

1. PRODUCT NAME: Ethanol
2. CHEMICAL NAME: Ethyl Alcohol
3. SYNONYMS:
4. CAS NUMBER: 64-17-5
5. COMPOSITION: Ethyl Alcohol (64-17-5)
Any of several denaturants

**IN CASE OF
TRANSPORT EMERGENCY
CONTACT CHEMTREC
USA: 1-800-424-9300
INTERNATIONAL: 1-703-527-3887**

6. PROPERTIES: ODOR & APPEARANCE: clear, colorless, hygroscopic liquid with sharp non-specific odor
ODOR THRESHOLD: varies widely – 100ppm accepted value for recognition
VAPOUR PRESSURE: approx. 44mmHg/5.9kPa (20 c)
EVAPORATION RATE (butyl Acetate=1): 2.4
VAPOR DENSITY (air=1): 1.6
BOILING RANGE: 78 c/173 F
FREEZING POINT: -114 F/-173 F
SPECIFIC GRAVITY: 0.789 (20/20 c)
WATER SOLUBILITY: complete
IN OTHER SOLVENTS: soluble in most organic solvents
VISCOSITY: 1.2 centipoise (20 c)
PH: none – does not liberate hydrogen ions when dissolved
FLASH POINT: 13 c/55 F (closed cup)
AUTOIGNITION TEMPERATURE: 363 c/685 F
FLAMMABLE LIMITS: 3.3% - 19%
COMBUSTION PRODUCTS: carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon fragments
FIREFIGHTING PRECAUTIONS: foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA
STATIC DISCHARGE: will not accumulate a static charge
MECHANICAL IMPACT: not sensitive
CHEMICAL STABILITY: stable; will not polymerize
REACTIVE WITH: strong oxidizing agents; explosive reaction with K and Na; may react vigorously with acids or acid anhydrides; corrosive to hot aluminium (if used as automotive fuel)
DECOMPOSITION PRODUCTS: none apart from Hazardous Combustion Products

7. HAZARDS: HMIS (USA): Health - 2, Fire - 3, Reactivity - 0

8. FIRE FIGHTING INFORMATION: Foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA.

9. PERSONAL PROTECTION MEASURES: HANDS: butyl rubber or “Viton” gloves recommended – consult supplier to confirm suitability
EYES: safety glasses with side shields – always protect the eyes
VENTILATION: not required unless vapor concentrations exceed 500ppm
CLOTHING: no special protective clothing required

10. FIRST AID PROCEDURES: SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.



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INHALATION: Remove from contaminated area promptly. **CAUTION:** Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.

INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

NOTE: Inadvertent inhalation of vomited material may seriously damage the lungs. The risk and danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity product. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.

11. EXPOSURE TWAEV ppm/mg/m³: 1000/1880 (skin)

LIMITS: LD50 ORAL: 3450

SKIN (mg/kg): 20,000

LC50ppm INHALATION: 20,000

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): 3300 ppm [Based on 10% of the lower explosive limit for safety considerations even though the relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations.]

ALLOWABLE TOLERANCE: Residues of ethyl alcohol are exempted from the requirement of a tolerance when used as a solvent or cosolvent in accordance with good agricultural practices as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Ethyl alcohol is exempted from the requirement of a tolerance when used as a solvent or cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals.

OSHA STANDARDS: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 1000ppm (1900mg/cu m).

NIOSH RECOMMENDATIONS: Recommended Exposure Limit: 10Hr Time-Weighted Avg: 1000ppm (1900mg/cu m).

THRESHOLD LIMIT VALUES

8 hr Time Weighted Avg (TWA): 1000ppm, skin. Excursion Limit Recommendation: Excursions in worker exposure levels may exceed three times the TLV-TWA for no more than a total of 30min during a work day, and under no circumstances should they exceed five times the TLV-TWA, provided that the TLV-TWA is not exceeded. A4; Not classifiable as a human carcinogen.

OTHER OCCUPATIONAL PERMISSIBLE LEVELS

Maximum acceptable concn (MAC) USSR 1000mg/c m. Other recommendations: The USSR (1967) East Germany (1973) and Czechoslovakia (1969) limits are 500ppm; West Germany (1974) and Sweden (1975) 1000ppm.

12. TOXICOLOGICAL EFFECTS ACUTE EXPOSURE

INFORMATION: SKIN CONTACT: little to no effect

SKIN ABSORPTION: slight; no toxic effects likely by this route

EYE CONTACT: liquid moderately irritating, vapor above 7000ppm irritating; will not damage eyes

INHALATION: vapor above 5000ppm irritating; irritation makes it impossible for subject to tolerate long exposure to vapor to cause intoxication or other central nervous symptoms

INGESTION: intoxication, headache, nausea, eventual unconsciousness

EFFECTS OF CHRONIC EXPOSURE

GENERAL: prolonged exposure may cause skin cracking and dermatitis; prolonged ingestion damages liver, gastrointestinal tract, cardiovascular system and nervous system, but this is not through industrial exposure!

SENSITISING: not a sensitizer – although sensitization has been recorded (in alcoholics!)

REPRODUCTIVE EFFECT: known to cause neurological symptoms in children of alcoholics – not relevant to industrial exposure



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SYNERGISTIC WITH: toxic effects of other solvents (aromatic hydrocarbons, ketones, etc) increased by concurrent exposure to ethanol – again probably not relevant to industrial exposure
LD50: 7060 & 9000mg/kg (oral, rat), 3450mg/kg (oral, mouse), 6300mg/kg (oral, rabbit); 5650mg/kg (oral, guinea pig); 20,000mg/kg (skin, rabbit)
LC50: 20,000ppm (inhalation, rat & mouse), 21,900ppm (inhalation, guinea pig)

13. ECOLOGICAL INFORMATION: This product cannot accumulate in living tissue; this product is readily and rapidly biodegradable in the presence of oxygen; 5-day BOD test degrades 37% - 86%; estimated half-life in air is 12 hours.
14. DISPOSAL CONSIDERATIONS: DO NOT FLUSH TO SEWER; may be incinerated in approved facility.
15. CARCINOGENIC PROPERTIES & NOTIFICATIONS: Not considered a tumorigen or a carcinogen in humans or animals; tumours have been recorded in alcoholics, but not relevant to industrial exposure.
16. TRANSPORT INFORMATION: USA 49 CFR
Product identification number: UN – 1170
Shipping name: Ethyl Alcohol
Classification: Class 3; Packing Group II
Label: flammable liquid, Class 3
WHMIS Class: B2, D 2A
17. HANDLING & STORAGE: Store and use a cool dry environment, away from sources of ignition, heat and oxidizing agents. Use with adequate ventilation. All electrical and mechanical equipment used with or around this product should be explosion-proof. All hand tools should be non-sparking bronze or aluminium. Do not cut, drill, weld or grind on or near this container. Avoid prolonged contact with skin and wash work clothes frequently. An eye bath and safety shower should be available near the workplace.
18. ACCIDENTAL RELEASE MEASURES: LEAK PRECAUTION: dyke to control spillage and prevent environmental contamination. Fire Potential: blanket spill with foam as a precaution against accidental ignition. Take care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.
HANDLING SPILL: ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using non-sparking plastic aluminium shovel & store in closed containers for recycling or disposal.
19. REGULATORY INFORMATION: IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): 3300 ppm [Based on 10% of the lower explosive limit for safety considerations even though the relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations.]
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ATMOSPHERIC STANDARDS: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Diethylene glycol monoethyl ether is produced, as an intermediate or final product, by process units covered under this subpart.

FIFRA REQUIREMENTS

Unless designated as an active ingredient /as determined by EPA/, this substance, when used in antimicrobial products as a solvent (except in textures or where sole or major active ingredients) is considered inert, having no independent pesticidal activity. The percentage of such an ingredient shall be included on the label in the total percentage of inert ingredients. Residues of ethyl alcohol are exempted from the requirement of a tolerance when used as a solvent or cosolvent in accordance with good agricultural practices as inert (or occasionally active) ingredients in pesticide formula!

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FDA REQUIREMENTS

Substance added directly to human food affirmed as generally recognized as safe (GRAS). Ethanol is an indirect food additive for use only as a component off adhesives.