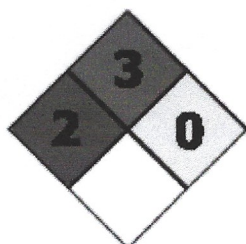


MATERIAL SAFETY DATA SHEET

NFPA	HMIS	Personal Protective Equipment
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Health Hazard	2
Fire Hazard	3
Reactivity	0



See Section 8.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product code:	ET107
Product Name:	DEHYDRATED ALCOHOL, 200 PROOF, USP
Chemical Name:	Ethyl alcohol
Synonyms:	Absolute ethanol Alcohol Alcohol dehydrated Alcohol, anhydrous Alcool ethylique (French) Absolute Ethanol 200 proof Ethanol Ethyl alcohol anhydrous Ethyl hydrate Ethyl hydroxide Fermentation alcohol Dehydrated Alcohol Ethanol, undenatured 200 proof Ethanol 200 proof
Recommended use:	Solvent. Perfuming agent. In pharmaceuticals. Inks. In organic synthesis. In beverages.
CAS #:	64-17-5
Formula:	CH ₃ CH ₂ OH
RTECS #	KQ6300000
CI#:	Not available
Supplier:	Spectrum Chemicals and Laboratory Products, Inc. 14422 South San Pedro St. Gardena, CA 90248 (310) 516-8000
Emergency Telephone Number:	CHEMTREC: 1-800-424-9300
Contact Person:	Martin LaBenz (West Coast)
Contact Person:	Regina Wachenheim (East Coast)

FRANKIE H. GRAY, CLERK

Deborah Scott

2019 OCT -2 AM 10:58

FILED IN OFFICE
HART SUPERIOR COURT

2. HAZARDS IDENTIFICATION

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER FLAMMABLE! . Can burn with an invisible flame. WARNING! IRRITANT. Irritating to eyes. Irritating to skin.

Odor:

Mild. Pleasant. Alcoholic. Like wine or whiskey. Ethereal.

Physical state:

Liquid.

Appearance:

No information available

Color:

Clear. Colorless.

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

POTENTIAL HEALTH EFFECTS

Principal Routes of Exposure:

Ingestion. Skin. Eyes. Inhalation.

Acute Potential Health Effects:**Skin Contact:**

Mildly to moderately irritating to the skin.

Eye Contact:

Causes serious eye irritation. Moderate to severe eye irritation.

Inhalation:

May cause irritation of respiratory tract. May cause central nervous system effects. It may affect the blood. It may affect the brain. Inhalation of vapors may cause dizziness or suffocation.

Ingestion:

Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhoea. May cause central nervous system effects. May affect respiration. May affect the blood. May affect the liver. It may affect the kidneys. May affect the cardiovascular system. It may affect the brain.

Chronic Potential Health Effects:**Component**

Ethyl Alcohol 200 proof
64-17-5 (100)

Carcinogen Status:

A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans by ACGIH
Group 1 - Carcinogenic to Humans by IARC (for Ethyl alcohol in alcoholic beverages)
Present by OSHA

Target Organs:

Skin. Liver. Central nervous system. Nervous system. Heart.

Teratogenic Effects:

Causes birth defects (teratogenic effects)

Mutagenic Effects:

May affect genetic material
Experiments with bacteria and/or yeast have shown mutagenic effects

Aggravated Medical Conditions: No information available

See Section 11 for additional Toxicological Information

POTENTIAL ENVIRONMENTAL EFFECTS

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Ethyl Alcohol 200 proof	64-17-5	100

4. FIRST AID MEASURES

General Advice:	Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)
Skin Contact:	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.
Eye Contact:	Flush eye with water for 15 minutes. Get medical attention.
Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Ingestion:	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.
Notes to Physician:	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Properties

Flashpoint (°C/°F):	12-14 °C/53.6-57.2 °F 15.8-18 °C/60.44-64.4 °F
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Flash Point Tested according to:

Closed cup
Open cup

Lower Explosion Limit (%):	3.3%
Upper Explosion Limit (%):	19%

Autoignition Temperature (°C/°F):	363-426 °C/685.4-798.8 °F
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Suitable Extinguishing Media:	Carbon dioxide (CO2). Dry chemical. Alcohol-resistant foam. Water spray.
Unsuitable Extinguishing Media:	Do not use a solid (straight) water stream as it may scatter and spread fire.
Hazardous Combustion Products:	Carbon monoxide; Carbon dioxide
Specific hazards:	Flammable. May be ignited by heat, sparks or flames. Material can burn with invisible flame. Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Container explosion may occur under fire conditions or when heated. Fire may produce irritating, corrosive and/or toxic gases.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

Specific Methods:

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for Cleaning Up:

Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Handling**Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Storage**Technical Measures/Storage Conditions:**

Hygroscopic. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Sensitive to light. Store in light-resistant containers. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Acids. Alkali Metals. Halogens. caustics. isocyanates. Metals. Bases. Acid anhydrides. Acid chlorides. Hydrazine.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Personal Protective Equipment

- Eye protection:** Goggles. Safety glasses with side-shields.
- Skin and body protection:** Chemical resistant apron. Long sleeved clothing. Gloves.
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

National occupational exposure limits**United States**

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Ethyl Alcohol 200 proof - 64-17-5	1000 ppm TWA 1900 mg/m ³ TWA	1000 ppm TWA 1900 mg/m ³ TWA	1000 ppm STEL	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Ethyl Alcohol 200 proof 64-17-5	1000 ppm TWA 1880 mg/m ³ TWA	1000 ppm STEL	1000 ppm STEL	1000 ppm TWAEV 1880 mg/m ³ TWAEV

Australia and Mexico

Components	Australia	Mexico
Ethyl Alcohol 200 proof 64-17-5	1000 ppm TWA 1880 mg/m ³ TWA	1000 ppm TWA 1900 mg/m ³ TWA

3. PHYSICAL AND CHEMICAL PROPERTIES

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid.	Appearance: No information available	Color: Clear. Colorless.
Odor: Mild. Pleasant. Alcoholic. Like wine or whiskey. Ethereal.	Taste Pungent. Burning.	Molecular/Formula weight: 46.07
Flash point (°C): 12	Lower Explosion Limit (%): 3.3%	Upper Explosion Limit (%): 19%
Autoignition Temperature (°C/°F): 363-426 °C/685.4-798.8 °F	pH: No information available	Melting point/range(°C/°F): -114.1-117.3 °C/-173.38-179.14 °F
Boiling point/range(°C/°F): 78-79 °C/172.4-174.2 °F	Decomposition temperature(°C/°F): No information available	Specific gravity: 0.789 @ 20 °C
Density (g/cm3): No information available	Bulk density: No information available	Vapor pressure @ 20°C (kPa): 5.7
Evaporation rate: No information available	Vapor density: 1.59	VOC content (g/L): 789
Odor threshold (ppm): 5-10 (recognition) 84 (tolerance)	Partition coefficient (n-octanol/water): -0.31	Miscibility: Miscible with water Miscible with Acetone Miscible with Ether Miscible with Benzene Miscible with glacial Acetic Acid Miscible with many organic solvents
Solubility: Very soluble in water		

10. STABILITY AND REACTIVITY

Stability:	Stable at normal conditions
Conditions to avoid:	Heat. Ignition sources. Incompatible materials.
Incompatible Materials:	Oxidizing agents. Acids. Alkali Metals. Halogens. caustics. isocyanates. Metals. Bases. Acid anhydrides. Acid chlorides. Hydrazine.
Hazardous decomposition products:	Carbon monoxide. Carbon dioxide. When heated to decomposition it emits acrid smoke and irritating fumes.
Possibility of Hazardous Reactions:	It can react vigorously, violently or explosively with oxidizers When Ethanol comes in contact with Platinum or Sodium, it liberates flammable hydrogen gas It can react vigorously or explosively with acid hydrides or acid chlorides It reacts with alkali metals to liberate flammable hydrogen gas It reacts with acetyl bromide to evolve hydrogen bromide It reacts with ammonia + silver nitrate to form silver nitride and silver fulminate Ethyl alcohol can react with freshly cut/etched/scratched aluminum with the evolution of heat and release of hydrogen gas. The Ethyl alcohol has to be on the aluminum surface as it is being cut/scratched/etched
Polymerization:	Hazardous polymerisation does not occur
Corrosivity:	No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Ethyl Alcohol 200 proof - 64-17-5

LD50/oral/rat =

7060 mg/kg Oral LD50 Rat

LD50/oral/mouse 3450 mg/kg

LD50/dermal/rabbit = No information available

LD50/dermal/rat = No information available

LC50/inhalation/rat =

124.7 mg/L Inhalation LC50 Rat 4 h

LC50/inhalation/mouse = 39000 mg/m³ 4 h

Other LD50 or LC50 information =

>60000 ppm Inhalation LC50 Mouse 1 h

5900 mg/m³ Inhalation LC50 Rat 6 h

20000 ppm Inhalation LC50 Rat 10 h

5560 mg/kg Oral LD50 Guinea Pig

6300 mg/kg Oral LD50 Rabbit

Product Information

LC50/inhalation/rat

124.7 mg/l 4 h

LC50/Inhalation/mouse 39000 mg/m³ 4 h

LD50/dermal/rabbit

No information available

LD50/dermal/rat No information available

LD50/oral/mouse 3450mg/kg

LD50/oral/rat

7060mg/kg

Local Effects

Skin irritation:

Mild skin irritation. Moderate skin irritation.

Eye irritation:

Irritating to eyes. Moderate eye irritation.

Inhalation:

May cause irritation of respiratory tract. Symptoms may include coughing and shortness of breath. May cause nausea, and headache. It may affect behavior/central nervous system (ataxia, general anesthetic, drowsiness). May affect respiration (respiratory depression). Inhalation of high concentrations of vapor may cause anesthetic effects. Inhalation of high concentrations of vapors may cause dizziness or suffocation. May affect the brain.

Ingestion:

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause gastritis. May cause loss of appetite. May cause flushed skin. May affect the cardiovascular system (change in heart rate). May affect the cardiovascular system (hypotension or hypertension, tachycardia, dysrhythmias). It may affect behavior/central nervous system (excitation, mild euphoria, excessive talking, fatigue, headache, dizziness, drowsiness, staggering gait, ataxia, hallucinations, slurred speech, amnesia, confusion, release of inhibitions, aggressive behavior, convulsions, coma). May affect respiration (dyspnea, respiratory depression). It may affect the brain. May affect liver. May affect the blood. May affect the endocrine system. It may affect the spleen. May affect urinary system (kidneys).

Sensitization:

No information available

Chronic Toxicity**Chronic Toxicity**

Prolonged or repeated skin contact may cause dermatitis, and dryness and cracking of the skin.. Prolonged or repeated ingestion may affect behavior/central nervous system. Prolonged or repeated ingestion may affect metabolism (cause anorexia, weight loss). Prolonged or repeated ingestion may affect the liver (fatty liver degeneration, cirrhosis of the liver. Prolonged or repeated ingestion may affect the cardiovascular system. Prolonged or repeated inhalation may affect the liver.

Carcinogenic effects:

Equivocal tumorigenic agent by Registry of Toxic Effects of Chemical Substances (RTECS) criteria. Confirmed Animal Carcinogen with Unknown Relevance to Humans.

Components	NTP	IARC	OSHA HCS - Carcinogens	ACGIH - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Ethyl Alcohol 200 proof	Not listed	Group 1 - Monograph 100E [2012] in alcoholic beverages Monograph 96 [2010] in alcoholic beverages	Present	A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans	Not listed	Not listed

Mutagenic Effects:

May affect genetic material
Experiments with bacteria and/or yeast have shown mutagenic effects

Reproductive Effects:

Causes adverse reproductive effects

Teratogenic Effects:

Causes birth defects (teratogenic effects)

Target Organs:

Skin. Liver. Central nervous system. Nervous system. Heart.

12. ECOLOGICAL INFORMATION**ECOTOXICITY****Toxicity to terrestrial and aquatic plants and animals:**

Information given is based on data on the components and the ecotoxicology of similar products

Ecotoxicity effects:

Aquatic environment.

Aquatic toxicity:

Ethyl Alcohol 200 proof - 64-17-5

Freshwater Fish Species Data:

12.0 - 16.0 mL/L LC50 Oncorhynchus mykiss 96 h static 1
13400 - 15100 mg/L LC50 Pimephales promelas 96 h flow-through 1
100 mg/L LC50 Pimephales promelas 96 h static 1
9268 - 14221 mg/L LC50 Daphnia magna 48 h
10800 mg/L EC50 Daphnia magna 24 h
2 mg/L EC50 Daphnia magna 48 h

Water Flea Data:

Mobility: No information available

Persistence and degradability: No information available

Bioaccumulative potential: No information available

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Ethyl Alcohol 200 proof	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1170
Proper Shipping Name: Ethanol
Hazard Class: 3
Packing Group: II
Subsidiary Risk: Not applicable
Marine Pollutant: No data available
ERG No: 127
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: UN1170
Proper Shipping Name: Ethanol
Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
Description: No information available

ADR

UN-No: UN1170
Proper Shipping Name: Ethanol (Ethyl alcohol)
Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1170
Proper Shipping Name: Ethanol (Ethyl alcohol)
Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-E
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1170
Proper Shipping Name: Ethanol (Ethyl alcohol)
Hazard Class: 3
Packing Group: II
Subsidiary Risk: 3
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN1170
Proper Shipping Name: Ethanol
Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
Description: No information available

IATA

UN-No: UN1170
Proper Shipping Name: Ethanol
Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
ERG Code: 3L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	Philippines (PICCS)	KOREA KECL	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Ethyl Alcohol 200 proof</i>	Present	Present	KE-13217	2-202	Present	Present	Present 200-578-6

U.S. Regulations*Ethyl Alcohol 200 proof*

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: Present
Pennsylvania RTK: Present
Minnesota - Hazardous Substance List: Present
Louisiana Reportable Quantity List for Pollutants: Present (listed as Volatile Organic Compounds)
California Directors List of Hazardous Substances: Present
FDA - Food Additives Generally Recognized as Safe (GRAS): 21 CFR 184.1293

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

WARNING: This product contains a chemical known to the State of California to cause cancer. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Ethyl Alcohol 200 proof	carcinogen (listed as Alcoholic beverages when associated with alcohol abuse)	developmental toxicity (Ethyl alcohol in alcoholic beverages)	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
Ethyl Alcohol 200 proof	None	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Ethyl Alcohol 200 proof	Not Applicable	Not Applicable

Canada**WHMIS hazard class:**

B2 Flammable liquid

D2B Toxic materials

Ethyl Alcohol 200 proof

B2 D2B

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Ethyl Alcohol 200 proof	0.1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
Ethyl Alcohol 200 proof	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Ethyl Alcohol 200 proof	Not listed	Not listed

EU Classification

R-phrase(s)

R11 - Highly flammable.

S -phrase(s)

S7 - Keep container tightly closed.

S16 - Keep away from sources of ignition - No smoking.

Components	Classification	Safety Phrases
Ethyl Alcohol 200 proof	F; R11	S7 S16

The product is classified in accordance with Annex VI to Directive 67/548/EEC**Indication of danger:**

F - Highly flammable.

**16. OTHER INFORMATION****The MSDS format complies with ANSI Z400.1-2004 standards.****Preparation Date:** 11-Mar-2013**Reason for revision:** Not applicable**Prepared by:** Sonia Owen**Literature reference:** No information available

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. The physical properties reported in this MSDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

<http://louisville.edu/micronano/files/documents/safety-data-sheets-sds/DehydratedAlcohol.pdf>