Ethanol, Denatured, Absolute

Section 1  Product Description

Product Name: Ethanol, Denatured, Absolute
Recommended Use: Science education applications
Synonyms: Ethyl Alcohol
Distributor: Carolina Biological Supply Company
2700 York Road, Burlington, NC 27215
1-800-227-1150

Chemical Information:
Chemtrec: 800-227-1150 (8am-5pm (ET) M-F)
800-424-9300 (Transportation Spill Response 24 hours)

Section 2  Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

DANGER

Highly flammable liquid and vapor. Toxic in contact with skin. May cause damage to organs.

GHS Classification:
Flammable Liquid Category 2, Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 2, Acute Toxicity - Dermal Category 3

Other Safety Precautions: IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

Acute Toxicity Oral Contains 90.5 % of the mixture consists of ingredient(s) of unknown toxicity
Acute Toxicity Dermal Contains 90.5 % of the mixture consists of ingredient(s) of unknown toxicity
Acute Toxicity Inhalation Vapor Contains 90.5 % of the mixture consists of ingredient(s) of unknown toxicity
Acute Toxicity Inhalation Dust/Mist Contains 90.5 % of the mixture consists of ingredient(s) of unknown toxicity

Section 3  Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>90.5</td>
</tr>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>5</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Section 4  First Aid Measures

Emergency and First Aid Procedures
Inhalation: In case of accident by inhalation: remove casualty to fresh air and keep at rest.
Eyes: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin Contact: After contact with skin, wash immediately with plenty of water.
Ingestion: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Section 5  Firefighting Procedures

Extinguishing Media: Use dry chemical, CO2 or appropriate foam.
Fire Fighting Methods and Protection: Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
Safety Data Sheet

Fire and/or Explosion Hazards: Vapors may travel back to ignition source. Closed Containers exposed to heat may explode.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

Section 6 Spill or Leak Procedures

Steps to Take in Case Material Is Released or Spilled:

No health affects expected from the clean-up of this material if contact can be avoided. Follow personal protective equipment recommendations found in Section 8 of this (M)SDS. Ventilate the contaminated area. Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation. Shut off ignition sources; including electrical equipment and flames. Do not allow smoking in the area.

Section 7 Handling and Storage

Handling:

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

Storage:

Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed in a cool, well-ventilated place.


Section 8 Protection Information

Control Parameters

Engineering Measures:

No exposure limits exist for the constituents of this product. General room ventilation might be required to maintain operator comfort under normal conditions of use.

Personal Protective Equipment (PPE):

Lab coat, apron, eye wash, safety shower.

Respiratory Protection:

NIOSH approved air purifying respirator with organic vapor cartridge and HEPA filter.

Eye Protection:

Wear chemical splash goggles when handling this product. Have an eye wash station available.

Skin Protection:

Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical breakthrough and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.

Gloves:

Butyl rubber, Natural latex, Neoprene, Nitrile

Section 9 Physical Data

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH (TWA)</th>
<th>OSHA PEL (STEL)</th>
<th>ACGIH (STEL)</th>
<th>OSHA PEL (STEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>N/A</td>
<td>1000 ppm STEL</td>
<td>1000 ppm TWA;</td>
<td>N/A</td>
</tr>
<tr>
<td>2-Propanol</td>
<td>200 ppm TWA</td>
<td>400 ppm STEL</td>
<td>400 ppm TWA; 980 mg/m3 TWA</td>
<td>N/A</td>
</tr>
<tr>
<td>Methanol</td>
<td>200 ppm TWA</td>
<td>250 ppm STEL</td>
<td>200 ppm TWA; 260 mg/m3 TWA</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Vapor Pressure: 44 mmHg at 25 °C
Evaporation Rate (BuAc=1): No data available
Vapor Density (Air=1): 1.6
Specific Gravity: .790 at 20 °C
Solubility in Water: Soluble
Log Pow (calculated): -0.32
Autoignition Temperature: 363 °C
Decomposition Temperature: No data available
Viscosity: No data available
Percent Volatile by Volume: 100%
Section 10  Reactivity Data

Reactivity: Not generally reactive under normal conditions.
Chemical Stability: Stable under normal conditions.
Conditions to Avoid: Temperatures above flash point in combination with sparks, open flames, or other sources of ignition.
Incompatible Materials: Organic Peroxides, Strong acids, Oxidizing materials
Hazardous Decomposition Products: Carbon dioxide, Carbon monoxide
Hazardous Polymerization: Will not occur

Section 11  Toxicity Data

Routes of Entry: Inhalation and ingestion.
Symptoms (Acute): Central Nervous System Disorders
Delayed Effects: Liver disorders

Acute Toxicity:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>Oral LD50 Rat 5045 mg/kg</td>
<td>Oral LD50 Mouse 3600 mg/kg</td>
<td>INHALATION LC50 Rat 16000 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oral LD50 Mouse 7300 mg/kg</td>
<td></td>
<td>INHALATION LC50 Rat 64000 ppm</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>Oral LD50 Mouse 7300 mg/kg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Carcinogenicity:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>Listed</td>
<td>Listed</td>
<td>Listed</td>
</tr>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>Listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Chronic Effects:

Mutagenicity: No evidence of a mutagenic effect.
Teratogenicity: Evidence of a teratogenic effect (birth defect).
Sensitization: No evidence of a sensitization effect.
Reproductive: Evidence of negative reproductive effects.

Target Organ Effects:

Acute: Central Nervous System, Eyes
Chronic: Liver

Section 12  Ecological Data

Overview: This material is not expected to be harmful to the ecology.
Mobility: This material is expected to have high mobility in soil. It absorbs weakly to most soil types.
Persistence: Biodegradation
Bioaccumulation: Bioconcentration is not expected to occur.
Degradability: Biodegrades quickly.
Other Adverse Effects: No data

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Eco Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>96 HR LC50 PIMEPHALES PROMELAS &gt; 100 MG/L [STATIC] 48 HR EC50 DAPHNIA MAGNA 2 MG/L [STATIC] 24 HR EC50 DAPHNIA MAGNA 10800 MG/L 48 HR LC50 DAPHNIA MAGNA 9268 - 14221 MG/L</td>
</tr>
</tbody>
</table>
Section 13  Disposal Information

Disposal Methods:  Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.

Waste Disposal Code(s):  If discarded, this product is considered a RCRA ignitable waste, D001.

Section 14  Transport Information

Ground - DOT Proper Shipping Name:  UN1170 Ethanol Solutions  Class. 3  P.G. II

Air - IATA Proper Shipping Name:  UN1170 Ethanol Solutions  Class. 3  P.G. II

Section 15  Regulatory Information

TSCA Status:  All components in this product are on the TSCA Inventory.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>§ 313 Name</th>
<th>§ 304 RQ</th>
<th>CERCLA RQ</th>
<th>§ 302 TPQ</th>
<th>CAA 112(2) TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>Isopropyl alcohol</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>Methanol</td>
<td>No</td>
<td>5000 lb final RQ; 2270 kg final RQ</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

California Prop 65:  WARNING: This product contains a chemical known to the state of California to cause cancer, birth defects or other reproductive harm.

Section 16  Additional Information

Revised: 09/03/2014  Replaces: 09/03/2014  Printed: 04-21-2015

The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

Glossary

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service Number</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
</tr>
<tr>
<td>DOT</td>
<td>U.S. Department of Transportation</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>N/A</td>
<td>Not Available</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>ppm</td>
<td>Parts per million</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substances Control Act</td>
</tr>
<tr>
<td>IDLH</td>
<td>Immediately dangerous to life and health</td>
</tr>
</tbody>
</table>