HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **AQLB-1**

Revision Date: 13-Feb-2013

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: AQLB-1
Synonyms: None
Chemical Family: Organic acid
Application: Solvent

Manufacturer/Supplier
Halliburton Energy Services, Inc.
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
Formic acid	64-18-6	60 - 100%	TWA: 5 ppm STEL: 10 ppm	5 ppm

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. Repeated overexposure may cause liver and kidney effects. 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):	121
Flash Point/Range (C):	49
Flash Point Method:	Not Determined
Autoignition Temperature (F):	1114
Autoignition Temperature (C):	601
Flammability Limits in Air - Lower (%):	18
Flammability Limits in Air - Upper (%):	57

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

Special Exposure Hazards Decomposition in fire may produce toxic gases. 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

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.

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 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, 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.

Acid gas respirator.
In high concentrations, supplied air respirator or a self-contained breathing apparatus.

Hand Protection Impervious rubber gloves.

Skin Protection Full protective chemical resistant clothing.

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:	Sharp
pH:	1
Specific Gravity @ 20 C (Water=1):	1.2
Density @ 20 C (lbs./gallon):	10.0
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	215
Boiling Point/Range (C):	101
Freezing Point/Range (F):	50
Freezing Point/Range (C):	10
Vapor Pressure @ 20 C (mmHg):	23
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	100
Evaporation Rate (Butyl Acetate=1):	Not Determined
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):	46.03

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 oxidizers. Strong alkalis.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.

Sympotoms related to 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.
Skin Contact	Causes severe burns.
Eye Contact	May cause eye burns. May cause permanent eye damage.

Ingestion Causes burns of the mouth, throat and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. May cause kidney damage.

Aggravated Medical Conditions Skin disorders.

Chronic Effects/Carcinogenicity Repeated overexposure may cause liver and kidney effects.

Other Information None known.

Toxicity Tests

Oral Toxicity: LD50: 1100 mg/kg (Rat)

Dermal Toxicity: Not determined

Inhalation Toxicity: LC50: 15000 mg/m^3/15 min. (Rat)

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 Readily 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

UN1779,Formic Acid, 8, (3), II
RQ (Formic Acid - 2273 kg.)
NAERG 153

Canadian TDG
Formic Acid, 8, (3), UN1779, II

ADR

UN1779,Formic Acid, 8, (3), II

Air Transportation

ICAO/IATA

UN1779,Formic Acid, 8, (3), II
RQ (Formic Acid - 2273 kg.)

Sea Transportation

IMDG

UN1779,Formic Acid, 8, (3), II
RQ (Formic Acid - 2273 kg.)
EmS F-A, S-B

Other Transportation Information

Labels: Corrosive
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 Fire Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	EPA Reportable Spill Quantity is 555 Gallons based on Formic acid (CAS: 64-18-6).
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 Corrosivity D002
California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
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
E Corrosive Material
B3 Combustible Liquids
D2B 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.

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