1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

Product Name: Alcohol, SDA 3C
Product Code(s): E402
Recommended Use: For Further Manufacturing Use Only
                    Not for Human or Animal Drug Use

Company
AMRESCO, LLC
6681 Cochran Road
Solon, Ohio 44139

Emergency Telephone Number: Chemtrec 1-800-424-9300
Company Phone Number: 1-800-448-4442
E-mail Address: info@amresco-inc.com

2. HAZARDS IDENTIFICATION

GHS - Classification

Classification: Flammable Liquid 2 Skin Irritant 2 Eye Irritant 2 Specific Target Organ Toxicity (Single) 3
Signal Word: Danger

Hazard Statements:
- H225 - Highly flammable liquid and vapor
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H336 - May cause drowsiness and dizziness
- H303 - May be harmful if swallowed
- H313 - May be harmful in contact with skin
- H333 - May be harmful if inhaled
Precautionary Statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking P280 - Wear protective gloves/protective clothing/eye protection/face protection P261 - Avoid breathing dust/fume/gas/mist/vapors/spray P302+ P352 - IF ON SKIN: Wash with plenty of soap and water P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EC No.</th>
<th>REACH Reg. No.</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>200-578-6</td>
<td>Not available</td>
<td>64-17-5</td>
<td>93-98</td>
<td>F; R11</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>EEC No. 200-661-7</td>
<td>Not available</td>
<td>67-63-0</td>
<td>2-7</td>
<td>F; R11 Xi; R36 R67</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Eye Contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin Contact
Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation
Move to fresh air. If breathing becomes difficult, give oxygen.

Ingestion
Clean mouth with water and afterwards drink plenty of water.

Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable Properties
Flammable liquid.

Flash Point
17 °C

Suitable Extinguishing Media
Dry chemical, CO2, appropriate foam.

Hazardous Combustion Products
Carbon oxides.

Explosion Data
- Sensitivity to Mechanical Impact: Not sensitive.
- Sensitivity to Static Discharge: Not sensitive.

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

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Avoid contact with skin, eyes and clothing. Use personal protective equipment. Ensure adequate ventilation.

Methods for Containment
Prevent further leakage or spillage if safe to do so.
Handling and Storage

Handling
Handle in accordance with good industrial hygiene and safety practice. Protect from moisture. Keep away from sources of ignition-no smoking.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Handle under nitrogen and protect from moisture. Keep away from sources of ignition-no smoking.

Incompatible Products

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TWA: 1000 ppm</td>
<td>IDLH: 3300 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 1900 mg/m³</td>
<td>TWA: 1000 ppm</td>
</tr>
<tr>
<td>Ethanol 64-17-5</td>
<td>1000 ppm STEL</td>
<td>TWA: 1900 mg/m³</td>
<td>TWA: 1000 ppm</td>
</tr>
<tr>
<td>Isopropyl Alcohol 67-63-0</td>
<td>400 ppm STEL</td>
<td>TWA: 980 mg/m³</td>
<td>IDLH: 2000 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 200 ppm</td>
<td>TWA: 980 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 500 ppm</td>
<td>STEL: 1225 mg/m³</td>
</tr>
</tbody>
</table>

Engineering Measures
Showers
Eyewash stations
Ventilation systems.

Personal Protective Equipment

Eye/Face Protection
Tightly fitting safety goggles.

Skin and Body Protection
Wear protective gloves/clothing.

Respiratory Protection
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear, colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition Temperature °C</td>
<td>No information available</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Initial Boiling Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>17 °C</td>
</tr>
<tr>
<td>Flammable Properties</td>
<td>Flammable liquid</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability Limits in Air</td>
<td>Upper No data available</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
<tr>
<td>MMHG @ 37.8 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability
Stable under recommended storage conditions.

Incompatible Products

Conditions to Avoid
Protect from moisture. Keep away from sources of ignition-no smoking.

Hazardous Decomposition Products
Carbon oxides.

Hazardous Polymerization
Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Product Information
Irritating to eye, skin and respiratory system. May be harmful by inhalation, ingestion, or skin absorption. May cause drowsiness and dizziness. May cause damage to organs.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>7060 mg/kg (Rat)</td>
<td></td>
<td>124.7 mg/L (Rat) 4 h</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>4396 mg/kg (Rat)</td>
<td>12870 mg/kg (Rabbit)</td>
<td>72.6 mg/L (Rat) 4 h</td>
</tr>
</tbody>
</table>

Chronic Toxicity
Chronic Toxicity
No known effect based on information supplied.
Carcinogenicity
Ethanol has been shown to be carcinogenic in long-term studies only when consumed as alcoholic beverage. Isopropyl alcohol considered carcinogen during manufacture process using strong acids.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>Group 1</td>
<td>Known</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>Group 1</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Target Organ Effects
Liver, Kidneys, Central nervous system (CNS).

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to Algae</th>
<th>Toxicity to Fish</th>
<th>Microtox</th>
<th>Daphnia Magna (Water Flea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>LC50 13400 - 15100 mg/L</td>
<td>Pimephales promelas 96 h</td>
<td>EC50 = 10800 mg/L 24 h</td>
<td>EC50 = 9268 mg/L 48 h</td>
</tr>
<tr>
<td></td>
<td>LC50 &gt; 100 mg/L</td>
<td>Pimephales promelas 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>EC50 &gt; 1000 mg/L 72 h</td>
<td>LC50&gt; 1400000 µg/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EC50 &gt; 1000 mg/L 96 h</td>
<td>Lepomis macrochirus 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oncorhynchus mykiss 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oncorhynchus mykiss 96 h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method
Dispose of material in accordance with all federal, state, and local regulations.

Contaminated Packaging
Dispose of in accordance with all federal, state and local regulations.
14. TRANSPORT INFORMATION

IATA

<table>
<thead>
<tr>
<th>UN-No</th>
<th>1170</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>ETHANOL SOLUTION</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>3</td>
</tr>
<tr>
<td>Packing Group</td>
<td>II</td>
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</tbody>
</table>

DOT

<table>
<thead>
<tr>
<th>Proper Shipping Name</th>
<th>ETHANOL SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Class</td>
<td>3</td>
</tr>
<tr>
<td>UN-No</td>
<td>1170</td>
</tr>
<tr>
<td>Packing Group</td>
<td>II</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

REACH Title VII Restrictions

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Dangerous Substances</th>
<th>Organic Solvents</th>
<th>Harmful Substances Whose Names Are to be Indicated on the Label</th>
<th>Pollution Release and Transfer Registry (Class II):</th>
<th>Pollution Release and Transfer Registry (Class I):</th>
<th>Poison and Deleterious Substances Control Law:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>X</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Component

<table>
<thead>
<tr>
<th>Component</th>
<th>ISHA - Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying</th>
<th>ISHA - Harmful Substances Requiring Permission</th>
<th>Toxic Chemical Classification Listing (TCCL) - Toxic Chemicals</th>
<th>Toxic Release Inventory (TRI) - Group I</th>
<th>Toxic Release Inventory (TRI) - Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

International Inventories

<table>
<thead>
<tr>
<th>TSCA</th>
<th>Complies</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECS</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Does not Comply</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

U.S. Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
- Acute Health Hazard: Yes
- Chronic Health Hazard: No
- Fire Hazard: Yes
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any substances regulated as hazardous air pollutants (HAPs) under Section 112 of the Clean Air Act Amendments of 1990.

CERCLA

U.S. State Regulations

California Proposition 65
Ethyl alcohol is only considered a Proposition 65 developmental hazard when it is ingested as an alcoholic beverage.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>Carcinogen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developmental</td>
</tr>
</tbody>
</table>

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

International Regulations

Mexico - Grade

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogen Status</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td></td>
<td>Mexico: TWA 1000 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: TWA 1900 mg/m³</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td></td>
<td>Mexico: TWA 400 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: TWA 980 mg/m³</td>
</tr>
</tbody>
</table>

Canada

WHMIS Hazard Class
- B2  Flammable liquid
- D2B  Toxic materials
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>Issuing Date</th>
<th>22-Jun-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision Date</td>
<td>26-Jul-2012</td>
</tr>
<tr>
<td>Revision Note</td>
<td>No information available</td>
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</tbody>
</table>

**Recommended Restrictions**  No information available

**Disclaimer**

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of MSDS**