Ethyl Alcohol, Denatured (A407)

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**MSDS Name:** Ethyl Alcohol, Denatured (A407)

**Chemical Name:** Ethanol

**CAS Number:** 64-17-5

**Synonyms:** Ethanol denatured, grain alcohol denatured, ethyl alcohol denatured, ethyl hydrate denatured, algin denatured

**Company Identification:** Fisher Scientific

### SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CASE</th>
<th>Chemical Name</th>
<th>%</th>
<th>EINECS</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5</td>
<td>Ethyl Alcohol</td>
<td>85.4–92</td>
<td>200-578-9</td>
</tr>
<tr>
<td>67-56-1</td>
<td>Methyl alcohol</td>
<td>3.5</td>
<td>200-650-6</td>
</tr>
<tr>
<td>67-63-0</td>
<td>Isopropyl alcohol</td>
<td>5</td>
<td>200-660-3</td>
</tr>
<tr>
<td>71-44-3</td>
<td>Benzene</td>
<td>0.05</td>
<td>70-06-6</td>
</tr>
<tr>
<td>75-09-2</td>
<td>Acetone</td>
<td>0.5</td>
<td>67-65-0</td>
</tr>
<tr>
<td>108-10-1</td>
<td>Isopropyl isobutyl ketone</td>
<td>0.5</td>
<td>102-65-6</td>
</tr>
<tr>
<td>108-88-2</td>
<td>Toluenes</td>
<td>0.5</td>
<td>108-88-2</td>
</tr>
<tr>
<td>141-78-6</td>
<td>Ethyl n-hexane</td>
<td>0.5</td>
<td>141-78-6</td>
</tr>
<tr>
<td>7722-88-8</td>
<td>Solvent naphtha (petroleum), light</td>
<td>5</td>
<td>200-500-4</td>
</tr>
<tr>
<td>84742-89-6</td>
<td>Solvent naphtha (petroleum), heavy</td>
<td>5</td>
<td>200-500-4</td>
</tr>
</tbody>
</table>

### SECTION 3 - HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

**Appearance:** Clear, colorless. Flash Point: 57 deg F

**Danger:** May cause skin irritation. May be fatal if swallowed. Flammable liquid. May cause central nervous system depression. May be absorbed through the skin. May cause blindness if swallowed. Causes severe eye irritation. May cause liver and kidney damage. May cause reproductive and fetal effects.

**Target Organs:** Kneys, central nervous system, liver.

**Potential Health Effects:**

- **Eye:** Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause painful sensitization to light. Vapors may cause eye irritation.
- **Skin:** May cause skin irritation. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. May be absorbed through skin.
- **Ingestion:** May be fatal or cause blindness if swallowed. May cause systemic toxicity with acidosis. May cause liver and kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced cases may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

**Inhalation:** Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. May cause central nervous system depression. May be similar to those described for ingestion. May cause drowsiness, unconsciousness, and central nervous system depression.

**Chronic:** Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. Prolonged or repeated skin contact may cause defatting and dermatitis. Prolonged or repeated exposure may cause adverse reproductive effects. May cause fetal effects.

#### SECTION 4 - FIRST AID MEASURES

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue to flush. Elevate the upper and lower lids.

**Skin:** Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

**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.

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

**Notes to Physician:** Treat symptomatically and supportively.

#### SECTION 5 - FIRE FIGHTING MEASURES

**General Information:** As in any fire, wear a self-contained breathing apparatus in a positive pressure (air-line or self-contained) and full protective gear. Vapors may be highly toxic. Use water spray to cool exposed containers. Flow water may be harmful if not diluted with a large volume of water. They can spread along the ground and collect in low or confined areas.

**Extinguishing Media:** In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use water spray to cool exposed containers. Do not use straight streams of water. Do not use fire or water spray. Cool container with flooding quantities of water until well after fire is out.

**Autoignition Temperature:** 885 deg F (473 deg C)

**Flash Point:** 57 deg F (13.9 deg C)

**NFPA Rating:** Not published

**Explosion Limits:** Lower: 3.3 (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 in a chemical waste container. Remove all sources of ignition. A vapor suppression foam may be used to reduce vapors.

#### SECTION 7 - HANDLING AND STORAGE

**Handling:** Wash thoroughly after handling. Use with adequate ventilation. 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. Keep container tightly closed. Avoid contact with heat, sparks and flame. Do not ingest ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage:** Store away from heat, sparks and flame. Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances.

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

**Engineering Controls:** Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: clear, colorless
Odor: aromatic odor
pH: No data
Vapor Pressure: 25 mm Hg
Vapor Density: 1.0 (ethanol)
Evaporation Rate: 2.0
Viscosity: Not available.
Boiling Point: 173.5 deg C
Freezing/Melting Point: -90 deg C
Decomposition Temperature: Not available.
Solubility: Not available in water.
Specific Gravity/Density: 0.705
Molecular Formulas: Mixture.
Molecular Weight: Not available.

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable.
Conditions to Avoid:
Stable, incompatible materials, ignition sources.
Incompatible with:
Acids, bases, oxidizers, strong reducing agents.

OSHA Vacated PELs:
Ethyl Alcohol: 0.10 ppm, 1100 mg/m3, TWA
Methyl alcohol: 0.10 ppm, 1100 mg/m3, TWA
Acetone: 0.10 ppm, 1100 mg/m3, TWA
Benzene: 0.10 ppm, 1100 mg/m3, TWA
Ethyl acetate: 0.10 ppm, 1100 mg/m3, TWA

Personal Protective Equipment:
Wear appropriate protective eyewear and chemical safety glasses or a chemical protective apron.
Wear appropriate protective gloves to prevent skin exposure.
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
Follow the OSHA respirator regulations found in 29CFR 1910.134. Always use a NIOSH-approved respirator when necessary.
Ethyl Alcohol – Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Methanol – Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Isopropanol – IARC: Group 3 carcinogen
Acetone – Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Benzene – ACGIH: (A2): suspected human carcinogen
California: carcinogen
NIOSH: occupational carcinogen
NTP: Known carcinogen
OSHA: Select carcinogen
IARC: Group 2B carcinogen
Acetaldehyde – ACGIH: A3: animal carcinogen
California: carcinogen
NIOSH: occupational carcinogen
NTP: Suspected carcinogen
OSHA: Possible Select carcinogen
IARC: Group 2B carcinogen
Methyl isobutyl ketone – Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Toluene – IARC: Group 3 carcinogen
Ethyl acetate – Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water – Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Solvent naphtha (petroleum): light aliphatic – Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology – No data available.
Teratogenicity – No data available.
Reproductive Effects – Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have been collectively termed the fetal alcohol syndrome. Among the characteristic features of this syndrome, are intrauterine and postnatal growth deficiencies, a distinctive pattern of physical malformations, and behavioral/cognitive impairment such as fine motor dysfunction and mental retardation. Not all affected children have all of the features of the syndrome. This syndrome has been associated with alcoholic women who drank heavily and frequently during pregnancy
Neurotoxicity – No data available.
Mutagenicity – No data available.
Other Studies – No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****
Ecotoxicity – 250 ppm/hr/goldfish/lethal/fresh water
Environmental Fate – Ethanol in water, will volatilize and probably degrade.
Physical/Chemical – Not available.
Other – Not expected to bioaccumulate in fish.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****
Disposal of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: Not listed.
RCRA D-Series Chronic Toxicity Reference Levels: Not listed.
RCRA F-Series: Not listed.
RCRA F-Series: Not listed.
RCRA U-Series: Not listed.
Not listed as a material banned from land disposal according to RCRA.

**** SECTION 14 - TRANSPORT INFORMATION ****
US DOT – Shipping Name: ETHANOL SOLUTIONS
Hazard Class: 3
UN Number: UN1170
Packing Group: II
IMO – No information available.
IATA – No information available.
RID/ADR – No information available.
Canadian TDG – Shipping Name: ALCOHOLS TOXIC NOS (ETHANOL,METHANOL MIXTURE)

**** SECTION 15 - REGULATORY INFORMATION ****
FEDERAL
TSCA – CAS# 64-17-5 is listed on the TSCA inventory.
CAS# 67-56-1 is listed on the TSCA inventory.
CAS# 67-56-1 is listed on the TSCA inventory.
CAS# 67-56-1 is listed on the TSCA inventory.
CAS# 71-43-2 is listed on the TSCA inventory.
CAS# 71-43-2 is listed on the TSCA inventory.
CAS# 108-10-1 is listed on the TSCA inventory.
CAS# 108-10-1 is listed on the TSCA inventory.
CAS# 141-76-6 is listed on the TSCA inventory.
CAS# 7733-18-5 is not listed on the TSCA inventory.
CAS# 84742-8-9 is listed on the TSCA inventory.

Health & Safety Reporting List – CAS# 67-56-1: Effective Date: December 15, 1995
CAS# 75-07-0: Effective Date: September 30, 1983
CAS# 108-10-1: Effective Date: October 4, 1982
CAS# 108-88-3: Effective Date: October 4, 1982

Chemical Test Rules – CAS# 67-56-1: Testing required by: manufacturers; importers; processor

Section 129 – CAS# 67-56-1: 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# 67-56-1: acute, chronic, flammable.
CAS# 67-56-1: acute, chronic, flammable.
CAS# 67-56-1: chronic, flammable.
CAS# 67-56-1: chronic, flammable, sudden release of pressure.
CAS# 71-43-2: acute, chronic, flammable.
CAS# 71-43-2: acute, chronic, flammable.
CAS# 108-10-1: acute, chronic, flammable, reactive.
CAS# 141-76-6: flammable.

Section 311 – This material contains Methyal alcohol (CAS# 67-56-1, 3.6%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Section 312 – This material contains Isopropyl alcohol (CAS# 67-63-0, 25 ppm/vol%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Section 313 – This material contains Acetone (CAS# 67-64-1, 2 ppm/vol%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Section 314 – This material contains Benzene (CAS# 71-43-2, trace%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Section 315 – This material contains Acetaldehyde (CAS# 75-07-0, 10 ppm/vol%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Section 316 – This material contains Methyl isobutyl ketone (CAS# 108-10-1, 1%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Section 317 – This material is not at a high enough concentration to be reportable under Section 312.

Clean Air Act – CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).
CAS# 71-43-2 is listed as a hazardous air pollutant (HAP).
CAS# 75-07-0 is listed as a hazardous air pollutant (HAP).
CAS# 108-10-1 is listed as a hazardous air pollutant (HAP).
CAS# 108-88-3 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 – CAS# 71-43-2 is listed as a Hazardous Substance under the CWA.
CAS# 75-07-0 is listed as a Hazardous Substance under the CWA.
CAS# 108-10-1 is listed as a Hazardous Substance under the CWA.
CAS# 71-43-2 is listed as a Priority Pollutant under the Clean Water Act.
CAS# 108-88-3 is listed as a Priority Pollutant under the Clean Water Act.
CAS# 71-43-2 is listed as a Toxic Pollutant under the Clean Water Act.
STATE
Ethyl Alcohol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Methyl alcohol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Isopropanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Methanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Ammonia can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Benzene can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Acetophenone can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Ethanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Formaldehyde can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Dioxins can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Silicones can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.
Toluene can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota.

EPA (#) 108-88-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHANo: 75-07-0 is considered highly hazardous by OSHA.

STATE
Ethyl Alcohol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Methyl alcohol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Isopropanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Methanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Ammonia can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Benzene can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Acetophenone can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Ethanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Formaldehyde can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Dioxins can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Silicones can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Toluene can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.

EPA (#) 108-88-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHANo: 75-07-0 is considered highly hazardous by OSHA.

STATE
Ethyl Alcohol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Methyl alcohol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Isopropanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Methanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Ammonia can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Benzene can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Acetophenone can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Ethanol can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Formaldehyde can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Dioxins can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Silicones can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Toluene can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Massachusetts.
Additional Information:
No additional information available.
MSDS Creation Date: 1/18/1995 Revision #15 Date: 9/2/1997

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 way 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, however arising, even if Fisher has been advised of the possibility of such damages.