Material Safety Data Sheet

1 . Product and company identification

Product name : ALPHA 1427

Supplier : Baker Hughes, Inc.
12645 W. Airport Blvd.
Sugar Land, TX 77478
For Product Information/MSDSs Call: 281-351-8131

Material Uses : Special: Biocide.

Code : 411402

Validation date : 12/9/2013.

Print date : 12/9/2013.

Version : 2.02

Responsible name : Global Regulatory Affairs - Telephone 281-276-5400 or 800-231-3606

In case of emergency : CHEMTREC 800-424-9300 (U.S. 24 hour)
(001)281-276-5400
CANUTEC 613-996-6666 (Canada 24 hours)CHEMTREC Int'l 01-703-527-3887 (International 24 hour)

2 . Hazards identification

Physical state : Liquid.

Odor : Fruity.

Color : Colorless to light yellow.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : DANGER!

CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Inhalation.

Potential acute health effects

Inhalation : Corrosive to the respiratory system.

Ingestion : Harmful if swallowed. May cause burns to mouth, throat and stomach.

Skin : Corrosive to the skin. Causes burns. May cause sensitization by skin contact.

Eyes : Corrosive to eyes. Causes burns.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Target organs : Contains material which may cause damage to the following organs: blood, the nervous system, the reproductive system, liver, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, coughing

Ingestion : stomach pains

2 . Hazards identification

Skin : pain or irritation, redness, blistering may occur

Eyes : pain, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Glutaraldehyde	111-30-8	10 - 30
Didecyl dimethyl ammonium chloride	7173-51-5	5 - 10
Quaternary ammonium compound	68424-85-1	1 - 5
Ethanol	64-17-5	1 - 5

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush the eye(s) continuously with lukewarm, gently flowing water for at least 20-60 minutes while holding the eyelid(s) open.

Skin contact : Wash affected area with soap and mild detergent for at least 20 - 60 minutes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wear suitable protective clothing and gloves. Remove contaminated clothing and shoes.

5 . Fire-fighting measures

Flammability of the product : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide,nitrogen oxides,halogenated compounds

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Absorb with an inert material. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Dike spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.) Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredients:	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations
Glutaraldehyde	US ACGIH	-	-	-	-	-	-	0.05	-	-	[3]
	OSHA PEL 1989	-	-	-	-	-	-	0.2	0.8	-	
Ethanol	US ACGIH	-	-	-	1000	-	-	-	-	-	
	OSHA PEL	1000	1900	-	-	-	-	-	-	-	
	OSHA PEL 1989	1000	1900	-	-	-	-	-	-	-	

[3]Skin sensitization

Consult local authorities for acceptable exposure limits.

Only components of this product with established exposure limits appear in the box above.

If OSHA permissible exposure levels are shown above they are the OSHA 1989 levels or are from subsequent OSHA regulatory actions. Although the 1989 levels have been vacated the 11th Circuit Court of Appeals, Baker Hughes recommends that these lower exposure levels be observed as reasonable worker protection.

8 . Exposure controls/personal protection

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location. Take off contaminated clothing and wash before reuse.

Personal protection

Respiratory : If a risk assessment indicates it is necessary, use a properly fitted, air purifying or supplied air respirator complying with an approved standard. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant gloves.

Eyes : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

Skin : Wear long sleeves and chemical resistant apron to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Closed cup: >99.3°C (>210.7°F) [Tagliabue.]

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Colorless to light yellow.

Odor : Fruity.

pH : 4.5

Boiling/condensation point : 99.3°C (210.7°F)

Initial Boiling Point : Not available.

Melting/freezing point : -9.4444°C (15°F)

Relative density : 1.05 (23°C)

Density : 8.75 (lbs/gal)

Vapor density : Not available.

Odor threshold : Not available.

Evaporation rate : Not available.

VOC : Not available.

Viscosity : Kinematic (21°C): 9.233 cSt

Solubility (Water) : Soluble

Vapor pressure : Not available.

Pour Point : -9°C (15.8°F)

Partition coefficient (LogKow) : Not available.

10 . Stability and Reactivity

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid : No specific data.

Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials, reducing materials, metals, acids and alkalis.
amines Ammonia.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Conditions of reactivity : Flammable in the presence of the following materials or conditions: heat.
Slightly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Didecyl dimethyl ammonium chloride	LD50 Dermal	Rabbit	4177 mg/kg	-
	LD50 Oral	Rat	84 mg/kg	-
	LD50 Oral	Rat	560 mg/kg	-
Quaternary ammonium compound	LD50 Oral	Rat	426 mg/kg	-
Ethanol	LC50 Inhalation Vapor	Rat	20000 ppm	10 hours
	LC50 Inhalation Vapor	Rat	124700 mg/m³	4 hours
	LD50 Oral	Rat	7 g/kg	-

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Glutaraldehyde	A4	-	-	-	-	-
Ethanol	A3	-	-	-	-	-

Chronic toxicity Remarks

1) Glutaraldehyde

Glutaraldehyde is a component of this product. In long-term experimental animal studies, glutaraldehyde caused liver damage in mice (ACGIH, 1992), but it was not neurotoxic in rats (Spencer et al, 1978).

Female rats had increased large granular lymphocytic leukemias after receiving glutaraldehyde in the drinking water at levels up to 1,000 ppm for 2 years (Andersen, 1996).

The results of genetic studies have been mixed with no conclusive evidence of positive effects.

In 2-year inhalation studies, there was no evidence of carcinogenic activity in male or female rats exposed to 250, 500 or 750 ppb, or in male or female mice exposed to 62.5, 125, or 250 ppb glutaraldehyde. Incidences of nasal and respiratory lesions were increased in both male/female rats and mice. Reduction in body weight, as compared to the controls was also noted.

2) Didecyl dimethyl ammonium chloride

Not available.

3) Quaternary ammonium compound

Not available.

11 . Toxicological information

4) Ethanol

Ethanol is a component of this product. Inhalation exposure to an airborne concentration of 14 to 28 mg/L over a 10 day period was sufficient to produce chemical dependence in rats (Ferko & Bobyock, 1977); 1.4 mg/L for 1 to 2 weeks produced dependency in rats, although blood alcohol levels could not be detected (French & Morris, 1972). Chronic exposures are well known to produce ethanol tolerance in mice (Grieve & Littleton, 1978) and humans. Tolerance may follow a "wave-like" pattern with time in attempts to correlate blood alcohol levels with performance or behavioral effects (Pavienko & Guseva, 1973). Ethanol is mainly metabolized in the liver, which is also one of the primary target organs. While ethanol is well known to cause cirrhosis of the liver in alcoholics, liver cirrhosis has also been produced in rabbits exposed by inhalation (Clayton & Clayton, 1994). Other effects of chronic exposures involve the heart, with progressive dysfunction, congestive cardiomyopathy (disease of the muscular tissues of the heart) , and arrhythmias (irregular heart beat) (HSDB). Occupational exposure to ethanol has been linked with an increased risk for ischemic heart disease (reduced blood flow to the heart usually due to a blockage in the arteries) in rubber workers who were also exposed to other chemicals (Wilcosky & Tyroler, 1983).

Ethanol should be regarded as a possible human co-carcinogen. Ethanol was not carcinogenic when applied to the skin of mice, but did increase the activity of other known carcinogens (Stenback, 1969; Barauskaite, 1983; Hills & Venable, 1982; Radike et al, 1977). Ethanol has been called an equivocal tumorigenic agent when given orally (or rectally) to mice (HSDB). NTP is conducting a two year study at this time, but results were not available for review (LOLI).

Ethanol has also been widely studied for genetic effects in many species. The genetic effects of ethanol have been reviewed (Obe & Ristow, 1979). Increased single-strand DNA breaks were seen in rat brain cells 4 hours after a single oral exposure to 4 g/kg ethanol (Singh et al, 1995). Ethanol itself is not mutagenic in the Ames test, but its metabolite, acetaldehyde, is mutagenic (Obe, 1981). Ethanol did not increase the mutagenicity of diesel exhaust when used as a fuel extender (Clark et al, 1984). Ethanol has been reported to damage the chromosomes in mammalian cells and to induce a variety of genetic effects in micro-organisms (RTECS, 1996). These effects may have been due to the metabolite, acetaldehyde.

The effects of ethanol on the fetus have been reviewed (Brien & Smith, 1991). Ethanol can affect male fertility and produce reduced birth weight in newborns through paternal exposure, but is not known to be teratogenic through the father (Pearn, 1983). Ethanol inhibited the production of testosterone when given to male rats at 1,000 ppm (the TLV) (Cameron et al, 1985), and this effect may be due to its metabolite, acetaldehyde (Santucci et al, 1983; Cicero & Bell, 1980). Ethanol does not seem to affect fertility in female rats (Berliner, 1977); however, there is not sufficient evidence in women to allow a definite conclusion about ethanol and female fertility. Ethanol ingestion by pregnant women is well known to be causative for Fetal Alcohol Syndrome (FAS) (Ashley; 1981, Sokol, 1981; Wright & Toplis, 1986). Fetal alcohol syndrome is characterized by low birth weight, low IQ, slow growth, certain facial abnormalities, CNS defects, and other major or minor structural malformations (Rosett et al, 1983).

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Glutaraldehyde	Acute EC50 0.31 ppm Fresh water	Algae - Green algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 0.75 ppm Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 5.4 ppm Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Chronic NOEC 3.41 ppm	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	97 days
Didecyl dimethyl ammonium chloride	Acute EC50 110 µg/l Fresh water	Algae - Green algae - Chlorella pyrenoidosa - Exponential growth phase	72 hours
	Acute EC50 14.22 ppb Fresh water	Algae - Green algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 18 ppb Fresh water	Daphnia - Water flea - Daphnia	48 hours

12 . Ecological information

		magna	
	Acute LC50 39 µg/l Marine water	Crustaceans - Opossum shrimp - Americamysis bahia - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 0.01 µg/l Fresh water	Fish - White Sturgeon - Acipenser transmontanus - Larvae	96 hours
	Chronic NOEC 25 µg/l Fresh water	Algae - Green algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Chronic NOEC 125 µg/l Fresh water	Daphnia - Water flea - Daphnia magna	21 days
Quaternary ammonium compound	Acute EC50 37 ppb Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 64 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Chronic NOEC 4.15 ppb Marine water	Daphnia - Water flea - Daphnia magna	21 days
	Chronic NOEC 32.2 ppb	Fish - Fathead minnow - Pimephales promelas	34 days
Ethanol	Acute EC50 17.921 mg/l Marine water	Algae - Green algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - San Francisco Brine Shrimp - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Green algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 ul/L Fresh water	Fish - Eastern mosquitofish - Gambusia holbrooki - Larvae	12 weeks

Conclusion/Summary : Not available.

Biodegradability

Product/ingredient name	Test	Result	Dose	Inoculum
Glutaraldehyde	OECD 301A	83 % - Readily - 28 days	-	Aqueous
	OECD 306	73 % - 28 days	-	Seawater
Quaternary ammonium compound	OECD 301D	97 % - 10 days	-	Aqueous

Conclusion/Summary : Not available.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1903	Disinfectant, liquid, corrosive, n. o. s. (Contains: Quaternary ammonium compound)	8	III		-
TDG Classification	UN1903	Disinfectant, liquid, corrosive, n. o. s. (Contains: Quaternary ammonium compound)	8	III		-
IMDG Class	UN1903	Disinfectant, liquid, corrosive, n. o. s. (Contains: Quaternary ammonium compound)	8	III		-
IATA-DGR Class	UN1903	Disinfectant, liquid, corrosive, n. o. s. (Contains: Quaternary ammonium compound)	8	III		-

PG* : Packing group

DOT Reportable Quantity Not applicable.

Marine pollutant Not applicable.

North-America NAERG : 154

15 . Regulatory information

HCS Classification : Corrosive material
Sensitizing material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.
CERCLA: Hazardous substances.: methanol: 5000 lbs. (2270 kg);
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) :
Not listed

SARA 302/304 : No products were found.

SARA 311/312

15 . Regulatory information

Classification : Immediate (acute) health hazard
Delayed (chronic) health hazard

United States inventory (TSCA 8b) : All components are listed or exempted.

Canada

WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).
Class E: Corrosive material

Canada (CEPA DSL): : All components are listed or exempted.

16 . Other information

Label requirements : CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

HMIS :

Health	*	3
Flammability		1
Physical hazards		0
Personal protection		I

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :

Date of printing : **12/9/2013.**

Indicates information that has changed from previously issued version.

Notice to reader

NOTE: The information on this MSDS is based on data which is considered to be accurate. Baker Hughes, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.