Section I - Product Identification
An aqueous solution of reagent alcohol, formaldehyde, acetic acid and picric acid.

Section II - Hazards Identification
Danger: Extremely flammable liquid and vapor. Keep away from heat, sparks, open flames and hot surfaces. No smoking. Keep container tightly closed. Use only non-sparking tools. Take precautions against static discharge. Wear protective clothes and eye protection. In case of skin contact immediately remove all contaminated clothing. Rinse with water or shower. In case of fire, use fire extinguishers approved for alcohol fires. Picric acid is explosive when dry. Formaldehyde is a human carcinogen.

Safety Ratings

Health: Hazardous  Flammability: Severely flammable liquid and vapor  Reactivity: Slight  Contact: Slight
Recommended safety equipment: safety goggles, lab coat and proper gloves
Storage: Store in a well ventilated, cool place.
NFPA Ratings
Health = 2  Flammability = 4  Reactivity = 2

Potential Health Effects
Inhalation: Inhalation of formaldehyde can lead to congestion, coughing and shortness of breath. Frequent skin contact leads to drying and scaling. Inhalation of high concentrations of vapor (14 ppm) have caused cancer in laboratory animals. Genetic damage in bacteria has been demonstrated. Alcohols are absorbed through the mucous membranes and will produce irritation as well as the same effects as ingestion. Irritating to respiratory tract. May cause asthma like symptoms in sensitive individuals.
Ingestion: Can cause irritation and chemical burns to the mouth, throat, esophagus and stomach. Can also cause nausea, vomiting, diarrhea, etc.
Skin contact: May cause skin irritation or aggravation of existing dermatitis. May cause temporary discoloration of the skin. Alcohols are absorbed through the skin. Repeated contact causes defatting of the skin with resultant irritation and flaking.
Eye contact: Vapors may cause stinging sensation and tearing. Solution contact can cause corneal injury which can cause visual impairment if not dealt with immediately.
Aggravation of preexisting conditions: May aggravate asthma and other lung diseases.

Section III - Composition/Information on Components

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS#</th>
<th>OSHA Pel</th>
<th>ACGIH TLV</th>
<th>Other Limits</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>1000 ppm (TWA)</td>
<td>1000 ppm (TWA)</td>
<td></td>
<td>54% v/v</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>0.75 ppm</td>
<td>1 ppm STEL</td>
<td></td>
<td>10% w/v</td>
</tr>
<tr>
<td>Acetic acid</td>
<td>64-19-7</td>
<td>25 mg/m3</td>
<td>25 mg/m3 TWA</td>
<td></td>
<td>5.2% w/v</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>200 ppm</td>
<td>200 ppm STEL</td>
<td></td>
<td>3% w/v</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>67-63-0</td>
<td>400 ppm (TWA)</td>
<td>400 ppm (STEL)</td>
<td></td>
<td>3% w/v</td>
</tr>
<tr>
<td>Picric acid</td>
<td>88-89-1</td>
<td>0.1 mg/m3</td>
<td>0.1 mg/m3 TWA</td>
<td></td>
<td>0.75% w/v</td>
</tr>
</tbody>
</table>
Section IV - First Aid Measures

Inhalation: Remove from source of exposure and get medical attention for any breathing difficulty.

Ingestion: Do not induce vomiting. Drink large quantities of fluids and call a physician immediately. Administer activated charcoal or other adsorbent if available.

Skin Contact: Wash affected area with soap and water. Get medical advice if irritation develops.

Eye Contact: Immediately flush thoroughly with running water for at least 15 minutes. Get immediate medical advice.

Section V - Fire Fighting Measures

Flash point: 22 °C (72 °F) TCC

Flammable Limits (for ethanol): LEL 3%  UEL 19%

Fire: Water is ineffective against alcohol fires but may be used to cool adjacent containers.

Fire Extinguishing Media: Alcohol foam, carbon dioxide or dry chemical.

Special information: Pyrolysis will release toxic carbon monoxide.

Section VI - Accidental Release Measures

Wear appropriate protective gear such as gloves, apron and protective eye wear. Absorb with a suitable absorbent (such as paper towels) and store in a suitable container for disposal. Large spills may be neutralized with formalin neutralizers.

Section VII - Handling and Storage

Store in a closed container at controlled room temperature, 59 °F to 86 °F (15 °C to 30 °C).

Section VIII - Exposure Control/Personal Protection

Airborne Exposure Limits: See section III.

Ventilation System: Use appropriate ventilation. Laboratory fume hoods or similar apparatus are recommended for handling formaldehyde solutions. When required, Refer to the ACGIH document, “Industrial Ventilation, a Manual of Recommended Practices” for details about ventilation.

Personal Respirator: Required if threshold limit value for formaldehyde is exceeded. In case of emergency, or when exposure levels are unknown, use a half face or full face respirator with organic vapor cartridges.

Skin protection: Chemical resistant gloves are recommended.

Eye Protection: Laboratory safety goggles, safety glasses or face shield are required.

People who regularly work with formaldehyde are required to have regular medical surveillance.

Section IX - Physical and Chemical Properties

Boiling Point: 183 °F

Density: 0.89 g/ml

Vapor pressure (mm Hg): 40 @ 19 °C

Evaporation Rate (Ethanol = 1): 1

Vapor Density (air = 1): 1.6

Solubility: Infinitely miscible with water

Appearance and odor: A clear yellow liquid with the odors of vinegar, alcohol and formaldehyde.

Section X - Stability and Reactivity

Stability: Freezes only at very low temperature.

Hazardous Decomposition Products: Nothing unusual.

Hazardous polymerization: Will not occur.

Incompatibilities: Nothing unusual.

Conditions to avoid: Excessive cold/heat and light.

Section XI - Toxicological Information

Toxicity: The chronic toxicity of this product is unknown but may include sensitization in sensitive individuals. Formaldehyde is a known human carcinogen. Chronic consumption of ethanol is believed to be linked to liver disease, cancer and birth defects.
**Cancer lists**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Known Carcinogenicity?</th>
<th>Anticipated?</th>
<th>IARC Category</th>
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</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>yes</td>
<td>yes</td>
<td>2A</td>
</tr>
<tr>
<td>Acetic acid</td>
<td>no</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>Picric acid</td>
<td>no</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>Ethanol</td>
<td>no</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>Methanol</td>
<td>no</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>no</td>
<td>no</td>
<td>3</td>
</tr>
</tbody>
</table>

**Section XII - Ecological Information**

Environmental Fate: Not biodegradable.

Environmental Toxicity: Formaldehyde is expected to be toxic to fish.

**Section XIII - Disposal Considerations**

Incorporation at a licensed chemical disposal facility is the preferred disposal method. Local governments may restrict the amounts of flammable liquids that may be flushed down the drain. Dispose of contents and container in accord with all applicable regulations.

**Section XIV - Transportation Information**

*DOT Shipping name:* Ethyl alcohol solution  
*Hazard Class:* 3  
*Packaging Group:* II  
*Hazard Label:* Flammable liquid  
*Identification Number:* UN1170

Bottles smaller than 32 Fl. Oz. are eligible to be shipped under ORM-D or limited quantity exemptions [49 CFR section 173.150(b)(2) and 173.150(C)].

**Section XV - Regulatory Information**

**Chemical Inventory Status**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TSCA</th>
<th>EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Acetic acid</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Picric acid</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Methanol</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>

**Federal, State and International Regulations**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>SARA 302</th>
<th>SARA 313</th>
<th>RCRA 261.33</th>
<th>TSCA 8(D)</th>
<th>Ca. Prop 65</th>
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<tbody>
<tr>
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<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Picric acid</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>No</td>
<td>No</td>
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<td>No</td>
<td>No</td>
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<tr>
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<td>No</td>
<td>U154</td>
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<tr>
<td>Ethanol</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Chemical Weapons Convention: No  
TSCA 12(b): No  
CDTA: Yes

SARA 311/312: Acute: Yes, Chronic: Yes

**Section XVI Other Information**

This information is believed to be correct but is not waranteed as such, nor does it purport to be all inclusive.  
Revision Date: Nov. 27, 2017