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## Section I - Product Identification

*Product:* An aqueous solution of zinc sulfate, formaldehyde and sodium acetate.

*Intended Uses:* An in-vitro diagnostic reagent intended to be used as a laboratory fixative.

*Uses advised against:* Only for use by laboratory professionals.

*Country of Origin:* United States.

### Manufacturer Identification

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

Customer Service: Phone (310)787-6800  
Email. Customerservice@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)

**Skin corrosion/irritation:** Category 2 (H315). Causes skin corrosion/irritation.

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

**Serious eye damage/eye irritation:** Category 2A (H319). Causes serious eye irritation.

**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.

**Specific organ toxicity:** Category 2 (H371). May cause damage to organs.

**Signal word:** Danger.

### Hazard statements

According to the harmonized classification and labeling required by OSHA and the European Union, this substance is toxic if swallowed and in contact with the skin. It can cause skin burns and eye damage as well as an allergic skin reaction. It is toxic if inhaled and may cause cancer. It is suspected of causing genetic defects.

### Precautionary Statements

P102: Keep out of reach of children.

P233: Keep container tightly closed P233: Keep container tightly closed.

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.

P273: Avoid release to the environment. P281 Use personal protective equipment as required.

P280: Wear protective gloves, clothing and eye protection...

P285 In case of inadequate ventilation wear respiratory protection.

264+P265: Wash hands thoroughly after handling. Do not touch eyes.

P403: Store in a well-ventilated place.

### Safety Ratings

Health: Hazardous *Flammability:* None *Reactivity:* Stable *Contact:* Slight

Recommended safety equipment: safety goggles, lab coat and proper gloves

Storage: General storage

### NFPA Ratings

Health = 2. Can cause temporary incapacitation or residual injury.

Flammability = 0. WILL NOT BURN

Reactivity = 0. Stable.

## Potential Health Effects

Inhalation of formaldehyde can lead to congestion, coughing and shortness of breath. Frequent skin contact leads to drying and scaling. Ingestion will damage the throat, stomach and intestines resulting in nausea, vomiting, abdominal pain and diarrhea. Lowered blood pressure, spontaneous abortion, loss of consciousness and kidney damage may result. Inhalation of high concentrations of vapor (14 ppm) have caused cancer in laboratory animals. Formaldehyde is carcinogenic to humans. Genetic damage in bacteria has been demonstrated.

*Inhalation:* Irritating to respiratory tract. May cause asthma like symptoms in sensitive individuals. Formaldehyde is a known human carcinogen and inhalation causes nasal tumors.

*Ingestion:* Toxic if swallowed Causes irritation and chemical burns to the mouth, throat, esophagus and stomach. Can also cause nausea, vomiting, diarrhea, etc.

*Skin contact:* Contact can cause severe injury to the skin accompanied by drying, cracking, and scaling. May cause skin irritation and/or aggravation of existing dermatitis. May cause discoloration of the skin.

*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 preexisting asthma and other lung diseases. Repeated or prolonged contact with skin may cause dermatitis. Repeated or prolonged contact may cause skin sensitization. Repeated or chronic inhalation of the vapor may cause chronic inflammation of the upper respiratory tract.

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## Section III - Composition/Information on Components

Ingredients	CAS#	EC/List No.	% w/w
Formaldehyde	50-00-0 2	31.791-2	11% w/w
Zinc sulfate	7446-20-0	231-793-3	0.2% w/w
Methanol	67-56-1 2	00-001-8	1% w/w
Anhydrous sodium acetate	127-09-3	204-823-8	0.1% w/w

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## Section IV - First Aid Measures

Remove victims from exposure. Emergency personnel should avoid self-exposure. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.

*Inhalation:* Remove from source of exposure and get medical attention..

*Ingestion:* If the victim is conscious and alert give the victim water or milk and induce vomiting, but only if they are conscious and alert. Never give anything by mouth to an unconscious person. Administer activated charcoal (75 g per 6oz, water) or other adsorbent if available. Call a physician immediately.

*Skin Contact:* Wash exposed skin areas twice with soap and water. Get medical advice if irritation develops. Wash clothes before reuse.

*Eye Contact:* If eye exposure has occurred, eyes must be flushed with lukewarm water for at least 15 minutes. Get immediate medical advice.

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## Section V - Fire Fighting Measures

*Fire:* Not normally a fire hazard,

*Explosion:* Not normally an explosion hazard.

*Fire Extinguishing Media:* Any means suitable for surrounding fire.

*Special information:* Pyrolysis will release corrosive oxides.

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## 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. Should not be released into the environment.

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## Section VII - Handling and Storage

P102+P233+P403. Store in a closed container. Store in a well ventilated area at controlled room temperature, 59 °F to 86 °F (15 °C to 30 °C).

## Section VIII - Exposure Control/Personal Protection

Component	ACGIH TLV	OSHA PEL	NIOSH	NIOSH IDLH
Formaldehyde	0.1 ppm (TWA)	TWA 0.75 ppm	0.3 ppm TLV	20 ppm
Zinc sulfate	No Data	No Data	No data	No Data
Methyl alcohol	TWA: 200 ppm (skin) STEL: 250 ppm	200 ppm (TWA)	TWA: 200 ppm (skin)	6000 ppm
Anhydrous sodium acetate	No Data	No Data	No data	No Data

### 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

**Appearance and Odor:** A colorless aqueous solution which has a pungent irritating odor. The vapors are heavier than air and are highly irritating to the nose. .

**Flash point:** 185 °F(85 °C)

**Auto ignition temperature:** Not applicable

**Boiling point range:** No data

**Decomposition temperature:** No data

**Melting point:** ~ 0 °C

**pH:** 5.5

**Vapor pressure (mm Hg):** 40 @ 39 °C

**Viscosity:** 0.01 poise

**Flammable Limits (for methanol):** 7% LEL, 70% UEL

**Boiling Point:** ~ 100 °C (212 °F)@ 1 atm

**Density:** 1.01 g/ml @ 22.5 °C

**Evaporation Rate (Water = 1):** 1

**Partition coefficient (n-Octanol/Water):** No data

**Solubility:** Miscible with water

**Vapor density (air = 1):** 1.07 for formaldehyde gas

**Volatile organic carbon (VOC):** 40 g/l

## Section X - Stability and Reactivity

**Stability:** Stable under normal conditions.

**Hazardous Decomposition Products:** Nothing unusual.

**Hazardous polymerization:** Will not occur.

**Incompatibilities:** Oxidizers, strong acids, strong bases, reducing agents etc.

**Conditions to avoid:** Nothing unusual.

## Section XI - Toxicological Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Formaldehyde	100 mg/kg (Rat)	270 mg/kg (Rat)	0.578 mg/l/4h (Rat)
Zinc sulfate	1620 mg/kg (Rat)	> 2000 mg/kg (Rat)	No data
Methyl alcohol	5628 mg/kg (Rat)	15,800 mg/kg (Rabbit)	131 mg/l/4h (Rat)

Sodium acetate, anhydrous	3.5 g/kg (Rat)	>10 g/kg (Rabbit)	No data
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Toxic by ingestion or inhalation. The chronic toxicity of this product is unknown but may include sensitization in sensitive individuals. Formaldehyde is a known human carcinogen

#### Cancer lists

Ingredient	Known Carcinogenicity?	NTP?	Anticipated?	IARC Category
Formaldehyde	Yes	No	Yes	1
Zinc sulfate	No	No	No	None
Methanol	No	No	No	3
Anhydrous sodium acetate	No	No	No	None

## Section XII - Ecological Information

Methanol and formaldehyde are not expected to bioaccumulate. The material is removed from the air by dry and liquid adsorption. The components biodegrades quickly and are not expected to be endocrine disrupters, persistent organic pollutants or ozone depleters.

**Soil Mobility:** Unknown.

**Environmental Fate:** Biodegradable

**Hazardous to the aquatic environment, acute hazard:** Category 2 (H402). Harmful to aquatic life.

#### For formaldehyde

Toxicity to freshwater fish (striped bass): LC50 = 6.7 mg/l, 96 h

Toxicity to invertebrates (water flea): EC50 = 4.8 mg/l, 48 h

Toxicity to freshwater algae (green algae): EC50 = 4.89 mg/l, 72 h

#### For methanol

Toxicity to freshwater fish (blue gill): LC50 = 15,400 mg/l, 96 h

Toxicity to invertebrates (water flea): EC50 = 18,260 mg/l, 96 h

Toxicity to freshwater algae (*Pseudokirchneriella subcapitata*): EC50 = 22,000 mg/l, 72 h

#### For sodium acetate

Toxicity to freshwater fish: No data

Toxicity to invertebrates (water flea): EC50 = > 1000 mg/l, 96 h

Toxicity to freshwater algae: No data

#### For Zinc sulfate

Toxicity to freshwater fish (fathead minnow): LC50 = 0.33 mg/l, 96 h

Toxicity to invertebrates (water flea): EC50 = 1.4 mg/l, 48 h

Toxicity to freshwater algae (*Chlorella vulgaris*): EC50 = 65 mg/l, 72 h

## Section XIII - Disposal Considerations

Disposal at a licensed chemical disposal facility is the preferred disposal method for formaldehyde. Because formaldehyde is a known human carcinogen, local and state governments often 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 federal, state and local regulations.

## Section XIV - Transportation Information

Formalin solutions with less than 10% formaldehyde are not regulated by DOT or IATA.

## Section XV - Regulatory Information

#### Chemical Inventory Status

Ingredient	TSCA	EC
Formaldehyde	Yes	Yes
Zinc sulfate	Yes	Yes
Methanol	Yes	Yes
Sodium acetate	Yes	Yes

#### Federal and, State Regulations


Ingredient	SARA 302		SARA 313		RCRA TSCA		
	RQ	TPQ	List	Category	261.33	8(D)	Ca. Prop 65

Formaldehyde	100	500	Yes	No	U122	No	Yes
Zinc sulfate	No	No	No	No	No	No	No
Methanol	No	No	Yes	No	U154	No	Yes
Sodium acetate	No	No	No	No	No	No	No

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

**SARA 311/312**

Acute:            Yes  
Chronic:        Yes  
Fire:             No  
Pressure:       No  
Reactivity:     No

 Warning: This product contains formaldehyde and methanol 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)

**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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