multi-chem®
A HALLIBURTON SERVICE

SAFETY DATA SHEET

Product Trade Name: **MC B-8614**

Revision Date: 10-Aug-2017 **Revision Number:** 3

1. Identification

1.1. Product Identifier

Product Trade Name: MC B-8614
Synonyms None
Chemical Family: Blend
Internal ID Code MC000627

1.2 Recommended use and restrictions on use

Application: Biocide
Uses advised against Consumer use

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier
Multi-Chem Group LLC
3000 N. Sam Houston Pkwy E., Houston, TX 77032
Phone: 1 281 871 4000

Halliburton Energy Services, Inc.
645 - 7th Ave SW Suite 1800
Calgary, AB
T2P 4G8
Canada

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
Global Incident Response Access Code: 334305
Contract Number: 14012

2. Hazards Identification

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

Acute Oral Toxicity	Category 4 - H302
Acute inhalation toxicity - dust/mist	Category 4 - H332
Skin Corrosion / Irritation	Category 1 - H314
Serious Eye Damage/Irritation	Category 1 - H318
Respiratory Sensitization	Category 1 - H334
Skin Sensitization	Category 1 - H317
Acute Aquatic Toxicity	Category 1 - H400

Chronic Aquatic Toxicity	Category 2 - H411

2.2. Label Elements

Hazard Pictograms

Signal Word: Danger

Hazard Statements

H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H400 - Very toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention

P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin 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
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P284 - In case of inadequate ventilation wear respiratory protection

Response

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P310 - Immediately call a POISON CENTER or doctor/physician
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician
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 CENTRE or doctor/physician
P391 - Collect spillage

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
Glutaraldehyde	111-30-8	10 - 30%	Acute Tox. 3 (H301) Acute Tox. 2 (H330) Skin Corr. 1B (H314) Eye Corr. 1 (H318) Resp. Sens. 1 (H334) Skin Sens. 1 (H317) STOT SE 3 (H335) Aquatic Acute 1 (H400) Aquatic Chronic 2 (H411)
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	1 - 5%	Acute Tox. 4 (H302) Acute Tox. 3 (H311) Acute Tox. 2 (H330) Skin Corr. 1B (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

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, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

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 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

4.2 Most important symptoms/effects, acute and delayed

Harmful if swallowed. Harmful if inhaled. Causes severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin and respiratory reaction. Causes severe skin irritation with tissue destruction. Causes severe eye irritation which may damage tissue. May cause allergic skin reaction. May cause allergic respiratory reaction.

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

Notes to Physician Glutaraldehyde may cause burns that require extended irrigation. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants and antitussives may be of help. Glutaraldehyde may transiently worsen reversible airways obstruction including asthma or reactive airways disease. Treat bronchospasm with inhaled beta-2 agonist and oral or parenteral corticosteroids. Inhalation of vapors may result in skin sensitization. In sensitized individuals, reexposure to very small amounts of vapor, mist, or liquid may cause a severe allergic skin reaction.
If burn is present, treat as any thermal burn, after decontamination.

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

Do NOT spray pool fires directly with water. A solid stream of water directed into hot burning liquid can cause

splattering.

5.2 Specific hazards arising from the substance or mixture

Special exposure hazards in a 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

Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Use appropriate protective equipment. Ensure adequate ventilation. Evacuate all persons from the area.
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

Flush area with water. Dike far ahead of liquid spill for later disposal.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions
Avoid breathing vapors. Ensure adequate ventilation. Avoid contact with eyes, skin, or clothing. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information
Store in a well ventilated area.

8. Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Glutaraldehyde	111-30-8	Not applicable	Not applicable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Not applicable	Not applicable

8.2 Appropriate engineering controls

Engineering Controls Ensure adequate ventilation, especially in confined areas

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 If engineering controls and work practices cannot keep exposure below

	occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.
Hand Protection	Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.
Skin Protection	Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.
Eye Protection	Safety glasses with side-shields. If splashes are likely to occur, wear: Goggles, Face-shield.
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 to Slightly Hazy , Colorless to Light Amber
Odor:	Pungent	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	3.1-4.5
Freezing Point / Range	No data available
Melting Point / Range	No data available
Boiling Point / Range	100.5 °C / 213 °F
Flash Point	> 93.3 °C / > 200 °F
Flammability (solid, gas)	No data available
Upper flammability limit	No data available
Lower flammability limit	No data available
Evaporation rate	
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.0290 - 1.0410 (20 °C/68 °F)
Water Solubility	No data available
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
Liquid Density	8.58-8.69 lbs/gal

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
Excessive heat

10.5. Incompatible materials
Strong oxidizers. Contact with alkalis.

10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide. Oxides of nitrogen.

11. Toxicological Information

11.1 Information on likely routes of exposure
Principle Route of Exposure Ingestion. Skin contact. Eye contact. Inhalation.

11.2 Symptoms related to the physical, chemical and toxicological characteristics
Acute Toxicity

Inhalation Fatal if inhaled. May cause allergic respiratory reaction.

Eye Contact Causes severe eye irritation which may damage tissue.

Skin Contact Causes severe skin irritation with tissue destruction. Contains a component which is a known or suspected skin sensitizer.

Ingestion Harmful if swallowed. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

11.3 Toxicity data

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glutaraldehyde	111-30-8	50 mg/kg (Guinea Pig)	560 µL/kg (Rabbit)	0.28-0.5 mg/L (Rat) 4h
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	304.5 mg/kg (rat) 426 mg/kg (rat)	930 mg/kg (rat) 919 mg/kg (mouse)	0.054 mg/L - 0.51 mg/L (rat) (mist)

Substances	CAS Number	Skin corrosion/irritation
Glutaraldehyde	111-30-8	Causes severe skin irritation with tissue destruction. (Rabbit)
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Causes severe irritation and or burns

Substances	CAS Number	Serious eye damage/irritation
Glutaraldehyde	111-30-8	Causes severe eye irritation which may damage tissue. (Rabbit)
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Causes severe eye irritation which may damage tissue.

Substances	CAS Number	Skin Sensitization
Glutaraldehyde	111-30-8	Skin sensitizer in guinea pig.
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Glutaraldehyde	111-30-8	May cause sensitization by inhalation
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	No information available

Substances	CAS Number	Mutagenic Effects
Glutaraldehyde	111-30-8	In vivo tests did not show mutagenic effects.
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Glutaraldehyde	111-30-8	Did not show carcinogenic effects in animal experiments
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
Glutaraldehyde	111-30-8	Not a confirmed teratogen or embryotoxin.
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Glutaraldehyde	111-30-8	No information available
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	No information available May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Glutaraldehyde	111-30-8	May cause disorder and damage to the Kidney
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Glutaraldehyde	111-30-8	Not applicable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Not applicable

12. Ecological Information

12.1. Toxicity

Ecotoxicity effects

Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Glutaraldehyde	111-30-8	EC50(72h): 0.61 mg/L (Desmodesmus subspicatus) EC50(72h): 0.5 mg/L (Skeletonema costatum)	LC50(96h): 10 mg/L (Lepomis macrochirus) NOEC(97d): 1.6 mg/L (Oncorhynchus mykiss) LC50(96h): 3.5 mg/L (Oncorhynchus mykiss)	EC50 (17h) 6.65 mg/L (Pseudomonas putida)	EC50(48h): 0.35 mg/L (Daphnia magna) EC50(48h): 0.7 mg/L (Acartia tonsa) NOEC(21d): 0.13 mg/L (Daphnia magna)

			LC50(96h): 60 mg/L (Scophthalmus maximus)		EC50(48h): 0.1 mg/L (Acartia tonsa)
Quaternary ammonium compounds, benzyl-C12-16-alkyldi methyl, chlorides	68424-85-1	EC50(96 h)=0.03 mg/L (Pseudokirchneriella subcapitata)	LC50(96 h)=0.28 mg/L (Pimephales promelas)	No information available	EC50(48 h)=0.016 mg/L (Daphnia magna) NOEC(21 d)=0.00415 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Glutaraldehyde	111-30-8	Readily biodegradable (75% @ 28d)
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	(> 60% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Glutaraldehyde	111-30-8	-0.36
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	LogKow3.91

12.4. Mobility in soil

Substances	CAS Number	Mobility
Glutaraldehyde	111-30-8	Potential for mobility in soil is high (Koc between 50 and 150). Given its very low Henry'sconstant (3.3E-08 atm*m3/mole; 25 °C Measured), volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	No information available

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 Dispose of container according to national or local regulations.

14. Transport Information

US DOT

UN Number UN3265

UN proper shipping name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Glutaraldehyde, Quaternary ammonium compound)

Transport Hazard Class(es): 8

Packing Group: III

Environmental Hazards: Marine Pollutant

NAERG: NAERG 153

Canadian TDG

UN Number UN3265

UN proper shipping name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Glutaraldehyde, Quaternary ammonium compound)

Transport Hazard Class(es): 8

Packing Group: III

Environmental Hazards: Marine Pollutant

IMDG/IMO

UN Number UN3265
UN proper shipping name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Glutaraldehyde, Quaternary ammonium compound)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Marine Pollutant
EMS: EmS F-A, S-B

IATA/ICAO

UN Number UN3265
UN proper shipping name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Glutaraldehyde, Quaternary ammonium compound)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Marine Pollutant

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
Glutaraldehyde	111-30-8	Not applicable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Not applicable

EPA SARA Title III Extremely Hazardous Substances

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Glutaraldehyde	111-30-8	Not applicable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Not applicable

EPA SARA (311,312) Hazard Class

Acute Health Hazard
Chronic Health Hazard

EPA SARA (313) Chemicals

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Glutaraldehyde	111-30-8	Not applicable	Not applicable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Not applicable	Not applicable

EPA CERCLA/Superfund Reportable Spill Quantity

Substances	CAS Number	CERCLA RQ
Glutaraldehyde	111-30-8	Not applicable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Not applicable

EPA RCRA Hazardous Waste Classification

Corrosivity D002

California Proposition 65

Substances	CAS Number	California Proposition 65
Glutaraldehyde	111-30-8	Not applicable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Not applicable

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
Glutaraldehyde	111-30-8	Present	0960	Present
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	Not applicable	Not applicable	Not applicable

NFPA Ratings: Health 3, Flammability 1, Reactivity 0
HMIS Ratings: Health 3*, Flammability 1, Physical Hazard 0 , PPE: X

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: 10-Aug-2017

Reason for Revision Update to Format

Additional information
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^3 - 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
OSHA
ECHA C&L
www.ChemADVISOR.com/

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End of Safety Data Sheet