HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **AS-9 ANTI-SLUDGING AGENT**

Revision Date: 07-Jan-2015

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: AS-9 ANTI-SLUDGING AGENT
Synonyms: None
Chemical Family: Blend
Application: Anti-sludging Agent

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
Alkylbenzenesulfonic acid	Proprietary	30 - 60%	Not applicable	Not applicable
Dipropylene glycol	25265-71-8	10 - 30%	Not applicable	Not applicable
1-Methoxy-2-propanol	107-98-2	10 - 30%	TWA: 50 ppm STEL: 100 ppm	Not applicable
Morpholine	110-91-8	10 - 30%	TWA: 20 ppm Skin	20 ppm Skin
Sulfated salt	Proprietary	1 - 5%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview
May cause eye and skin burns. May cause respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed. May be absorbed through the skin. Repeated overexposure may cause liver and kidney effects. Flammable.

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):	138
Flash Point/Range (C):	58
Flash Point Method:	PMCC
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	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.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.
NFPA Ratings:	Health 2, Flammability 2, Reactivity 0
HMIS Ratings:	Health 2, Flammability 2, Reactivity 0

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	Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Neutralize to pH of 6-8. 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 alkalis. Store away from oxidizers. Keep container closed when not in use. Product has a shelf life of 24 months.

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	Organic vapor/acid gas respirator with a dust/mist filter.
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:	Dark brown
Odor:	Amine
pH:	0.78
Specific Gravity @ 20 C (Water=1):	1.07
Density @ 20 C (lbs./gallon):	8.91
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
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	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong alkalis. Strong oxidizers.
Hazardous Decomposition Products	Oxides of sulfur. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

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

Sympotoms related to exposure

Acute Toxicity

Inhalation	Causes severe respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.
Eye Contact	May cause eye burns.
Skin Contact	Causes severe burns. May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion.

Ingestion Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may cause liver, kidney and lung effects.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Alkylbenzenesulfonic acid	Proprietary	530 mg/kg (Rat) 775 mg/kg (Rat) 1350 mg/kg (Rat) 1470 mg/kg (Rat) (similar substance)	530 mg/kg (Rat) 2000 mg/kg (Rabbit)	No data available
Dipropylene glycol	25265-71-8	13300 mg/kg (Rat)	20600 mg/kg (Rabbit)	No data available
1-Methoxy-2-propanol	107-98-2	5200 mg/kg (Rat) 3739 mg/kg (Rat, male)	13000 mg/kg (Rabbit)	54.6 mg/L (Rat) 4 h 24 mg/L (Rat) 1 h
Morpholine	110-91-8	1050 mg/kg (Rat) 1600 mg/kg (Rat)	310 mg/kg (Rabbit) 500 mg/kg (Rabbit)	7.8 mg/L (Rat) 4h
Sulfated salt	Proprietary	No data available	No data available	No data available

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
Alkylbenzenesulfonic acid	Proprietary	EC50 (96h) 170 mg/L (Selenastrum capricornutum)	LC50 (96h) 3 mg/L (Oncorhynchus mykiss) NOEC (90d) 0.25 mg/L (Tilapia mossambica) (similar substance)	No information available	EC50 (48h) 2.9 mg/L (Daphnia magna) EC50 (24h) 5.9 mg/L (Daphnia magna)
Dipropylene glycol	25265-71-8	No information available	No information available	No information available	No information available
1-Methoxy-2-propanol	107-98-2	No information available	No information available	No information available	No information available
Morpholine	110-91-8	EC50 (96h) 28 mg/L (Pseudokirchneriella subcapitata)	LC50 (96h) 83 mg/L (Pimephales promelas) LC50 (96h) 180 mg/L (Oncorhynchus mykiss) LC50 (96h) 240 mg/L (Oncorhynchus mykiss) LC50 (96h) 380 mg/L (Oncorhynchus mykiss)	EC20 (30min) >1000 mg/L (Activated sludge, industrial)	EC50 (48h) 45 mg/L (Daphnia magna) EC50 (48h) 207 mg/L (Daphnia magna)
Sulfated salt	Proprietary	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Not applicable

Substances	CAS Number	Persistence and Degradability
Alkylbenzenesulfonic acid	Proprietary	(94% @ 28d)
Dipropylene glycol	25265-71-8	No information available
1-Methoxy-2-propanol	107-98-2	No information available
Morpholine	110-91-8	Readily biodegradable
Sulfated salt	Proprietary	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Alkylbenzenesulfonic acid	Proprietary	Log Pow = 4.15
Dipropylene glycol	25265-71-8	No information available

1-Methoxy-2-propanol	107-98-2	No information available
Morpholine	110-91-8	-0.86
Sulfated salt	Proprietary	No information available

12.4. Mobility in soil
No information available

12.5. Results of PBT and vPvB assessment
No information available.

Substances	PBT and vPvB assessment
Morpholine	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

US DOT
UN Number: UN2924
UN Proper Shipping Name: Flammable Liquid, Corrosive, N.O.S. (Contains Propylene Glycol Monomethyl Ether, Dodecylbenzenesulfonic Acid)
Transport Hazard Class(es): 3
Subsidiary Hazard: (8)
Packing Group: III
NAERG: NAERG 132

US DOT Bulk
DOT (Bulk) Not applicable

Canadian TDG ul0
UN Number: UN2924
UN Proper Shipping Name: Flammable Liquid, Corrosive, N.O.S. (Contains Propylene Glycol Monomethyl Ether, Dodecylbenzenesulfonic Acid)
Transport Hazard Class(es): 3
Subsidiary Hazard: (8)
Packing Group: III

IMDG/IMO
UN Number: UN2924
UN Proper Shipping Name: Flammable Liquid, Corrosive, N.O.S. (Contains Propylene Glycol Monomethyl Ether, Dodecylbenzenesulfonic Acid)
Transport Hazard Class(es): 3
Subsidiary Hazard: (8)
Packing Group: III
EMS: EmS F-E, S-C

IATA/ICAO
UN Number: UN2924
UN Proper Shipping Name: Flammable Liquid, Corrosive, N.O.S. (Contains Propylene Glycol Monomethyl Ether, Dodecylbenzenesulfonic Acid)
Transport Hazard Class(es): 3
Subsidiary Hazard: (8)
Packing Group: III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable
Special Precautions for User: None

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:
Glycol Ethers//107-98-2

EPA CERCLA/Superfund Reportable Spill Quantity Not applicable.

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
Corrosivity D002

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 B2 Flammable Liquids
D1B Toxic Materials
E Corrosive Material

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*****