

MATERIAL SAFETY DATA SHEET

Product Trade Name: AQUA AMMONIA

Revision Date: 25-Aug-2014

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: AQUA AMMONIA
Synonyms: None
Chemical Family: Hydroxide
Application: Buffer

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
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Ammonium hydroxide	1336-21-6	30 - 60%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory burns. May be harmful if swallowed.

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. Destroy or properly dispose of contaminated shoes.

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):	380
Flash Point/Range (C):	193
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	May form explosive mixtures with strong acids. 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 3, Flammability 1, Reactivity 2
HMIS Ratings:	Health 3, Flammability 1, Reactivity 2

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment. Use only competent persons for cleanup.
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. 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 acids. Store away from direct sunlight. Store in a cool well ventilated area. 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	Ammonia respirator. Positive pressure self-contained breathing apparatus in enclosed areas.
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:	Pungent ammonia
pH:	12.2
Specific Gravity @ 20 C (Water=1):	0.897
Density @ 20 C (lbs./gallon):	7.47
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	82
Boiling Point/Range (C):	27
Freezing Point/Range (F):	-110
Freezing Point/Range (C):	-76
Vapor Pressure @ 20 C (mmHg):	450
Vapor Density (Air=1):	<1
Percent Volatiles:	100
Evaporation Rate (Butyl Acetate=1):	<1
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):	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 acids. Amphoteric metals such as aluminum, magnesium, lead, tin, or zinc. Halogenated compounds. Sodium hydroxide.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Symptoms related to exposure	
Acute Toxicity	
Inhalation	Causes severe respiratory irritation. May cause convulsions.
Eye Contact	May cause eye burns.
Skin Contact	Causes severe burns.
Ingestion	Causes burns of the mouth, throat and stomach.
Chronic Effects/Carcinogenicity	Prolonged, excessive exposure may cause erosion of the teeth.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ammonium hydroxide	1336-21-6	350 mg/kg (Rat)	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
Ammonium hydroxide	1336-21-6	No information available	LC50: 8.2 mg/L (Pimephales promelas)	No information available	EC50: 0.66 mg/l

12.2. Persistence and degradability

No information available

Substances	CAS Number	Persistence and Degradability
Ammonium hydroxide	1336-21-6	No information available

12.3. Bioaccumulative potential

No information available

Substances	CAS Number	Log Pow
Ammonium hydroxide	1336-21-6	No information available

12.4. Mobility in soil

No information available

12.5. Results of PBT and vPvB assessment

No information available.

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:	UN2672
UN Proper Shipping Name:	Ammonia Solution
Transport Hazard Class(es):	8
Packing Group:	III
NAERG:	NAERG 154

US DOT Bulk

DOT (Bulk)	Not Applicable
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Canadian TDG ul0

UN Number:	UN2672
UN Proper Shipping Name:	Ammonia Solution
Transport Hazard Class(es):	8
Packing Group:	III

IMDG/IMO

UN Number:	UN2672
UN Proper Shipping Name:	Ammonia Solution
Transport Hazard Class(es):	8
Packing Group:	III
EMS:	EmS F-A, S-B

IATA/ICAO

UN Number:	UN2672
UN Proper Shipping Name:	Ammonia Solution
Transport Hazard Class(es):	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: Corrosive
Oxidizer

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
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 270 Gallons based on Ammonium hydroxide (CAS: 1336-21-6).
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: 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

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*****