HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **AS-7 ANTI-SLUDGING AGENT**

Revision Date: 20-Aug-2014 **Revision Number:** 19

SECTION 1. Product and Company Identification

Product Identifier

Product Trade Name: AS-7 ANTI-SLUDGING AGENT
Synonyms: None
Chemical Family: Blend
Internal ID Code HM000080

Product Use

Application: Anti-sludging Agent

Manufacturer's Name and Contact Details

Name and Address Halliburton Energy Services
645 - 7th Ave SW Suite 2200
Calgary, AB
T2P 4G8
Canada

Emergency Telephone Number (281) 575-5000

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

SECTION 2. Hazard(s) Identification

WHIMIS Classification

WHMIS Hazard Class
B2 Flammable Liquids
D1B Toxic Materials
D2A Very Toxic Materials
D2B Toxic Materials
E Corrosive Material

WHMIS Symbol(s)

Summary of hazards of the product

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

SECTION 3: Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	HMIRA Registry Number	Decision Granted Date
Benzenesulfonic acid, dodecyl-, compd. with morpholine (1:1)	12068-08-5	30 - 60%	Not applicable	Not applicable
Ethoxylated Alcohol	Proprietary	30 - 60%	8924	August 1, 2014
Morpholine	110-91-8	1 - 5%	Not applicable	Not applicable
Potassium acetate	127-08-2	0.1 - 1%	Not applicable	Not applicable
Methanol	67-56-1	5 - 10%	Not applicable	Not applicable
Acetic acid	64-19-7	< 0.1%	Not applicable	Not applicable
Water	7732-18-5	5 - 10%	Not applicable	Not applicable

SECTION 4. First aid measures

Description of first aid measures

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration (AR), preferably mouth-to-mouth. If breathing is difficult, oxygen should be given by trained personnel. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Get medical attention.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 30 minutes while holding eyelids open and get medical attention immediately after flushing.

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.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. If breathing has stopped, trained personnel should begin rescue breathing / artificial respiration (AR) immediately. If the heart has stopped, trained personnel should begin CPR immediately. Obtain medical attention immediately.

Most important symptoms and effects, both acute and delayed

May cause eye, skin, and respiratory burns. May cause headache, dizziness, and other central nervous system effects. May be fatal if swallowed. May cause blindness.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

SECTION 5. Fire Fighting Measures

Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Special hazards arising from the substance or mixture

Special Exposure Hazards

May be ignited by heat, sparks or flames. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases.

Advice for firefighters

Special Protective Equipment for Fire-Fighters

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

Hazardous combustion products

Oxides of nitrogen. Oxides of sulfur. Carbon monoxide and carbon dioxide.

SECTION 6. Accidental release measures

Personal precautions and emergency producedures

Protective Equipment

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.

SECTION 7. Handling and Storage

Precautions for safe handling
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. If ventilation is inadequate, vapors can spread from open containers of the controlled product and may flash back, causing a fire, if they contact an ignition source.

Conditions for safe storage and Incompatible materials for storage
Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 60 months.

SECTION 8: Exposure Controls/Personal Protection

Occupational Exposure Limits
Exposure Limits

Substances	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA
Benzenesulfonic acid, dodecyl-, compd. with morpholine (1:1)	12068-08-5	Not available	Not available
Ethoxylated Alcohol	Proprietary	Not available	Not available
Morpholine	110-91-8	TWA: 20 ppm Skin	20 ppm Skin
Potassium acetate	127-08-2	Not available	Not available
Methanol	67-56-1	TWA: 200 ppm STEL: 250 ppm Skin	200 ppm
Acetic acid	64-19-7	TWA: 10 ppm STEL: 15 ppm	10 ppm
Water	7732-18-5	Not available	Not available

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

Personal Protective Equipment (PPE)
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.

SECTION 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State:	Liquid	**Color:**	Clear amber
Odor:	Alcohol	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	7.1
pH Concentration of Solution:	No information available.
Freezing Point/Range	No information available.
Melting Point/Range	No information available
Boiling Point/Range (C):	No information available.
Flash Point/Range (C):	32 °C
Flash Point Method:	SETA
Autoignition Temperature (C):	No information available.
Flammability Limits in Air - Lower (%):	6.7
Flammability Limits in Air - Upper (%):	36
Evaporation Rate (Butyl Acetate=1):	No information available.
Vapor Pressure @ 20 C (mmHg):	190
Vapor Density (Air=1):	No information available.
Specific Gravity @ 20 C (Water=1):	1.04
Solubility in Water (g/100ml):	Disperses
Solubility in other solvents	No information available.
Partition Coefficient/n-Octanol/Water:	0.61
Decomposition Temperature (C):	No information available.
Viscosity	No information available
Explosive Properties	No information available
Oxidizing Properties	No information available

Other Information

Molecular Weight (g/mole):	No information available.
VOC Content (%)	No information available

SECTION 10. Stability and Reactivity

Conditions of Reactivity

Conditions to Avoid	Keep away from heat, sparks and flame.
Hazardous Polymerization:	Will Not Occur

Chemical Stability
Stable

Sensitivity to Static Discharge
Not available

Sensitivity to Mechanical Impact
Not available

Incompatible materials
Strong oxidizers.

Hazardous Decomposition Products
Oxides of nitrogen. Oxides of sulfur. Carbon monoxide and carbon dioxide.

SECTION 11. Toxicological Information

Routes of entry
Eye or skin contact, inhalation. Ingestion.

Information on Toxicological Effects

Acute effects from exposure

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 Causes severe eye irritation May cause eye burns.

Skin Contact May cause skin burns. May be absorbed through the skin and contribute to the symptoms listed under ingestion.

Ingestion Causes burns of the mouth, throat and stomach. May be fatal or cause blindness if swallowed. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.

Chronic effects from exposure

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may cause eye, blood, lung, liver, kidney, heart, central nervous system and spleen damage. May contain ethylene oxide in the headspace of the drum. Ethylene oxide is a cancer and reproductive hazard.

Irritancy of product

Irritation Corrosive to eyes Corrosive to skin

Sensitization of product

Sensitization Not confirmed to cause skin or respiratory sensitization.

Mutagenicity

Mutagenic Effects Morpholine has tested positive in the Balb/3T3 In VItro Transformation Assay.

Carcinogenicity

Carcinogenic Effects No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, or OSHA.

Reproductive toxicity

Reproductive Toxicity This product does not contain any known or suspected reproductive hazards

Teratogenicity/embryotoxicity

Teratogenic Fetotoxic and teratogenic effects observed in experimental animals at concentrations that did not produce maternal toxicity.

Toxicologically synergistic material **Methanol:** In animals, high concentrations can increase the toxicity of other chemicals, particularly liver toxins like carbon tetrachloride. Ethanol significantly decreases the toxicity, because it competes for the same metabolic enzymes.

Acute Toxicity

Substances	CAS Number	**LD50 Oral**	**LD50 Dermal**	**LC50 Inhalation**
Benzenesulfonic acid, dodecyl-, compd. with morpholine (1:1)	12068-08-5	No data available	No data available	No data available
Ethoxylated Alcohol	Proprietary	No data available	No data available	No data available
Morpholine	110-91-8	1050 mg/kg (Rat)	310 mg/kg (Rabbit)	No data available
Potassium acetate	127-08-2	3250 mg/kg (Rat)	No data available	No data available
Methanol	67-56-1	> 1187 - 2769 mg/kg (Rat) 3000 mg/kg (Monkey) 300 mg/kg (Human)	15800 mg/kg (Rabbit) 393 mg/kg (Primate)	87.5 mg/L (Rat) 6h vapour 128.2 mg/L (Rat) 4h vapour 83.2 mg/L (Rat) 4 h 64000 ppm (Rat) 4 h 10 mg/L (Human)
Acetic acid	64-19-7	3310 mg/kg (Rat) 600 mg/kg (Rabbit) 4960 mg/kg (Mouse)	1060 mg/kg (Rabbit)	11.4 mg/L (Rat) 4 h
Water	7732-18-5	90 mL/kg (Rat)	No data available	No data available

SECTION 12. Ecological Information

Toxicity

Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Benzenesulfonic acid, dodecyl-, compd. with morpholine (1:1)	12068-08-5	No information available	No information available	No information available	No information available
Ethoxylated Alcohol	Proprietary	No information available	No information available	No information available	No information available
Morpholine	110-91-8	No information available	No information available	No information available	No information available
Potassium acetate	127-08-2	EC50(72h): > 500 mg/L (Skeletonema costatum)	LC50(96h): 6800 mg/L (Oncorhynchus mykiss)	No information available	LC50:48h): > 2483 mg/L (Acartia tonsa)
Methanol	67-56-1	EC50(96h): ca. 22000 mg/L (Pseudokirchnerella subcapitata, Growth rate)	LC50: 28200 mg/l (Pimephales promelas) LC50(96h): 12700 – 15400 mg/L (Lepomis macrochirus) 200 hr NOEC for % Embryo-cardiovascular for stage 2 = 15800 mg/L	IC50(3h): > 1000 mg/L (activated sludge)	EC50(96h): 18260 mg/L (Daphnia magna) NOEC(21d): 122 mg/L (Daphnia magna, Reproduction)
Acetic acid	64-19-7	EC50: 90 mg/L (Microcystis aeruginosa) EC50(72h): > 1000 mg/L (>300.82 mg/L – acetate ion) (Skeletonema costatum)	LC50: 79 mg/l (Pimephales promelas) LC50: 75 mg/l (Pimephales promelas) LC50(96h) > 1000 mg/L (>300.82 mg/L – acetate ion) (Oncorhynchus mykiss)	NOEC(16h): 1150 mg/L (Pseudomonas putida)	EC50: 47 mg/l (Daphnia magna) LC50: 32 mg/L (Artemia salina) EC50(48h) > 1000 mg/L (>300.82 mg/L – acetate ion) (Daphnia magna) NOEC(21d): 31.4 - 37.9 mg/L (Daphnia magna) (reproduction)
Water	7732-18-5	No information available	Brachydanio rerio 96 hours LC50 = 36.8 mg/L Oncorhynchus mykiss 96 hours LC50 = 2.6 mg/L	No information available	Daphnia magna 48 hours EC50 = 3.2 mg/L

Persistence and Degradability

No information available

Bioaccumlation potential

No information available

Substances	Log Pow
Potassium acetate	-3.72
Methanol	-0.77 BCF 1.0 – 4.5 (Cyprinus carpio) BCF < 10 (Leuciscus idus melanotus)
Acetic acid	-0.17 BCF 3.16 (Calculated)

Mobility in soil

No information available

Results of PBT and vPvB assessment

No information available.

Substances	PBT and vPvB assessment
Methanol	Not PBT/vPvB

Other adverse effects

Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

SECTION 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.

SECTION 14. Transport Information

Canadian TDG ul0

UN Number:	UN2924
UN Proper Shipping Name:	Flammable Liquid, Corrosive, N.O.S. (Contains Methanol, Amine Salt)
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 Methanol, Amine Salt)
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 Methanol, Amine Salt)
Transport Hazard Class(es):	3
Subsidiary Hazard:	(8)
Packing Group:	III
EMS:	EmS F-E, S-C

Special Precautions for User: None

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

SECTION 15: Regulatory Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Canadian Regulations

Canadian DSL Inventory All components listed on inventory or are exempt.

WHMIS Hazard Class
B2 Flammable Liquids
D1B Toxic Materials
D2A Very Toxic Materials
D2B Toxic Materials
E Corrosive Material

WHMIS Symbol(s)

US Regulations

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

SECTION 16. Other Information

Preparation Information

Prepared By

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

Revision Date: 20-Aug-2014

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.

Key or legend to abbreviations and acronyms
WHMIS: Workplace Hazardous Materials Information System

Key literature references and sources for data
www.ChemADVISOR.com/

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