



SAFETY DATA SHEET

1. Identification

Product identifier	Dehydrated Alcohol	
Other means of identification		
Catalog number	1012772	
CAS number	64-17-5	
Synonyms	Ethanol * Alcohol	
Chemical name	Ethyl alcohol	
Recommended use	Specified quality tests and assay use only.	
Recommended restrictions	Not for use as a drug. Not for administration to humans or animals.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	U. S. Pharmacopeia	
Address	12601 Twinbrook Parkway Rockville MD 20852-1790 United States	
Telephone	RS Technical Services	301-816-8129
Website	www.usp.org	
E-mail	RSTECH@usp.org	
Emergency phone number	CHEMTREC within US & Canada	1-800-424-9300
	CHEMTREC outside US & Canada	+1 703-527-3887

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Serious eye damage/eye irritation	Category 2A
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Highly flammable liquid and vapor. Causes serious eye irritation.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Wear protective gloves/eye protection/face protection.
Response	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

3. Composition/information on ingredients

Substance

Chemical name	Common name and synonyms	CAS number	%
Dehydrated Alcohol	Ethanol Alcohol	64-17-5	100

4. First-aid measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Severe eye irritation.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Treatment of overdose may include: Position the patient to prevent aspiration of gastric contents if vomiting does occur. Support respiratory and cardiovascular function. Thiamine, glucose, and naloxone should be given as clinically indicated. Hemodialysis may be of benefit.
General information	Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	By heating and fire, harmful vapors/gases may be formed.
Special protective equipment and precautions for firefighters	Use protective equipment appropriate for surrounding materials.
Fire fighting equipment/instructions	As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Wear appropriate personal protective equipment. Avoid inhalation of vapors. Ensure adequate ventilation.
Methods and materials for containment and cleaning up	Absorb spillage with suitable absorbent material. Remove sources of ignition. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. Select and use containment devices and personal protective equipment based on a risk assessment of material potency and exposure potential.
Conditions for safe storage, including any incompatibilities	Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

U.S. - OSHA

Material	Type	Value
Dehydrated Alcohol (CAS 64-17-5)	PEL	1000 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Dehydrated Alcohol (CAS 64-17-5)	PEL	1900 mg/m3 1000 ppm

ACGIH

Material	Type	Value
Dehydrated Alcohol (CAS 64-17-5)	TWA	1000 ppm

US. ACGIH Threshold Limit Values

Material	Type	Value
Dehydrated Alcohol (CAS 64-17-5)	STEL	1000 ppm

U.S. - NIOSH

Material	Type	Value
Dehydrated Alcohol (CAS 64-17-5)	IDLH	3300 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Dehydrated Alcohol (CAS 64-17-5)	TWA	1900 mg/m3 1000 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

For laboratory operations, use good technique and limit open handling. Control exposures to below the occupational exposure level (if available). Select and use containment devices and personal protective equipment based on a risk assessment of exposure potential. Cover all containers for solutions and slurries while being transferred.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields, chemical splash goggles, or full face shield, if necessary. Base the choice of protection on the job activity and potential for contact with eyes or face. An emergency eye wash station should be available.

Skin protection

Hand protection

Wear nitrile or other impervious gloves if skin contact is possible. When the material is dissolved or suspended in an organic solvent, wear gloves that provide protection against the solvent.

Other

Wear lab coat. Base the choice of skin protection on the job activity, potential for skin contact and solvents and reagents in use. Do not wear protective garments in common areas (e.g., cafeterias) or out-of-doors.

Respiratory protection

Respirators are generally not required for laboratory operations. Choose respiratory protection appropriate to the task and the level of existing engineering controls.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Handling practices in this SDS are recommendations for laboratory use of reference standards. Procedures for any other uses or quantities should be determined after an appropriate assessment.

9. Physical and chemical properties

Appearance

Appearance descriptions are general information and not specific to any USP lot.

Physical state

Liquid.

Form	Liquid.
Color	Colorless. Translucent.
Odor	Ethereal. Vinous.
Odor threshold	100 ppm (recognizable) 180 ppm (detectable)
pH	Not available.
Melting point/freezing point	-173.38 °F (-114.1 °C)
Initial boiling point and boiling range	173 °F (78.33 °C)
Flash point	55.0 °F (12.8 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	3.3 %
Flammability limit - upper (%)	19 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	7.91 kPa at 25°C
Vapor density	1.6
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Miscible.
Solubility (other)	Organic solvents: Soluble.
Partition coefficient (n-octanol/water)	-0.31
Auto-ignition temperature	685 °F (362.78 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Chemical family	Linear aliphatic derivative.
Dynamic viscosity	0.5 mPa.s (158 °F (70 °C))
Heat of combustion (NFPA 30B)	24.7 kJ/g
Kinematic viscosity	1.082 mm ² /s (104 °F (40 °C))
Molecular formula	C ₂ H ₅ OH
Molecular weight	46.07
Percent volatile	100 %
Specific gravity	0.79 at 20°C
Surface tension	22.75 mN/m (68 °F (20 °C))

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Risk of ignition.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Inorganic acids. Potassium dioxide. Bromine pentafluoride. Acetyl bromide. Acetyl chloride. Platinum. Sodium.
Hazardous decomposition products	Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Knowledge about health hazard is incomplete.
Skin contact	Knowledge about health hazard is incomplete.
Eye contact	Causes serious eye irritation.
Ingestion	Knowledge about health hazard is incomplete.
Symptoms related to the physical, chemical, and toxicological characteristics	Headache. Dizziness. Drowsiness. Lethargy. Excitement. Depression. Slurred speech. Incoordination. Impaired judgment. Memory loss. Nausea. Vomiting. Chest pain. Irregular heartbeat.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
Dehydrated Alcohol (CAS 64-17-5)		
Acute		
Inhalation		
LC50	Rat	124.7 mg/l, 4 Hours
<i>Vapor</i>		
LC50	Rat	51.3 mg/l, 6 Hours
Oral		
LD50	Mouse	3450 mg/kg
	Rat	1187 - 2769 mg/kg
		7060 mg/kg

Skin corrosion/irritation Knowledge about health hazard is incomplete.

Serious eye damage/eye irritation Causes serious eye irritation.

Local effects

Draize test, 95% ethanol
Result: Slight.
Species: Rabbit
Organ: Skin
Draize test, 96% ethanol
Result: Moderate irritant.
Species: Rabbit
Organ: Eye
Draize test, 96% ethanol
Result: Non irritant.
Species: Rabbit
Organ: Skin
Irritation test, OECD 404
Result: Non irritant.
Species: Rabbit
Organ: Skin
Irritation test: OECD 405.
Result: Moderate irritant.
Species: Rabbit
Organ: Eye

Respiratory or skin sensitization

Respiratory sensitization Knowledge about health hazard is incomplete.

Skin sensitization Based on available data, the classification criteria are not met.

Mouse ear swelling test, 95% ethanol
Result: Not sensitizing
Species: Mouse
Organ: Skin

Germ cell mutagenicity Knowledge about mutagenicity is incomplete.
Results of genotoxicity tests are mixed; most positive results are related to high ethanol concentrations.

Carcinogenicity Knowledge about carcinogenicity is incomplete.
The International Agency for Research on Cancer has found the occurrence of malignant tumors of the oral cavity, pharynx, larynx, esophagus, and liver to be causally related to the consumption of alcoholic beverages. It has also been associated with breast, prostate, and colorectal cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Knowledge about health hazard is incomplete.
A syndrome of developmental effects specifically associated with alcoholic beverage abuse, fetal alcohol syndrome, includes growth deficiencies, mental retardation, behavioral abnormalities, and malformations of facial features and major organ systems.

Specific target organ toxicity - single exposure Knowledge about health hazard is incomplete.

Specific target organ toxicity - repeated exposure Knowledge about health hazard is incomplete.

Aspiration hazard Knowledge about health hazard is incomplete.

12. Ecological information

Ecotoxicity

Product	Species		Test Results
Dehydrated Alcohol (CAS 64-17-5)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	7.7 - 11.2 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1170
UN proper shipping name	Ethyl alcohol
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1170
UN proper shipping name	Ethyl alcohol
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not established.

DOT



IATA



General information	It is the shipper's responsibility to determine the correct transport classification at the time of shipment.
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15. Regulatory information

US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
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TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Dehydrated Alcohol (CAS 64-17-5) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes
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Classified hazard categories	Flammable (gases, aerosols, liquids, or solids) Serious eye damage or eye irritation Hazard not otherwise classified (HNOC)
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SARA 313 (TRI reporting)

Not regulated.

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.**FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace**

Dehydrated Alcohol (CAS 64-17-5)

Low priority

Food and Drug Administration (FDA) Total food additive
Direct food additive
GRAS food additive

US state regulations**California Proposition 65**

WARNING: This product can expose you to Dehydrated Alcohol, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Dehydrated Alcohol (CAS 64-17-5)

Listed: April 29, 2011

Listed: July 1, 1988

California Proposition 65 - CRT: Listed date/Developmental toxin

Dehydrated Alcohol (CAS 64-17-5)

Listed: October 1, 1987

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 08-18-2008
Revision date 02-27-2019
Version # 07

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