HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **MSA II INHIBITOR**

Revision Date: 28-Mar-2014

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: MSA II INHIBITOR
Synonyms: None
Chemical Family: Blend
Application: Corrosion Inhibitor

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
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Thiourea	62-56-6	10 - 30%	Not applicable	Not applicable
Acetone	67-64-1	1 - 5%	TWA: 500 ppm STEL: 750 ppm	1000 ppm
Ethylene glycol	107-21-1	10 - 30%	100 mg/m^3	50 ppm CEIL

3. HAZARDS IDENTIFICATION

Hazard Overview
May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed. May cause birth defects. Potential carcinogen. Combustible May cause allergic skin reaction.

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
Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	120
Flash Point/Range (C):	48
Flash Point Method:	SFCC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media Carbon Dioxide, Dry Chemicals, Foam.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Use water spray to cool fire exposed surfaces. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Do not allow runoff to enter waterways.

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 0
HMIS Ratings: Health 3, Flammability 2, Physical Hazard 0 , PPE: X

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

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

Procedure for Cleaning / Absorption Remove ignition sources and work with non-sparking tools. Isolate spill and stop leak where safe. 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. Ground and bond containers when transferring from one container to another.

Storage Information Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Keep from heat, sparks, and open flames.

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	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Organic vapor respirator. In high concentrations, supplied air respirator or a self-contained breathing apparatus.
Hand Protection	Neoprene gloves. Nitrile gloves. Use Viton or 4H gloves.
Skin Protection	Rubber apron. Rubber boots.
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:	Dark brown
Odor:	Pungent
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	1.09
Density @ 20 C (lbs./gallon):	9.08
Bulk Density @ 20 C (lbs/ft3):	68
Boiling Point/Range (F):	212
Boiling Point/Range (C):	100
Freezing Point/Range (F):	-20
Freezing Point/Range (C):	-29
Vapor Pressure @ 20 C (mmHg):	16.4
Vapor Density (Air=1):	>1
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Disperses
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 anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Oxides of nitrogen. Oxides of sulfur. Carbon monoxide and carbon dioxide. Hydrogen chloride.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Sympotoms related to exposure

Acute Toxicity

Inhalation May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness. May cause respiratory irritation.

Eye Contact May cause severe eye irritation. May cause permanent eye damage.

Skin Contact May cause moderate skin irritation. May cause an allergic skin reaction.

Ingestion Harmful if swallowed. May cause stomach discomfort. May cause kidney damage. May affect the blood and blood system. May cause thyroid damage.

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may cause kidney damage. Prolonged or repeated exposure may cause reproductive system damage. Prolonged or repeated exposure may cause liver, heart, blood and brain damage. Contains thiourea, a suspected carcinogen of the liver and thyroid. Chronically high exposures cause bone marrow depression with anemia, leukopenia and thromboxytopenia. Prolonged or repeated exposure may cause embryo and fetus toxicity.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Thiourea	62-56-6	125 mg/kg (Rat)	6810 mg/kg (Rat)	0.9 mg/L (Rat) 4 h
Acetone	67-64-1	5800 mg/kg (Rat)	No data available	No data available
Ethylene glycol	107-21-1	4000 mg/kg (Rat) 7712 mg/kg (Rat) > 10000 mg/kg (Rat) 1670 mg/kg (Cat)	9530 µL/kg (Rabbit) > 3500 mg/kg (Mouse)	> 2.5 mg/L (Rat) 6h

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity: Not determined

Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity: Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Thiourea	62-56-6	EC50: 6.8 mg/L (Desmodesmus subspicatus)	LC50: >600 mg/L (Pimephales promelas)	No information available	EC50: 35 mg/L (Daphnia magna)
Acetone	67-64-1	No information available	LC50: 6210 - 8120 mg/L (Pimephales promelas)	No information available	EC50: 10294 - 17704 mg/L (Daphnia magna)
Ethylene glycol	107-21-1	EC50: 6500 - 13000 mg/L (Pseudokirchneriella subcapitata) TGK(8d): > 10000 mg/L (Scenedesmus quadricauda)	LC50: 41000 mg/L (Oncorhynchus mykiss) LC50(96h): 72860 mg/L (Pimephales promelas) NOEC(7d): 32000 mg/L (mortality) (Pimephales promelas)	TTC(16h): > 10000 mg/L (Pseudomonas putida) EC20(30 m): > 1995 mg/L (activated sludge, domestic) (similar substance – diethylene glycol)	EC50: 46300 mg/L (Daphnia magna) EC50(48h): >100 mg/L (Daphnia magna) NOEC(7d): 8590 mg/L (reproduction) (Ceriodaphnia dubia)

12.2 Persistence and degradability

No information available

Substances	Persistence and Degradability
Ethylene glycol	Readily biodegradable (100% @ 10d)

12.3 Bioaccumulative potential

No information available

Substances	Log Pow
Ethylene glycol	-1.36

12.4 Mobility in soil
No information available

12.5 Results of PBT and vPvB assessment
No information available.

Substances	PBT and vPvB assessment
Ethylene glycol	Not PBT/vPvB

12.6 Other adverse effects

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

UN1993, Flammable Liquid, N.O.S. (Contains Acetone) , 3 , III , (48.9 C)
RQ (Thiourea - 4.5 kg.)
NAERG 128

Canadian TDG
Flammable Liquid, N.O.S. (Contains Acetone) , 3 , UN1993 , III , (48.9 C)

ADR

UN1993, Flammable Liquid, N.O.S (Contains Acetone) , 3 , III

Air Transportation

ICAO/IATA

UN1993, Flammable Liquid, N.O.S , 3 , III (Contains Acetone)
RQ (Thiourea - 4.5 kg.)

Sea Transportation

IMDG

UN1993, Flammable Liquid, N.O.S (Contains Acetone) , 3 , III , (48.9 C) RQ (Thiourea - 4.5 kg.)
EmS F-E, S-E

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	Not applicable
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: Ethylene Glycol//107-21-1 Thiourea//62-56-6
EPA CERCLA/Superfund Reportable Spill Quantity	EPA Reportable Spill Quantity is 11 Gallons based on Thiourea (CAS: 62-56-6).
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
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	Product contains one or more components not listed on the inventory.
WHMIS Hazard Class	D2B Toxic Materials B3 Combustible Liquids D1B Toxic Materials D2A Very Toxic Materials

16. OTHER INFORMATION

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

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 Compliance at 1-580-251-4335.

Disclaimer Statement

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