**** MATERIAL SAFETY DATA SHEET ****

Ethanol SDA1 Anhydrous

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Ethanol SDA1 Anhydrous

Catalog Numbers: A06S, A06S-20, A06S-1GAL, A06S-4

Synonyms: Ethyl Alcohol, Denatured; Grain Alcohol, Denatured; Ethyl Hydride, Denatured; Algin, Denatured.

Company Identification: Fisher Scientific

1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

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

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

- 64-17-5 Ethyl Alcohol
- 108-10-1 Methyl isobutyl Ketone
- 141-73-6 Ethyl Acetate
- 64742-89-8 Acetone

Moderate Risk: 1.8

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: clear, colorless

Flash Point: 57 deg F

Choking: Inhaling fumes may cause respiratory distress. May cause nausea, vomiting, drowsiness, and dizziness.

Skin: May cause irritant irritation. Prolonged contact may cause dryness, redness, and itching. May cause dermatitis.

Eye: May cause irritant irritation. Prolonged contact may cause dryness, redness, and itching.

Ingestion: May cause irritation of the skin and mucous membranes. May cause respiratory distress. May cause nausea, vomiting, drowsiness, and dizziness.

Inhalation: May cause irritation of the skin and mucous membranes. May cause respiratory distress. May cause nausea, vomiting, drowsiness, and dizziness.

**** SECTION 4 - FIRST AID MEASURES ****

Eye: Immediately flush eyes with plenty of water for at least 15 minutes. Occasionally lift the upper and lower lids. Get medical aid immediately.

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

Ingestion: If victim is conscious and alert, give 2-4 cups of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately. Induce vomiting by giving one teaspoon of syrup of ipecac.

Inhalation: Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid immediately.

Notes toPhysician:

**** 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 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.

Autoignition Temperature: 885 deg F (Ethanol)

Flash Point: 57 deg F (13.69 deg C)

NFPA Rating: Not published

Explosion Limits: Lower, 8.3 (Ethanol)

Upper, 18.0 (Ethanol)

**** 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., dry sand or earth), then place into a chemical waste container.

**** SECTION 7 - HANDLING AND STORAGE ****

Handling:

- Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with skin and eyes. Empty containers retain product residue (liquid and/or vapor), and can be dangerous. Do not inject or inhale. Do not pressurize, cut, weld, braze, solder, grill, or expose empty containers to heat, sparks or open flames.

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.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:

- Use adequate ventilation to keep airborne concentrations low.

Personal Protective Equipment:

- Wear appropriate protective eyewear (chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166).

- Wear appropriate protective clothing to prevent skin
Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134 of Oregon Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

### 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:** 5.5 (Butyl Acetate=1)
**Viscosity:** Not available
**Boiling Point:** 170.4 deg F
**Freezing/Melting Point:** -130 deg F
**Decomposition Temperature:** Not available
**Solubility:** 100% at 20°C
**Specific Gravity/Density:** 0.731
**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:** Oxidizing materials can cause a vigorous reaction.
**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.
**Hazardous Polymerization:** Has not been reported

### SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTCEC#: CAS# 64-17-5: KOD300000
CAS# 108-10-1: 84735000
CAS# 141-78-6: AHS425000
CAS# 67442-89-6: unlisted
LD50/LC50:
- CAS# 64-17-5: Inhalation, mouse: LC50 = 220 gm/m3/4hr; Inhalation, rat: LC50 = 200 ppm/10hr; Oral, mouse: LD50 = 350 mg/kg; Oral, rabbit: LD50 = 3500 mg/kg.
- CAS# 108-10-1: Inhalation, mouse: LC50 = 3500 mg/m3; Inhalation, rat: LD50 = 1000 mg/kg.
- CAS# 141-78-6: Inhalation, mouse: LC50 = 450 mg/m3/24hr; Inhalation, rat: LC50 = 200 gm/m3; Oral, mouse: LD50 = 450 mg/kg; Oral, rabbit: LD50 = 3500 mg/kg.
- CAS# 67442-89-6: Inhalation, mouse: LC50 = 220 gm/m3/4hr; Inhalation, rat: LC50 = 200 ppm/10hr; Oral, mouse: LD50 = 350 mg/kg; Oral, rabbit: LD50 = 3500 mg/kg.

**Carcinogenicity:**
- Ethyl Alcohol: ACGIH: A4 - Not Classifiable as a Human Carcinogen
- Methyl Isobutyl Ketone: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA
- Ethyl Acetate: ACGIH: A4 - Not Classifiable as a Human Carcinogen
- Hydrocarbon: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA

**Teratogenicity:** Prenatal exposure to ethyl alcohol is associated with a distinct pattern of congenital deformations that have been collectively termed the fetal alcohol syndrome. Among the characteristics of this syndrome are intrauterine and postnatal growth deficiency, a distinctive pattern of physical malformations and behavioral/cognitive impairment such as fine motor dysfunction and mental retardation.

### SECTION 12 - ECOLOGICAL INFORMATION ****

**Ecotoxicity:** LD50 ppm/hr/goldfish/ethyl/fresh water
**Environmental Fate:** Ethanol in water, will volatilize and probably degrade.
**Physical/Chemical:** Not available.
**Other:** Not available.

### SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.

### SECTION 14 - TRANSPORT INFORMATION ****

**US DOT:** No information available
**IMO:** No information available
**IATA:** No information available
**RID/ADR:** No information available
**Canadian TSO:** No information available

### 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# 141-78-6 is listed on the TSCA inventory.
- CAS# 67442-89-6 is listed on the TSCA inventory.
- Health & Safety Reporting List: CAS# 108-10-1: Effective Date: October 4, 1982; Sunset Date: October 4, 1992
- Chemical Test Rules: None of the chemicals in this product are under a Chemical Test Rule.
- Section 12b: CAS# 108-10-1: export notification required - Section 4
- CAS# 141-78-6: export notification required - Section 4
- TSCA Significant New Use Rule: None of the chemicals in this material have a SNUR under TSCA.

**SARA:**
- Section 302 (RO): CAS# 108-10-1: final RG = 6000 pounds (2270 kg)
- CAS# 141-78-6: final RG = 5000 pounds (2270 kg)
- Section 302 (TQ): None of the chemicals in this product have a TQ.
- SARA Codes: Ga#: 64-17-5: acute, chronic, flammable.
- CAS# 108-10-1: acute, chronic, flammable.
- CAS# 141-78-6: flammable.

**Clean Air Act:** CAS# 108-10-1 is listed as a hazardous air pollutant (HAP). This material does not contain any Class I Hazardous Air Pollutants.

**Clean Water Act:** None of the chemicals in this product are listed as Hazardous Substances under the CWA.

**STATE:**
- Ethyl Alcohol can be found on the following state right to know lists:
  - Massachusetts:
    - Ethyl Alcohol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
    - Methyl Isobutyl Ketone can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota.

**WARNING:** This product contains Ethyl Alcohol, a chemical known to the state of California to cause birth defects or other reproductive harm.

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

European/International Regulations:
- European Labelling in Accordance with EC Directives
- Hazard Symbols: 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# 141-78-5: 1
CAS# 84742-89-8: No information available.

Canada
CAS# 64-17-5 is listed on Canada's DSL/NDSL List.
CAS# 108-10-1 is listed on Canada's DSL/NDSL List.
CAS# 141-78-5 is listed on Canada's DSL/NDSL List.
CAS# 84742-89-8 is listed on Canada's DSL/NDSL List.

WHMIS: Not available.

CAS# 64-17-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 108-10-1 is not listed on Canada's Ingredient Disclosure List.
CAS# 141-78-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 84742-89-8 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits
CAS# 64-17-5: OEL-AUSTRALIA: TWA 1000 ppm (1900 mg/m3), OEL-BELGIUM: TWA 1000 ppm (1900 mg/m3), OEL-CZECHOSLOVAKIA: TWA 1000 ppm (1900 mg/m3), STEL 5000 mg/m3, OEL-DENMARK: TWA 1000 ppm (1900 mg/m3), OEL-FINLAND: TWA 1000 ppm (1900 mg/m3), STEL 1250 ppm (2400 mg/m3), OEL-FRANCE: TWA 1000 ppm (1900 mg/m3), STEL 5000 mg/m3, OEL-GERMANY: TWA 1000 ppm (1900 mg/m3), OEL-HUNGARY: TWA 1000 ppm (1900 mg/m3), STEL 3000 mg/m3, OEL-THE NETHERLANDS: TWA 1000 ppm (1900 mg/m3), OEL-THE PHILIPPINES: TWA 1000 ppm (1900 mg/m3), OEL-POLAND: TWA 1000 ppm (1900 mg/m3), OEL-RUSSIA: STEL 1000 mg/m3, OEL-SWEDEN: TWA 1000 ppm (1900 mg/m3), OEL-SWITZERLAND: TWA 1000 ppm (1900 mg/m3), STEL 500 ppm (1000 mg/m3), OEL-THAILAND: TWA 1000 ppm (1900 mg/m3), OEL-TURKEY: TWA 1000 ppm (1900 mg/m3), OEL-UNITED KINGDOM: TWA 1000 ppm (1900 mg/m3).

M check ACGIH TLV, OEL IN NEW ZEALAND, SINGAPORE, VIETNAM.

CAS# 141-78-5: OEL-AUSTRALIA: TWA 400 ppm (1400 mg/m3), OEL-BELGIUM: TWA 400 ppm (1400 mg/m3), OEL-CZECHOSLOVAKIA: TWA 400 ppm (1400 mg/m3), STEL 2000 mg/m3, OEL-DENMARK: TWA 300 ppm (1200 mg/m3), STEL 600 ppm (1200 mg/m3), OEL-FINLAND: TWA 300 ppm (1200 mg/m3), STEL 600 ppm (1200 mg/m3), OEL-FRANCE: TWA 400 ppm (1400 mg/m3), OEL-GERMANY: TWA 400 ppm (1400 mg/m3), OEL-HUNGARY: TWA 400 ppm (1400 mg/m3), STEL 1200 mg/m3, OEL-JAPAN: TWA 400 ppm (1400 mg/m3), STEL 1200 mg/m3, OEL-THE NETHERLANDS: TWA 400 ppm (1400 mg/m3), OEL-THE PHILIPPINES: TWA 400 ppm (1400 mg/m3), OEL-POLAND: TWA 200 ppm (500 mg/m3), OEL-RUSSIA: TWA 400 ppm, STEL 200 ppm (500 mg/m3), OEL-SWEDEN: TWA 100 ppm (500 mg/m3), STEL 200 ppm (500 mg/m3), OEL-SWITZERLAND: TWA 100 ppm (500 mg/m3), STEL 200 ppm (500 mg/m3), OEL-TURKEY: TWA 100 ppm (500 mg/m3), STEL 200 ppm (500 mg/m3), OEL-UNITED KINGDOM: TWA 100 ppm (500 mg/m3), OEL-JAPAN.

M check ACGIH TLV, OEL IN NEW ZEALAND, SINGAPORE, VIETNAM.

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 1/17/1996 Revision Date: 12/12/1997

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