

# Material Safety Data Sheet

## Ethanol SDA1, Anhydrous

ACC# 88067

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Ethanol SDA1, Anhydrous

**Catalog Numbers:** A405, A405-20, A40550, A405F-1GAL, A405P-4, NC9139943, NC9570984, XXA405200LI, XXA405U200LI

**Synonyms:** Ethyl alcohol, denatured; Grain alcohol, denatured; Ethyl hydroxide, denatured.

**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100

**Emergency Number:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
64-17-5	Ethyl alcohol	91-92	200-578-6
108-10-1	Methyl isobutyl ketone	3.0-4.0	203-550-1
67-56-1	Methyl alcohol	<3.0	200-659-6
64742-89-8	Solvent naphtha (petroleum), light aliphatic	1.0-2.0	265-192-2
141-78-6	Ethyl acetate	1.0	205-500-4

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 57 deg F.

**Danger!** Poison! Causes severe eye irritation. **Flammable liquid and vapor.** May be fatal or cause blindness if swallowed. Vapor harmful. May cause skin irritation. May cause central nervous system depression. May cause liver and kidney damage. May cause reproductive and fetal effects. Cannot be made non-poisonous.

**Target Organs:** Kidneys, central nervous system, liver, eyes.

#### Potential Health Effects

**Eye:** Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause blindness.

**Skin:** May cause skin irritation. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. May be absorbed through the skin.

**Ingestion:** May be fatal or cause blindness if swallowed. May cause central nervous system depression, kidney damage, and liver damage. Symptoms may include: headache, excitement, fatigue, nausea, vomiting, stupor, and coma.

**Inhalation:** Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. Prolonged exposure may result in dizziness and general weakness. May cause visual impairment and possible permanent blindness.

**Chronic:** Prolonged or repeated skin contact may cause defatting and dermatitis. Prolonged or repeated exposure may cause adverse reproductive effects. May cause liver and kidney damage. May cause fetal effects.

### Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Skin:** Get medical aid if irritation develops or persists. Flush skin with plenty of soap and water.

**Ingestion:** Call a poison control center. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation.

**Notes to Physician:** Ethanol may inhibit methanol metabolism.

**Antidote:** Ethanol may inhibit methanol metabolism.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. Use water spray to keep fire-exposed containers cool.

**Extinguishing Media:** Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.

**Flash Point:** 57e deg F ( 13.89 deg C)

**Autoignition Temperature:** 685 deg F (Ethanol)

**Explosion Limits, Lower:**3.3 (Ethanol)

**Upper:** 18.0 (Ethanol)

**NFPA Rating:** (estimated) Health: 2; Flammability: 3; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Provide ventilation.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Avoid breathing vapor or mist.

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ethyl alcohol	1000 ppm TWA	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA 3300 ppm IDLH	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA
Methyl isobutyl ketone	50 ppm TWA; 75 ppm STEL	50 ppm TWA; 205 mg/m <sup>3</sup> TWA 500 ppm IDLH	100 ppm TWA; 410 mg/m <sup>3</sup> TWA
Methyl alcohol	200 ppm TWA; 250 ppm STEL; Skin - potential significant contribution to overall exposure by the	200 ppm TWA; 260 mg/m <sup>3</sup> TWA 6000 ppm IDLH	200 ppm TWA; 260 mg/m <sup>3</sup> TWA

	cutaneous r oute		
Solvent naphtha (petroleum), light aliphatic	none listed	none listed	none listed
Ethyl acetate	400 ppm TWA	400 ppm TWA; 1400 mg/m3 TWA 2000 ppm IDLH	400 ppm TWA; 1400 mg/m3 TWA

**OSHA Vacated PELs:** Ethyl alcohol: 1000 ppm TWA; 1900 mg/m3 TWA Methyl isobutyl ketone: 50 ppm TWA; 205 mg/m3 TWA Methyl alcohol: 200 ppm TWA; 260 mg/m3 TWA Solvent naphtha (petroleum), light aliphatic: No OSHA Vacated PELs are listed for this chemical. Ethyl acetate: 400 ppm TWA; 1400 mg/m3 TWA

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** clear, colorless

**Odor:** alcohol-like

**pH:** Not available.

**Vapor Pressure:** 48 mm Hg

**Vapor Density:** 1.5

**Evaporation Rate:**3.6 (Butyl Acetate=1)

**Viscosity:** Not available.

**Boiling Point:** 170.8 deg F

**Freezing/Melting Point:**<-130 deg F

**Decomposition Temperature:**Not available.

**Solubility:** 100% at 20°C

**Specific Gravity/Density:**.785-.792

**Molecular Formula:**Mixture

**Molecular Weight:**Not Available

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Incompatible materials, ignition sources.

**Incompatibilities with Other Materials:** Strong acids, active metals, nitric acid, isocyanates, aliphatic amines, caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), cyanuric chloride, diethyl zinc, perchloric acid, chromic anhydride, phosphorus trioxide, potassium-tert-butoxide, Oxidants (such as barium perchlorate, bromine, chlorine, hydrogen peroxide, lead perchlorate, perchloric acid, sodium hypochlorite)., acetyl bromide, alkyl aluminum salts, beryllium dihydride, carbon tetrachloride + metals, chloroform + heat, chloroform + sodium hydroxide, Attacks some forms of plastics, rubbers, and coatings..

**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.

**Hazardous Polymerization:** Has not been reported

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 64-17-5: KQ6300000

**CAS#** 108-10-1: SA9275000

**CAS#** 67-56-1: PC1400000

**CAS#** 64742-89-8 unlisted.

**CAS#** 141-78-6: AH5425000

**LD50/LC50:**

**CAS#** 64-17-5:

Draize test, rabbit, eye: 500 mg Severe;  
Draize test, rabbit, eye: 500 mg/24H Mild;  
Draize test, rabbit, skin: 20 mg/24H Moderate;  
Inhalation, mouse: LC50 = 39 gm/m<sup>3</sup>/4H;  
Inhalation, rat: LC50 = 20000 ppm/10H;  
Oral, mouse: LD50 = 3450 mg/kg;  
Oral, rabbit: LD50 = 6300 mg/kg;  
Oral, rat: LD50 = 7060 mg/kg;  
Oral, rat: LD50 = 9000 mg/kg;

**CAS#** 108-10-1:

Draize test, rabbit, eye: 40 mg Severe;  
Draize test, rabbit, eye: 100 uL/24H Moderate;  
Draize test, rabbit, skin: 500 mg/24H Mild;  
Inhalation, mouse: LC50 = 23300 mg/m<sup>3</sup>;  
Inhalation, mouse: LC50 = 23300 mg/m<sup>3</sup>;  
Inhalation, rat: LC50 = 100 gm/m<sup>3</sup>;  
Oral, mouse: LD50 = 1900 mg/kg;  
Oral, mouse: LD50 = 2850 mg/kg;  
Oral, rat: LD50 = 2080 mg/kg;  
Oral, rat: LD50 = 4600 mg/kg;

**CAS#** 67-56-1:

Draize test, rabbit, eye: 40 mg Moderate;  
Draize test, rabbit, eye: 100 mg/24H Moderate;  
Draize test, rabbit, skin: 20 mg/24H Moderate;

Inhalation, rabbit: LC50 = 81000 mg/m<sup>3</sup>/14H;  
Inhalation, rat: LC50 = 64000 ppm/4H;  
Oral, mouse: LD50 = 7300 mg/kg;  
Oral, rabbit: LD50 = 14200 mg/kg;  
Oral, rat: LD50 = 5600 mg/kg;  
Skin, rabbit: LD50 = 15800 mg/kg;

CAS# 64742-89-8:

CAS# 141-78-6:

Inhalation, mouse: LC50 = 45 gm/m<sup>3</sup>/2H;  
Inhalation, rat: LC50 = 200 gm/m<sup>3</sup>;  
Oral, mouse: LD50 = 4100 mg/kg;  
Oral, rabbit: LD50 = 4935 mg/kg;  
Oral, rat: LD50 = 5620 mg/kg;  
Skin, rabbit: LD50 = >20 mL/kg;

**Carcinogenicity:**

CAS# 64-17-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.  
CAS# 108-10-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.  
CAS# 67-56-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.  
CAS# 64742-89-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.  
CAS# 141-78-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** Methanol and phenol have been shown to produce fetotoxicity in the embryo or fetus in laboratory animals. Specific developmental abnormalities for methanol include the musculoskeletal, urogenital, and cardiovascular systems.

**Teratogenicity:** No data available.

**Reproductive Effects:** Adverse reproductive effects have occurred in experimental animals.

**Mutagenicity:** No data available.

**Neurotoxicity:** No data available.

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°C

Fish: Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified)

Bacteria: Phytobacterium phosphoreum: EC50 = 34900 mg/L; 5-30 min; Microtox test

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification

determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:**

CAS# 108-10-1: waste number U161 (Ignitable waste).

CAS# 67-56-1: waste number U154 (Ignitable waste).

CAS# 141-78-6: waste number U112 (Ignitable waste).

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	ETHANOL	No information available.
<b>Hazard Class:</b>	3	
<b>UN Number:</b>	UN1170	
<b>Packing Group:</b>	II	

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

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

CAS# 108-10-1 is listed on the TSCA inventory.

CAS# 67-56-1 is listed on the TSCA inventory.

CAS# 64742-89-8 is listed on the TSCA inventory.

CAS# 141-78-6 is listed on the TSCA inventory.

#### Health & Safety Reporting List

CAS# 108-10-1: Effective 10/4/82, Sunset 10/4/92

#### Chemical Test Rules

CAS# 108-10-1: Test for Health Effects      CAS# 141-78-6: Test for Health Effects

#### Section 12b

CAS# 108-10-1: Section 4 (applies only to those companies that signed an Enforceable Consent Agreement)

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 108-10-1: 5000 lb final RQ; 2270 kg final RQ      CAS# 67-56-1: 5000 lb final RQ; 2270 kg final RQ      CAS# 141-78-6: 5000 lb final RQ; 2270 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPO.

#### SARA Codes

CAS # 64-17-5: acute, chronic, flammable.  
CAS # 108-10-1: acute, chronic, flammable, reactive.  
CAS # 67-56-1: acute, flammable.  
CAS # 64742-89-8: acute, flammable.  
CAS # 141-78-6: flammable.

### **Section 313**

This material contains Methyl isobutyl ketone (CAS# 108-10-1, 3.0-4.0%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Methyl alcohol (CAS# 67-56-1, <3.0%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

### **Clean Air Act:**

CAS# 108-10-1 is listed as a hazardous air pollutant (HAP).

CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

### **Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

### **OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

### **STATE**

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

CAS# 108-10-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 67-56-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 64742-89-8 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 141-78-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

### **California Prop 65**

WARNING: This product contains Ethyl alcohol, a chemical known to the state of California to cause developmental reproductive toxicity.

California No Significant Risk Level: None of the chemicals in this product are listed.

## **European/International Regulations**

### **European Labeling in Accordance with EC Directives**

#### **Hazard Symbols:**

T F

#### **Risk Phrases:**

R 11 Highly flammable.

#### **Safety Phrases:**

S 16 Keep away from sources of ignition - No smoking.

S 7 Keep container tightly closed.

**WGK (Water Danger/Protection)**

CAS# 64-17-5: 0

CAS# 108-10-1: 1

CAS# 67-56-1: 1

CAS# 64742-89-8: No information available.

CAS# 141-78-6: 1

**Canada - DSL/NDSL**

CAS# 64-17-5 is listed on Canada's DSL List.

CAS# 108-10-1 is listed on Canada's DSL List.

CAS# 67-56-1 is listed on Canada's DSL List.

CAS# 64742-89-8 is listed on Canada's DSL List.

CAS# 141-78-6 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B2, D2B, D2A.

**Canadian Ingredient Disclosure List**

CAS# 64-17-5 is listed on the Canadian Ingredient Disclosure List.

CAS# 108-10-1 is listed on the Canadian Ingredient Disclosure List.

CAS# 67-56-1 is listed on the Canadian Ingredient Disclosure List.

CAS# 141-78-6 is listed on the Canadian Ingredient Disclosure List.

## Section 16 - Additional Information

**MSDS Creation Date:** 12/12/1997

**Revision #7 Date:** 12/03/2002

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*