



# SAFETY DATA SHEET

**Product Trade Name:**           **FORMALDEHYDE SOLUTION 4%**

**Revision Date:**    20-Dec-2012

**Revision Number:**  11

## 1. Identification

### 1.1. Product Identifier

**Product Trade Name:**           FORMALDEHYDE SOLUTION 4%  
**Synonyms**                         Formaldehyde  
**Chemical Family:**               Aldehyde  
**Internal ID Code**                 HM003983

### 1.2 Recommended use and restrictions on use

**Application:**                     Reagent  
**Uses advised against**           No information available

### 1.3 Manufacturer's Name and Contact Details

#### Manufacturer/Supplier

Fann Instrument Company  
A Halliburton Energy Services, Inc. Company  
P.O. Box 4350  
Houston, TX 77210  
Telephone: (281) 871-4482

Halliburton Group Canada  
645 - 7th Ave SW Suite 1800  
Calgary, AB, T2P 4G8, Canada  
Telephone: 1-403-231-9300

**Prepared By**                     Chemical Stewardship  
  Telephone: 1-281-871-6107  
  e-mail: fdunexchem@halliburton.com

### 1.4. Emergency telephone number:

**Emergency Telephone Number**   1-866-519-4752 or 1-760-476-3962 (accessible 24 hours a day / 7 days a week)  
  Global Incident Response Access Code: 334305  
  Contract Number: 14012

## 2. Hazards Identification

### 2.1 Classification in accordance with paragraph (d) of §1910.1200

Skin Corrosion / Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 1 - H318
Skin Sensitization	Category 1 - H317
Germ Cell Mutagenicity	Category 2 - H341
Carcinogenicity	Category 1A - H350
Acute Aquatic Toxicity	Category 3 - H402

### 2.2. Label Elements

**Hazard Pictograms**



**Signal Word:**

Danger

**Hazard Statements**

- H315 - Causes skin irritation
- H317 - May cause an allergic skin reaction
- H318 - Causes serious eye damage
- H341 - Suspected of causing genetic defects
- H350 - May cause cancer
- H402 - Harmful to aquatic life

**Precautionary Statements**

**Prevention**

- P201 - Obtain special instructions before use
- P202 - Do not handle until all safety precautions have been read and understood
- P264 - Wash face, hands and any exposed skin thoroughly after handling
- P272 - Contaminated work clothing should not be allowed out of the workplace
- P273 - Avoid release to the environment
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P280 - Wear protective gloves
- P280 - Wear eye protection/face protection

**Response**

- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
- P302 + P352 - IF ON SKIN: Wash with plenty of water.
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P310 - Immediately call a POISON CENTER or doctor/physician
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
- P332 + P313 - If skin irritation occurs: Get medical advice/attention
- P362 + P364 - Take off contaminated clothing and wash before reuse
- P363 - Wash contaminated clothing before reuse
- P308 + P313 - IF exposed or concerned: Get medical advice/attention

**Storage**

P405 - Store locked up

**Disposal**

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

**2.3 Hazards not otherwise classified**

None known

**3. Composition/information on Ingredients**

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Formaldehyde	50-00-0	1 - 5%	Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 2 (H330) Skin Corr. 1 (H314) Eye Corr. 1 (H318) Skin Sens. 1 (H317) Muta. 2 (H341) Carc. 1 (H350) STOT SE 3 (H335) Aquatic Acute 2 (H401)

The exact percentage (concentration) of the composition has been withheld as proprietary.

## 4. First Aid Measures

### 4.1. Description of first aid measures

Inhalation	If inhaled, move victim to fresh air and seek medical attention.
Eyes	Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

### 4.2 Most important symptoms/effects, acute and delayed

Causes skin irritation. May cause allergic skin reaction. Carcinogen. Causes severe eye irritation which may damage tissue. May cause heritable genetic damage.

### 4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

## 5. Fire-fighting measures

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

#### Extinguishing media which must not be used for safety reasons

None known.

### 5.2 Specific hazards arising from the substance or mixture

#### Special exposure hazards in a fire

Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

### 5.3 Special protective equipment and precautions for fire-fighters

#### Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

## 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Use only competent persons for cleanup. See Section 8 for additional information

### 6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

### 6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

## 7. Handling and storage

**7.1. Precautions for safe handling**

**Handling Precautions**

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**7.2. Conditions for safe storage, including any incompatibilities**

**Storage Information**

Store away from oxidizers. Store away from alkalis. Store away from acids. Keep container closed when not in use.

**8. Exposure Controls/Personal Protection**

**8.1 Occupational Exposure Limits**

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Formaldehyde	50-00-0	STEL: 2 ppm TWA: 0.75 ppm	TWA: 0.1 ppm STEL: 0.3 ppm

**8.2 Appropriate engineering controls**

**Engineering Controls**

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

**8.3 Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

**Respiratory Protection**

Positive pressure self-contained breathing apparatus in enclosed areas.

**Hand Protection**

Rubber gloves.

**Skin Protection**

Rubber apron.

**Eye Protection**

Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions**

Eyewash fountains and safety showers must be easily accessible.

**9. Physical and Chemical Properties**

**9.1. Information on basic physical and chemical properties**

**Physical State:** Liquid

**Color**

Clear colorless

**Odor:** Pungent

**Odor**

No information available

**Threshold:**

Property

Values

Remarks/ - Method

**pH:**

No data available

**Freezing Point / Range**

No data available

**Melting Point / Range**

No data available

**Pour Point / Range**

No data available

**Boiling Point / Range**

No data available

**Flash Point**

No data available

**Flammability (solid, gas)**

No data available

Upper flammability limit

No data available

Lower flammability limit

No data available

**Evaporation rate**

No data available

**Vapor Pressure**

No data available

**Vapor Density**

No data available

**Specific Gravity**

1.095

<b>Water Solubility</b>	Miscible with water
<b>Solubility in other solvents</b>	No data available
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	No data available
<b>Explosive Properties</b>	No information available
<b>Oxidizing Properties</b>	No information available

**9.2. Other information**

<b>VOC Content (%)</b>	No data available
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**10. Stability and Reactivity**

**10.1. Reactivity**

Not expected to be reactive.

**10.2. Chemical stability**

Stable

**10.3. Possibility of hazardous reactions**

Will Not Occur

**10.4. Conditions to avoid**

None anticipated

**10.5. Incompatible materials**

Strong oxidizers. Strong alkalis. Strong acids. Isocyanates. Anhydrides.

**10.6. Hazardous decomposition products**

Formaldehyde. BCME on mixing with hydrochloric acid. Carbon monoxide and carbon dioxide.

**11. Toxicological Information**

**11.1 Information on likely routes of exposure**

**Principle Route of Exposure** Eye or skin contact, inhalation.

**11.2 Symptoms related to the physical, chemical and toxicological characteristics**

**Acute Toxicity**

<b>Inhalation</b>	Causes severe respiratory irritation. May cause allergic respiratory reaction.
<b>Eye Contact</b>	Causes serious eye damage
<b>Skin Contact</b>	Causes severe skin irritation. May cause an allergic skin reaction.
<b>Ingestion</b>	May be fatal if swallowed. May cause abdominal pain, vomiting, nausea, and diarrhea.

**Chronic Effects/Carcinogenicity**

Contains formaldehyde, a potential carcinogen. Prolonged or repeated contact may cause cancer of the lungs and nasal passages. Formaldehyde and possibly paraformaldehyde may react with hydrochloric acid to form bis-chloromethyl ether, a known human carcinogen.

**11.3 Toxicity data**

**Toxicology data for the components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Formaldehyde	50-00-0	260 mg/kg (guinea pig)	270 mg/kg-bw (rabbit)	480 ppm (rat, 4hr, vapor)

<b>Substances</b>	<b>CAS Number</b>	<b>Skin corrosion/irritation</b>
Formaldehyde	50-00-0	Skin, rabbit: May cause skin burns. Causes severe skin burns rabbit skin
<b>Substances</b>	<b>CAS Number</b>	<b>Serious eye damage/irritation</b>
Formaldehyde	50-00-0	Eye, rabbit: Causes severe eye irritation which may damage tissue. Causes severe eye irritation. Will damage tissue.
<b>Substances</b>	<b>CAS Number</b>	<b>Skin Sensitization</b>
Formaldehyde	50-00-0	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons
<b>Substances</b>	<b>CAS Number</b>	<b>Respiratory Sensitization</b>
Formaldehyde	50-00-0	No information available
<b>Substances</b>	<b>CAS Number</b>	<b>Mutagenic Effects</b>
Formaldehyde	50-00-0	Some in vivo tests have shown mutagenic effects. Some in vitro tests have shown mutagenic effects.
<b>Substances</b>	<b>CAS Number</b>	<b>Carcinogenic Effects</b>
Formaldehyde	50-00-0	This substance is a carcinogen.
<b>Substances</b>	<b>CAS Number</b>	<b>Reproductive toxicity</b>
Formaldehyde	50-00-0	When tested at maternally toxic doses, no adverse effects on teratogenicity or development were observed. When tested at maternally toxic doses, no adverse effects on fertility, teratogenicity, or development were observed in rats, or on teratogenicity in rabbits
<b>Substances</b>	<b>CAS Number</b>	<b>STOT - single exposure</b>
Formaldehyde	50-00-0	May cause respiratory irritation. May cause disorder and damage to the Lungs
<b>Substances</b>	<b>CAS Number</b>	<b>STOT - repeated exposure</b>
Formaldehyde	50-00-0	No significant toxicity observed in animal studies at concentration requiring classification.
<b>Substances</b>	<b>CAS Number</b>	<b>Aspiration hazard</b>
Formaldehyde	50-00-0	Not applicable

## 12. Ecological Information

### 12.1. Toxicity

#### Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Formaldehyde	50-00-0	EC50 (72 hr) =4.89 mg/L (Desmodesmus subspicatus)	LC50 (96 hr) =6.96 mg/L (Morone saxatilis) NOAEC (28 days) =48 mg/L (Oryzias latipes)	EC50 (3h) 20.4 mg/L (Activated sludge) EC50 (120h) 34.1 mg/L (Activated sludge)	EC50 (48 hr) =5.8 mg/L (Daphnia pulex)

### 12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Formaldehyde	50-00-0	Biodegradable. (91% @ 14d)

### 12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Formaldehyde	50-00-0	LogPow 0.35

### 12.4. Mobility in soil

Substances	CAS Number	Mobility
Formaldehyde	50-00-0	KOC = 1.202

**12.5 Other adverse effects**

No information available

**13. Disposal Considerations**

**13.1. Waste treatment methods**

**Disposal methods** Disposal should be made in accordance with federal, state, and local regulations.  
**Contaminated Packaging** Follow all applicable national or local regulations.

**14. Transport Information**

**US DOT**

**UN Number** Not restricted  
**UN proper shipping name:** Not restricted  
**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**Canadian TDG**

**UN Number** Not restricted  
**UN proper shipping name:** Not restricted  
**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**IMDG/IMO**

**UN Number** Not restricted  
**UN proper shipping name:** Not restricted  
**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**IATA/ICAO**

**UN Number** Not restricted  
**UN proper shipping name:** Not restricted  
**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable

**Special Precautions for User** None

**15. Regulatory Information**

**US Regulations**

**US TSCA Inventory** All components listed on inventory or are exempt.

**TSCA Significant New Use Rules - S5A2**

Substances	CAS Number	TSCA Significant New Use Rules - S5A2	TSCA Section 5(E) Consent Orders
Formaldehyde	50-00-0	Not applicable	Not applicable

**EPA SARA Title III Extremely Hazardous Substances**

Substances	CAS Number	EPA SARA Title III Extremely Hazardous
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		Substances
Formaldehyde	50-00-0	100 lb

**EPA SARA (311,312) Hazard Class**

Skin Corrosion or Irritation  
 Respiratory or Skin Sensitization  
 Serious eye damage or eye irritation  
 Germ cell mutagenicity  
 Carcinogenicity

**EPA SARA (313) Chemicals**

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Formaldehyde	50-00-0	0.1%	Not applicable

**EPA CERCLA/Superfund Reportable Spill Quantity**

Substances	CAS Number	CERCLA RQ
Formaldehyde	50-00-0	100 lb 45.4 kg

**EPA RCRA Hazardous Waste Classification**

If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:

Listed Waste U122

**California Proposition 65**

Substances	CAS Number	California Proposition 65
Formaldehyde	50-00-0	carcinogen

**U.S. State Right-to-Know Regulations**

Substances	CAS Number	MA Right-to-Know Law	NJ Right-to-Know Law	PA Right-to-Know Law
Formaldehyde	50-00-0	Carcinogen Extraordinarily hazardous	Present	Environmental hazard Special hazardous substance

**NFPA Ratings:** Health 3, Flammability 1, Reactivity 1  
**HMIS Ratings:** Health 3, Flammability 1, Reactivity 1

**Canadian Regulations**

**Canadian Domestic Substances List (DSL)** All components listed on inventory or are exempt.

**16. Other information**

**Preparation Information**

**Prepared By** Chemical Stewardship  
 Telephone: 1-281-871-6107  
 e-mail: fdunexchem@halliburton.com

**Revision Date:** 20-Dec-2012

**Reason for Revision** Update to Format  
 SECTION:  
 2

**Additional information**



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For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

bw – body weight

CAS – Chemical Abstracts Service

d - day

EC50 – Effective Concentration 50%

ErC50 – Effective Concentration growth rate 50%

h - hour

LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL50 – Lethal Loading 50%

mg/kg – milligram/kilogram

mg/L – milligram/liter

mg/m<sup>3</sup> - milligram/cubic meter

mm - millimeter

mmHg - millimeter mercury

NIOSH – National Institute for Occupational Safety and Health

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PEL – Permissible Exposure Limit

ppm – parts per million

STEL – Short Term Exposure Limit

TWA – Time-Weighted Average

UN – United Nations

w/w - weight/weight

**Key literature references and sources for data**

[www.ChemADVISOR.com/](http://www.ChemADVISOR.com/)

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**End of Safety Data Sheet**