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## Section I - Product Identification

**Product:** This is a buffered solution of formalin in reagent alcohol and water. Reagent alcohol is a mixture of ethyl alcohol, isopropanol and methanol.

**Intended Use:** This product is intended to be used as a tissue fixative.

**Uses advised against:** For laboratory use only. Reagent alcohol is toxic and can not be made non-toxic.

### Manufacturer Identification

Medical Chemical Corp.  
19430 Van Ness Ave.  
Torrance, CA 90501

Customer Service: Phone (310)787-6800  
Email. Christinaavena@med-chem.com  
FAX (310)787-4464

### Emergency Telephone Number

CHEMTREC Emergency Response Telephone Number: (800)424-9300. Note: The CHEMTREC phone number is only for emergencies involving spills, leaks, fire, exposure or accident. Please direct all other inquiries to our customer service phone number.



## Section II - Hazard Identification

This item is considered hazardous by 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Flammable liquid:** Category 2 (H225). Highly flammable liquid and vapor.

**Serious eye damage/eye irritation:** Category 1 (H318). Causes serious eye damage.

**Acute toxicity (Oral):** Category 4 (H302). Harmful if swallowed.

**Acute toxicity (Inhalation):** Category 4 (H332). Harmful if inhaled.

**Acute toxicity (Dermal):** Category 2 (H315). Harmful in contact with skin.

**Skin sensitization:** Category 1 (H317). May cause an allergic skin reaction.

**Specific organ toxicity:** Category 2 (H335). May cause respiratory irritation.

**Mutagen:** Category 2 (H341). Suspected of causing genetic defects.

**Carcinogenicity:** Category 1B (H350). May cause cancer.

**Signal word:** Danger

### Hazard statements

According to the harmonized classification and labeling approved by OSHA and the EU, this substance is a highly flammable liquid and vapor, causes serious eye irritation and may cause drowsiness or dizziness. The solution is toxic if inhaled, may cause cancer, is suspected of causing genetic defects and may cause an allergic skin reaction. Formaldehyde is a known carcinogen. 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.

### Precautionary statements

- P210 Keep away from heat, sparks, open flames and 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 precautions against static discharge.
- P261 Avoid breathing dust/fume/gas/mist/vapors/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.
- P280 Wear protective clothes and eye protection.
- P285 In case of inadequate ventilation wear respiratory protection.

### Safety Ratings

*Health:* Hazardous *Flammability:* Highly flammable *Reactivity:* None *Contact:* Hazardous  
*Recommended safety equipment:* safety goggles, lab coat and proper gloves

### NFPA Ratings

Health = 2 Flammability = 4 Reactivity = 0

### Potential Health Effects

The toxicology of this compound has not been completely examined. It is presumed that the toxicity of this item is similar to other aliphatic alcohols. Inhalation or contact with ethanol may irritate or burn skin and eyes. Fire may produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Exposure to methanol vapor causes eye irritation, headache, fatigue and drowsiness. High concentrations can produce central nervous system depression and optic nerve damage. Can be absorbed through skin. Swallowing methanol may cause death or eye damage.

*Inhalation:* Alcohols are absorbed through the mucous membranes and will produce irritation as well as the same effects as ingestion.

*Ingestion:* Ingestion will produce CNS disturbance, dizziness, photophobia, headache, stupor, coma and death.

*Skin contact:* Alcohols are absorbed through the skin. Repeated contact causes defatting of the skin with resultant irritation and flaking.

*Eye contact:* May be irritating.

*Chronic Exposure:* Unknown.

*Aggravation of preexisting conditions:* Impaired kidney and liver function may be aggravated by exposure to alcohols. Preexisting eye, skin, and respiratory conditions may also be aggravated. Methanol has shown genetic toxicity in some animals.

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### Section III - Composition/Information on Components

Ingredients	CAS#	EC List Number	%
Ethanol	64-17-5	200-578-6	77% v/v
Isopropanol	67-63-0	200-661-7	4.3% v/v
Methyl alcohol	67-56-1	200-659-6	4.3% v/v
Formaldehyde	50-00-0	200-001-8	4.0% w/v

The reagent also has a sodium maleate buffer.

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### Section IV - First Aid Measures

*General Advice:* Contact a doctor if symptoms persist

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

*Ingestion:* Do not induce vomiting. Aspiration of alcohol into the lungs may produce death. If the victim is conscious administer two glasses of water to dilute the reagent. Get immediate medical attention even if symptoms improve.

*Skin Contact:* In case of skin contact, remove contaminated clothing and flush with water. Wash affected area with soap and water. Get medical advice if irritation develops.

*Eye Contact:* In case of eye contact, flush with water for at least 15 minutes and get medical attention.

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### Section V - Fire Fighting Measures

*Fire Extinguishing Media:* Alcohol foam, carbon dioxide or dry chemical. Water is ineffective against alcohol fires but may be used to cool adjacent containers.

*Flash point:* 13 °C (55 °F) TCC

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

*Flammable Limits (for methanol):* LEL 6% UEL 36.5%

*Flammable Limits (for isopropanol):* LEL 2% UEL 12%

*Specific Hazards:* Risk of vapor traveling to source of ignition and flashing back. Risk of exploding containers when heated. Vapor in air may form explosion risk.

*Special information:* Pyrolysis will release toxic carbon monoxide, formaldehyde and methanol.

*Special protective gear and precautions:* Self contained breathing apparatus and protective gear recommended.

## Section VI - Accidental Release Measures

Use personal protective gear, remove all sources of ignition, absorb with a suitable absorbent and dispose. Take precautions against static ignition. Should not be released into the environment.

## Section VII - Handling and Storage

P403+P233+P102; Store in a well-ventilated place. Keep container tightly closed. Store away from open flames or other sources of ignition. Keep out of reach of children.

## Section VIII - Exposure Control/Personal Protection

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethanol	1000 ppm	1000 ppm	3300 ppm
Isopropanol	400 ppm	400 ppm	2000 ppm
Methyl alcohol	200 ppm (skin)	200 ppm (skin)	6000 ppm
Formaldehyde	0.75 ppm (TWA)	0.3 ppm (CEIL)	20 ppm

### Legend

**ACGIH:** American Conference of Governmental Industrial Hygienists.

**OSHA:** Occupational Safety and Health Administration.

**NIOSH:** National Institute for Occupational Safety and Health.

**IDLH:** Immediately dangerous to life or health.

*Ventilation System:* Local exhaust such as explosion proof chemical fume hoods are recommended. When required, Refer to the ACGIH document, "Industrial Ventilation, a Manual of Recommended Practices" for details about ventilation.

*Personal Respirator:* Usually not required. In case of emergency, or when exposure levels are unknown, use a positive pressure, full face piece, air supplied respirator.

*Skin protection:* Protective gloves are recommended as part of good laboratory practice.

*Eye Protection:* Laboratory safety goggles or similar products are recommended as part of good laboratory practice.

## Section IX - Physical and Chemical Properties

*Boiling Point:* 174 °F (79 °C)

*Density:* 0.89 g/ml @ 22.5 °C

*Vapor pressure (mm Hg):* Unknown

*Evaporation Rate (Ethanol = 1):* 1

*Vapor Density (air = 1):* 1.6

*Solubility:* Infinitely miscible with water

*Appearance and Odor:* A clear colorless liquid with a sweet odor. Has the characteristic odor of alcohol.

## Section X - Stability and Reactivity

*Stability:* Stable under normal conditions.

*Hazardous decomposition products:* Nothing unusual.

*Hazardous polymerization:* Will not occur.

*Incompatibilities:* Oxidizers.

*Conditions to avoid:* heat, flame and sources of ignition.

## Section XI - Toxicological Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethanol	1047 mg/kg (Rat)	20 ml/kg (Rat)	125 mg/l/4h (Rat)
Isopropanol	>4700 mg/kg (Rat)	13,000 mg/kg (Rabbit)	19,000 ppm/8h (Rat)
Methyl alcohol	5628 mg/kg (Rat)	15,800 mg/kg (Rabbit)	64,000 ppm/4h (Rat)
Formaldehyde	500 mg/kg (Rat)	270 mg/kg (Rat)	0.578 mg/l/4h (Rat)

## Cancer lists

Ingredient	Known Carcinogenicity?	NTP?	Anticipated?	IARC Category
Ethanol	no	no	no	none
Methanol	no	no	no	none
Isopropanol	no	no	no	3
Formaldehyde	yes	no	yes	1

## Section XII - Ecological Information

Aliphatic alcohols evaporate quickly and are not expected to bioaccumulate. The material is removed from the air by dry and liquid adsorption. The half-life for ethanol in the atmosphere is one to ten days.

**Environmental Fate:** Biodegradable

**Soil Mobility:** Unknown

**Environmental Toxicity:** H402. Harmful to aquatic life

Component	Freshwater Fish	Water Flea	Freshwater algae
Ethanol	LC50 = 100 mg/l 96 h	EC50 = 100 mg/L 48 h	EC50 = 100 mg/l 72 h
Methanol	LC50 >100 mg/l 96 h	EC50 >1000 mg/l 48 h	EC50 = 22 g/l 96 h
Isopropanol	LC50 > 9640 mg/l 96 h	EC50 >7550 mg/l 48 h	EC50 >1000 mg/l 72 h
Formaldehyde	LC50 = 15 mg/l 96 h	EC50 = 20 mg/L 96 h	EC50 = 4.9 mg/l 72 h

## Section XIII - Disposal Considerations

Incineration at a licensed chemical disposal facility is the preferred disposal method. Local governments often restrict the amounts of alcohol and other flammable liquids that may be flushed down the drain. The usual rule is that effluent exiting the building can't be flammable but specific chemicals may also be specifically forbidden. Because formaldehyde is a known human carcinogen, local and state governments usually restrict the amount that may be flushed down the drain without neutralization. Neutralization may be achieved with glycine, bisulfite or ammonia. There are also proprietary products that are authorized for formaldehyde. Dispose of contents and container in accord with all applicable regulations.

## Section XIV - Transportation Information

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

Bottles smaller than 32 Fl. Oz. are eligible to be shipped under limited quantity exemptions [49 CFR section 173.150(b)(2), 173.150(C) and IATA Y341].

## Section XV - Regulatory Information

### Chemical Inventory Status

Ingredient	TSCA	EC
Ethanol	Yes	Yes
Methanol	Yes	Yes
Isopropanol	Yes	Yes
Formaldehyde	Yes	Yes

### Federal and State Regulations

Ingredient	SARA 302		SARA 313		RCRA 261.33	TSCA 8(D)	Ca. Prop 65
	RQ	TPQ	List	Category			
Ethanol	No	No	No	No	No	No	No
Isopropanol	No	No	Yes	No	No	No	No
Methanol	No	No	Yes	No	U154	No	Yes
Formaldehyde	100	500	Yes	No	U122	No	Yes

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

SARA 311/312: Acute: Yes    Chronic: No    Fire: Yes    Pressure: No    Reactivity: No



This product contains methanol and formaldehyde which are known to the state of California to cause cancer, birth defects or other reproductive harm. For more information go to [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov).

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## **Section XVI - Other Information**

This information is believed to be correct at the time of publication but is not guaranteed as such, nor does it purport to be all inclusive. Medical Chemical Corp. assumes no liability for the accuracy or completeness of the information. The user assumes all responsibility for compliance with federal, state and local laws.

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