigo, anxiety, depression, muscle incoordination, and emotional instability. May cause narcotic effects in high concentration.

Chronic:

Not available.

CARCINOGENICITY: Not Listed

OSHA: ACGIH: NTP: IARC:

SECTION 4: FIRST AID MEASURES

Eyes:

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin:

Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion:

Get medical aid. Wash mouth out with water.

Inhalation:

Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR (% BY VOLUME); UPPER: 19% (Ethanol)
LOWER: 3.3% (Ethanol)

FLASH POINT: 16.6C / 61.88F (Ethanol); 40C / 104F

AUTOIGNITION TEMPERATURE: 363C/685.40F (Ethanol); 427C/801F

EXTINGUISHING MEDIA: Dry chemical, alcohol foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.

SPECIAL FIRE FIGHTING PROCEDURES: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. This material may produce a floating fire hazard. Sensitive to static discharge. Ethanol burns with a near invisible flame in direct light.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS: *ppm = (mg/M³)(24.45)/MW

All readings in ppm	OSHA PEL'S		ACGIH	
	TWA	CEILING	TLV	STEL
Ethanol	1000	-	1000	-
Deionized Water	-	-	-	-

VENTILATION SYSTEM: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

PERSONAL RESPIRATORS (NIOSH APPROVED): If the exposure limit is exceeded and engineering controls are not feasible, a half-face organic vapor respirator may be worn for up to ten times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

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SECTION 8: CONT'D

SKIN PROTECTION: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
EYE PROTECTION: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear liquid
Color: colorless
Odor: alcohol-like
pH: Not available.
Vapor Pressure: 59 mbar @20 deg C
Viscosity: 1.2 mPas 20 deg C
Boiling Point: 78 deg C @ 760 mm Hg
Melting Point: -144 deg C
Autoignition: 370 deg C (698.00 deg F)
Flash Point: 12 deg C (53.60 deg F)
Explosion Limits, lower: 4.00 vol %
Explosion Limits, upper: 9.00 vol %
Solubility in water: Miscible.
Density: .7890
Molecular Formula: C2H5OH
Molecular Weight: 46.06

SECTION 10: STABILITY AND REACTIVITY

STABLE **UNSTABLE**
Yes

STABILITY: Stable under ordinary conditions of use and storage.
CONDITIONS TO AVOID (STABILITY): Heat, flames, ignition sources and incompatibles.
INCOMPATIBILITY (MATERIAL TO AVOID): Most metals, metallic oxides, alkalies, amines, cyanides, formaldehyde, and sulfides. Reacts vigorously with strong oxidizers, chromic anhydride, lead perchlorate, perchloric acids.
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Hydrogen Chloride, Chloride and Hydrogen. Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID (POLYMERIZATION): N/A

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: Not Listed

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°C Fish: Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified) Bacteria: Phytobacterium phosphoreum: EC50 = 34900 mg/L; 5-30 min; Microtox test When spilled on land it is apt to volatilize, biodegrade, and leach into the ground water, but no data on the rates of these processes could be found. Its fate in ground water is unknown. When released into water it will volatilize and probably biodegrade. It would not be expected to adsorb to sediment or bioconcentrate in fish.
ENVIRONMENTAL: When released to the atmosphere it will photodegrade in hours (polluted urban atmosphere) to an estimated range of 4 to 6 days in less polluted areas. Rainout should be significant. When released into the soil, this material is not expected to biodegrade.
PHYSICAL: No information available.
OTHER: No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

SECTION 14: TRANSPORT INFORMATION

US DOT	IMO	IATA	RID/ADR	CANADIAN TDG
Ship Name: Ethanol Solutions	Ship Name: Ethanol Solutions	Ship Name: Ethanol Solutions	Ship Name: Ethanol Solutions	Ship Name: Ethanol Solutions
Hazard Class: 3	Hazard Class: 3.1	Hazard Class: 3	Dangerous Goods Code: 3(3B)	Hazard Class: 3
UN Number: UN1170	UN Number: UN1170	UN Number: UN1170	UN Number: UN1170	UN Number: UN1170
Packing Group: II	Packing Group: 2	Packing Group: 2	-	Flashpoint 16.6 C

SECTION 15: REGULATORY INFORMATION

TSCA	CAS# 64-17-5 is listed on the TSCA inventory.
CERCLA/SARA	None of the chemicals in this material have an RQ.
Clean Air Act	This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
Clean Water Act	None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA	None of the chemicals in this product are considered highly hazardous by OSHA
State	CAS# 64-17-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
International Regulations	CAS# 64-17-5 is listed on Canada's DSL List. This product has a WHMIS classification of B2, D2A. CAS# 64-17-5 is listed on the Canadian Ingredient Disclosure List.

DISCLAIMER: The information is provided without any representation or warranty, express or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.