

Material Safety Data Sheet

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No. 361
ETHYL ALCOHOL
(Revision B)

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SECTION 1: MATERIAL IDENTIFICATION

MATERIAL NAME: ETHYL ALCOHOL

DESCRIPTION(Origin/Uses): Used commercially in alcoholic beverages and industrially as a solvent; also as a useful reagent in organic synthesis.

OTHER DESIGNATIONS: Absolute Ethanol; Alcohol, Anhydrous; Alcohol, Dehydrated; Ethanol;
Grain Alcohol; Methylcarbinol; C_2H_5O ; NIOSH RTECS #KQ6300000; CAS #0064-17-5.

MANUFACTURER/SUPPLIER: Available from several suppliers, including:
Captree Chemical Co., 445 Winding Road, Old Bethpage, NY 11804;
Telephone: (516) 752-9808

COMMENTS: Ethyl alcohol is a fire and explosion hazard.

HMIS

H 0

F 3

R 0

PPE*

R 1

I 1

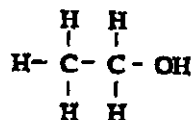
S 1

K 4

* See Sect. 8

SECTION 2: INGREDIENTS AND HAZARDS

Ethyl Alcohol, CAS #0064-17-5; NIOSH RTECS #KQ6300000
Water



* The toxicity data given here is a representative list and is by no means exhaustive. In NIOSH RTECS additional toxicity data with references on reproductive, tumorigenic, mutation, and irritation categories are listed.

>94.9
Balance

HAZARD DATA

ACGIH Values 1987-88

TLV-TWA: 1000 ppm, ~1900 mg/m³

OSHA PEL 1986

8-Hr TWA: 1000 ppm, 1900 mg/m³

TOXICITY DATA*

Child, Oral, LD₅₀: 2000 mg/kg

Man, Oral, TD₅₀: 50 mg/kg

Man, Oral, TD₅₀: 1430 µg/kg

Woman, Oral, TD₅₀: 256 g/kg (12 Weeks)

SECTION 3: PHYSICAL DATA

Boiling Point ... 173.3°F (78.5°C)

Vapor Pressure ... 43 Torr at 68°F (20°C)

Water Solubility ... 100% (Complete)

Vapor Density (Air = 1) ... 1.6

Specific Gravity ... 0.789 at 68°F (20°C)

Melting Point ... -173.38°F (-114.1°C)

% Volatile by Volume ... ca 100

Molecular Weight ... 46.07 Grams/Mole

Appearance and odor: Colorless, flammable, volatile liquid; burning taste.

COMMENTS: Ethyl alcohol's volatility is an inhalation and fire hazard.

SECTION 4: FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temperature	Flammability Limits in Air	LOWER	UPPER
55°F (12.77°C)	798°F (422.78°C)	% by Volume	3.3%	19%

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, alcohol foam, or other appropriate extinguishing agents to fight ethanol fires. A water spray is not recommended as an extinguishing agent, but it can be used to cool fire-exposed metal containers, to dilute and flush spills away from sensitive exposures, to suppress vapors, and to reduce the intensity of fires.

OSHA Flammability Class (29 CFR 1910.106): IB

UNUSUAL FIRE/EXPLOSION HAZARDS: Ethanol is a dangerous fire and explosion hazard with a low flash point, appreciable vapor pressure, and a significant explosive range in air. Exercise due caution when fighting ethanol fires.

SPECIAL FIRE-FIGHTING PROCEDURES: Wear a self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive-pressure mode.

DOT Flammability Class (49 CFR 173.115): Flammable Liquid

SECTION 5: REACTIVITY DATA

Ethanol is stable. Hazardous polymerization cannot occur.

CHEMICAL INCOMPATIBILITIES: Hazardous chemical reactions have been reported with oxidizing agents, strong acids, nitrates, perchlorates, peroxides, silver and potassium compounds, and other chemicals.

CONDITIONS TO AVOID include exposure to elevated heat, any possible sources of ignition/explosion, such as heat, sparks, open flame, or lighted tobacco products; and direct physical contact with any chemicals that would produce hazardous reactions.

PRODUCTS OF HAZARDOUS DECOMPOSITION include oxides of carbon, such as carbon monoxide (CO).

SECTION 6. HEALTH HAZARD INFORMATION

Ethanol is not listed as a carcinogen by the NTP, IARC, or OSHA.

SUMMARY OF RISKS: Ethanol vapor, even in low concentrations, is irritating to the eyes and the upper respiratory tract. In setting the TLV-TWA of 1000 ppm (~1900 mg/m³), this irritant property of ethanol is more significant than the secondary toxic effects from absorbed or ingested ethanol. Irritation of the eyes and the upper respiratory tract should not occur below concentrations of 5000 ppm; 1000 ppm is close to the odor recognition threshold of ethanol. Inhalation of ethanol vapors can have effects similar to those characteristic of ingestion. These include an initial stimulatory effect followed by symptoms of mental excitement, drowsiness, impaired vision, ataxia, stupor, and drunkenness as the amount consumed increases. Large ingested doses can deleteriously affect the GI tract and the central nervous system. Contact with eyes causes an immediate burning and stinging sensation. Prolonged or repeated skin contact causes defatting and dermatitis. **TARGET ORGANS:** Eyes, skin, respiratory system, and hepatic system.

EFFECTS: Alaxia, incoordination, drowsiness, local irritating effects on the eyes, headache, intraocular tension, stupor, fatigue, and a great need for sleep. **CHRONIC EFFECTS:** None reported. **MEDICAL CONDITIONS AGGRAVATED BY LONG-TERM EXPOSURE:** include liver damage and chronic irritation of the mucous membranes and the skin.

FIRST AID: **EYE CONTACT:** Immediately flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes. Get medical help. **SKIN CONTACT:** Wash thoroughly with soap and water. Remove and launder contaminated clothing before wearing it again; clean material from shoes and equipment. Get medical help. **INHALATION:** Remove victim to fresh air; restore and/or support his breathing as needed. Get medical help. **INGESTION:** Call a poison control center. Never give anything by mouth to someone who is unconscious or convulsing. Get medical help.

* **GET MEDICAL ASSISTANCE - IN PLANT, PARAMEDIC, COMMUNITY.** Get prompt medical assistance for further treatment, observation, and support after first aid.

COMMENTS: Individual tolerance, amount of rest, medication, and daily eating habits are just some of the contributing factors that determine a worker's response to ethanol exposure. Provide physical examinations emphasizing the lungs, skin, the respiratory system and hepatic system to workers who are exposed to ethanol.

SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

SPILL/LEAK: Notify safety personnel of spills or leaks of ethanol. Provide maximum explosion-proof ventilation. Eliminate all possible sources of heat or ignition; if feasible, remove any leaking container to an open area. Cleanup personnel need protection against inhalation and skin contact. Use nonsparking tools during all cleanup procedures. Contain spill and pick up liquid for recovery or disposal when feasible. Absorb small spills with dry sand, vermiculite, or other suitable material. Consider diluting a spill with water to raise the material's flash point. **DISPOSAL:** Consider reclamation, recycling, or destruction rather than disposal in a landfill. Filtration and distillation procedures may help reclamation operations. Contact your supplier or a licensed waste-disposal contractor for detailed recommendations. Follow Federal, state, and local regulations.

Ethanol is not designated as a hazardous substance by the EPA (40 CFR 116.4).
Ethanol is reported in the 1983 EPA TSCA Inventory.
EPA Hazardous Waste No. (40 CFR 261.21, Ignitability): D001
EPA Reportable Quantity (40 CFR 117.3): Not Listed
Aquatic Toxicity TLM 95: Over 1000 ppm

SECTION 8. SPECIAL PROTECTION INFORMATION

GOGGLES: Always wear protective eyeglasses or chemical safety goggles. Follow the eye and face protection guidelines of 29 CFR 1910.133. **GLOVES:** Wear impervious gloves. **RESPIRATOR:** Follow the respirator guidelines in 29 CFR 1910.134. IDLH or unknown concentrations require an SCBA, full facepiece, and pressure-demand/positive-pressure modes. **WARNING:** Air-purifying respirators will not protect workers from oxygen-deficient atmospheres. **OTHER EQUIPMENT:** Wear rubber boots, aprons, and other appropriate personal protective equipment suitable to the work situation. **VENTILATION:** Use and operate both general and local exhaust ventilation systems that are of sufficient power to maintain airborne levels of ethanol below the legislated OSHA PEL cited in section 2. Local exhaust hoods should have a minimum face velocity of 100 fpm. All ventilation systems should be nonsparking and of maximum explosion-proof design. **SAFETY STATIONS:** Make eyewash stations, washing facilities, and safety showers available in areas of use and handling. Contact lenses pose a special hazard; soft lenses may absorb irritants, and all lenses concentrate them. **SPECIAL CONSIDERATIONS:** All engineering systems and operations should be made explosion proof by eliminating mechanical or electrical sparks, open flame, and uncovered or unprotected heating elements. **COMMENTS:** Practice good personal hygiene. Keep materials off of your clothes and equipment. Avoid transference of material from hands to mouth while eating, drinking, or smoking. Do not smoke anywhere near the work areas where ethanol is used!

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

STORAGE SEGREGATION: Separate ethanol in tightly closed containers in a cool, dry, well-ventilated area away from chemically incompatible materials. Do not expose it to direct sunlight or sources of heat or ignition. **SPECIAL HANDLING/STORAGE:** Electrically ground and bond all containers involved in storage or transferring operations to prevent static sparks. Use nonsparking tools. Protect containers from physical damage. Storage and use conditions must be suitable for an OSHA class IB flammable liquid. **ENGINEERING CONTROLS IN THE WORKPLACE:** Use ethanol only with adequate ventilation. **COMMENTS:** Avoid repeated or prolonged skin contact or inhalation of vapors. Use only with adequate ventilation and eliminate all sources of hazardous or unintended ignition. Exposure to ethanol enhances toxicity hazards of other materials such as chlorinated hydrocarbon solvents or drugs.

TRANSPORTATION DATA (per 49 CFR 172.101-2):
DOT Hazard Class: Flammable Liquid
DOT ID No. UN1170
IMO Label: Flammable Liquid
DOT Shipping Name: Ethyl Alcohol
IMO Class: 3.2
DOT Label: Flammable Liquid

References: 1, 2, 4-12, 16, 20, 23-26, 34, 37, 38, 42, 47, 73, 87-94. PI

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Approvals *Dr. [Signature]*

Indust. Hygiene/Safety *[Signature]*

Medical Review *[Signature]*