SAFETY DATA SHEET
Reagent Alcohol 140 Proof  Re-Order # RS4033
This SDS is valid for all grades and catalog #’s

1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER
Product Identifier: Denatured Ethanol
Synonyms: Denatured Alcohol, Denatured Ethanol; Anhydrous Ethanol;
Other means of identification: Not available
Recommended use of the chemical and restrictions on use:
General purpose organic solvent

Supplier Details:
AVANTIK
36 Commerce St
Springfield, NJ 07081
800.783.9424

Emergency Contact: CHEMTREC: 1.800.424.9300 (USA)

2. HAZARDS IDENTIFICATION
Emergency Overview:
This material is HAZARDOUS by OSHA Hazard Communication definition. Flammable Liquid. Material can burn with little or no visible flame.

OSHA Hazards:
Carcinogen, Flammable liquid, Target Organ Effect, Irritant, Toxic by inhalation, Toxic by ingestion, Toxic by skin absorption

Target Organs:
Cardiovascular system, Central nervous system, Eyes, Gastrointestinal tract, Heart, Kidney, Liver, Nerves
NFPA

GHS label elements, including precautionary statements

Signal Word:
DANGER!

Hazard statement(s)
H225  Highly flammable liquid and vapor.
H302  Harmful if swallowed.
H315  Causes skin irritation.
H319  Causes serious eye irritation.
H335  May cause respiratory irritation.
H370  Causes damage to organs

Precautionary statement(s)
P260  Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P307 + P311  IF exposed: Call a POISON CENTER or doctor/ physician.
P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.
P210  Keep away from heat, sparks, open flames, and hot surfaces. No smoking.

GHS Classification(s)
Acute toxicity, Oral (Category 4)
Eye irritation (Category 2A)
Flammable Liquids (Category 2)
Skin irritation (Category 2)
Specific target organ toxicity - single exposure (Category 1)
Specific target organ toxicity - single exposure (Category 3)

Other hazards which do not result in classification:

Potential Health Effects:
REAGENT ETHANOL

<table>
<thead>
<tr>
<th>Organ</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Can cause eye irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Toxic if swallowed. Short term overexposure can cause drunkenness, depression of the central nervous system, nausea, vomiting, diarrhea, liver damage, and death.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Toxic if inhaled. Upper respiratory tract irritation, drowsiness and dizziness may occur.</td>
</tr>
<tr>
<td>Skin</td>
<td>Toxic if absorbed through the skin. May cause dermatitis by defatting the skin from prolonged or repeated contact.</td>
</tr>
</tbody>
</table>

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical identity: Reagent Alcohol 140 Proof
Common name / Synonym: Denatured Alcohol, Denatured Ethanol; Anhydrous Ethanol;
UN #: 1987

<table>
<thead>
<tr>
<th>% Volume</th>
<th>Material</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.3 - 64.3</td>
<td>Ethyl Alcohol</td>
<td>64-17-5</td>
</tr>
<tr>
<td>2.5 - 4.5</td>
<td>Isopropyl Alcohol</td>
<td>67-63-0</td>
</tr>
<tr>
<td>2.2 - 4.2</td>
<td>Methyl Alcohol</td>
<td>67-56-1</td>
</tr>
<tr>
<td>29.0 - 31.0</td>
<td>Water</td>
<td>7732-18-5</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Skin
Immediately flush affected area with plenty of water while removing contaminated clothing. Wash contaminated clothing before reuse. Contact a doctor. If irritation persists, get medical attention.

Inhalation
Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

Eyes
Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.
Ingestion
DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

Note to Physician
Symptoms will vary with alcohol level of the blood. Mild alcohol intoxication occurs at blood levels between 0.05-0.15%. Approximately 25% of individuals show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol; 50-95% of individuals are clinically intoxicated at these levels. Severe poisoning occurs when the blood is ethanol level is 0.3-0.5%. Above 0.5% the individual will be comatose and death can occur. The unabsorbed ethanol should be removed by gastric lavage after intubating the patient to prevent aspiration. Avoid the use of depressant drugs and administering excessive amounts of fluids.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:
SMALL FIRE: Use dry chemicals, CO2, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam. Cool all affected containers with flooding quantities of water.

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):
Carbon monoxide is expected to be the primary hazard.

Special protective equipment and precautions for firefighters:
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.

Unusual Fire and Explosion Hazards:
- May produce a floating fire hazard.
- Static ignition hazard can result from handling and use.
- Vapors may settle in low or confined spaces.
- Vapors may travel to source of ignition and flash back.

Alcohols burn with a pale blue flame which may be extremely hard to see under normal lighting conditions. Personnel may only be able to feel the heat of the fire without seeing flames. Extreme caution must be exercised in fighting alcohol fires. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire.

Flammable Properties
Classification
OSHA/NFPA Class IB Flammable Liquid.
Flash point
22°C (71.6°F) - closed cup
Autoignition temperature
363°C (685 °F) - (for 100% ethyl alcohol)
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
Do not inhale vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions:
Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

Methods and materials for containment and cleaning up:
Highly flammable liquid. Eliminate all sources of ignition. All equipment used when handling this product must be grounded. A vapor suppressing foam may be used to reduce vapors. Do not touch or walk through spilled material. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations. Use clean non-sparking tools to collect absorbed material.

7. HANDLING AND STORAGE

Precautions for safe handling:
Do not get on skin or in eyes. Do not inhale vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge. Open and handle container with care. Metal containers involved in the transfer of this material should be grounded and bonded.

Conditions for safe storage, including any incompatibilities:
Keep container tightly closed in a cool, dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Consult local fire codes for additional storage information.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters, e.g., occupational exposure limit values or biological limit values:

<table>
<thead>
<tr>
<th>Component</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl alcohol</td>
<td>US (ACGIH)</td>
<td>STEL</td>
<td>1000 ppm</td>
<td>Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>US (OSHA)</td>
<td>TWA</td>
<td>1000 ppm / 1,900 mg/m3</td>
<td>29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants.</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>US (ACGIH)</td>
<td>TWA</td>
<td>200 ppm</td>
<td></td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>US (ACGIH)</td>
<td>STEL</td>
<td>400 ppm</td>
<td></td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>US (OSHA)</td>
<td>TWA</td>
<td>400 ppm</td>
<td></td>
</tr>
</tbody>
</table>
Appropriate engineering controls:
General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

Individual protection measures, such as personal protective equipment:

Respiratory protection:
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection:
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.

Skin and body protection:
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures:
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (physical state, color, etc.)</td>
<td>Liquid. Colorless liquid / invisible vapor.</td>
</tr>
<tr>
<td>Odor</td>
<td>Sweet. Alcohol-like</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Specific data not available</td>
</tr>
<tr>
<td>pH</td>
<td>Specific data not available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-114°C (-173°F) (for 100% ethyl alcohol)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>78°C (173°F) (for 100% ethyl alcohol)</td>
</tr>
<tr>
<td>Flash point</td>
<td>22°C (71.6°F) - closed cup</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Specific data not available - expected to be rapid.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable</td>
</tr>
<tr>
<td>Upper / Lower flammability or explosive limits</td>
<td>19%(V) / 3.3%(V) (for 100% ethyl alcohol)</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Stability</td>
<td>Stable under recommended storage conditions.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Vapors may form explosive mixture with air.</td>
</tr>
<tr>
<td>Conditions to avoid (e.g., static discharge, shock or vibration)</td>
<td>Heat, flames, and sparks. Extreme temperatures and direct sunlight.</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Alkali metals, Ammonia, Oxidizing agents, Peroxides, Strong Inorganic Acids</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Carbon oxides are expected to be, under fire conditions, the primary hazardous decomposition products.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

- Ethyl Alcohol 64-17-5

**Signs and Symptoms of Exposure**
Central nervous system depression, narcosis, damage to the heart. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Product Summary:**
Ethanol is not toxic by OSHA standards. Coingestion of sedative hypnotics or tranquilizers can increase the toxic affects of ethanol. No data available to designate the product as causing specific target organ toxicity through repeated exposure. No data available to designate product as an aspiration hazard.

**Acute Toxicity:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 Inhalation</td>
<td>Rat</td>
</tr>
<tr>
<td>LC50 Oral</td>
<td>Rat</td>
</tr>
</tbody>
</table>

**SDS:** 034  **Revision Date:** 10.29.13  **Revision Number:** 3.0  **Initials:** EF
Irritation:

**Eyes (ETHANOL)**
Eye exposure to Ethanol generally causes transient pain, irritation, and reflex lid closure. A foreign-body sensation may persist for one to two days. Vapors produce transient stinging and tearing, but no apparent adverse effects. Transiently impaired preception of color may occur with acute ingestion or chronic alcoholism. Standard Draize eye test (rabbit) - Dose: 500 mg Reaction: Severe Dose: 500 mg/24 hrs Reaction: Mild

**Respiratory or Skin Sensitization**
No data available

**Skin**
Standard Draize skin test (rabbit) - Dose: 20 mg/24 hrs Reaction: Moderate Repeated exposure may cause skin dryness or cracking.

Reproductive Toxicity
Reproductive toxicity - Human - female - Oral. Effects on Newborns - measured low apgar scores and showed signs of alcohol dependence.

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
Inhalation - May cause respiratory irritation. - Lungs

**Carcinogenicity**
IARC: Not classifiable as a human carcinogen.
ACGIH: Not classifiable as a human carcinogen.
NTP: Not classifiable as a human carcinogen.
OSHA: Not classifiable as a human carcinogen.

Carcinogenicity - Mouse - Oral. Tumorigenic. Tumors found in liver and formation of lymphomas in blood.

Other Hazards

<table>
<thead>
<tr>
<th>Organ</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Causes irritation to the eyes. Can cause painful sensitization to light. Can cause a form of chemical conjunctivitis and cause corneal damage.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Can cause gastrointestinal irritation with nausea, vomiting and diarrhea. Systemic toxicity and acidosis can occur. Advanced stages can lead to respiratory failure, kidney failure, coma, and death.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Causes respiratory tract irritation. Can cause narcotic effects in high concentration. Vapors may cause dizziness or suffocation. Systemic toxicity and acidosis can occur. Advanced stages can lead to respiratory failure, kidney failure, coma, and death.</td>
</tr>
<tr>
<td>Skin</td>
<td>Causes moderate skin irritation. Can cause dermatitis by de-fatting the skin from prolonged or repeated contact.</td>
</tr>
<tr>
<td>Chronic</td>
<td>Prolonged exposure can cause liver, kidney, and heart damage. Long term exposure can cause loss of appetite, weight loss, nervousness, memory loss, mental retardation.</td>
</tr>
</tbody>
</table>
Product Summary:
Classification of teratogenicity or reproductive toxicity cannot be determined with available data for this product. No data available to designate the product as causing specific target organ toxicity through repeated exposure. No data available to designate product as an aspiration hazard.

Acute Toxicity:

<table>
<thead>
<tr>
<th></th>
<th>Rat</th>
<th>Human</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 Inhalation</td>
<td>128.2 mg/L</td>
<td>143 mg/kg</td>
</tr>
<tr>
<td>LD50 Oral Human</td>
<td>87.6 mg/L</td>
<td>6 h</td>
</tr>
<tr>
<td>LD50 Dermal Rabbit</td>
<td>17,100 mg/kg</td>
<td>4 h</td>
</tr>
<tr>
<td>LD50 Oral Rat</td>
<td>1,187 - 2,769 mg/kg</td>
<td>6 h</td>
</tr>
</tbody>
</table>

Signs and symptoms of dyspnea and gastrointestinal disturbances such as nausea, vomiting, and diarrhea.

Irritation:

Eyes
Rabbit - no eye irritation

Respiratory or Skin Sensitization
Maximization Test - Guinea Pig - Sensitization not displayed in laboratory animals when following OECD Test Guideline 406.

Skin
No data available

Germ cell mutagenicity
Genotoxicity in vitro - in vitro assay - S. typhimurium - with and without metabolic activation - negative

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause damage to organs

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
**Emergency Assistance (CHEMTREC):** 1.800.424.9300 (USA)

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**Other Hazards**

<table>
<thead>
<tr>
<th>Organ</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Direct contact with the eyes produces a mild, reversible irritation, assuming treatment is initiated promptly.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Toxic. Can be fatal or cause blindness through ingestion. Ingestion may cause gastrointestinal disturbances such as nausea, vomiting, and diarrhea.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Toxic by inhalation. Vapor harmful. Can cause irritation to the respiratory tract.</td>
</tr>
<tr>
<td>Skin</td>
<td>Toxic in contact with skin. Irritating to skin.</td>
</tr>
</tbody>
</table>

---

**Product Summary:**

No data available for the teratogenic, mutagenic, or reproductive toxicity effects of this product. No data available to designate the product as causing specific target organ toxicity through single or repeated exposure. No data available to designate product as an aspiration hazard or as a respiratory or skin sensitizer.

**Acute Toxicity:**

<table>
<thead>
<tr>
<th></th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>No data available</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Irritation:**

- **Eyes**
  
  No data available.

- **Skin**
  
  No data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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**Other Hazards**

<table>
<thead>
<tr>
<th>Organ</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>No known hazards.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>No known hazards.</td>
</tr>
</tbody>
</table>

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**SDS: 034**  **Revision Date: 10.29.13**  **Revision Number: 3.0**  **Initials: EF**

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Isopropyl Alcohol 67-63-0

Product Summary:
Long-term exposure (2 years) to Isopropyl Alcohol via inhalation at concentrations up to 5000 ppm caused no exposure related increases in tumors in animals. No data available for the teratogenicity, mutagenicity, or reproductive toxicity of this product. No data available to designate the product as causing specific target organ toxicity through repeated exposure. No data available to designate product as an aspiration hazard.

Acute Toxicity:

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Species</th>
<th>LC50/D50</th>
<th>Route</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Rat</td>
<td>16,000 mg/kg</td>
<td>8 hours</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>Rabbit</td>
<td>12,800 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>5045 mg/kg</td>
<td></td>
<td>Behavioral abnormalities observed such as altered sleep time and decreased activity.</td>
</tr>
</tbody>
</table>

Irritation:

Eyes
Rabbit - Irritating to eyes - 24 hours

Eyes (ISOPROPANOL)
Mildly irritating to the eye at an airborne concentration of 400 ppm, unpleasant at 800 ppm.

Respiratory or Skin Sensitization
No data available

Skin
Rabbit - mild skin irritation

Specific target organ toxicity - single exposure (Globally Harmonized System)
Inhalation - May cause drowsiness or dizziness. - Central Nervous System

Carcinogenicity
IARC: Group 3: Not classifiable as to its carcinogenicity to humans.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Other Hazards

<table>
<thead>
<tr>
<th>Organ</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause transient corneal injury.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause narcotic effects in high concentration. Causes upper respiratory tract irritation. Inhalation of vapors may cause drowsiness and dizziness. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. The probable oral lethal dose in humans is 240 ml (2696 mg/kg), but ingestion of only 20 ml (224 mg/kg) has caused poisoning.</td>
</tr>
<tr>
<td>Skin</td>
<td>May cause irritation with pain and stinging, especially if the skin is abraded. Isopropanol has a low potential to cause allergic skin reactions; however, rare cases of allergic contact dermatitis have been reported. May be absorbed through intact skin. Dermal absorption has been considered toxicologically insignificant.</td>
</tr>
<tr>
<td>Chronic</td>
<td>Prolonged exposure can be irritating to mucous membranes, skin, and the respiratory system. Can cause liver and kidney damage.</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

- Ethyl Alcohol 64-17-5

Ecotoxicity (aquatic and terrestrial, where available):
Acute Fish toxicity (ETHANOL)
LC50 / 96 HOUR Oncorhynchus mykiss (rainbow trout) > 10,000 mg/l
LC50 / 96 HOUR Pimephales promelas (fathead minnow) > 13,400 mg/l

Toxicity to aquatic plants (ETHANOL)
Growth inhibition / 96 HOURS Chlorella vulgaris (Fresh water algae) 1,000 mg/l

Toxicity to microorganisms (ETHANOL)
Toxicity Threshold / Pseudomonas putida 6,500 mg/l
Summary: Inhibition of cell multiplication begins.

Persistence and degradability:
Biodegradation is expected.

Bioaccumulative potential:
Biaccumulation is unlikely

Other adverse effects:
No data available

Water 7732-18-5

Ecotoxicity (aquatic and terrestrial, where available):
Ecotoxicity
Not Applicable

Persistence and degradability:
No data available

Bioaccumulative potential:
No data available

Other adverse effects:
No data available

Isopropyl Alcohol 67-63-0

Ecotoxicity (aquatic and terrestrial, where available):

Acute Fish Toxicity (ISOPROPANOL)
LC₅₀ / 96 hours Pimephales promelas: 9,640 mg/L

Toxic to Daphnia and Other Aquatic Invertebrates
EC₅₀ / 24 h / Water Flea - 5,102 mg/L

Toxicity to Aquatic Plants (ISOPROPANOL)
EC₅₀ / 72 hours Desmodesmus subspicatus > 2,000 mg/L

Toxicity to Daphnia and other aquatic invertibrates
Immobilization EC₅₀ / 24h / Water flea - 6,851 mg/L

Persistence and degradability:
No data available

Bioaccumulative potential:
No data available
Other adverse effects:
No data available

- Methyl Alcohol 67-56-1

**Ecotoxicity (aquatic and terrestrial, where available):**

**Acute Fish Toxicity (METHANOL)**
LC50 / 96 hours Lepomis macrocirus: 15,400 mg/L / LC50 / 96 hours Fathead minnow: 29,400 mg/L

**Toxicity to Aquatic Plants (METHANOL)**
EC50 / 96 hours Scenedesmus capricornutum: 22,000 mg/L

**Toxicity to daphnia and other aquatic invertebrates**
EC50/ 48 hours / Water flea - > 10,000.00 mg/L

**Persistence and degradability:**
72% - Readily biodegradable.

**Bioaccumulative potential:**
Bioaccumulation: Carp / 72d / BCF: 1.0

**Other adverse effects:**
BOD: 600 mg/g - 1120 mg/g COD: 1420 mg/g

---

### 13. DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

---

### 14. TRANSPORT INFORMATION

Description of waste residues and information on their safe handling and methods of disposal:

<table>
<thead>
<tr>
<th>UN number</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Alcohols, n.o.s. (ethanol, isopropanol)</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3</td>
</tr>
<tr>
<td>Packing group (if applicable)</td>
<td>II</td>
</tr>
</tbody>
</table>

IMDG
UN-Number: 1987 Class: 3 Packing Group: II
EMS-No: F-E, S-D
Proper shipping name: ALCOHOLS, N.O.S. (ETHANOL, ISOPROPNAL)
Marine pollutant: No

IATA
UN-Number: 1987 Class: 3 Packing Group: II
Proper shipping name: Alcohols, n.o.s. (ethanol, isopropanol)

15. REGULATORY INFORMATION
Safety, health and environmental regulations specific for the product in question:

OSHA Hazards
Carcinogen, Flammable liquid, Target Organ Effect, Irritant, Toxic by inhalation, Toxic by ingestion, Toxic by skin absorption

All ingredients are on the following inventories or are exempted from listing

<table>
<thead>
<tr>
<th>Country</th>
<th>Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>AICS</td>
</tr>
<tr>
<td>Canada</td>
<td>DSL</td>
</tr>
<tr>
<td>China</td>
<td>IECS</td>
</tr>
<tr>
<td>European Union</td>
<td>EINECS</td>
</tr>
<tr>
<td>Japan</td>
<td>ENCS/ISHL</td>
</tr>
<tr>
<td>Korea</td>
<td>ECL</td>
</tr>
<tr>
<td>New Zealand</td>
<td>NZIoC</td>
</tr>
<tr>
<td>Philippines</td>
<td>PICCS</td>
</tr>
<tr>
<td>United States of America</td>
<td>TSCA</td>
</tr>
</tbody>
</table>

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA title III, Section 313: METHANOL (CAS# 67-56-1) Revision date 2007-07-01. / ISOPROPNAL (CAS# 67-63-0) Revision date: 1987-01-01.

SARA 311/312 Hazards
Acute Health Hazard
Chronic Health Hazard
Fire Hazard

CERCLA
Methanol CAS-No. 67-56-1. RQ: 5,000 lbs
Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

Massachusetts Right To Know Components
Ethanol CAS-No.64-17-5 Revision Date 2007-03-01
Isopropyl Alcohol CAS-No. 67-63-0 Revision Date 1987-01-01
Methanol CAS-No.67-56-1 Revision Date 2007-07-01

Pennsylvania Right To Know Components
Ethanol CAS-No.64-17-5 Revision Date 2007-03-01
Isopropyl Alcohol CAS-No. 67-63-0 Revision Date 1987-01-01
Methanol CAS-No.67-56-1 Revision Date 2007-07-01
Water CAS-No. 7732-18-5

New Jersey Right To Know Components
Ethanol CAS-No.64-17-5 Revision Date 2007-03-01
Isopropyl Alcohol CAS-No. 67-63-0 Revision Date 1987-01-01
Methanol CAS-No.67-56-1 Revision Date 2007-07-01
Water CAS-No. 7732-18-5

California Prop 65 Components
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm (ETHYL ALCOHOL) CAS No. 64-17-5 Revision Date: December 11, 2009

WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. METHANOL CAS-No. 67-56-1 Revision Date 2012-03-16

16. OTHER INFORMATION:
INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS

Disclaimer
AVANTIK believes that the information on this SDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, AVANTIK does not assume responsibility.

SDS: 034                  Revision Date: 10.29.13                   Revision Number: 3.0                          Initials: EF

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Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

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