Safety Data Sheet
MODIFIED DAVIDSON’S FIXATIVE

Section 1 - Chemical Product and Company Identification

**SDS Name:** Modified Davidson’s Fixative  
**Catalog Numbers:** SO-834, F-88  
**Company Identification:** ROWLEY BIOCHEMICAL  
10 ELECTRONICS AVENUE  
DANVERS, MA 01923  
*For information, call:* 978-739-4883  
*Emergency Number:* 800-424-9300  
*For CHEMTREC assistance, call:* 800-424-9300

Section 2 - Hazards Identification

**GHS Classifications**

H225-Flammable liquids: 2  
H290-Corrosive to metals: 1  
H301-Acute toxicity, oral: 3  
H311-Acute toxicity, dermal: 3  
H315-Skin corrosion/irritation: 2  
H317-Sensitisation, skin: 1  
H318-Serious eye damage/eye irritation: 1  
H331-Acute toxicity, inhalation: 3  
H334-Sensitisation, respiratory: 1  
H341-Germ cell mutagenicity: 2  
H350-Carcinogenicity: 1A  
H361-Reproductive toxicity: 2  
H370-Specific target organ toxicity, single exposure: 1  
H372-Specific target organ toxicity, repeated exposure: 1  
H402-Hazardous to the aquatic environment

**Pictograms or Hazard symbols and Hazard statement(s):**

![Pictograms](image-url)
Signal Word: Danger

**Hazard Statements:**

H225-Highly flammable liquid and vapour  
H290-May be corrosive to metals  
H301-Toxic if swallowed  
H311-Toxic in contact with skin  
H315-Causes skin irritation  
H317-May cause an allergic skin reaction  
H318-Causes serious eye damage  
H311-Toxic if inhaled  
H331-Toxic if inhaled  
H341-Suspected of causing genetic defects  
H350-May cause cancer  
H361-Suspected of damaging fertility or the unborn child  
H370-Causes damage to organs (respiratory system, central nervous system, optic nerve)  
H372-Causes damage to organs through prolonged or repeated exposure (kidney, liver, heart, spleen, blood)  
H402-Harmful to aquatic life

**Precautionary Statements:**

P201-Obtain special instructions before use.  
P202-Do not handle until all safety precautions have ben read and understood.  
P210-Keep away from heat/sparks/open flames/hot surfaces.-No smoking.  
P233-Keep container tightly closed.  
P240-Ground/Bond container and receiving equipment.  
P241-Use explosion-proof electrical/ventilating/lighting/equipment.  
P242-Use only non-sparking tools.  
P243-Take precautionary measures against static discharge.  
P260-Do not breathe dust/fume/gas/mist/vapours/spray.  
P261-Avoid breathing dust/fume/gas/mist/vapours/spray.  
P264-Wash thoroughly after handling.  
P270-Do not eat, drink or smoke when using this product.  
P271-Use only outdoors or in a well-ventilated area.  
P272-Contaminated work clothing should not be allowed out of the workplace.  
P273-Avoid release to the environment.  
P280-Wear protective gloves/eye protection/face protection/protective clothing.  
P281-Use personal protective equipment as required.  
P285-In case of inadequate ventilation wear respiratory protection.  
P301+P310-If swallowed: Immediately call a Poison Center or doctor/physician.  
P302+P352-If on skin: Wash with plenty of soap and water.  
P303+P361+P353-If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340-If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P304+P341-If inhaled: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305+P351+P338-If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P307+P311-If exposed: Call a Poison Center or doctor/physician.
Section 3 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5</td>
<td>Ethyl alcohol</td>
<td>13.5 v/v</td>
</tr>
<tr>
<td>67-56-1</td>
<td>Methyl alcohol</td>
<td>2.4 v/v</td>
</tr>
<tr>
<td>50-00-0</td>
<td>Formaldehyde, 37-40%</td>
<td>9.4 v/v</td>
</tr>
<tr>
<td>64-19-7</td>
<td>Glacial Acetic Acid</td>
<td>5 v/v</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>balance</td>
</tr>
</tbody>
</table>

Section 4 - First Aid Measures

**Eye Exposure:** In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.  
**Dermal Exposure:** In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.  
**Oral Exposure:** If Swallowing seek immediate medical advice.  
**Inhalation Exposure:** If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

Section 5 - Fire Fighting Measures

**General Information:** Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a
fire. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

**NFPA Rating:** (estimated) Health: 3; Flammability: 3; Instability: 0

### Section 6 - Accidental Release Measures

**Procedure(s) of Personal Precaution(s):**
Wear protective gear. Eliminates all sources of ignition.

**Methods for Cleaning up:** Absorb with sand, earth or vermiculite. Carefully sweep up and containerize for proper disposal.

### Section 7 - Handling and Storage

Use care when handling. Wash thoroughly after handling. Store capped at room temperature. Keep away from incompatible materials. Protect from heat. Vapors heavier than air, may travel considerable distance and ignite or explode.

### Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits:**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>1000 ppm TWA</td>
<td>1000 ppm TWA; 1900 mg/m3 TWA 3300 ppm IDLH</td>
<td>1000 ppm TWA; 1900 mg/m3 TWA</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.1 ppm TWA A1 Known Human Carcinogen</td>
<td>0.016 ppm TWA</td>
<td>3 ppm TWA</td>
</tr>
</tbody>
</table>

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.
Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: Clear
Odor: Alcohol-like, pungent
Vapor Pressure: N/A
Odor threshold: N/A
Vapor Density: N/A
pH: 2.3-2.5
Relative density: N/A
Melting point/freezing point: N/A
Solubility: soluble in water
Boiling Point: N/A
Flash point: N/A
Evaporation Rate: N/A
Flammability (solid, gas): N/A
Partition coefficient: n-octanol/water: N/A
Auto-ignition temperature: N/A
Decomposition temperature: N/A
Viscosity: N/A

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Store in closed container.
Conditions to Avoid: Incompatible materials, ignition sources, excess heat, oxidizers.
Incompatibilities with Other Materials: Strong oxidizing agents, acids, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptfluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, formaldehyde, hydrogen.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#: Ethyl Alcohol CAS# 64-17-5: KQ6300000
LD50/LC50:
Ethyl Alcohol CAS# 64-17-5:
Draize test, rabbit, eye: 500 mg Severe.
Draize test, rabbit, eye: 500 mg/24H Mild.
Draize test, rabbit, skin: 20 mg/24H Moderate.
Inhalation, mouse: LC50 = 39 gm/m3/4H.
Inhalation, rat: LC50 = 20000 ppm/10H.
Oral, mouse: LD50 = 3450 mg/kg.
Oral, rabbit: LD50 = 6300 mg/kg.
Oral, rat: LD50 = 7060 mg/kg.
Oral, rat: LD50 = 9000 mg/kg;<BR.

**Carcinogenicity:**
Ethyl Alcohol CAS# 64-17-5: Is listed by the ACGIH (A3 Animal Carcinogen), IARC (Group 1 Carcinogenic to Humans), NTP, and CA Prop 65 (developmental carcinogen).

Formaldehyde CAS# 50-00-0
Mouse oral: 260 mg/kg
Rabbit skin: 64000/ 4 H
Mouse inhalation: 64000/ 8 hours.

**Carcinogenicity:**
Formaldehyde CAS# 50-00-0 is listed by ACGIH (A1 Known Human Carcinogen), IARC (Group 1 Carcinogenic to Humans), NTP, and CA Prop 65.

Acetic Acid CAS# 64-19-7:
Oral rat LD50: 3310 mg/kg.
Skin: rabbit LD50: 1.06 g/kg
Inhalation mouse LC50: 5620 ppm/1-hr; investigated as a mutagen, reproductive effector.

**Carcinogenicity:**
Acetic Acid CAS# 64-19-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

---

**Section 12 - Ecological Information**

**Ecotoxicity:**

Formaldehyde CAS# 50-00-0: This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

Formaldehyde CAS# 50-00-0: LC50 15 mg/L (freshwater fish, leuciscus idus) 96h

EC50 20mg/L (water flea) 96h, 2mg/L (water flea) 48h

Methyl alcohol CAS#67-56-1: LC50 >10000 mg/L (freshwater fish, pimephales promelas) 96h

EC50 >10000 mg/L 24h (water flea)

Ethyl alcohol CAS#64-17-5: LC50 14200 mg/L (freshwater fish, pimephales promelas) 96h

EC50 9268 mg/L (water flea) 48h
EC50 10800 mg/L (water flea) 24h

**Mobility in soil:** This product is water soluble and will be mobile in the environment.

**Other:** Toxic to aquatic organisms.
Section 13 - Disposal Considerations

DISPOSAL: Dispose of in accordance with all federal, state, and local regulations.

Section 14 - Transport Information

DOT
Proper shipping name: Alcohols, N.O.S.
UN1987
PG III
Hazard class 3

Section 15 - Regulatory Information

Canada Regulatory Information
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

California Prop 65
WARNING: Ethanol, is a chemical known to the state of California to cause developmental reproductive toxicity. Formaldehyde, is a chemical known to the state of California to cause cancer.

Section 16 - Additional Information

SDS Creation Date: 11/1/12
Revision #1. 6/23/14 YM-Co-sign RC 9/15/14/DK
Revision #2. 11-8-18
Revision #3. 11-16-18
Revision #4. 1-2-19

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Rowley Biochemical, Inc. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rowley Biochemical, Inc. has been advised of the possibility of such damages.