

SAFETY DATA SHEET



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ETHYL ALCOHOL, 200 PROOF

SDS No. M0395

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ethyl Alcohol, 200 Proof

Synonyms: Alcohol; Ethanol; Ethyl alcohol anhydrous; Ethyl hydrate; Ethyl hydroxide; Fermentation alcohol; Grain alcohol, Methylcarbinol; Molasses alcohol, Spirits of wine

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION



Classification:

Flammable Liquids: GHS Category 2

Skin Irritation: GHS Category 2

Eye Irritation: GHS Category 2B

Specific Organ Toxicity, single exposure: GHS Category 3

Label Elements

Signal Word: DANGER!

Hazard Statements:

H225 – Highly flammable liquid and vapor.

H316 – Cause mild skin irritation

H319 – Causes serious eye irritation.

H336 – May cause drowsiness or dizziness.

Precautionary Statements:

P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P280 – Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

Emergency Overview

Causes severe eye irritation. May cause central nervous system depression. May affect liver, kidneys, and heart. Causes mild skin irritation. Highly flammable liquid and vapor! Target Organs: Liver, kidneys, and heart. (See Section 11 for fertility information)

Clear focus. Consistent results. Complete confidence.

HMIS Rating:

Health – 2* Flammability – 3 Physical Hazard – 0 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Ethyl Alcohol	64-17-5	>99%	Yes

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation. Get medical aid.

Ingestion: Do not induce vomiting. If vomiting occurs naturally, have victim lean forward. If victim is conscious and alert, give 2-3 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical help.

Skin Contact: Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention.

Eye Contact: Get medical attention. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.

Notes to Physician: Treat symptomatically and supportively. Persons with skin or eye disorders, liver, kidney, and chronic respiratory diseases, or central or peripheral nervous system diseases may be at increases risk from exposure. Replace fluid and electrolytes.

5. FIRE FIGHTING MEASURES

Flammability: Highly flammable liquid and vapor (GHS Category 2)

Auto-ignition Temperature: 363° C (685.4° F)

Flash Point: 16.6° C (61.88° F)

Flammable Limits: Lower Limit – 3.3 vol %, Upper Limit – 19 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (carbon monoxide and carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors may travel to a source of ignition and flash back. Will burn if involved in fire. Can release vapors that form explosive mixtures at temperatures above the flashpoint.

Specific Explosion Hazards: May form explosive mixture with air. Containers may explode in the heat of a fire.

Fire Fighting Media: For small fires, use dry chemical, carbon dioxide, water spray, or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Water may be ineffective. Do not use straight streams of water.

National Fire Protective Association: Health - 0, Flammability - 3, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

A vapor suppressing foam may be used to reduce vapors. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Use spark-proof tools.

Clear focus. Consistent results. Complete confidence.

Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep in a flammables area away from direct sunlight and all sources of ignition and oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep from contact with oxidizing materials. Do not store near perchlorate, peroxides, chromic acid, or nitric acid.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or other appropriate eye protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 1000 ppm TWA;
 NIOSH – 1000 ppm TWA; 1900 mg/m³ TWA; 3300 ppm IDLH
 OSHA Final PELs – 1000 ppm TWA; 1900 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: Mild, rather pleasant odor similar to wine or whiskey.

Odor Threshold: 100 ppm

Molecular Formula: C₂H₅OH

Molecular Weight: 46.07

Auto-ignition Temperature: 363° C (685.4° F)

Flash Point: 16.6° C (61.88° F)

Flammable Limits: Lower Limit – 3.3 vol %, Upper Limit – 19 vol %

pH: Not available.

Boiling Point: 78.5° C @ 760 mm Hg

Freezing/Melting Point: -114.1° C

Decomposition Temperature: Not available

Specific Gravity: 0.790 g/cm³

Vapor Density (Air=1): 1.59

Vapor Pressure: 59.3 mm Hg @ 20° C.

Evaporation Rate (Butyl acetate = 1): 1.4

Viscosity: 1.2 cP @ 20°C

Solubility: Miscible

Conductivity (25°C): Conductive; Conductivity = 1.35x10⁵ pS/m; Dielectric Constant = 24.55; Relaxation Time Constant = 1.6x10⁻³ seconds

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressure.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat, oxidizers.

Incompatibility With Various Substances: Strong oxidizing agents, acids, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane+water, acetyl chloride, permanganic acid, ruthenium (III) oxide, uranyl perchlorate, potassium dioxide.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, irritating and toxic fumes.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Inhalation of high concentrations may cause central nervous effects characterized by nausea, headache, dizziness, unconsciousness, and coma. Causes respiratory tract irritation. May cause narcotic effects in high concentrations. Inhalation of vapors may cause dizziness or suffocation.

INGESTION HAZARD: May cause gastrointestinal irritation with nausea, vomiting, and diarrhea. May cause systemic toxicity with acidosis. May cause central nervous system depression with excitement followed by headache, drowsiness, nausea, and vomiting. Advanced stages may cause collapse, unconsciousness, coma, and possible death.

SKIN CONTACT HAZARD: Causes moderate skin irritation. May cause cyanosis of the extremities.

EYE CONTACT HAZARD: Causes severe eye irritation, chemical conjunctivitis, and/or corneal damage. May cause painful sensitization to light.

Chronic Exposure Hazards: May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects. Animal studies have reported the development of tumors. Repeated or prolonged exposure may cause liver, kidney, and heart damage.

Animal Toxicity:

- Draize test, rabbit, eye: 500 mg Severe;
- Draize test, rabbit, eye: 500 mg/24 hr Mild;
- Draize test, rabbit, skin: 20 mg/24 hr Moderate;
- Inhalation, mouse: LC50 = 39 g/m³/4 hr;
- Inhalation, rat: LC50 = 2000 ppm/10 hr;
- Oral, mouse: LD50 = 3450 mg/kg;
- Oral, rabbit: LD50 = 6300 mg/kg;
- Oral, rat: LD50 = 7060 mg/kg;
- Oral, rat: LD50 = 9000 mg/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: Ethanol - has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have been collectively termed "fetal alcohol syndrome."

Teratogenicity:

- Oral, human – woman: TDLo = 41 g/kg (female 41 weeks after conception)
- Effects on newborn – Apgar score (human only) and Effects on newborn – other neonatal measures or effects and Effects on newborn – drug dependence.

Reproductive Effects:

- Intrauterine, human – woman: TDLO = 200 mg/kg (female 5 days pre-mating)
- Fertility – female fertility index e.g. # females pregnant per # sperm positive females; # female pregnant per # females mated).

Mutagenicity:

- DNA Inhibition, human, lymphocyte = 220 mmol/L;

Cytogenetic analysis: human, lymphocyte = 1160 g/L;
 Cytogenetic analysis: human, fibroblast = 12,000 ppm;
 Cytogenetic analysis: human, leukocyte = 1 pph/72H (continuous);
 Sister chromatid exchange, human, lymphocyte = 500 ppm/72H (continuous).

Neurotoxicity: No information found.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Rainbow trout: LC50 = 12,900-15,300 mg/L, 96H, flow-through at 24-24.3° C

Fish: Rainbow trout: LC50 = 11,200 mg/L, 24H, fingerling (unspecified)

Bacteria: Phytobacterium phosphoreum: EC50 = 34,900 mg/L, 5-30M, 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 probably volatilize and biodegrade. It would not be expected to adsorb to soil or bioconcentrate in fish.

Environmental Fate: When released to the atmosphere, material photodegrades in hours (polluted urban atmosphere) to an estimated range of 4-6 days in less polluted areas. Rainout should be significant.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

US DOT, IATA, IMO

Proper Shipping Name: Ethanol

Hazard Class: 3

UN Number: UN1170

Packing Group: II

Canada TDG

Additional Information: Flashpoint 16 C.

15. REGULATORY INFORMATION

US Federal Regulations:

TSCA: CAS# 64-17-5 is listed on the TSCA Inventory.

Health and Safety Reporting List: CAS# 64-17-5 is not listed.

Chemical Test Rules: CAS# 64-17-5: None

Section 12b: Not listed.

TSCA Significant New Use Rule: Does not have an SNUR under TSCA.

CERCLA Hazardous Substances: CAS#64-17-5 – No RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 64-17-5 – immediate, delayed, fire

Section 313: CAS#64-17-5 – Not subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.

Clean Air Act This material contains no hazardous air pollutants (HAP). This material contains no Class 1 Ozone Depleters. This material contains no Class 2 Ozone Depleters.

Clean Water Act: This material contains no Hazardous Substances. This material contains no Priority Pollutants. It has no Toxic Pollutants.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS#64-17-5 can be found on the following state right-to-know lists: California, New Jersey, Pennsylvania, Minnesota, and Massachusetts

California Prop 65: This product contains ethanol, a chemical known to the state of California to cause developmental reproductive toxicity. California No Significant Risk Level: Not listed

Canada:

DSL/NDL: CAS# 64-17-5 is listed on Canada's DSL list.

WHMIS: This product has a WHMIS classification of B2, D2A. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.

Ingredient Disclosure List: CAS# 64-17-5 is listed on Canada's Ingredient Disclosure List.

DSCL (EEC):

Hazard Symbols: Xi, T, F

Risk Phrases: R11 – Highly Flammable; R21/22/23 – Harmful by inhalation, in contact with skin, or if swallowed;

R36/37/38 – Irritating to eyes, respiratory system, and skin; R40 – Limited evidence of carcinogenic effect.

Safety Phrases: S7 – Keep container tightly closed, S16 – Keep away from sources of ignition-no smoking; S24/25 –

Avoid contact with skin and eyes; S36/37/39 – Wear suitable protective clothing, gloves, and eye/face protection; S45 -

In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.).

WGK (Water Danger/protection): CAS# 64-17-5: 0

16. OTHER INFORMATION

Originally Prepared: 5/21/2007

Last Revised: 4/16/2013 – Hazards modified to better reflect the intended purpose of the product and the risk of effects on fertility.

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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