HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **Formalin**

Revision Date: 03-Jan-2012

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: Formalin
Synonyms: Formaldehyde
Chemical Family: Aldehyde
Application: Co-Reactant

Manufacturer/Supplier
Halliburton Energy Services
P.O. Box 1431
Duncan, Oklahoma 73536-0431
Emergency Telephone: (281) 575-5000

Prepared By
Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Methanol	67-56-1	5 - 10%	200 ppm (S)	200 ppm
Formaldehyde	50-00-0	30 - 60%	0.3 ppm C	0.75 ppm

3. HAZARDS IDENTIFICATION

Hazard Overview
May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be fatal if swallowed. May cause blindness. May cause allergic skin and respiratory reaction. Repeated overexposure may cause liver and kidney effects. Potential carcinogen. Combustible.

4. FIRST AID MEASURES

Inhalation
If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get 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.

Eyes
In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Ingestion
Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician
Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	131
Flash Point/Range (C):	55
Flash Point Method:	TCC
Autoignition Temperature (F):	795
Autoignition Temperature (C):	423
Flammability Limits in Air - Lower (%):	7
Flammability Limits in Air - Upper (%):	73

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases. Fight fire from a safe distance and from a protected location.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 3, Flammability 2, Reactivity 1
HMIS Ratings: Health 3, Flammability 2, Reactivity 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Evacuate all persons from the area. Use only competent persons for cleanup. Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

7. HANDLING AND STORAGE

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

Storage Information Store away from oxidizers. Store away from alkalis. Store away from acids. Keep from heat, sparks, and open flames. Keep container closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Respiratory Protection Positive pressure self-contained breathing apparatus if methanol is released.

Hand Protection Impervious 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

Physical State:	Liquid
Color:	Clear colorless
Odor:	Pungent
pH:	2.8-4
Specific Gravity @ 20 C (Water=1):	1.095
Density @ 20 C (lbs./gallon):	9.12
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	205
Boiling Point/Range (C):	96
Freezing Point/Range (F):	-50
Freezing Point/Range (C):	-10
Vapor Pressure @ 20 C (mmHg):	18.50
Vapor Density (Air=1):	1.03
Percent Volatiles:	100
Evaporation Rate (Butyl Acetate=1):	1.8
Solubility in Water (g/100ml):	Miscible
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers. Strong acids. Strong alkalis. Isocyanates. Anhydrides.
Hazardous Decomposition Products	Formaldehyde. BCME on mixing with hydrochloric acid. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Causes severe respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness. May cause allergic respiratory reaction.
Skin Contact	Causes severe skin irritation. May cause an allergic skin reaction.
Eye Contact	Causes severe eye irritation May cause eye burns.
Ingestion	May be fatal or cause blindness if swallowed. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression.
Aggravated Medical Conditions	Lung disorders. Skin disorders.

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. Prolonged or repeated exposure may cause eye, blood, lung, liver, kidney, heart, central nervous system and spleen damage.

Other Information None known.

Toxicity Tests

Oral Toxicity: LD50: 800 mg/kg (Rat)

Dermal Toxicity: Not determined

Inhalation Toxicity: Not determined

Primary Irritation Effect: Not determined

Carcinogenicity Not determined

Genotoxicity: Not determined

Reproductive / Developmental Toxicity: Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined

Persistence/Degradability Slowly biodegradable

Bio-accumulation Not determined

Ecotoxicological Information

Acute Fish Toxicity: Not determined
Acute Crustaceans Toxicity: Not determined
Acute Algae Toxicity: Not determined

Chemical Fate Information Not determined

Other Information Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT

UN1198,Formaldehyde Solution, 3, III, (55 C)
RQ (Formaldehyde - 45.4 kg.)
NAERG 132

Canadian TDG
Formaldehyde Solution, 3, UN1198, III, (55 C)

ADR

UN1198,Formaldehyde Solution, 3, III

Air Transportation

ICAO/IATA

UN1198,Formaldehyde Solution, 3, III
RQ (Formaldehyde - 45.4 kg.)

Sea Transportation

IMDG

UN1198,Formaldehyde Solution, 3, III, (55 C)
RQ (Formaldehyde - 45.4 kg.)
EmS F-E, S-C

Other Transportation Information

Labels: Flammable Liquid

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	CAS:50-00-0//Chemical Name: Formaldehyde///TPQ: 500
EPA SARA (311,312) Hazard Class	Acute Health Hazard Chronic Health Hazard Fire Hazard
EPA SARA (313) Chemicals	This product contains toxic chemical(s) listed below which is(are) subject to the reporting requirements of Section 313 of Title III of SARA and 40 CFR Part 372: Methanol//67-56-1 Formaldehyde//50-00-0
EPA CERCLA/Superfund Reportable Spill Quantity	EPA Reportable Spill Quantity is 30 Gallons based on Formaldehyde (CAS: 50-00-0).
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: Ignitability D001 Listed Waste U122
California Proposition 65	The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory or are exempt.
WHMIS Hazard Class	B1 Flammable gas D1B Toxic Materials

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information	For additional information on the use of this product, contact your local Halliburton representative. For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.
Disclaimer Statement	This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****