SAFETY DATA SHEET: ETHYL ALCOHOL, DENATURED 190 Proof

1. IDENTIFICATION

Product Name: ETHYL ALCOHOL, DENATURED 190 Proof
Synonyms: Denatured alcohol; Denatured ethanol; Ethanol
Formula and Formula Weight: CH3CH2OH  46.07
Integra numbers beginning with: E812.50
Recommended Use: General industrial solvent
Restrictions on Use: Personal or household use

INTEGRA Chemical Company
24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)
1216 6th Ave N
Kent WA 98032
Phone: 253-479-7000

2. HAZARDS IDENTIFICATION

OSHA Classification: Hazard Category: Hazard Statement:
Acute Toxicity - Oral 4 Harmful if swallowed.
Skin Corrosion/Irritation 2 Causes skin irritation.
Eye Damage/Irritation 2A Causes serious eye irritation.
Specific Target Organ Toxicity (single exposure) 1 Causes damage to organs.
Flammable Liquids 2 Highly flammable liquid and vapor.

Signal Word: DANGER

Precautionary Statements

Prevention:
Keep away from heat, sparks, open flames, hot surfaces. – No smoking.
Keep container tightly closed.
Ground, bond container and receiving equipment. Use only non-sparking tools.
Use explosion-proof electrical, ventilating, lighting equipment and take precautionary measures against static discharge.
Do not breathe fume, gas, mist, vapors, spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves, eye protection, face protection.

Response
If swallowed: Call a poison center, doctor if you feel unwell. Rinse mouth.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water, shower. If skin irritation occurs: Get medical advice, attention.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice, attention.
If exposed: Call a poison center, doctor.
Specific treatment (see first aid section on this label)
Take off contaminated clothing and wash it before reuse.

Storage
Store in a well ventilated place. Keep cool.
Store locked up.

Disposal
Dispose of contents, container in accordance with all governmental regulations.

Hazard Not Otherwise Classified: No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
<th>CAS #</th>
<th>% Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl alcohol</td>
<td>Ethanol</td>
<td>00064-17-5</td>
<td>80</td>
</tr>
<tr>
<td>Isopropyl alcohol</td>
<td>Isopropanol; IPA; 2-Propanol</td>
<td>00067-63-0</td>
<td>09</td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td>07732-18-5</td>
<td>05</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>Methanol; Wood alcohol; Methyl hydrate</td>
<td>00067-56-1</td>
<td>05</td>
</tr>
<tr>
<td>Methyl isobutyl ketone</td>
<td>4-Methyl-2-pentanone; MIBK; Hexone</td>
<td>00108-10-1</td>
<td>01</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Inhalation: Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. If breathing is
9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Clear, colorless liquid
- Odor: Sweet odor
- Odor Threshold: No information available
- pH: No information available
- Melting/Freezing Point: (pure ethanol) -178 °F
- Initial Boiling Point and Boiling Range: (pure ethanol) 173 °F
- Flash Point: approx 61 °F
- Evaporation Rate: No information available
- Flammability: Flammable
- Flammable or Explosive Limits (% by volume in air): Upper: 19 (pure ethanol) Lower: 3.3 (pure ethanol)
- Vapor Pressure: No information available
- Vapor Density: No information available

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Carbon dioxide, dry chemical or alcohol foam. Water may be ineffective.

Special Equipment and Precautions: Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.

Specific Hazards: Vapors may flow along surfaces to distant ignition sources and flash back. Burns with a pale blue flame which may be difficult to see under normal lighting conditions.

Hazardous combustion products: Oxides of carbon.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures: Remove all potential ignition sources. Prevent spread of spill. Wear full protective equipment including suitable respiratory protection. Absorb with sand or inert material. Place into suitable container for disposal.

7. HANDLING AND STORAGE

Incompatible Materials: Incompatible with strong oxidizers. Strong inorganic acids, alkali metals, ammonia, peroxides.

Storage and Handling: Store locked up in a cool, dry, well-ventilated flammable liquids storage area or cabinet away from incompatible materials. Keep away from heat and ignition sources. Keep containers tightly closed and protect them from physical damage. Bond and ground containers when transferring liquid. Use only non-sparking tools and take precautionary measures against static discharge. No smoking. Keep material cool.

Ground, bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting equipment and take precautionary measures against static discharge.

Do not breathe fume, gas, mist, vapors, spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear protective gloves, eye protection, face protection.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA & ACGIH Exposure Limits:

- Ethyl Alcohol OSHA TWA: 1000 ppm; 1900 mg/m3 ACGIH STEL: 1000 ppm; 1880 mg/m3
- Isopropyl alcohol OSHA TWA: 400 ppm; 980 mg/m3 ACGIH TWA: 200 ppm; 491 mg/m3 ACGIH STEL: 400 ppm; 984 mg/m3
- Water None identified
- Methyl alcohol OSHA TWA: 200 ppm; 260 mg/m3 ACGIH TWA: 200 ppm; 262 mg/m3 ACGIH STEL: 250 ppm; 328 mg/m3
- Methyl isobutyl ketone OSHA TWA: 100 ppm; 410 mg/m3 ACGIH TWA: 20 ppm; 82 mg/m3 ACGIH STEL: 75 ppm; 307 mg/m3

Engineering Controls: Use general or local exhaust ventilation to meet TLV and PEL requirements.

Respiratory Protection: Respiratory protection required if airborne concentrations exceed PEL or TLV. Use a NIOSH approved chemical cartridge respirator with an organic vapor cartridge.

Skin/Eye Protective Equipment: Safety goggles, protective clothing and gloves appropriate for the risk of exposure.

Facilities storing or utilizing this material should have readily accessible eyewash stations and safety showers. Select respirators and other safety equipment in accordance with regulations and based upon the particular conditions of use and risk of exposure. Always use safe chemical-handling and good industrial hygiene practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Clear, colorless liquid
- Odor: Sweet odor
- Odor Threshold: No information available
- pH: No information available
- Melting/Freezing Point: (pure ethanol) -178 °F
- Initial Boiling Point and Boiling Range: (pure ethanol) 173 °F
- Flash Point: approx 61 °F
- Evaporation Rate: No information available
- Flammability: Flammable
- Flammable or Explosive Limits (% by volume in air): Upper: 19 (pure ethanol) Lower: 3.3 (pure ethanol)
- Vapor Pressure: No information available
- Vapor Density: No information available
Relative Density: 0.8  Water=1
Solubility: Miscible with water.
Partition Coefficient: n-octanol/water No information available
Auto-Ignition Temperature: (pure ethanol) 685 °F
Decomposition Temperature: No information available
Viscosity: No information available

10. STABILITY AND REACTIVITY
Reactivity: No information available
Stability: Stable
Possibility of Hazardous Reactions: Hazardous polymerization will not occur. Vapors may form explosive mixture with air.
Conditions to Avoid: Heat, sparks and open flame.
Incompatibles: Incompatible with strong oxidizers. Strong inorganic acids, alkali metals, ammonia, peroxides.
Decomposition Products: Oxides of carbon.

11. TOXICOLOGICAL INFORMATION
Effects of Over Exposure:
Inhalation: Harmful if inhaled. Symptoms include respiratory tract irritation, coughing, dizziness, dullness and headache. High concentrations can produce central nervous system depression, narcosis and unconsciousness.
Skin Contact: May cause skin irritation. Prolonged contact may cause dermatitis.
Eye Contact: Contact may be irritating to the eyes. May cause painful sensitization to light.
Ingestion: Harmful if swallowed. Ingestion may cause headache, dizziness, nausea, vomiting, gastrointestinal irritation. Produces drunkenness followed by severe systemic illness and perhaps blindness and death.
Chronic Effects: Chronic exposure may damage the liver, kidneys, eyes, lungs, heart, central nervous system, brain and spleen. May cause loss of appetite, weight loss, nervousness, memory loss, mental retardation.
Target Organs: Liver, kidneys, eyes, lungs, central nervous system, brain, respiratory system, heart, stomach and spleen.
Additional Effects: May aggravate pre-existing skin disorders, liver disorders
Reproductive Effects: Ethyl alcohol has been linked to birth defects in humans.
Carcinogenicity: Isopropyl alcohol is listed by the IARC as Group 3, Unclassifiable.
Methyl isobutyl ketone is listed by the IARC as Group 2B, Possible Human Carcinogen.
Toxicity Data:
<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 (inhalaion, rat)</th>
<th>LD50 (oral, rat)</th>
<th>LDLo (skin, rabbit)</th>
<th>LC50 (oral, rat)</th>
<th>LD50 (skin, rabbit)</th>
<th>LD50 (oral, rat)</th>
<th>LD50 (skin, rabbit)</th>
<th>LD50 (oral, rat)</th>
<th>LD50 (skin, rabbit)</th>
<th>LD50 (oral, rat)</th>
<th>LD50 (skin, rabbit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol</td>
<td>20000 ppm/10hr</td>
<td>7650 mg/kg</td>
<td>20000 mg/kg</td>
<td>16000 ppm/8H</td>
<td>5000 mg/kg</td>
<td>12800 mg/kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isopropyl alcohol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>No information available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl isobutyl ketone</td>
<td>Irritation (skin, rabbit)</td>
<td>500 mg/24 hr</td>
<td>23300 mg/m3</td>
<td>2080 mg/kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION
Aquatic Toxicity Data:
<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 Oncorhynchus mykiss: &gt;10,000 mg/L</th>
<th>LC50 Pimephales promelas: 9640 mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Alcohol</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Isopropyl alcohol</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Water</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Methyl isobutyl ketone</td>
<td>LC50 Leuciscus idus melanotus: 480 mg/L</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Persistence and degradability: No information available
Bioaccumulative potential: No information available
Mobility in soil: No information available
Other adverse effects: No information available

13. DISPOSAL CONSIDERATIONS
Disposal Procedures: Dispose of material and containers in accordance with all local, state and federal regulations.

14. TRANSPORTATION INFORMATION
This product is a regulated material for domestic ground transporation, per CFR Title 49.
UN Number: UN1170
Proper Shipping Name: Ethanol
Hazard Class: 3
Environmental hazards: No information available
Special precautions: No information available
Bulk transport: No information available

15. REGULATORY INFORMATION

Ethyl Alcohol is listed in the TSCA inventory.
Isopropyl alcohol is listed in the TSCA inventory and in SARA 313.
Methyl alcohol is listed in the TSCA inventory and in SARA 313.
Methyl isobutyl ketone is listed in the TSCA inventory and in SARA 313.

16. OTHER INFORMATION

OSHA SDS #: 25601 rev 101 3/27/2015

NE = Not established, NA = Not applicable or Not available

The information presented above is offered for informational purposes only. This SDS, and the associated product, is intended for use only by technically qualified persons, and at their own discretion and risk. Since conditions and manner of use are outside the control of Integra Chemical Company, we make no warranties, either expressed or implied, and assume no liability in connection with any use of this information.

***** END OF SDS *****