

# 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

##### HEALTH HAZARDS

H301-Acute Oral Toxicity: 3  
H332-Acute Inhalation toxicity: 4  
H315-Skin Corrosion/Skin Irritation: 2  
H319-Eye damage/Irritation: 2A  
H334-Respiratory Sensitization: 1B  
H317-Skin Dermal Sensitization: 1B  
H341-Germ Cell Mutagenicity: 2  
H350-Carcinogenicity: 1A  
H361-Reproductive Toxicity: 2  
H371-Specific Target Organ Toxicity: 2

##### PHYSICAL HAZARDS

H225-Flammability: 2  
H290-Corrosive to Metals: 1

##### ENVIRONMENTAL HAZARDS

H410-Aquatic acute environmental Hazards: 1

Pictograms or Hazard symbols and Hazard statement.



Danger: Toxic if swallowed.



Warning: May be corrosive to metals.



Warning: Very toxic to aquatic life.



Danger: Highly flammable liquid and vapor.



Hamful if inhaled.  
Causes skin irritation.  
May cause allergic skin reaction.  
Causes serious eye irritation.



May cause allergy or asthma symptoms or breathing difficulties if inhaled.

#### **Chronic**

Oral, Human – woman: May cause reproductive and fetal effects.  
Prolonged exposure may cause liver, kidney, and heart damage.  
May cause cancer.

#### **Precautionary Statement Prevention**

##### H301

**P264** Wash thoroughly after handling.

**P270** Do not eat, drink, or smoke when using this product.

**P301 + P310** IF SWALLOWED: Immediately call a POISON CENTER or doctor.

**P330** Rinse Mouth.

**P405** Store locked up.

**P501** Dispose of contents/container in accordance with local/regional/national/international regulations.

##### H332

**P261** Avoid breathing fumes/mist/vapors.

**P304 + P340** If inhaled, remove person to fresh air and keep comfortable for breathing. Use only outdoors or in a well-ventilated area.

**P312** Call a physician if you feel unwell.

### H315

**P280** Wear protective gloves, clothing, and eye and face protection.

**P302 + P352** If on skin, wash with plenty of water. Remove contact lenses if present and easy to do so. Continue rinsing.

**P332 + P313** If skin irritation occurs, get medical advice/attention.

**P362** Take off contaminated clothing and wash before reuse.

### H319 + H334

**P305 + P351 + P338** If in eyes, rinse cautiously with water for several minutes.

**P337 + P313** If eye irritation persists, get medical advice/attention.

**P285** In case of inadequate ventilation, wear respiratory protection.

**P342+P311** if experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

### H317

**P272** Contaminated work clothing should not be allowed out of the work place.

**P333+P313** IF ON SKIN: Wash with plenty of soap and water.

**P363** Wash contaminated clothing before reuse.

### H341+H361 + H350 + H261

**P201** Obtain special instructions before use.

**P202** Do not handle until all safety precautions have been read and understood.

**P281** Use personal protective equipment as required.

**P308 + P313** If exposed or concerned, get medical advice/attention.

### H371

**P260** Do not breathe fume/gas/mist/vapors.

**P309+P311** IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

### H225

**P210** Keep away from heat, flames, and hot surfaces. No smoking.

**P233** Keep container tightly closed.

**P241** Use explosive-proof equipment.

**P242** Use only non-sparking tools.

**P243** Take precautionary measures against static discharge.

**P303 + P361 + P353** If on skin (or hair) take off immediately all contaminated clothing. Rinse skin with water.

**P370 + P378** In case of fire use ..... to extinguish.

**P403 + P235** Store in a well-ventilated place. Keep cool.

### H290

**P234**-Keep only in original container.

**P390**-Absorb spillage to prevent material damage.

**P406**-Store in corrosive resistant/container with a resistant inner liner

### Section 3 - Composition, Information on Ingredients

| CAS#      | Chemical Name       | Percent   |
|-----------|---------------------|-----------|
| 64-17-5   | Ethyl alcohol       | 14.25 v/v |
| 67-56-1   | Methyl alcohol      | 0.75 v/v  |
| 50-00-0   | Formaldehyde        | 11 v/v    |
| 64-19-7   | Glacial Acetic Acid | 5 v/v     |
| 7732-18-5 | Water               | v/v       |

### 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.

**Flash Point:** 16.6 deg C ( 61.88 deg F)

**Autoignition Temperature:** 363 deg C ( 685.40 deg F)

**Explosion Limits, Lower:**3.3 vol %

**Upper:** 19.0 vol %

**NFPA Rating:** (estimated) Health: 2; 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

| Chemical Name | ACGIH                               | NIOSH  | OSHA - Final PELs                        |
|---------------|-------------------------------------|--|--|
| Ethanol       | 1000 ppm TWA                        | 1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA 3300 ppm IDLH | 1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA |
| Formaldehyde  | A2 Carcinogenic effects.<br>0.3 ppm | 200 ppm TWA  | 200 ppm                                  |

**OSHA Vacated PELs:** Ethanol: 1000 ppm TWA; 1900 mg/m<sup>3</sup> TWA

### 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:** Solution

**Appearance:** clear

**Odor:** Alcohol-like

**pH:** 2.40 (+/- 0.1)

**Vapor Pressure:** N/A

**Vapor Density:** N/A

**Evaporation Rate:** N/A

**Viscosity:** N/A

**Boiling Point:** 78 deg C

**Solubility:** Soluble

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**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 heptafluoride, 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.

**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 64-17-5: KQ6300000

**LD50/LC50:**

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/m<sup>3</sup>/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.

CAS# 50-00-0

Mouse oral: 260 mg/kg

Rabbit skin: 64000/ 4 H

Mouse inhalation: 64000/ 8 hours.

**Solution Carcinogenicity:**

Formaldehyde is listed by ACGIH, IARC : Group 1 (Carcinogenic to humans), NTP and CA Prop 65.

**RTECS#:**

**LD50/LC50:**

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:**

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

**Epidemiology:** Ethanol has been shown to produce fetotoxicity in the embryo or fetus of

laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".

**Teratogenicity:** Oral, Human - woman: TDLo = 41 gm/kg (female 41 week(s) after conception) Effects on Newborn - Apgar score (human only) and Effects on Newborn - other neonatal measures or effects and Effects on Newborn - drug dependence.

**Reproductive Effects:** Intrauterine, Human - woman: TDLo = 200 mg/kg (female 5 day(s) pre-mating) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).

**Neurotoxicity:** No information available.

**Mutagenicity:** DNA Inhibition: Human, Lymphocyte = 220 mmol/L.; Cytogenetic Analysis: Human, Lymphocyte = 1160 gm/L.; Cytogenetic Analysis: Human, Fibroblast = 12000 ppm.; Cytogenetic Analysis: Human, Leukocyte = 1 pph/72H (Continuous).; Sister Chromatid Exchange: Human, Lymphocyte = 500 ppm/72H (Continuous).

**Other Studies:** Standard Draize Test(Skin, rabbit) = 20 mg/24H (Moderate) Standard Draize Test: Administration into the eye (rabbit) = 500 mg (Severe).

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°C Fish: Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified) Bacteria: Phytobacterium phosphoreum: EC50 = 34900 mg/L; 5-30 min; Microtox test When spilled on land it is apt to volatilize, biodegrade, and leach into the ground water, but no data on the rates of these processes could be found. Its fate in ground water is unknown. When released into water it will volatilize and probably biodegrade. It would not be expected to adsorb to sediment or bioconcentrate in fish.

**Environmental:** When released to the atmosphere it will photo degrade in hours (polluted urban atmosphere) to an estimated range of 4 to 6 days in less polluted areas. Rainout should be significant.

**Physical:** No information available.

**Other:** No information available.

## Section 13 - Disposal Considerations

### **Appropriate method of disposal of substance or preparation:**

Handled as hazardous waste and sent to an RCRA approved incinerator or disposed in an RCRA approved wasted facility.

## Section 14 – Transport Information

### **DOT**

Proper shipping name: Alcohols , N.O.S.

UN1987

PG III

Hazard class 3

## Section 15 - Regulatory Information

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS 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.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

F

**Risk Phrases:**

R 11 Highly flammable.

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed

R36/38 Irritating to eyes and skin

**R51** Toxic to aquatic organisms

R61 May cause harm to the unborn child

**Safety Phrases:**

S20/21 When using do not eat, drink or smoke

S2 Keep out of the reach of children

S 16 Keep away from sources of ignition - No smoking.

S 33 Take precautionary measures against static discharges.

S 7 Keep container tightly closed.

S 9 Keep container in a well-ventilated place

|                                     |
|-------------------------------------|
| Section 16 - Additional Information |
|-------------------------------------|

**MSDS Creation Date:** 11/1/12

**Revision #1. 6/23/14 YM-Co-sign RC 9/15/14/DK**

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