MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>![Pictograms]</td>
</tr>
</tbody>
</table>

**Product code:** A2176
**Product Name:** ALCOHOL, DENATURED, 190 PROOF
**Chemical Name:** No information available
**Synonyms:** No information available
**Recommended use:** No information available.
**CAS #:** Mixture
**Formula:** No information available

**RTECS #:**
- KQ6300000 (Ethyl Alcohol)
- NT8050000 (Isopropyl Alcohol)
- PC1400000 (Methyl Alcohol)
- SA9275000 (Methyl Isobutyl Ketone)

**CI#:** Not available

**Supplier:** Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA  90248
(310) 516-8000

**Emergency Telephone Number:** CHEMTREC: 1-800-424-9300
**Contact Person:** Martin LaBenz (West Coast)
**Contact Person:** Chris Terpak (East Coast)

2. HAZARDS IDENTIFICATION

**OSHA Regulatory Status**
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Odor:** Alcoholic.
**Physical state:** Liquid.
**Appearance:** No information available
**Color:** Clear. Colorless.

**EMERGENCY OVERVIEW**
DANGER FLAMMABLE! Can burn with an invisible flame. WARNING! IRRITANT. Irritating to eyes. Irritating to skin. Contains Methyl alcohol which may cause blindness if swallowed.
2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Principal Routes of Exposure:
Ingestion. Skin. Eyes. Inhalation.

Acute Potential Health Effects:

Skin Contact:
Irritating to skin. Contains Methyl Alcohol. Methanol can be absorbed through the skin, producing systemic effects that include visual disturbances. Absorption through the skin may cause metabolic acidosis.

Eye Contact:
Causes eye irritation.

Inhalation:
May cause irritation of respiratory tract. Inhalation of vapors may cause dizziness or suffocation. May affect the nervous system. May cause central nervous system effects. May cause cardiovascular effects. It may affect the blood. It may affect the brain. May affect the urinary system. May affect the liver. It may affect the spleen. Contains Methyl alcohol which can cause metabolic acidosis. Contains Methyl alcohol. Exposure to high concentrations of Methyl alcohol vapor can cause blurred vision, impaired vision or blindness.

Ingestion:
Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhoea. May cause abdominal pain. May cause constipation. May cause central nervous system effects. May affect respiration. May affect the blood. May affect the liver. It may affect the kidneys. May affect the cardiovascular system. It may affect the brain. May affect the pancreas. Contains Methyl Alcohol which can affect the eyes and cause significant visual disturbances including blindness. Contains Methyl alcohol which can cause metabolic acidosis.

Chronic Potential Health Effects:

<table>
<thead>
<tr>
<th>Component</th>
<th>Carcinogen Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans by ACGIH</td>
</tr>
<tr>
<td></td>
<td>Group 1 - Carcinogenic to Humans by IARC (for Ethyl alcohol in alcoholic beverages)</td>
</tr>
<tr>
<td></td>
<td>Present by OSHA</td>
</tr>
<tr>
<td>Isopropyl Alcohol 67-63-0 (8.75)</td>
<td>No information available</td>
</tr>
<tr>
<td>Water 7732-18-5 (6.55)</td>
<td>No information available</td>
</tr>
<tr>
<td>Methyl Alcohol 67-56-1 (4.2)</td>
<td>A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans by ACGIH</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone 108-10-1 (0.89)</td>
<td>Group 2B - Possibly carcinogenic to humans by IARC</td>
</tr>
</tbody>
</table>


Teratogenic Effects: Causes birth defects (teratogenic effects)

Mutagenic Effects: May affect genetic material Experiments with bacteria and/or yeast have shown mutagenic effects

Aggravated Medical Conditions: No information available

See Section 11 for additional Toxicological Information

Product code: A2176
Product name: ALCOHOL, DENATURED, 190 PROOF
POTENTIAL ENVIRONMENTAL EFFECTS

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>64-17-5</td>
<td>79.6</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>67-63-0</td>
<td>8.75</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>6.55</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>67-56-1</td>
<td>4.2</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>108-10-1</td>
<td>0.89</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General Advice: Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact: Flush eye with water for 15 minutes. Get medical attention.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Notes to Physician: For Methyl Alcohol Ingestion:
1. Support vital functions, correct for dehydration and shock, and manage fluid balance.
2. The currently recommended medical management of Methanol poisoning includes the following methods:
   a. Emptying the stomach by gastric lavage. It is useful if initiated within < 1 of ingestion.
   b. Correct metabolic acidosis with intravenous administration of sodium bicarbonate, adjusting the administration rate according to repeated and frequent measurement of acid/base status.
   c. Administer ethanol (orally or by IV (intravenously)) or Fomepizole (4-methylpyrazole or Antizol)) therapy by IV (intravenously) as an antidote to inhibit the formation of toxic metabolites. Adjunct therapy with Leucorvin followed by Folate can also be initialized. Please note that if Ethanol therapy is used, monitor blood glucose, especially in children. Ethanol can cause hypoglycemia.
   d. When patients are diagnosed and treated early in the course with the above methods, hemodialysis may be avoided if fomepizole or ethanol therapy is effective, and the metabolic acidosis is corrected, and no renal failure is present. However, once severe acidosis and renal failure occurred, hemodialysis is necessary. Hemodialysis is effective in removing Methyl alcohol and toxic metabolites, and correcting metabolic acidosis.

5. FIRE-FIGHTING MEASURES

Flammable Properties

Product code: A2176  Product name: ALCOHOL, DENATURED, 190 PROOF
Flashpoint (°C/°F): 12-14 °C/53.6-57.2 °F
15.8-18 °C/60.4-64.4 °F

Tested according to:
Closed cup
Open cup

Lower Explosion Limit (%): 3.3%
Upper Explosion Limit (%): 19%

Autoignition Temperature (°C/°F): 363-426 °C/685.4-798.8 °F

Suitable Extinguishing Media:
Carbon dioxide (CO2). Dry chemical. Alcohol-resistant foam.
Water spray.

Unsuitable Extinguishing Media:
Do not use a solid (straight) water stream as it may scatter and spread fire.

Hazardous Combustion Products:
Carbon monoxide; Carbon dioxide

Specific hazards:
Flammable. May be ignited by heat, sparks or flames. Material can burn with invisible flame. Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Container explosion may occur under fire conditions or when heated. Fire may produce irritating, corrosive and/or toxic gases.

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

Specific Methods:
Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Environmental Precautions:
Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for Cleaning Up:
Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Product code: A2176
Product name: ALCOHOL, DENATURED, 190 PROOF
Handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice:
Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Storage

Technical Measures/Storage Conditions:
Hygroscopic. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Sensitive to light. Store in light-resistant containers. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Products:

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure: Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Personal Protective Equipment

Eye protection: Goggles. Safety glasses with side-shields.
Skin and body protection: Chemical resistant apron. Long sleeved clothing. Gloves.
Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

National occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof - 64-17-5</td>
<td>1000 ppm TWA 1900 mg/m³ TWA</td>
<td>1000 ppm TWA 1900 mg/m³ TWA</td>
<td>1000 ppm STEL</td>
<td>None</td>
</tr>
<tr>
<td>Isopropyl Alcohol - 67-63-0</td>
<td>400 ppm TWA 980 mg/m³ TWA</td>
<td>400 ppm TWA 980 mg/m³ TWA 500 ppm STEL 1225 mg/m³ STEL</td>
<td>400 ppm STEL 200 ppm TWA</td>
<td>None</td>
</tr>
<tr>
<td>Water - 7732-18-5</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Methyl Alcohol - 67-56-1</td>
<td>200 ppm TWA 260 mg/m³ TWA</td>
<td>200 ppm TWA 260 mg/m³ TWA 250 ppm STEL 325 mg/m³ STEL</td>
<td>250 ppm STEL 200 ppm TWA</td>
<td>Not determined</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone - 108-10-1</td>
<td>100 ppm TWA 410 mg/m³ TWA</td>
<td>50 ppm TWA 205 mg/m³ TWA 75 ppm STEL 300 mg/m³ STEL</td>
<td>75 ppm STEL 20 ppm TWA</td>
<td>None</td>
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</tbody>
</table>

Product code: A2176
Product name: ALCOHOL, DENATURED, 190 PROOF
<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>1000 ppm TWA 1880 mg/m³ TWA</td>
<td>1000 ppm STEL</td>
<td>1000 ppm STEL 1000 ppm TWAEV 1880 mg/m³ TWAEV</td>
<td>1000 ppm TWAEV 1880 mg/m³ TWAEV</td>
</tr>
<tr>
<td>Isopropyl Alcohol 67-63-0</td>
<td>200 ppm TWA 492 mg/m³ TWA 400 ppm STEL 984 mg/m³ STEL 200 ppm TWA 400 ppm STEL</td>
<td>200 ppm TWA 400 ppm STEL 200 ppm TWA 400 ppm STEL</td>
<td>200 ppm TWA 400 ppm STEL 200 ppm TWA 400 ppm STEL</td>
<td>200 ppm TWAEV 985 mg/m³ TWAEV 500 ppm STEV 1230 mg/m³ STEV</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Methyl Alcohol 67-56-1</td>
<td>200 ppm TWA 262 mg/m³ TWA 250 ppm STEL 328 mg/m³ STEL 200 ppm TWA 250 ppm STEL 200 ppm TWA 250 ppm STEL</td>
<td>200 ppm TWA 250 ppm STEL 200 ppm TWA 250 ppm STEL</td>
<td>200 ppm TWA 250 ppm STEL 200 ppm TWA 250 ppm STEL</td>
<td>200 ppm TWAEV 262 mg/m³ TWAEV 250 ppm STEV 328 mg/m³ STEV</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone 108-10-1</td>
<td>50 ppm TWA 205 mg/m³ TWA 75 ppm STEL 307 mg/m³ STEL 20 ppm TWA 75 ppm STEL 50 ppm TWA 75 ppm STEL</td>
<td>50 ppm TWA 75 ppm STEL 50 ppm TWA 75 ppm STEL</td>
<td>50 ppm TWA 75 ppm STEL 50 ppm TWA 75 ppm STEL</td>
<td>50 ppm TWAEV 205 mg/m³ TWAEV 75 ppm STEV 307 mg/m³ STEV</td>
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</table>

**Australia and Mexico**

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>1880 mg/m³ TWA 1000 ppm TWA</td>
<td>1000 ppm TWA 1900 mg/m³ TWA</td>
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<tr>
<td>Isopropyl Alcohol 67-63-0</td>
<td>500 ppm STEL 1230 mg/m³ STEL 400 ppm TWA 983 mg/m³ TWA</td>
<td>400 ppm TWA 980 mg/m³ TWA 500 ppm STEL 1225 mg/m³ STEL</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Methyl Alcohol 67-56-1</td>
<td>250 ppm STEL 328 mg/m³ STEL 200 ppm TWA 262 mg/m³ STEL</td>
<td>200 ppm TWA 260 mg/m³ TWA 250 ppm STEL 310 mg/m³ STEL</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone 108-10-1</td>
<td>75 ppm STEL 307 mg/m³ STEL 50 ppm TWA 205 mg/m³ TWA</td>
<td>50 ppm TWA 205 mg/m³ TWA 75 ppm STEL 307 mg/m³ STEL</td>
</tr>
</tbody>
</table>

**9. PHYSICAL AND CHEMICAL PROPERTIES**
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid.

Odor: Alcoholic.

Flash point (°C): 12

Autoignition Temperature (°C/°F): 363-426 °C/685.4-798.8 °F

Boiling point/range(°C/°F): 78-79 °C/172.4-174.2 °F

Density (g/cm3): No information available

Evaporation rate: No information available

Odor threshold (ppm): 5-10 (recognition) 84 (tolerance)

Solubility: Very soluble in water

Miscibility:
- Miscible with water
- Miscible with Acetone
- Miscible with Ether
- Miscible with Benzene
- Miscible with glacial Acetic Acid
- Miscible with many organic solvents

10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions


Hazardous decomposition products: Carbon monoxide. Carbon dioxide. When heated to decomposition it emits acrid smoke and irritating fumes.

Possibility of Hazardous Reactions:
- It can react vigorously, violently or explosively with oxidizers
- When Ethanol comes in contact with Platinum or Sodium, it liberates flammable hydrogen gas
- It can react vigorously or explosively with acid hydrides or acid chlorides
- It reacts with alkali metals to liberate flammable hydrogen gas
- It reacts with acetyl bromide to evolve hydrogen bromide
- It reacts with ammonia + silver nitrate to form silver nitride and silver fulminate
- Ethyl alcohol can react with freshly cut/etched/scratched aluminum with the evolution of heat and release of hydrogen gas. The Ethyl alcohol has to be on the aluminum surface as it is being cut/etched/etched

Polymerization: Hazardous polymerisation does not occur

Corrosivity: No information available

Special Remarks on Corrosivity: No information available
11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Ethyl Alcohol 200 proof - 64-17-5

LD50/oral/rat = 7060 mg/kg Oral LD50 Rat
LD50/oral/mouse = 3450 mg/kg
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = 124.7 mg/L Inhalation LC50 Rat 4 h
LC50/inhalation/mouse = 39000 mg/m³  4 h
Other LD50 or LC50 information =
5900 mg/m³ Inhalation LC50 Rat 6 h
20000 ppm Inhalation LC50 Rat 10 h
5560 mg/kg Oral LD50 Guinea Pig
6300 mg/kg Oral LD50 Rabbit

Isopropyl Alcohol - 67-63-0

LD50/oral/rat = 4396 mg/kg Oral LD50 Rat
LD50/oral/mouse = 3600 mg/kg (RTECS)
LD50/dermal/rabbit = 12870 mg/kg Dermal LD50 Rabbit
LD50/dermal/rat = 12800 mg/kg Dermal LD50 Rat
LC50/inhalation/rat = 72.6 mg/L Inhalation LC50 Rat 4 h
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information =
LD50 oral  6410 mg/kg  [Rabbit]

Water - 7732-18-5

LD50/oral/rat = > 90 mL/kg Oral LD50 Rat
LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information =
No information available

Methyl Alcohol - 67-56-1

LD50/oral/rat = 5628 mg/kg Oral LD50 Rat
LD50/oral/mouse = 5800 mg/kg
LD50/dermal/rabbit = 15800 mg/kg Dermal LD50 Rabbit
LD50/dermal/rat = No information available
LC50/inhalation/rat = 64000 ppm Inhalation LC50 Rat 4 h
83.2 mg/L Inhalation LC50 Rat 4 h
LC50/inhalation/mouse = 41000 ppm 6 h
Other LD50 or LC50 information =
14200 mg/kg Oral LD50 Rabbit
7500 mg/kg Oral LD50 Dog
>5000 mg/kg Oral LD50 Pig
7000 mg/kg Oral LD50 Monkey
**Methyl Isobutyl Ketone - 108-10-1**

**LD50/oral/rat** = 2080 mg/kg Oral LD50 Rat
**LD50/oral/mouse** = No information available
**LD50/dermal/rabbit** = > 16000 mg/kg Dermal LD50 Rabbit
**LD50/dermal/rat** = No information available
**LC50/inhalation/rat** = 8.2 mg/L Inhalation LC50 Rat 4 h
**LC50/inhalation/mouse** = No information available
**Other LD50 or LC50 information** =
No information available

**Product Information**

**LC50/inhalation/rat** = No information available
**LC50/Inhalation/mouse** = No information available
**LD50/dermal/rabbit** = No information available
**LD50/dermal/rat** = No information available
**LD50/oral/mouse** = No information available
**LD50/oral/rat** = No information available

**Local Effects**

Skin irritation: Irritating to skin. Moderate skin irritation.

Eye irritation: Irritating to eyes. Moderate eye irritation.

Inhalation: May cause irritation of respiratory tract. Symptoms may include coughing and shortness of breath. May cause nausea, and headache. It may affect behavior/central nervous system (ataxia, general anesthetic, drowsiness). May affect respiration (respiratory depression). Inhalation of high concentrations of vapor may cause anesthetic effects. Inhalation of high concentrations of vapors may cause dizziness or suffocation. May affect the brain. Contains Methyl alcohol. Exposure to high concentrations of Methyl alcohol vapor or mist can cause blurred vision, impaired vision or blindness, and metabolic acidosis.

Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause gastritis. May cause loss of appetite. May cause flushed skin. May affect the cardiovascular system (change in heart rate). May affect the cardiovascular system (hypotension or hypertension, tachycardia, dysrhythmias). It may affect behavior/central nervous system (excitation, mild euphoria, excessive talking, fatigue, headache, dizziness, drowsiness, staggering gait, ataxia, hallucinations, slurred speech, amnesia, confusion, release of inhibitions, agressive behavior, convulsions, coma). May affect behavior/central nervous system (tremors). May affect respiration (dyspnea, respiratory depression). It may affect the brain. May affect liver. May affect the blood. May affect urinary system (kidneys). Contains Methyl alcohol which can affect vision and cause blindness if swallowed. Contains Methyl alcohol which can cause metabolic acidosis. It may affect the pancreas (pancreatitis). May cause hyperglycemia.

Sensitization:
No information available

**Chronic Toxicity**

Product code: A2176
Product name: ALCOHOL, DENATURED, 190 PROOF
**Chronic Toxicity**

Prolonged or repeated skin contact may cause dermatitis, and dryness and cracking of the skin. Prolonged or repeated exposure by inhalation or ingestion will have effects similar to those of acute inhalation or ingestion. Prolonged or repeated ingestion may affect behavior/central nervous system. Prolonged or repeated ingestion may affect the brain. Prolonged or repeated ingestion may affect metabolism (cause anorexia, weight loss). Prolonged or repeated ingestion may affect the liver (fatty liver degeneration, cirrhosis of the liver). Prolonged or repeated ingestion may affect the cardiovascular system. Prolonged or repeated ingestion may affect the kidneys. Prolonged or repeated ingestion may affect the blood (changes in serum composition). Prolonged or repeated inhalation may affect the brain. Prolonged or repeated inhalation may affect the blood (changes in serum composition, pigmented or nucleated red blood cells). Prolonged or repeated inhalation may affect the spleen. Prolonged or repeated inhalation may affect the adrenal gland. Prolonged or repeated inhalation may affect the thymus gland.

**Carcinogenic effects:**

May cause cancer based on animal test data.

<table>
<thead>
<tr>
<th>Components</th>
<th>NTP</th>
<th>IARC</th>
<th>OSHA HCS - Carcinogens</th>
<th>ACGIH - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>Not listed</td>
<td>Group 2B - Monograph 101 [in preparation]</td>
<td>Present</td>
<td>A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Mutagenic Effects:**

May affect genetic material

Experiments with bacteria and/or yeast have shown mutagenic effects

**Reproductive Effects:**

Causes adverse reproductive effects

**Teratogenic Effects:**

Causes birth defects (teratogenic effects)

**Target Organs:**


**12. ECOLOGICAL INFORMATION**

**ECOTOXICITY**

**Toxicity to terrestrial and aquatic plants and animals:**

Information given is based on data on the components and the ecotoxicology of similar products

**Ecotoxicity effects:**

Aquatic environment.
Aquatic toxicity:

*Ethyl Alcohol 200 proof - 64-17-5*

**Freshwater Fish Species Data:**
- 12.0 - 16.0 mg/L LC50 Oncorhynchus mykiss 96 h static
- 13400 - 15100 mg/L LC50 Pimephales promelas 96 h flow-through
- 100 mg/L LC50 Pimephales promelas 96 h static

**Water Flea Data:**
- 9268 - 14221 mg/L LC50 Daphnia magna 48 h
- 10800 mg/L EC50 Daphnia magna 24 h
- 2 mg/L EC50 Daphnia magna 48 h

*Isopropyl Alcohol - 67-63-0*

**Freshwater Algae Data:**
- 1000 mg/L EC50 Desmodesmus subspicatus 72 h
- 11130 mg/L LC50 Pimephales promelas 96 h static
- 9640 mg/L LC50 Pimephales promelas 96 h flow-through
- 1400000 µg/L LC50 Lepomis macrochirus 96 h

**Water Flea Data:**
- 13299 mg/L EC50 Daphnia magna 48 h

*Methyl Alcohol - 67-56-1*

**Freshwater Fish Species Data:**
- 13500 - 17600 mg/L LC50 Lepomis macrochirus 96 h flow-through
- 18 - 20 mL/L LC50 Oncorhynchus mykiss 96 h static
- 19500 - 20700 mg/L LC50 Oncorhynchus mykiss 96 h flow-through
- 28200 mg/L LC50 Pimephales promelas 96 h flow-through
- 100 mg/L LC50 Pimephales promelas 96 h static

*Methyl Isobutyl Ketone - 108-10-1*

**Freshwater Algae Data:**
- 400 mg/L EC50 Pseudokirchneriella subcapitata 96 h

**Freshwater Fish Species Data:**
- 496 - 514 mg/L LC50 Pimephales promelas 96 h flow-through

**Water Flea Data:**
- 170 mg/L EC50 Daphnia magna 48 h

Mobility: No information available

Persistence and degradability: No information available

Bioaccumulative potential: Low No information available

### 13. DISPOSAL CONSIDERATIONS

**Waste from residues / unused products:**
Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**
Empty containers should be taken for local recycling, recovery or waste disposal

<table>
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<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Water</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>J154 Ignitable waste</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>J161 Ignitable waste</td>
</tr>
</tbody>
</table>

### 14. TRANSPORT INFORMATION

**DOT UN-No:** UN1987

**Product code:** A2176 **Product name:** ALCOHOL, DENATURED, 190 PROOF
<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>Alcohols, n.o.s. (denatured ethanol)</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>3</td>
</tr>
<tr>
<td>Packing Group</td>
<td>None</td>
</tr>
<tr>
<td>Subsidiary Risk</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Marine Pollutant</td>
<td>No data available</td>
</tr>
<tr>
<td>ERG No</td>
<td>127</td>
</tr>
<tr>
<td>DOT RQ (lbs)</td>
<td>No information available</td>
</tr>
</tbody>
</table>

**TDG (Canada)**

- **UN-No:** UN1987
- **Proper Shipping Name:** Alcohols, n.o.s.
- **Hazard Class:** 3
- **Packing Group:** II
- **Subsidiary Risk:** No information available
- **Description:** No information available

**ADR**

- **UN-No:** UN1987
- **Proper Shipping Name:** Alcohols, n.o.s.
- **Hazard Class:** 3
- **Packing Group:** II
- **Subsidiary Risk:** No information available
- **Classification Code:** No information available
- **Description:** No information available
- **CEFIC Tremcard No:** No information available

**IMO / IMDG**

- **UN-No:** UN1987
- **Proper Shipping Name:** Alcohols, n.o.s.
- **Hazard Class:** 3
- **Packing Group:** II
- **Subsidiary Risk:** No information available
- **Description:** No information available
- **IMDG Page:** No information available
- **Marine Pollutant:** No information available
- **EMS:** F-E
- **MFAG:** No information available
- **Maximum Quantity:** No information available

**RID**

- **UN-No:** UN1987
- **Proper Shipping Name:** Alcohols, n.o.s.
- **Hazard Class:** 3
- **Packing Group:** II
- **Subsidiary Risk:** 3
- **Classification Code:** No information available
- **Description:** No information available

**ICAO**

- **UN-No:** UN1987
- **Proper Shipping Name:** Alcohols, n.o.s.
- **Hazard Class:** 3
- **Packing Group:** II
- **Subsidiary Risk:** No information available
- **Description:** No information available

**IATA**

- **UN-No:** UN1987

**Product code:** A2176  
**Product name:** ALCOHOL, DENATURED, 190 PROOF
Proper Shipping Name: Alcohols, n.o.s.
Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
ERG Code: 3L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>Philippines (PICCS)</th>
<th>KOREA KECL</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>Present</td>
<td>Present</td>
<td>KE-13217</td>
<td>2-202</td>
<td>Present</td>
<td>Present</td>
<td>200-578-6</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>Present</td>
<td>Present</td>
<td>KE-29363</td>
<td>2-207</td>
<td>Present</td>
<td>Present</td>
<td>200-661-7</td>
</tr>
<tr>
<td>Water</td>
<td>Present</td>
<td>Present</td>
<td>KE-35400</td>
<td>Not present</td>
<td>Present</td>
<td>Present</td>
<td>231-791-2</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>Present</td>
<td>Present</td>
<td>KE-23193</td>
<td>2-201</td>
<td>Present</td>
<td>Present</td>
<td>200-659-6</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>Present</td>
<td>Present</td>
<td>KE-24725</td>
<td>2-542</td>
<td>Present</td>
<td>Present</td>
<td>203-550-1</td>
</tr>
</tbody>
</table>

U.S. Regulations

**Ethyl Alcohol 200 proof**
- Massachusetts RTK: Present
- New Jersey RTK Hazardous Substance List: Present
- Pennsylvania RTK: Present
- RI RTK - Hazardous Substances List: Present
- Minnesota - Hazardous Substance List: Present
- Louisiana Reportable Quantity List for Pollutants: Present (listed as Volatile Organic Compounds)
- California Directors List of Hazardous Substances: Present
- FDA - Food Additives Generally Recognized as Safe (GRAS): 21 CFR 184.1293

**Isopropyl Alcohol**
- Massachusetts RTK: Present
- New Jersey RTK Hazardous Substance List: Present
- New Jersey (EHS) List: Present
- New Jersey - Discharge Prevention - List of Hazardous Substances: Present
- Pennsylvania RTK: Environmental hazard
- Pennsylvania RTK - Environmental Hazard List: Present
- RI RTK - Hazardous Substances List: Present
- Minnesota - Hazardous Substance List: Present
- California Directors List of Hazardous Substances: Present

**Methyl Alcohol**
- Massachusetts RTK: Present
- New Jersey RTK Hazardous Substance List: Present
- New Jersey (EHS) List: Present
- New Jersey - Discharge Prevention - List of Hazardous Substances: Present
- Pennsylvania RTK: Environmental hazard
- Pennsylvania RTK - Environmental Hazard List: Present
- Minnesota - Hazardous Substance List: Present
  - 5000 lb RQ
  - 1 lb RQ
- Louisiana Reportable Quantity List for Pollutants: 5000lbfinal RQ
  - 2270kgfinal RQ
- California Directors List of Hazardous Substances: Present

**Methyl Isobutyl Ketone**
- Massachusetts RTK: Present
- New Jersey RTK Hazardous Substance List: Present
- New Jersey (EHS) List: Present
- New Jersey - Discharge Prevention - List of Hazardous Substances: Present
- Pennsylvania RTK: Environmental hazard
- Pennsylvania RTK - Environmental Hazard List: Present
- Minnesota - Hazardous Substance List: Present

Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>Not Listed</td>
<td>developmental toxicity (Ethyl alcohol in alcoholic beverages)</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Water</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>Not Listed</td>
<td>Developmental</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>carcinogen</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>1.0 % de minimis concentration</td>
</tr>
<tr>
<td>Water</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>1.0 % de minimis concentration</td>
<td></td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>5000 lb final RQ</td>
<td>None</td>
<td>None</td>
<td>1.0 % de minimis concentration</td>
<td></td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>5000 lb final RQ</td>
<td>None</td>
<td>None</td>
<td>1.0 % de minimis concentration</td>
<td></td>
</tr>
</tbody>
</table>

U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Water</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>Not Applicable</td>
<td>10/04/1982 10/04/1992</td>
</tr>
</tbody>
</table>

Canada

WHMIS hazard class:
B2 Flammable liquid
D2B Toxic materials
D1B Toxic materials
D2A Very toxic materials

Ethyl Alcohol 200 proof
  B2  D2B
Isopropyl Alcohol
  B2  D2B including 70%
Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components WHMIS Ingredient Disclosure List -
- Ethyl Alcohol 200 proof 0.1%
- Isopropyl Alcohol 1%
- Methyl Alcohol 1%
- Methyl Isobutyl Ketone 1%

Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Water</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Water</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Methyl Alcohol</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

EU Classification

R-phrase(s)
- R11 - Highly flammable.
- R68/20/21/22 - Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.

S -phrase(s)
- S 7 - Keep container tightly closed.
- S16 - Keep away from sources of ignition - No smoking.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol 200 proof</td>
<td>F; R11</td>
<td>S7  S16</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>F; R11</td>
<td>S2  S7  S16  S24/25  S26</td>
</tr>
<tr>
<td></td>
<td>Xi; R36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>R67</td>
<td></td>
</tr>
</tbody>
</table>
Methyl Alcohol

C>=20%
F; R11
T; R23/24/39/23/24/25
C>=3%<20%
Xn; R20/21/22
C>=3%<10%
Xn; R68/20/21/22

S1/2 S7 S16 S36/37 S45

Methyl Isobutyl Ketone

F; R11
Xn; R20
Xi; R36/37
R66

S2 S9 S16 S29

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
F - Highly flammable.
Xn - Harmful.

16. OTHER INFORMATION

The MSDS format complies with ANSI Z400.1-2004 standards.

Preparation Date: 18-Jun-2012
Reason for revision: Not applicable
Prepared by: Sonia Owen
Literature reference: No information available

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. The physical properties reported in this MSDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.