Chemical Services	MATERIAL SAFETY DATA SHEET	Region Chemical Services - USA

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **ALPHA 1427**
Item Number: 302AL1427B
Product Use: Biocide
Supplier: BJ Services Company
11211 FM 2920
Tomball, Texas 77375
(281)351-8131

IN CASE OF EMERGENCY CALL: (800) 424-9300 for CHEMTREC
(703) 527-3887 for International

HMIS HAZARD INDEX

HEALTH:	3
FLAMMABILITY:	1
REACTIVITY:	0
PERSONAL PROTECTION:	i

2 COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component	CAS#	Percent	Hazard
Glutaraldehyde	000111-30-8	10-30	
Quaternary ammonium chloride	007173-51-5	5-10	
Alkyl dimethyl benzyl ammonium chloride (C12-16)	068424-85-1	3-7	
Ethanol	000064-17-5	1-5	
Water	007732-18-5	30-60	

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eye contact. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: Inhalation of solution vapor or mist may cause severe irritation or burns to the respiratory tract.

INGESTION: Harmful if swallowed. May cause severe damage of gastrointestinal tract. May cause nausea, vomiting and diarrhea. May be fatal if swallowed.

EYE CONTACT: Contact with solution may cause severe burns and permanent eye damage. Vapors are irritating to eyes. May cause irritation and redness.

SKIN CONTACT: May cause mild skin irritation. May cause skin irritation or burns with prolonged contact. May stain the skin. May cause a rash and itching of the skin.

EXPOSURE LIMITS:

HAZARDOUS COMPONENT	ACGIH TLV	OSHA PEL	LC50 (inhalation)	LD50 (oral)
Glutaraldehyde	NA	CEIL - 0.02 ppm	480 mg/m3/4 rat	134 mg/kg rat
Quaternary ammonium chloride	NA	NA	NA	84 mg/kg rat
Alkyl dimethyl benzyl ammonium chloride (C12-16)	NA	NA	NA	426 mg/kg rat
Ethanol	1000 ppm	1000 ppm TWA	20000 ppm/10 rat	7060 mg/kg rat
Water	NA	NA	NA	NA

4 FIRST AID MEASURES

INHALATION:
If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

INGESTION:
Obtain medical assistance immediately. Do not induce vomiting, unless directed to do so by a physician. Do not give anything to drink. Never give anything by mouth to an unconscious person. Get medical attention.

EYES:
Flush eyes with gently flowing luke warm water. Obtain immediate medical attention.

SKIN:
In case of contact, immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Seek medical attention if irritation persists.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD): 210°F
LOWER EXPLOSION LIMIT (% v/v): Not available
UPPER EXPLOSION LIMIT (% v/v): Not available

SPECIAL HAZARDS:
Toxic vapors may be emitted in a fire situation.
EXTINGUISHING MEDIA:
Water fog. Carbon dioxide, dry chemical, foam.
SPECIAL FIREFIGHTING PROCEDURES:
Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires.
HAZARDOUS COMBUSTION PRODUCTS:
Hydrocarbons. Oxides of carbon.

6 ACCIDENTAL RELEASE MEASURES

Evacuate area - warn other workers of spill. Remove sources of ignition. Use only explosion proof transfer equipment. Prevent from entering sewers or waterways. Cover spill with absorbent material. Scoop absorbed material into a suitable container for disposal.

7 HANDLING AND STORAGE

HANDLING:
Avoid contact with skin and eyes. Wear specified protective equipment. Wash hands before eating and smoking.

STORAGE REQUIREMENTS:
Keep container closed when not in use. Keep away from heat. Store away from sunlight.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:
Adequate ventilation should be provided to keep concentrations below acceptable exposure limits. The use of

mechanical ventilation is recommended whenever this product is used in a confined space. Where engineering controls are not feasible, assure use is in an area where there is natural air movement.

PERSONAL PROTECTIVE EQUIPMENT:
Chemical resistant googles or face shield. Butyl rubber gloves. Neoprene gloves. Coveralls. Rubber apron. Rubber boots.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Colorless To Yellow
ODOR:	Fruity
ODOR THRESHOLD:	Not available
SPECIFIC GRAVITY:	1.05 +/- 0.04
VAPOR PRESSURE:	0.2 mmHg @20C
VAPOR DENSITY (air = 1):	Not available
EVAPORATION RATE:	Not available
BOILING POINT:	210 F (99.3 C)
FREEZING POINT:	Not available
pH:	4.5 +/- 1.0
VISCOSITY (F):	6.233 mm2/s (cSt)
SOLUBILITY IN WATER:	Soluble

10 STABILITY AND REACTIVITY

STABILITY:
Stable under normal conditions of use.
INCOMPATIBILITY/CONDITIONS OF REACTIVITY:
Strong oxidizers.
HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:
Hydrocarbons. Oxides of carbon.
HAZARDOUS POLYMERIZATION:
Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:
Prolonged or repeated exposure may result in redness and itchiness of the skin.

SENSITIZATION:
May cause an allergenic skin response in some individuals. May cause an allergic respiratory reaction in hypersensitive individuals.
CARCINOGENICITY:
None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC-International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety & Health Administration (US))
MUTAGENICITY:
Not mutagenic
REPRODUCTIVE TOXICITY:
Ingestion of ethanol and/or glutaraldehyde by pregnant women can cause reproductive toxicity to the fetus.

12 ECOLOGICAL INFORMATION

Very toxic to aquatic organisms.

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Disposal should be made in accordance with national and local regulations.

14 TRANSPORT INFORMATION

LAND TRANSPORT (DOT)

Proper Shipping Name:	Disinfectants, Liquid, Corrosive N.O.S.
Technical Name(s):	Quaternary ammonium compound
UN/ID No.:	UN 1903
Hazard Class - Primary:	8
Hazard Class - Secondary:	
Packing Group:	III
Reportable Quantity (RQ):	
Emergency Response Guide #:	153

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name:	Disinfectants, Liquid, Corrosive N.O.S.
Technical Name(s):	Quaternary ammonium compound
UN/ID No.:	UN 1903
Hazard Class - Primary:	8
Hazard Class - Secondary:	
Packing Group:	III

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name:	Disinfectants, Liquid, Corrosive N.O.S.
Technical Name(s):	Quaternary ammonium compound
UN No.:	UN 1903
Hazard Class - Primary:	8
Hazard Class - Secondary:	
Packing Group:	III
EmS:	

15 REGULATORY INFORMATION

SARA TITLE III:

SECTION 302/304 This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.
SECTION 311/312 Immediate, Delayed
SECTION 313 This product does not contain ingredients (at a level of 1% or greater) on the List of Toxic Chemicals.

TSCA INVENTORY: The substances in this product are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710).
CALIFORNIA PROP 65: This product may contain trace quantities of substances that are regulated under California Proposition 65.
PRIORITY POLLUTANTS:

16 OTHER INFORMATION

ISSUE DATE: 07/08/2010
PREPARED BY: BJ Services HSE Department

REFERENCES:
Supplier's Literature.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes

no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

Material Safety Data Sheet

1 . Product and company identification

Product name : BF-9L

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

Material Uses : Special: Buffer Solution

Code : 499667

Validation date : 1/3/2012.

Print date : 1/3/2012.

Version : 1

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. [Clear.]

Odor : Mild.

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

Skin : Corrosive to the skin. Causes burns.

Eyes : Corrosive to eyes. Causes burns.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data.

Target organs : Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, coughing

Ingestion : stomach pains

Skin : pain or irritation, redness, blistering may occur

Eyes : pain, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any 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	%
Potassium carbonate	584-08-7	30 - 60
Potassium hydroxide	1310-58-3	10 - 30

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,metal oxide/oxides

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.

6 . Accidental release measures

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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Keep away from acids. 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). Separate from acids. 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
Potassium hydroxide	US ACGIH OSHA PEL 1989	- -	- -	- -	- -	- -	- -	- -	2 2	- -	

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.

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.

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.

8 . Exposure controls/personal protection

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

9 . Physical and chemical properties

Physical state : Liquid. [Clear.]
Flash point : Not available.
Auto-ignition temperature : Not available.
Flammable limits : Not available.
Color : Colorless to light yellow.
Odor : Mild.
pH : 13
: Neat - without dilution.
Boiling/condensation point : Not available.
Initial Boiling Point : Not available.
Melting/freezing point : Not available.
Relative density : 1.47 (15.6℃)
Density : 12.25 (lbs/gal)
Vapor density : Not available.
Odor threshold : Not available.
Evaporation rate : Not available.
VOC : Not available.
Viscosity : Not available.
Solubility (Water) : Not available.
Vapor pressure : Not available.
Pour Point : Not available.
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 : Highly reactive or incompatible with the following materials: combustible materials, organic materials, metals, acids and moisture.
Reactive or incompatible with the following materials: oxidizing materials and reducing materials.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity : Slightly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Potassium carbonate	LD50 Oral	Rat	1870 mg/kg	-
Potassium hydroxide	LD50 Oral	Rat	273 mg/kg	-

Chronic toxicity Remarks

11 . Toxicological information

1) Potassium carbonate

Potash miners exposed to potassium carbonate during work exhibited symptoms of productive cough and slight breathlessness, but no significant impairment of lung function (Markham et al, 1981). Iron miners who inhaled 4 to 8 mg/m3 of potassium carbonate before and after their shift for 10 years were protected to some extent from silicosis (Beleckij et al, 1982).

2) Potassium hydroxide

Potassium hydroxide is a component of this product. Chronic exposures can produce dermatitis, cough, and breathing difficulty. Potassium hydroxide may cause irreversible effects which can be life-threatening. Systemic effects are due entirely to local tissue injury.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Potassium carbonate	Acute LC50 630000 to 670000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - <24 hours	48 hours
	Acute LC50 <510000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - 1 to 7 days	96 hours
Potassium hydroxide	Acute LC50 80000 ug/L Fresh water	Fish - Western mosquitofish - Gambusia affinis - Adult	96 hours

Conclusion/Summary : Not available.

Biodegradability

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	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Contains: Potassium hydroxide, Potassium carbonate)	8	II		-
TDG Classification	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Contains: Potassium hydroxide, Potassium carbonate)	8	II		-

14 . Transport information

IMDG Class	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Contains: Potassium hydroxide, Potassium carbonate)	8	II		**Emergency schedules (EmS)** F-E S-C
IATA-DGR Class	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Contains: Potassium hydroxide, Potassium carbonate)	8	II		-

PG* : Packing group

DOT Reportable Quantity Potassium hydroxide, 615 gal of this product.

Marine pollutant Not applicable.

North-America NAERG : 154

15 . Regulatory information

HCS Classification : Toxic material
Corrosive material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Potassium hydroxide; Potassium carbonate
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: BF-9L: Immediate (acute) health hazard, Delayed (chronic) health hazard

CERCLA: Hazardous substances.: Potassium hydroxide: 1000 lbs. (454 kg);

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: Potassium hydroxide

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

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

Canada

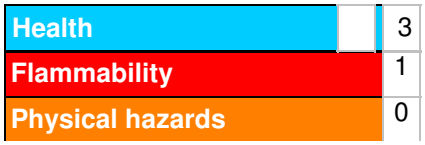
WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class E: Corrosive material

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

16 . Other information

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

Hazardous Material Information System (U.S.A.) :



16 . Other information

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 : **1/3/2012.**

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.

BJ SERVICES COMPANY
MATERIAL SAFETY DATA SHEET

Region
USA

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **CI-14**
Item Number: 499779
Product Use: Corrosion inhibitor
Supplier: BJ Services Company
11211 FM 2920
Tomball, Texas 77375
(281)351-8131

IN CASE OF EMERGENCY CALL: (800) 424-9300 for CHEMTREC
(703) 527-3887 for International

HMIS HAZARD INDEX

HEALTH:	2
FLAMMABILITY:	3
REACTIVITY:	0
PERSONAL PROTECTION:	h

2 COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component	CAS#	Percent	Hazard
Methanol	000067-56-1	60-100	Flammable toxic
Propargyl alcohol	000107-19-7	1-5	Toxic Sensitizer Reproductive Effects
Polyoxyalkylenes	NA	10-30	
Fatty acids	NA	5-10	
Olefin	NA	1-5	

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Inhalation. Ingestion. Eye contact. Skin contact. Skin absorption.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: Inhalation of solution vapor or mist may cause headache, nausea and/or respiratory tract irritation. May cause central nervous system depression. Exposure to high concentrations may cause central nervous system effects, which may include dizziness, headache and incoordination. Gross inhalation may cause heartbeat irregularities and unconsciousness.

INGESTION: HARMFUL OR FATAL IF SWALLOWED. May be fatal or cause blindness if swallowed. May cause central nervous system effects.

EYE CONTACT: May cause severe eye irritation. May cause permanent eye damage.

SKIN CONTACT: Harmful if absorbed through the skin. May cause severe skin irritation.

EXPOSURE LIMITS:

HAZARDOUS COMPONENT	ACGIH TLV	OSHA PEL	LC50 (inhalation)	LD50 (oral)
Methanol	200 ppm, skin	200 ppm TWA	64000 ppm/4 rat	5600 mg/kg rat
Propargyl alcohol	1 ppm, skin	NA	873 ppm/2 rat	20 mg/kg rat
Polyoxyalkylenes	NA	NA	NA	NA
Fatty acids	NA	NA	NA	NA
Olefin	NA	NA	NA	NA

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. Only trained personnel should administer oxygen. Get medical attention.

INGESTION:
Rinse mouth with water several times. DO NOT induce vomiting. If vomiting occurs naturally, keep head lower than hips to prevent aspiration. Never give anything by mouth to an unconscious person. Obtain medical assistance immediately.

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.

SKIN:
In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD): 50-60.1°F (TCC)
LOWER EXPLOSION LIMIT (% v/v): Not available
UPPER EXPLOSION LIMIT (% v/v): Not available

SPECIAL HAZARDS:
Flammable. May form flammable/explosive vapor/air mixture. Vapor may be ignited by static discharge.

EXTINGUISHING MEDIA:
Dry chemical. Carbon dioxide. Water spray. Foam.

SPECIAL FIREFIGHTING PROCEDURES:
Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Cool exposed containers with water spray.

HAZARDOUS COMBUSTION PRODUCTS:
Oxides of carbon. Oxides of nitrogen. Oxides of sulfur.

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Remove sources of ignition. Small spills - Cover spill with absorbent material. Scoop absorbed material into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal. Use only explosion proof transfer equipment.

7 HANDLING AND STORAGE

HANDLING:
Wear specified protective equipment. Use only in a well ventilated area. Use only spark-proof and explosion-proof tools and equipment. Avoid breathing vapors, if exposed to high vapor concentration, leave area at once. Wash

hands before eating and smoking. Avoid contact with skin and eyes. Electrically ground/bond during pumping or transfer to avoid static accumulation/discharge.

STORAGE REQUIREMENTS:
Keep container in a well ventilated area. Keep away from incompatible materials. Keep away from heat. Keep away from ignition sources. Keep container closed when not in use.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:
Use only in a well ventilated area. Local exhaust. Adequate ventilation should be provided to keep concentrations below acceptable exposure limits. Use only explosion proof ventilation equipment.

PERSONAL PROTECTIVE EQUIPMENT:
Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Cartridge respirator. Neoprene gloves. PVC or Viton gloves. Chemical resistant googles or face shield. Coveralls.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Amber
ODOR:	Sweet
ODOR THRESHOLD:	Not available
SPECIFIC GRAVITY:	0.87
VAPOR PRESSURE:	12.5 kPa @21.1 C
VAPOR DENSITY (air = 1):	>1
EVAPORATION RATE:	Not available
BOILING POINT:	Not available
FREEZING POINT:	< -30°C
pH:	3.3 (5% sol.)
SOLUBILITY IN WATER:	Dispersible

10 STABILITY AND REACTIVITY

STABILITY:
Stable under normal conditions of use.
INCOMPATIBILITY/CONDITIONS OF REACTIVITY:
Strong oxidizers. Strong reducing agents.
HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:
None known.
HAZARDOUS POLYMERIZATION:
Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:
Liver and kidney damage. Optic nerve damage. Dermatitis. Central nervous system damage. Eye damage. Respiratory ailments.

SENSITIZATION:
Not known.
CARCINOGENICITY:
None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC-International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety & Health Administration (US))
MUTAGENICITY:
Not known.
REPRODUCTIVE TOXICITY:
This product contains methanol (%) which has been reported to cause fetotoxicity and teratogenicity in rats and mice when they were exposed by inhalation to high concentrations that did not produce significant maternal toxicity.

12 ECOLOGICAL INFORMATION

No specific information available

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Consult local waste authorities for direction and/or approvals prior to disposal.

14 TRANSPORT INFORMATION

LAND TRANSPORT (DOT)

Proper Shipping Name:	FLAMMABLE LIQUID,N.O.S.
Technical Name(s):	Methanol, Propargyl alcohol
UN/ID No.:	UN 1993
Hazard Class - Primary:	3
Hazard Class - Secondary:	
Packing Group:	II
Reportable Quantity (RQ):	
Emergency Response Guide #:	128

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name:	FLAMMABLE LIQUID,N.O.S.
Technical Name(s):	Methanol, Propargyl alcohol
UN/ID No.:	UN 1993
Hazard Class - Primary:	3
Hazard Class - Secondary:	
Packing Group:	II

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name:	FLAMMABLE LIQUID,N.O.S.
Technical Name(s):	Methanol, Propargyl alcohol
UN No.:	UN 1993
Hazard Class - Primary:	3
Hazard Class - Secondary:	
Packing Group:	II
EmS:	F-E, S-E

15 REGULATORY INFORMATION

SARA TITLE III:

SECTION 302/304 This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.
SECTION 311/312 Delayed, Fire, Immediate
SECTION 313 This product contains the following substance(s) which appear on the List of Toxic Chemicals:, Methanol CAS # 67-56-1, Propargyl alcohol CAS# 107-19-7

TSCA INVENTORY: The substances in this product are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710).
CALIFORNIA PROP 65: None of the chemicals on the current Proposition 65 list are known to be present in this product.
PRIORITY POLLUTANTS:

16 OTHER INFORMATION

ISSUE DATE: 05/20/2010
PREPARED BY: BJ Services HSE Department

REFERENCES:

Suppliers' Literature.
CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2006.
Dangerous Goods Regulations, 47th ed., International Air Transport Association, 2006.
Restructured ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road, United Nations, New York and Geneva, 2001. Vols. I, II.
International Marine Dangerous Goods Code, 2002 Edition , International Maritime Organisation, 2002.
The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002, Statutory Instruments 2002 No. 1689, UK.
EH40/2005 Workplace exposure limits, Health and Safety Executive, Norwich, 2005.

Material Safety Data Sheet

1 . Product and company identification

Product name : Enzyme G-NE

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

Material Uses : Special: Breaker

Code : 398381

Validation date : 9/22/2011.

Print date : 9/22/2011.

Version : 1.01

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 : Fermentation.

Color : Clear. to Dark- brown

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : Within the present knowledge of the supplier, this product does not contain any hazardous ingredients in quantities requiring reporting, in accordance with local regulations.

Avoid prolonged contact with eyes, skin and clothing.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : No known significant effects or critical hazards.

Eyes : No known significant effects or critical hazards.

Potential chronic health effects

Over-exposure signs/symptoms

Inhalation : None known.

Ingestion : None known.

Skin : None known.

Eyes : None known.

See toxicological information (section 11)

3 . Composition/information on ingredients

Name	CAS number	%
No hazardous ingredient		

4 . First aid measures

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if symptoms occur.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.

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 if symptoms occur.

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 if symptoms occur.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

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 : No specific data.

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. 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. 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. Note: see section 1 for emergency contact information and section 13 for waste disposal.

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.

7 . Handling and storage

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
No exposure limit value known.											

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.

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.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure 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 other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Not available.

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Clear. to Dark- brown

Odor : Fermentation.

pH : 3.8 to 9

Boiling/condensation point : Not available.

Initial Boiling Point : Not available.

Melting/freezing point : Not available.

Relative density : 1

Density : 8.34 (lbs/gal)

Vapor density : Not available.

Odor threshold : Not available.

9 . Physical and chemical properties

Evaporation rate : Not available.

VOC : Not available.

Viscosity : Not available.

Solubility (Water) : Readily Soluble

Vapor pressure : Not available.

Pour Point : Not available.

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.

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

11 . Toxicological information

No additional information.

12 . Ecological information

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

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	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-

14 . Transport information

IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

DOT Reportable Quantity Not applicable.

Marine pollutant Not applicable.

North-America NAERG : Not available.

15 . Regulatory information

HCS Classification : Not regulated.

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

CERCLA: Hazardous substances.: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: 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

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

Canada

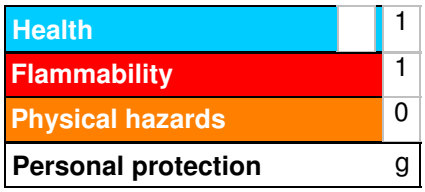
WHMIS (Canada) : Not controlled under WHMIS (Canada).

Canada (CEPA DSL): : Not determined.

16 . Other information

Label requirements : Within the present knowledge of the supplier, this product does not contain any hazardous ingredients in quantities requiring reporting, in accordance with local regulations.

Hazardous Material Information System (U.S.A.) :

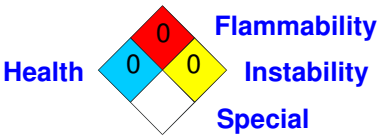


Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully 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.) :

16 . Other information



Date of printing : **9/22/2011.**

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.

	BJ SERVICES COMPANY MATERIAL SAFETY DATA SHEET	Region USA

SECTION I - GENERAL INFORMATION

PRODUCT NAME:	**Ferrotrol 280L**
ITEM NUMBER:	488298
CHEMICAL DESCRIPTION:	Mercaptan
PRODUCT USE:	Iron control
SUPPLIER:	BJ Services Company
ADDRESS:	11211 FM 2920 Tomball, TX 77375
EMERGENCY TELEPHONE NUMBER	**(800)424-9300 for CHEMTREC** **(703)527-3887 for International**
PREPARED BY:	BJ Services Environmental Group (281)351-8131
DATE PREPARED:	May 26, 2005 Supersedes: April 1, 2003

HMIS HAZARD INDEX

HEALTH:	3
FLAMMABILITY:	2
REACTIVITY:	0
PERSONAL PROTECTION:	g

SECTION II - HAZARDOUS COMPONENTS

HAZARDOUS COMPONENTS	CAS #	PERCENT	HAZARD
Thioglycol	60-24-2	Proprietary	Toxic
Cupric chloride dihydrate	10125-13-0	Proprietary	Toxic

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT (METHOD):	> 200°F (COC)
UPPER EXPLOSION LIMIT(% BY VOL):	N.E.
LOWER EXPLOSION LIMIT(% BY VOL):	N.E.
AUTO-IGNITION TEMPERATURE:	563°F (Lowest known value – Mercapto-2 ethanol)
EXTINGUISHING MEDIA:	Dry chemical, CO2, water spray or foam
SPECIAL FIRE FIGHTING PROCEDURES:	Wear self-contained breathing apparatus. Do not use water jet.
EXPLOSION DATA:	N.E.
HAZARDOUS COMBUSTION PRODUCTS:	Oxides of carbon and oxides of sulfur

SECTION IV - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Skin and eye contact, ingestion

ACUTE OVEREXPOSURE EFFECTS:

SKIN CONTACT:	Toxic and may cause irritation, redness and swelling.
SKIN ABSORPTION:	Harmful if absorbed through skin.
EYE CONTACT:	May cause irritation.
INHALATION:	Irritation and nausea possible.
INGESTION:	Irritation and nausea possible.

CHRONIC OVEREXPOSURE EFFECTS: N.E.

EXPOSURE LIMITS:

HAZARDOUS COMPONENT	ACGIH TLV	OSHA PEL
Thioglycol	N.E.	N.E.
Cupric chloride dihydrate	2 mg/m^3	2 mg/m^3

CARCINOGENICITY, REPRODUCTIVE EFFECTS:
Not listed as carcinogen - IARC, NTP, or OSHA

TERATOGENICITY, MUTAGENICITY:
No effects listed

TOXICITY STUDIES:

LD(50)	150 mg/kg (Dermal - rabbit)
	190 mg/kg (Oral - mouse)
LC(50)	N.E.

SECTION V - FIRST AID PROCEDURES

FOR EYES:	Flush immediately with large amounts of clear water, holding eyelid open for 15 minutes. Seek medical attention.
FOR SKIN:	Harmful if absorbed through the skin. Wash affected areas with mild soap and water while removing contaminated clothing. Rinse with plenty of running water. Get immediate medical attention. Launder contaminated clothing before reuse.
FOR INHALATION:	Remove to fresh air. Loosen tight clothing such as collar, tie, belt or waistband. If breathing is labored, give oxygen. If breathing has stopped, give artificial respiration. Warning: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Keep person warm, quiet and get medical attention.
FOR INGESTION:	Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Remove dentures if any. Watch for an obstruction in the victim's mouth. Have conscious person drink several glasses of water or milk. Induce vomiting by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. If convulsions occur, do not restrain the victim, but do remove objects with which he (she) might injure himself (herself) or orient the victim to prevent him (her) from striking fixed heavy objects. If the convulsions cease, turn the victim on the side or face down so that any fluid in the mouth will drain. Seek immediate medical attention.

SECTION VI - PHYSICAL DATA

APPEARANCE AND ODOR:	Yellowish liquid with sulfurous odor
SPECIFIC GRAVITY:	1.14
VAPOR PRESSURE:	N.E.
VAPOR DENSITY (air=1):	The highest known value is 2.69 (Mercapto-2 ethanol)
EVAPORATION RATE:	N.A.
BOILING POINT:	155°C
FREEZING POINT:	N.E.
SOLUBILITY IN H20:	Easily soluble in cold water
pH:	9 (1% solution/water)

SECTION VII - REACTIVITY DATA

CHEMICAL STABILITY:	Stable
INCOMPATIBLE MATERIALS:	Corrosive to copper, steel and copper alloys.
HAZARDOUS POLYMERIZATION:	Does not polymerize
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon and oxides of sulfur

SECTION VIII - SPECIAL/PERSONAL PROTECTION

VENTILATION:	The use of mechanical ventilation is recommended whenever this product is used in a confined space. Where engineering controls are not feasible, assure use is in an area where there is natural air movement.
RESPIRATORY PROTECTION:	If vapors or mists are generated, wear a NIOSH/MSHA approved organic vapor/mist respirator.
PROTECTIVE GLOVES:	Neoprene
EYE PROTECTION:	Chemical splash goggles
OTHER PROTECTIVE EQUIPMENT:	Gloves, apron, and boots are necessary to prevent contact. Eyewash bottles or other rinsing equipment should be easily accessible.

SECTION IX - HANDLING PRECAUTIONS

LEAK AND SPILL PROCEDURES:	Shut off source of spill if possible to do so without hazard. Contain the spill by diking. Absorb spillage with clay, sawdust, or other absorbent material. Place all spilled material, contaminated dirt, and other contaminated materials in DOT approved drums for disposal.
WASTE DISPOSAL:	If this product becomes a waste it may meet the requirements of a RCRA hazardous waste. Always dispose of according to all local/state/ and federal regulations.
HANDLING & SPECIAL EQUIPMENT:	Keep away from heat and sources of ignition. Ground all equipment containing material. Do not ingest or breathe vapors, fumes or spray.
STORAGE REQUIREMENTS:	Keep container dry. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material.

SECTION X - REGULATORY INFORMATION

SHIPPING INFORMATION

PROPER SHIPPING NAME:	Toxic liquid, organic, n.o.s. (contains thioglycol)
HAZARD CLASS:	6.1
UN/NA NUMBER:	UN 2810
PACKING GROUP W/ "PG":	PG III
SUBSIDIARY RISK:	N.A.
REPORTABLE QUANTITY (RQ):	35 gallons (copper chloride)
EMERGENCY RESPONSE GUIDE #:	153

ENVIRONMENTAL INFORMATION

SARA TITLE III

SECTION 302/304	This product does not contain ingredients listed as an Extremely Hazardous Substance.
SECTION 311/312	Immediate, Fire
SECTION 313	This product does not contain ingredients (at a level of 1% or greater) on the List of Toxic Chemicals.

OTHER REGULATORY INFORMATION

TSCA INVENTORY:	All of the components in this product appear on the TSCA inventory.
CALIFORNIA PROP 65:	None of the chemicals on the current Proposition 65 list are known to be present in this product.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

	BJ SERVICES COMPANY MATERIAL SAFETY DATA SHEET	Region USA

SECTION I - GENERAL INFORMATION

PRODUCT NAME:	**Frac Sand (All Meshes)**
ITEM NUMBER:	See specific sand for item number.
CHEMICAL DESCRIPTION:	Silica sand (various mesh sizes)
PRODUCT USE:	Proppant
SUPPLIER:	BJ Services Company
ADDRESS:	11211 FM 2920 Tomball, TX 77375
EMERGENCY TELEPHONE NUMBER	**(800)424-9300 for CHEMTREC** **(202)483-7616 Alaska and International**
PREPARED BY:	BJ Services Environmental Group (281)351-8131
DATE PREPARED:	August 31, 2000 Supersedes: January 26, 2000

HMIS HAZARD INDEX

HEALTH:	2
FLAMMABILITY:	0
REACTIVITY:	0
PERSONAL PROTECTION:	e

SECTION II - HAZARDOUS COMPONENTS

HAZARDOUS COMPONENTS	CAS #	PERCENT	HAZARD
Crystalline silica (quartz)	14808-60-7	89.0 – 99.9	Respiratory irritant

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT (METHOD):	N.A.
UPPER EXPLOSION LIMIT(% BY VOL):	N.A.
LOWER EXPLOSION LIMIT(% BY VOL):	N.A
AUTO-IGNITION TEMPERATURE:	N.A.
EXTINGUISHING MEDIA:	N.A. Material does not burn
SPECIAL FIRE FIGHTING PROCEDURES:	None
EXPLOSION DATA:	N.A.
HAZARDOUS COMBUSTION PRODUCTS:	Silica will dissolve in hydrofluoric acid and produce a corrosive gas, silicon tetrachloride.

SECTION IV - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Inhalation

ACUTE OVEREXPOSURE EFFECTS:

SKIN CONTACT:	No effects
SKIN ABSORPTION:	Not absorbed by skin.
EYE CONTACT:	Crystalline silica (quartz) may cause abrasion of the cornea.
INHALATION:	Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs. Silicosis may be progressive; it may lead to disability and death. Silicosis is associated with the increased incidence of scleroderma and increases the risk of tuberculosis and incidence of kidney disorders. There are generally no signs or symptoms of exposure to crystalline silica (quartz). Often, chronic silicosis has no symptoms. The symptoms of chronic silicosis, if present, are shortness of breath, wheezing, cough and sputum production. The condition of individuals with lung disease (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) can be aggravated by exposure.
INGESTION:	None

CHRONIC OVEREXPOSURE EFFECTS: Excessive inhalation of dust may result in silicosis, cancer, scleroderma, tuberculosis, and nephrotoxicity.

EXPOSURE LIMITS:

HAZARDOUS COMPONENT	ACGIH TLV	OSHA PEL
Crystalline silica (quartz)	0.1 mg/m3 (respirable dust)	10 mg/m3

CARCINOGENICITY, REPRODUCTIVE EFFECTS:
IARC: Crystalline silica (quartz) is classified in IARC Group 1.
NTP: Respirable crystalline silica (quartz) is reasonably anticipated to be a carcinogen.
OSHA: Does not regulate crystalline silica (quartz) as a carcinogen.

TERATOGENICITY, MUTAGENICITY:
No effects listed.

TOXICITY STUDIES:

LD(50)	N.E.
LC(50)	N.E.

SECTION V - FIRST AID PROCEDURES

FOR EYES:	Wash immediately with water. If irritation persists, seek medical attention.
FOR SKIN:	N.A.
FOR INHALATION:	No specific first-aid is necessary since the adverse health effects associated with exposure to crystalline silica (quartz) result from chronic exposures. If there is a gross inhalation of crystalline silica (quartz), remove the person immediately to fresh air, give artificial respiration as needed, seek medical attention as needed.
FOR INGESTION:	N.A.

SECTION VI - PHYSICAL DATA

APPEARANCE AND ODOR:	White or tan sand; granular with no odor
SPECIFIC GRAVITY:	2.65
VAPOR PRESSURE:	N.A.
VAPOR DENSITY (air=1):	N.A
EVAPORATION RATE:	N.A.
BOILING POINT:	4046°F
FREEZING POINT:	N.A.
SOLUBILITY IN H20:	Insoluble
pH:	N.A.

SECTION VII - REACTIVITY DATA

CHEMICAL STABILITY:	Stable
INCOMPATIBLE MATERIALS:	Contact with powerful oxidizing agents such as fluorine, chlorine trifluoride, and oxygen difluoride may cause fires.

HAZARDOUS POLYMERIZATION:	Does not polymerize
HAZARDOUS DECOMPOSITION PRODUCTS:	Silica will dissolve in hydrofluoric acid and produce a corrosive gas, silicon tetrafluoride.

SECTION VIII - SPECIAL/PERSONAL PROTECTION

VENTILATION:	The use of mechanical ventilation is recommended whenever this product is used in a confined space. Where engineering controls are not feasible, assure use is in an area where there is natural air movement.
RESPIRATORY PROTECTION:	Dust mask under normal conditions. Dust respirator if high concentrations exist.
PROTECTIVE GLOVES:	Rubber
EYE PROTECTION:	Goggles
OTHER PROTECTIVE EQUIPMENT:	Eyewash bottles or other rinsing equipment should be easily accessible.

SECTION IX - HANDLING PRECAUTIONS

LEAK AND SPILL PROCEDURES:	Collect using a dustless method (vacuum) and place into closable container for disposal. Do not dry sweep. Wear protective equipment.
WASTE DISPOSAL:	If this product becomes a waste it does not meet the requirements of a RCRA hazardous waste. Always dispose of according to all local/state/and federal regulations.
HANDLING & SPECIAL EQUIPMENT:	Do not breathe dust. Use with adequate ventilation and dust collection. Keep airborne dust concentrations below PEL. Practice good housekeeping. Do not permit dust to collect on walls, floors, sills, ledges, machinery, or equipment. Wash clothing which has become dusty.
STORAGE REQUIREMENTS:	Store in a cool, dry, well ventilated area. Do not permit accumulation of dusts. Avoid breakage of bagged material or spills of bulk material.

SECTION X - REGULATORY INFORMATION

SHIPPING INFORMATION

PROPER SHIPPING NAME:	Not DOT Regulated
HAZARD CLASS:	N.A.
UN/NA NUMBER:	N.A.
PACKING GROUP W/ "PG":	N.A.
SUBSIDIARY RISK:	N.A.
REPORTABLE QUANTITY (RQ):	N.A.
EMERGENCY RESPONSE GUIDE #:	N.A.

ENVIRONMENTAL INFORMATION

SARA TITLE III

SECTION 302/304	This product does not contain ingredients listed as an Extremely Hazardous Substance.
SECTION 311/312	Delayed
SECTION 313	This product does not contain ingredients (at a level of 1% or greater) on the List of Toxic Chemicals.

OTHER REGULATORY INFORMATION

TSCA INVENTORY:	All of the components in this appear on the TSCA inventory.
CALIFORNIA PROP 65:	This product contains crystalline silica, known to the State of California to cause cancer.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

BJ SERVICES COMPANY
MATERIAL SAFETY DATA SHEET

Region
USA

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **FRW-18**
Item Number: 488420
Product Use: Friction reducer
Supplier: BJ Services Company
11211 FM 2920
Tomball, Texas 77375
(281)351-8131

IN CASE OF EMERGENCY CALL: (800) 424-9300 for CHEMTREC
(703) 527-3887 for International

HMIS HAZARD INDEX

HEALTH:	1
FLAMMABILITY:	0
REACTIVITY:	0
PERSONAL PROTECTION:	g

2 COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component	CAS#	Percent	Hazard
Hydrotreated light distillate	064742-47-8	10-30	

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eye contact. Ingestion. Inhalation. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: May be harmful if inhaled.

INGESTION: May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression. May cause pulmonary edema.

EYE CONTACT: Vapors are irritating to eyes.

SKIN CONTACT: Can cause redness and inflammation. May cause irritation or dermatitis.

EXPOSURE LIMITS:

HAZARDOUS COMPONENT	ACGIH TLV	OSHA PEL	LC50 (inhalation)	LD50 (oral)
Hydrotreated light distillate	200 mg/m3, skin*	NA	NA	NA

4 FIRST AID MEASURES

INHALATION:
If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

INGESTION:
DO NOT induce vomiting. Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration. Never give anything by mouth to an unconscious person.

EYES:
Flush eyes immediately with large amounts of water for at least 15 minutes. Lift upper and lower lids occasionally. Get medical attention.

SKIN:
Flush skin with water or soap and water, if available, for at least 15 minutes. Get medical attention if irritation persists. Remove contaminated clothing and shoes.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD):	> 200° F
LOWER EXPLOSION LIMIT (% v/v):	Not available
UPPER EXPLOSION LIMIT (% v/v):	Not available
AUTO-IGNITION TEMPERATURE:	Not available

SPECIAL HAZARDS:
Product is not flammable.
EXTINGUISHING MEDIA:
Water fog, carbon dioxide, foam, dry chemical.
SPECIAL FIREFIGHTING PROCEDURES:
Cool exposed containers with water spray after extingushing fire. Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires.
HAZARDOUS COMBUSTION PRODUCTS:
See Hazardous Thermal Decomposition Products.

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Small spills - Cover spill with absorbent material. Scoop absorbed material into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal.

7 HANDLING AND STORAGE

HANDLING:
Avoid contact with skin and eyes. Use in a well ventilated area to prevent irritation by vapors. Wash hands before eating and smoking.

STORAGE REQUIREMENTS:
Keep container tightly closed, in a cool, well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:
Local exhaust. Mechanical ventilation.

PERSONAL PROTECTIVE EQUIPMENT:
Chemical resistant gloves. Chemical resistant goggles. Coveralls.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Milky-white
ODOR:	Slight Oil Odor
ODOR THRESHOLD:	Not available
SPECIFIC GRAVITY:	Not available
VAPOR PRESSURE:	Not available
VAPOR DENSITY (air = 1):	Not available

EVAPORATION RATE:	Not available
BOILING POINT:	> 212° F
FREEZING POINT:	Not available
pH:	Not available
VISCOSITY (F):	Not available
SOLUBILITY IN WATER:	Soluble

10 STABILITY AND REACTIVITY

STABILITY:
Stable under normal conditions of use.
INCOMPATIBILITY/CONDITIONS OF REACTIVITY:
Strong oxidizers.
HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:
Oxides of carbon, nitrogen and sulphur.
HAZARDOUS POLYMERIZATION:
Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:
None known.

SENSITIZATION:
Not known.
CARCINOGENICITY:
None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC-International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety & Health Administration (US)).
MUTAGENICITY:
Not known.
REPRODUCTIVE TOXICITY:
Not known.

12 ECOLOGICAL INFORMATION

No specific information available.

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Disposal should be made in accordance with national and local regulations. Consult local waste authorities for direction and/or approvals prior to disposal.

14 TRANSPORT INFORMATION

LAND TRANSPORT (DOT)

Proper Shipping Name:	NOT RESTRICTED
Hazard Class - Primary:	
UN/ID No.:	NA
Packing Group:	
Subsidiary Risk:	
Reportable Quantity (RQ):	
Emergency Response Guide #:	

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name:	NOT RESTRICTED

Hazard Class - Primary:
UN/ID No.: NA
Packing Group:

MARINE TRANSPORT (IMDG/IMO)
Proper Shipping Name: NOT RESTRICTED
Hazard Class - Primary:
Packing Group:
EmS:

15 REGULATORY INFORMATION

SARA TITLE III:

SECTION 302/304 This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.
SECTION 311/312 Immediate
SECTION 313 This product does not contain ingredients (at a level of 1% or greater) on the List of Toxic Chemicals.

TSCA INVENTORY: The substances in this product are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710).
CALIFORNIA PROP 65: This product does not contain substances which require warning under California Proposition 65.
PRIORITY POLLUTANTS:

16 OTHER INFORMATION

ISSUE DATE: 04/22/2008
PREPARED BY: BJ Services Environmental Group

REFERENCES:
CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2008.
Dangerous Goods Regulations, 49th ed., International Air Transport Association, 2008.
Guide to Occupational Exposure Values - 2007, American Conference of Governmental Industrial Hygienists, 2007.
SAX's Dangerous Properties of Industrial Materials
Supplier's Literature.
Suspect Chemicals Sourcebook

Material Safety Data Sheet

1 . Product and company identification

Product name : GasFlo

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

Material Uses : Special: Surface tension reducer

Code : 423908

Validation date : 1/25/2012.

Print date : 1/25/2012.

Version : 1

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 : Alcohol.

Color : Yellowish.

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

Emergency overview : WARNING!

COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE BLINDNESS IF SWALLOWED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.

At elevated temperatures, vapors can form an ignitable or explosive mixture with air. Can form explosive mixtures at temperatures at or above the flash point. Static discharges can cause ignition or explosion when container is not bonded. Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Vapors can travel to a source of ignition and flashback. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Routes of entry : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Inhalation : Toxic by inhalation. Can cause central nervous system (CNS) depression. Irritating to respiratory system.

Ingestion : Toxic if swallowed. Can cause central nervous system (CNS) depression. May cause blindness if swallowed.

Skin : Toxic in contact with skin. Irritating to skin.

Eyes : Irritating to eyes.

Potential chronic health effects

2 . Hazards identification

Chronic effects : Contains material that may cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Teratogenicity : Contains material which may cause birth defects, based on animal data.

Developmental effects : Contains material which may cause developmental abnormalities, based on animal data.

Target organs : Contains material which may cause damage to the following organs: blood, kidneys, liver, lymphatic system, gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, nausea or vomiting, coughing, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness

Ingestion : None known.

Skin : irritation, redness, dryness, cracking

Eyes : pain or irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any 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	%
Methanol	67-56-1	10 - 30
2-Butoxyethanol	111-76-2	10 - 30
Surfactant mixture	Trade secret.	20 - 80

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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 : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

5 . Fire-fighting measures

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide

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. Shut off all ignition sources. No flares, smoking or flames in hazard area. 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. Use spark-proof tools and explosion-proof equipment. 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). Use spark-proof tools and explosion-proof equipment. 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. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Separate from oxidizing materials. 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**
Methanol	US ACGIH	200	262	-	250	328	-	-	-	-	[1]
	OSHA PEL	200	260	-	-	-	-	-	-	-	
	OSHA PEL 1989	200	260	-	250	325	-	-	-	-	[1]
2-Butoxyethanol	US ACGIH	20	-	-	-	-	-	-	-	-	
	OSHA PEL	50	240	-	-	-	-	-	-	-	[1]
	OSHA PEL 1989	25	120	-	-	-	-	-	-	-	[1]

[1]Absorbed through skin.

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.

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.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

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 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: Viton®/butyl rubber

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

Skin : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Closed cup: 40°C (104°F)

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Yellowish.

Odor : Alcohol.

pH : 7 to 9

: solution : 1% at 20°C

Boiling/condensation point : Not available.

Initial Boiling Point : Not available.

Melting/freezing point : -35°C (-31°F)

Relative density : 0.97

Density : 8.08 (lbs/gal)

Vapor density : Not available.

Odor threshold : Not available.

Evaporation rate : Not available.

9 . Physical and chemical properties

VOC : Not available.

Viscosity : Not available.

Solubility (Water) : Soluble

Vapor pressure : <0.053 kPa (<0.4 mm Hg) at 20°C

Pour Point : -35°C (-31°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 : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials and reducing materials.

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: open flames, sparks and static discharge and heat.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Methanol	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rabbit	14200 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	8 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
2-Butoxyethanol	LD50 Dermal	Rabbit	220 mg/kg	-
	LD50 Oral	Rat	917 mg/kg	-
	LD50 Oral	Rabbit	320 mg/kg	-
	LD50 Oral	Rabbit	300 mg/kg	-
	LD50 Oral	Rat	250 mg/kg	-
	LC50 Inhalation Vapor	Rat	2900 mg/m3	7 hours
	LC50 Inhalation Gas.	Rat	450 ppm	4 hours

Carcinogenicity Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
2-Butoxyethanol	A3	3	-	-	-	-

Chronic toxicity Remarks

1) Methanol

Not available.

2) 2-Butoxyethanol

Not available.

11 . Toxicological information

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Methanol	Acute LC50 2500000 ug/L Marine water	Crustaceans - Common shrimp, sand shrimp - Crangon crangon - Adult	48 hours
	Acute LC50 3289 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 >100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - 0.2 to 0.5 g	96 hours
2-Butoxyethanol	Acute EC50 >1000 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	Acute LC50 800000 ug/L Marine water	Crustaceans - Common shrimp, sand shrimp - Crangon crangon	48 hours
	Acute LC50 1250000 ug/L Marine water	Fish - Inland silverside - Menidia beryllina - 40 to 100 mm	96 hours
	Chronic NOEC 1000 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours

Conclusion/Summary : Not available.

Biodegradability

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	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	III		-
TDG Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	III		-
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S.	3	III		**Emergency schedules (EmS)** F-E, S-E

14 . Transport information

IATA-DGR Class	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	III		-

PG* : Packing group

DOT Reportable Quantity Methanol, 3094 gal of this product.

Marine pollutant Not applicable.

North-America NAERG : 128

15 . Regulatory information

HCS Classification : Combustible liquid
Toxic material
Irritating material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Ethylene glycol monobutyl ether; Methanol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: GasFlo: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

CERCLA: Hazardous substances.: Ethylene glycol monobutyl ether; 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) :
Listed

SARA 313

	Product name	CAS number	Concentration
Supplier notification :	Methanol	67-56-1	10 - 30
	2-Butoxyethanol	111-76-2	10 - 30

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

Canada

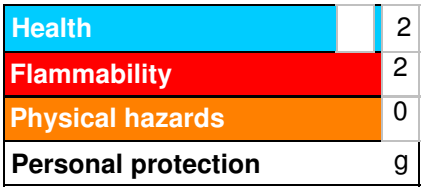
WHMIS (Canada) : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

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

16 . Other information

Label requirements : COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE BLINDNESS IF SWALLOWED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :



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 : **1/25/2012.**

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.

Material Safety Data Sheet

1 . Product and company identification

Product name : GBW-15L

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

Material Uses : Special: Breaker - water

Code : 398061

Validation date : 9/19/2011.

Print date : 9/19/2011.

Version : 1

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 : Fermentation.

Color : Brown. [Light]

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

Emergency overview : WARNING!

CAUSES SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE RESPIRATORY TRACT IRRITATION.

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

Routes of entry : Dermal contact. Eye contact.

Potential acute health effects

Inhalation : Slightly irritating to the respiratory system.

Ingestion : Ingestion may cause gastrointestinal irritation and diarrhea.

Skin : Irritating to skin. May cause sensitization by skin contact.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, coughing

Ingestion : None known.

Skin : irritation, redness

Eyes : irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing skin disorders may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Enzyme solution	Trade secret.	60 - 100

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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. 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 : No specific data.

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. Avoid breathing 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.

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 ingest. Avoid breathing vapor or mist. 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
No exposure limit value known.											

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.

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.

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: Rubber gloves. / Neoprene gloves.

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

Skin : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Not available.

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Brown. [Light]

Odor : Fermentation.

pH : 7 to 7.5

Boiling/condensation point : Not available.

9 . Physical and chemical properties

Initial Boiling Point	:	Not available.
Melting/freezing point	:	Not available.
Relative density	:	1.09
Density	:	9.14 (lbs/gal)
Vapor density	:	Not available.
Odor threshold	:	Not available.
Evaporation rate	:	Not available.
VOC	:	Not available.
Viscosity	:	Not available.
Solubility (Water)	:	Complete.
Vapor pressure	:	Not available.
Pour Point	:	Not available.
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.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity	:	Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

11 . Toxicological information

No additional information.

Chronic toxicity Remarks

1) Enzyme solution

Not available.

12 . Ecological information

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

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	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

DOT Reportable Quantity Not applicable.

Marine pollutant Not applicable.

North-America NAERG : Not available.

15 . Regulatory information

HCS Classification : Irritating material
Sensitizing material

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: GBW-15L: Immediate (acute) health hazard, Delayed (chronic) health hazard

CERCLA: Hazardous substances.: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: 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

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

Canada

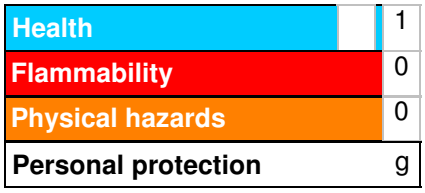
WHMIS (Canada) : Not controlled under WHMIS (Canada).

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

16 . Other information

Label requirements : CAUSES SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE RESPIRATORY TRACT IRRITATION.

Hazardous Material Information System (U.S.A.) :



16 . Other information

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 : **9/19/2011.**

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.

Material Safety Data Sheet

1 . Product and company identification

Product name : GBW-5

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

Material Uses : Special: Fracturing Gel Breaker

Code : 100175

Validation date : 12/2/2011.

Print date : 12/2/2011.

Version : 1

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 : Solid. [Crystals.]

Color : White.

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

Emergency overview : WARNING!

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

Do not ingest. Do not get on skin or clothing. Avoid contact with eyes. 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 : Severely irritating to the respiratory system. May cause sensitization by inhalation.

Ingestion : Harmful if swallowed.

Skin : Moderately irritating to the skin. May cause sensitization by skin contact.

Eyes : Irritating to eyes.

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: upper respiratory tract, skin, eyes.

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, coughing, wheezing and breathing difficulties, asthma

Ingestion : None known.

Skin : irritation, redness

Eyes : pain or irritation, watering, redness

2 . Hazards identification

Medical conditions aggravated by over-exposure : Pre-existing respiratory and 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	%
Ammonium persulphate	7727-54-0	60 - 100

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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 : No specific fire or explosion hazard.

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 : nitrogen oxides,sulfur oxides

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. 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

6 . Accidental release measures

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : 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.) Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

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 or asthma, allergies or chronic or recurrent respiratory disease 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 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
Ammonium persulphate	US ACGIH	-	0.1	-	-	-	-	-	-	-	

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.

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.

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 : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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. Recommended: Wear a respirator conforming to EN140 with Type A/P2 filter or better.

8 . Exposure controls/personal protection

Hands : Chemical-resistant gloves: Nitrile or Neoprene gloves.

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

Skin : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Solid. [Crystals.]

Flash point : Not available.

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : White.

Odor : Not available.

pH : 4

Boiling/condensation point : Not available.

Initial Boiling Point : Not available.

Melting/freezing point : Not available.

Relative density : 1.98

Density : 16.49 (lbs/gal)

Vapor density : Not available.

Odor threshold : Not available.

Evaporation rate : Not available.

VOC : Not available.

Viscosity : Not available.

Solubility (Water) : % /Wt at 25 C (77F) :85

Vapor pressure : Not available.

Pour Point : Not available.

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, combustible materials, organic materials, metals, acids, alkalis and moisture.

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

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

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Ammonium persulphate	LD50 Oral	Rat	689 mg/kg	-

Chronic toxicity Remarks

1) Ammonium persulphate

Not available.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Ammonium persulphate	Acute LC50 170000 ug/L	Crustaceans - Cyclopoid copepod - Cyclops strenuus	48 hours
	Acute LC50 87000 ug/L	Daphnia - Water flea - Daphnia pulicaria	48 hours

Conclusion/Summary : Not available.

Biodegradability

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	UN1444	AMMONIUM PERSULFATE	5.1	III		-
TDG Classification	UN1444	AMMONIUM PERSULFATE	5.1	III		-
IMDG Class	UN1444	AMMONIUM PERSULFATE	5.1	III		**Emergency schedules (EmS)** F-A S-Q
IATA-DGR Class	UN1444	AMMONIUM PERSULFATE	5.1	III		-

14 . Transport information

PG* : Packing group

DOT Reportable Quantity Not applicable.

Marine pollutant Not applicable.

North-America NAERG : Not available.

15 . Regulatory information

HCS Classification : Irritating material
Sensitizing material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: diammonium peroxodisulphate
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: GBW-5: Fire hazard, Immediate (acute) health hazard

CERCLA: Hazardous substances.: No products were found.

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 313

	Product name	CAS number	Concentration
Supplier notification :	Ammonium persulphate	7727-54-0	60 - 100

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

Canada

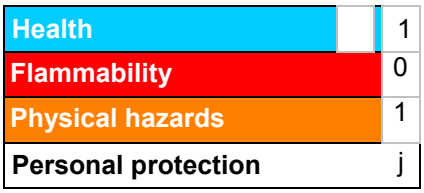
WHMIS (Canada) : Class C: Oxidizing material.
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

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

16 . Other information

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

Hazardous Material Information System (U.S.A.) :



16 . Other information

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 : **12/2/2011.**

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.

Material Safety Data Sheet

1 . Product and company identification

Product name : GS-1L

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

Material Uses : Special: Gel Stabilizer

Code : 424590

Validation date : 12/2/2011.

Print date : 12/2/2011.

Version : 1

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.

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : MAY CAUSE EYE AND SKIN IRRITATION.

Avoid breathing vapor or mist. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Over-exposure signs/symptoms

Inhalation : None known.

Ingestion : None known.

Skin : irritation, redness

Eyes : irritation, watering, redness

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Sodium thiosulfate	7772-98-7	10 - 30

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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 : sulfur oxides,metal oxide/oxides

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. Avoid breathing 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.

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. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. 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
No exposure limit value known.											

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.

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.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure 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 other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Closed cup: Not applicable.

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Not available.

Odor : Not available.

pH : 7 to 10

9 . Physical and chemical properties

Boiling/condensation point	:	Not available.
Initial Boiling Point	:	Not available.
Melting/freezing point	:	Not available.
Relative density	:	1.26 to 1.31
Density	:	Not available.
Vapor density	:	Not available.
Odor threshold	:	Not available.
Evaporation rate	:	Not available.
VOC	:	Not available.
Viscosity	:	Not available.
Solubility (Water)	:	Soluble
Vapor pressure	:	Not available.
Pour Point	:	Not available.
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.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Sodium thiosulfate	LD50 Oral	Rat	>5000 mg/kg	-

Chronic toxicity Remarks

1) Sodium thiosulfate

Not available.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Sodium thiosulfate	Acute LC50 24000000 ug/L Fresh water	Fish - Western mosquitofish - Gambusia affinis - Adult	96 hours

Conclusion/Summary : Not available.

Biodegradability

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	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

DOT Reportable Quantity Not applicable.

Marine pollutant Not applicable.

North-America NAERG : Not available.

15 . Regulatory information

HCS Classification : Not regulated.

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: sodium thiosulphate: Immediate (acute) health hazard

CERCLA: Hazardous substances.: No products were found.

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

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

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

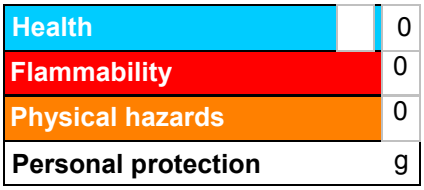
15 . Regulatory information

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

16 . Other information

Label requirements : MAY CAUSE EYE AND SKIN IRRITATION.

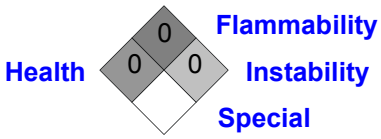
Hazardous Material Information System (U.S.A.) :



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 : **12/2/2011.**

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.

Material Safety Data Sheet

1 . Product and company identification

Product name : GW-3LDF

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

Material Uses : Special: Water gellant

Code : 411323

Validation date : 2/14/2012.

Print date : 2/14/2012.

Version : 2.01

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 : Hydrocarbon. [Slight]

Color : Opaque. [Light]

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

Emergency overview : WARNING!

COMBUSTIBLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE EYE AND SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER. ASPIRATION HAZARD.

At elevated temperatures, vapors can form an ignitable or explosive mixture with air. Can form explosive mixtures at temperatures at or above the flash point. Static discharges can cause ignition or explosion when container is not bonded. Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Vapors can travel to a source of ignition and flashback. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Routes of entry : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Inhalation : Irritating to respiratory system.

Ingestion : Aspiration hazard if swallowed. Can enter lungs and cause damage.

Skin : Slightly irritating to the skin.

Eyes : Moderately irritating to eyes.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

2 . Hazards identification

Target organs : Contains material which may cause damage to the following organs: lungs, upper respiratory tract, eyes.

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, coughing

Ingestion : nausea or vomiting

Skin : irritation, redness, dryness, cracking

Eyes : irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any 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	%
Acyclic hydrocarbon blend	Trade secret.	30 - 60
Guar gum	9000-30-0	30 - 60
Crystalline silica, quartz	14808-60-7	1 - 5
Alcohols, C12-14, ethoxylated propoxylated	68439-51-0	1 - 5

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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.

Additional information

If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.

5 . Fire-fighting measures

Flammability of the product : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide,metal oxide/oxides

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.

5 . Fire-fighting measures

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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing 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. Use spark-proof tools and explosion-proof equipment. 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). Use spark-proof tools and explosion-proof equipment. 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.

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. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Separate from oxidizing materials. 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
Guar gum, Inhalable fraction.	US ACGIH	-	10	-	-	-	-	-	-	-	
Guar gum, Total dust	OSHA PEL	-	15	-	-	-	-	-	-	-	
Crystalline silica, quartz	US ACGIH	-	0.025	-	-	-	-	-	-	-	[a]
Crystalline silica, quartz, as quartz	OSHA PEL 1989	-	0.1	-	-	-	-	-	-	-	[b]

Form: [a]Respirable fraction; see Appendix C [b]Respirable dust

8 . Exposure controls/personal protection

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.

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.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

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: Neoprene gloves. , Nitrile gloves.

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

Skin : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Closed cup: 65.6°C (150.1°F)

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Opaque. [Light]

Odor : Hydrocarbon. [Slight]

pH : Not available.

Boiling/condensation point : Not available.

Initial Boiling Point : Not available.

Melting/freezing point : Not available.

Relative density : Not available.

Density : 8.74 to 9.57 (lbs/gal)

Vapor density : Not available.

Odor threshold : Not available.

Evaporation rate : Not available.

VOC : Not available.

Viscosity : Not available.

Solubility (Water) : Not available.

Vapor pressure : Not available.

Pour Point : Not available.

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 : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials.

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

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

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Guar gum	LD50 Oral	Rabbit	7 g/kg	-
	LD50 Oral	Rat	6770 mg/kg	-

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Crystalline silica, quartz	A2	1	-	+	Proven.	-

Chronic toxicity Remarks

1) Petroleum distillates blend

Not available.

2) Guar gum

Not available.

3) Crystalline silica, quartz

Not available.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Guar gum	Acute LC50 42000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate	48 hours
	Acute LC50 218000 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours

Conclusion/Summary : Not available.

Biodegradability

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.

13. Disposal considerations

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	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

DOT Reportable Quantity Not applicable.

Marine pollutant Not applicable.

North-America NAERG : Not available.

15 . Regulatory information

HCS Classification : Combustible liquid
Irritating material
Carcinogen
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Petroleum distillates blend; Quartz (SiO2)
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: GW-3LDF: Immediate (acute) health hazard

CERCLA: Hazardous substances.: No products were found.

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

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

Canada

WHMIS (Canada) : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-2A: Material causing other toxic effects (Very toxic).

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

16 . Other information

Label requirements : COMBUSTIBLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE EYE AND SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER. ASPIRATION HAZARD.

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	g

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 : **2/14/2012.**

Indicates information that has changed from previously issued version.

Notice to reader

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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.

	BJ SERVICES COMPANY MATERIAL SAFETY DATA SHEET	Region USA

SECTION I - GENERAL INFORMATION

PRODUCT NAME:	**Hydrochloric Acid (HCl)**
ITEM NUMBER:	100092, 100088, 464950, 398000-398007, 398166
CHEMICAL DESCRIPTION:	Inorganic acid
PRODUCT USE:	Acid - HCL
SUPPLIER:	BJ Services Company
ADDRESS:	11211 FM 2920 Tomball, TX 77375
EMERGENCY TELEPHONE NUMBER	**(800)424-9300 for CHEMTREC** **(703)527-3887 for International**
PREPARED BY:	BJ Services Environmental Group (281)351-8131
DATE PREPARED:	June 17, 2002 Supersedes: September 21, 2000

HMIS HAZARD INDEX

HEALTH:	3
FLAMMABILITY:	0
REACTIVITY:	2
PERSONAL PROTECTION:	j

SECTION II - HAZARDOUS COMPONENTS

HAZARDOUS COMPONENTS	CAS #	PERCENT	HAZARD
Hydrochloric acid	7647-01-0	3.0 – 36.0	Corrosive

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT (METHOD):	None
UPPER EXPLOSION LIMIT(% BY VOL):	N.A.
LOWER EXPLOSION LIMIT(% BY VOL):	N.A.
AUTO-IGNITION TEMPERATURE:	N.A.
EXTINGUISHING MEDIA:	Hydrochloric acid does not burn. Use appropriate media for surrounding fire.
SPECIAL FIRE FIGHTING PROCEDURES:	Equipment normally used for other hazards present should be used.
EXPLOSION DATA:	Hydrochloric acid will react with most metals to evolve hydrogen gas which when mixed with air may result in fire or explosion if ignited.
HAZARDOUS COMBUSTION PRODUCTS:	Hydrogen gas, chlorine gas

SECTION IV - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Skin and eye contact, inhalation, ingestion

ACUTE OVEREXPOSURE EFFECTS:

SKIN CONTACT:	Liquid or concentrated vapors can rapidly cause burns. Repeated or prolonged contact with dilute solution, and concentrated vapors can cause irritation and dermatitis.
SKIN ABSORPTION:	Not absorbed by skin.
EYE CONTACT:	Liquid or concentrated vapors can cause eye irritation, severe burns and permanent damage including blindness.
INHALATION:	Mist and vapors can cause irritation of respiratory tract, with burning, choking, coughing, headaches and rapid heartbeat. Levels of 10 to 35 ppm can cause irritation of throat and 50 - 100 ppm is nearly unbearable for 1 hour. Inflammation, destruction of nasal passages and breathing difficulties can occur with higher concentrations and may be delayed in onset. 1000-2000 ppm can be fatal.
INGESTION:	Can cause severe burns of mouth, esophagus and stomach. Nausea, pain and vomiting frequently occur. Depending on the amount swallowed, holes in the intestinal tract, kidney inflammation, shock and death can occur.

CHRONIC OVEREXPOSURE EFFECTS: Irritation of mucous lining and erosion of the teeth. Persons with asthma, bronchitis, emphysema and other lung conditions and chronic nose, sinus or throat conditions may have those conditions aggravated by exposure to HCl.

EXPOSURE LIMITS:

HAZARDOUS COMPONENT	ACGIH TLV	OSHA PEL
Hydrochloric acid	5 ppm	5 ppm

CARCINOGENICITY, REPRODUCTIVE EFFECTS:
Not listed as carcinogenic – IARC, NTP, or OSHA

TERATOGENICITY, MUTAGENICITY:
No effects listed.

TOXICITY STUDIES:

LD(50)	900 mg/kg (oral rabbit)
LC(50)	3124 ppm/1hr (inhal rat)

SECTION V - FIRST AID PROCEDURES

FOR EYES:	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
FOR SKIN:	Immediately drench the victim with water and remove exposed clothing as soon as possible. If burns are severe or extensive, do not move the victim, call for emergency medical care.
FOR INHALATION:	Remove victim to fresh air and administer 100% oxygen for 15 to 30 minutes. If breathing has stopped, begin artificial respiration and treat for shock. Get medical attention immediately.

FOR INGESTION: Drink large amounts of lime water or milk of magnesia. Use plain water if these are not available. DO NOT use sodium bicarbonate. Spontaneous vomiting may occur, but do not attempt to induce. Get immediate medical help.

SECTION VI - PHYSICAL DATA

APPEARANCE AND ODOR:	Clear, colorless to slightly yellow fuming liquid. Sharp, pungent and irritating odor.
SPECIFIC GRAVITY:	1.16
VAPOR PRESSURE:	Approximately 13 mm Hg @ 20°C
VAPOR DENSITY (air=1):	1.3 (HCl gas)
EVAPORATION RATE:	Depends on barometric pressure and % HCl
BOILING POINT:	110°C
FREEZING POINT:	N.E.
SOLUBILITY IN H20:	82.3 gm/100 gm H2O at 0°C
pH:	< 1

SECTION VII - REACTIVITY DATA

CHEMICAL STABILITY:	Stable
INCOMPATIBLE MATERIALS:	Metals
HAZARDOUS POLYMERIZATION:	Does not polymerize
HAZARDOUS DECOMPOSITION PRODUCTS:	Hydrogen gas, chlorine gas

SECTION VIII - SPECIAL/PERSONAL PROTECTION

VENTILATION:	The use of mechanical ventilation is recommended whenever this product is used in a confined space. Where engineering controls are not feasible, assure use is in an area where there is natural air movement.
RESPIRATORY PROTECTION:	Cartridge or canister respirator - Acid Gas
PROTECTIVE GLOVES:	Rubber
EYE PROTECTION:	Goggles
OTHER PROTECTIVE EQUIPMENT:	Apron. Eyewash bottles or other rinsing agent should be easily accessible.

SECTION IX - HANDLING PRECAUTIONS

LEAK AND SPILL PROCEDURES:	Evacuate area where concentrated fumes are present. Cleanup personnel to wear full protective gear. Completely contain spilled acid with dikes, etc., and prevent run-off into ground and surface waters or into sewers. Product will dissociate in water affecting the pH and will cause aquatic toxic effect similar to chlorine. Neutralize with soda ash or dilute caustic soda.
WASTE DISPOSAL:	If this product becomes a waste it is hazardous and classed as, Corrosive waste- D002, under 40 CFR 261. Always dispose of according to all local/state/and federal regulations.
HANDLING & SPECIAL EQUIPMENT:	Avoid contact with eyes, skin and clothing. Avoid breathing fumes. Avoid contact with metals.
STORAGE REQUIREMENTS:	Store in non-metal containers.

SECTION X - REGULATORY INFORMATION

SHIPPING INFORMATION

PROPER SHIPPING NAME:	Hydrochloric acid
HAZARD CLASS:	8
UN/NA NUMBER:	UN 1789
PACKING GROUP W/ "PG":	PG II
SUBSIDIARY RISK:	N.A.
REPORTABLE QUANTITY (RQ):	Dependant on concentration
EMERGENCY RESPONSE GUIDE #:	157

ENVIRONMENTAL INFORMATION

SARA TITLE III

SECTION 302/304	This product does not contain ingredients listed as an Extremely Hazardous Substance.
SECTION 311/312	Immediate
SECTION 313	This product contains the following ingredients (at a level of 1% or greater) which appear on the List of Toxic Chemicals: Hydrochloric acid

OTHER REGULATORY INFORMATION

TSCA INVENTORY:	All of the components in this product appear on the TSCA inventory.
CALIFORNIA PROP 65:	None of the chemicals on the current Proposition 65 list are known to be present in this product.

	BJ SERVICES COMPANY MATERIAL SAFETY DATA SHEET	Region USA

SECTION I - GENERAL INFORMATION

PRODUCT NAME:	**NE-23**
ITEM NUMBER:	488294
CHEMICAL DESCRIPTION:	Proprietary
PRODUCT USE:	Non-emulsifier
SUPPLIER:	BJ Services Company
ADDRESS:	11211 FM 2920 Tomball, TX 77375
EMERGENCY TELEPHONE NUMBER	**(800)424-9300 for CHEMTREC** **(703)527-3887 for International**
PREPARED BY:	BJ Services Environmental Group (281)351-8131
DATE PREPARED:	December 20, 2002

HMIS HAZARD INDEX

HEALTH:	2
FLAMMABILITY:	3
REACTIVITY:	1
PERSONAL PROTECTION:	g

SECTION II - HAZARDOUS COMPONENTS

HAZARDOUS COMPONENTS	CAS #	PERCENT	HAZARD
Isopropanol	67-63-0	Proprietary	Eye irritant, flammable

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT (METHOD):	75°F (PMCC)
UPPER EXPLOSION LIMIT(% BY VOL):	12.7 (based on isopropanol)
LOWER EXPLOSION LIMIT(% BY VOL):	2.0 (based on isopropanol)
AUTO-IGNITION TEMPERATURE:	N.E.
EXTINGUISHING MEDIA:	Dry chemical, carbon dioxide or water fog.
SPECIAL FIRE FIGHTING PROCEDURES:	Remove unprotected personnel from hazard area. Wear protective clothing. Emergency personnel should be equipped with a NIOSH approved SCBA with full face piece. Cool exposed containers with water.
EXPLOSION DATA:	Heating may cause pressure build-up and possible rupture of the containers.
HAZARDOUS COMBUSTION PRODUCTS:	When heated to decomposition may emit oxides of carbon and sulfur.

SECTION IV - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Skin and eye contact, inhalation, ingestion

ACUTE OVEREXPOSURE EFFECTS:

SKIN CONTACT:	Skin irritation may occur.
SKIN ABSORPTION:	Not absorbed by skin.
EYE CONTACT:	Eye irritation may occur.
INHALATION:	Inhalation of vapors may irritation of the respiratory tract, nausea, headache, loss of motor skills and disorientation.
INGESTION:	Swallowing may cause irritation to the membranes of the mouth, throat and gastrointestinal tract.

CHRONIC OVEREXPOSURE EFFECTS: Not known

EXPOSURE LIMITS:

HAZARDOUS COMPONENT	ACGIH TLV	OSHA PEL
Isopropanol	400 ppm	400 ppm

CARCINOGENICITY, REPRODUCTIVE EFFECTS:
Not listed as carcinogen - IARC, NTP or OSHA

TERATOGENICITY, MUTAGENICITY:
No effects listed

TOXICITY STUDIES:
LD(50) N.E.
LC(50) N.E.

SECTION V - FIRST AID PROCEDURES

FOR EYES:	Immediately flush with plenty of water for at least 15 minutes. If irritation persists, contact a physician.
FOR SKIN:	Flush skin with water or wash with mild soap and water if available. If irritation persists, contact a physician.
FOR INHALATION:	Remove to fresh air. If breathing is labored, give oxygen. If breathing has stopped , give artificial respiration. Keep person warm, quiet and get medical attention.
FOR INGESTION:	Get immediate medical attention.

SECTION VI - PHYSICAL DATA

APPEARANCE AND ODOR:	Amber liquid with sweet odor
SPECIFIC GRAVITY:	1.0197
VAPOR PRESSURE:	N.E.
VAPOR DENSITY (air=1):	N.E.
EVAPORATION RATE:	N.E.
BOILING POINT:	> 200°F
FREEZING POINT:	N.E.
SOLUBILITY IN H20:	Dispersible
pH:	N.E.

SECTION VII - REACTIVITY DATA

CHEMICAL STABILITY:	Stable
INCOMPATIBLE MATERIALS:	Strong oxidizing agents
HAZARDOUS POLYMERIZATION:	Does not polymerize
HAZARDOUS DECOMPOSITION PRODUCTS:	When heated to combustion may emit oxides of carbon and sulfur.

SECTION VIII - SPECIAL/PERSONAL PROTECTION

VENTILATION:	The use of mechanical ventilation is recommended whenever this product is used in a confined space. Where engineering controls are not feasible, assure use is in an area where there is natural air movement.
RESPIRATORY PROTECTION:	If exposure may or does exceed exposure limits, use a NIOSH/MSHA approved atmosphere-supplying respirator or an air-purifying respirator for organic vapors.
PROTECTIVE GLOVES:	Rubber or neoprene
EYE PROTECTION:	Goggles
OTHER PROTECTIVE EQUIPMENT:	Eyewash bottles or other rinsing equipment should be easily accessible.

SECTION IX - HANDLING PRECAUTIONS

LEAK AND SPILL PROCEDURES:	Eliminate all sources of ignition. Shut off source of spill if possible to do so without hazard. Contain the spill by diking. Absorb spillage with clay, sawdust, or other absorbent material. Place all spilled material, contaminated dirt, and other contaminated materials in DOT approved drums for disposal.
WASTE DISPOSAL:	If this product becomes a waste it meets the requirements of a RCRA hazardous waste with the waste code D001. Always dispose of according to local/state/federal regulations.
HANDLING & SPECIAL EQUIPMENT:	Do not get in eyes, on skin, or on clothing. Carefully vent container before removing bung. Wash thoroughly after handling.
STORAGE REQUIREMENTS:	Store away from heat, sparks and open flames. Store in a well-ventilated area.

SECTION X - REGULATORY INFORMATION

SHIPPING INFORMATION

PROPER SHIPPING NAME:	Flammable liquids, n.o.s. (contains isopropanol)
HAZARD CLASS:	3
UN/NA NUMBER:	UN 1993
PACKING GROUP W/ "PG":	PG III
SUBSIDIARY RISK:	N.A.
REPORTABLE QUANTITY (RQ):	N.A.
EMERGENCY RESPONSE GUIDE #:	128

ENVIRONMENTAL INFORMATION

SARA TITLE III

SECTION 302/304	This product does not contain ingredients listed as an Extremely Hazardous Substance.
SECTION 311/312	Immediate, Delayed, Fire
SECTION 313	This product does not contain ingredients (at a level of 1% or greater) on the List of Toxic Chemicals.

OTHER REGULATORY INFORMATION

TSCA INVENTORY:	All of the components in this product appear on the TSCA inventory.
CALIFORNIA PROP 65:	None of the chemicals on the current Proposition 65 list are known to be present in this product.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

Material Safety Data Sheet

1 . Product and company identification

Product name : NE-23

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

Material Uses : Special: Non-emulsifier.

Code : 488294

Validation date : 3/5/2012.

Print date : 3/5/2012.

Version : 1

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 : Sweet.

Color : Clear. Amber.

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

Emergency overview : WARNING!

FLAMMABLE LIQUID AND VAPOR. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Keep away from heat, sparks and flame. Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flashback. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Routes of entry : Dermal contact. Inhalation.

Potential acute health effects

Inhalation : Can cause central nervous system (CNS) depression. Irritating to respiratory system.

Ingestion : Can cause central nervous system (CNS) depression. Ingestion may cause gastrointestinal irritation and diarrhea.

Skin : Irritating to skin.

Eyes : Irritating to eyes.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

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

Over-exposure signs/symptoms

2 . Hazards identification

Inhalation : respiratory tract irritation, nausea or vomiting, coughing, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness

Ingestion : None known.

Skin : irritation, redness, dryness, cracking

Eyes : pain or irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any 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	%
Isopropanol	67-63-0	10 - 30

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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.

5 . Fire-fighting measures

Flammability of the product : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide

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. Shut off all ignition sources. No flares, smoking or flames in hazard area. 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. Use spark-proof tools and explosion-proof equipment. 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). Use spark-proof tools and explosion-proof equipment. 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.

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. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Separate from oxidizing materials. 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
Isopropanol	US ACGIH OSHA PEL OSHA PEL 1989	200 400 400	- 980 980	- - -	400 - 500	- - 1225	- - -	- - -	- - -	- - -	

8 . Exposure controls/personal protection

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.

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.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

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: nitrile rubber

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

Skin : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Closed cup: 23.89°C (75°F)

Auto-ignition temperature : Not available.

Flammable limits : Lower: 2%
Upper: 12.7%

Color : Clear. Amber.

Odor : Sweet.

pH : Not available.

Boiling/condensation point : >93.33°C (>200°F)

Initial Boiling Point : Not available.

Melting/freezing point : <-12.22°C (<10°F)

Relative density : 1.02

Density : 8.51 (lbs/gal)

Vapor density : Not available.

Odor threshold : Not available.

Evaporation rate : Not available.

VOC : Not available.

Viscosity : Not available.

Solubility (Water) : Dispersible

Vapor pressure : Not available.

Pour Point : Not available.

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 : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials.

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

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

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Isopropanol	LD50 Oral	Rat	5045 mg/kg	-
	LC50 Inhalation Gas.	Rat	16000 ppm	8 hours

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Isopropanol	A4	3	-	-	-	-

Chronic toxicity Remarks

1) Isopropanol

Not available.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Isopropanol	Acute LC50 1400000 ug/L Marine water	Crustaceans - Common shrimp, sand shrimp - Crangon crangon	48 hours
	Acute LC50 >1400000 ug/L	Fish - Western mosquitofish - Gambusia affinis - 20 to 30 mm	96 hours

Conclusion/Summary : Not available.

Biodegradability

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	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Isopropanol)	3	III		-
TDG Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Isopropanol)	3	III		-
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Isopropanol)	3	III		-
IATA-DGR Class	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Isopropanol)	3	III		-

PG* : Packing group

DOT Reportable Quantity Not applicable.

Marine pollutant Not applicable.

North-America NAERG : 128

15 . Regulatory information

HCS Classification : Flammable liquid
Irritating material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Isopropanol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: NE-23: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

CERCLA: Hazardous substances.: No products were found.
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 313

Product name	CAS number	Concentration
Isopropanol	67-63-0	10 - 30

Supplier notification :

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

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2B: Material causing other toxic effects (Toxic).

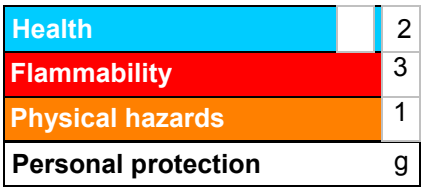
15 . Regulatory information

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

16 . Other information

Label requirements : FLAMMABLE LIQUID AND VAPOR. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

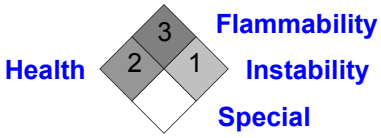
Hazardous Material Information System (U.S.A.) :



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 : **3/5/2012.**

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.

	BJ SERVICES COMPANY MATERIAL SAFETY DATA SHEET	Region USA

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Scaletrol 720**
Item Number: 488265
Product Use: Scale inhibitor
Supplier: BJ Services Company
11211 FM 2920
Tomball, Texas 77375
(281)351-8131

IN CASE OF EMERGENCY CALL: (800) 424-9300 for CHEMTREC
(703) 527-3887 for International

HMIS HAZARD INDEX

HEALTH:	2
FLAMMABILITY:	1
REACTIVITY:	0
PERSONAL PROTECTION:	g

2 COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component	CAS#	Percent	Hazard
Ethylene glycol	000107-21-1	0-45	Target Organ Effect - Kidney
Diethylene glycol	000111-46-6	0-5	Toxic

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eye contact. Ingestion. Inhalation. Skin absorption. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: May cause irritation of mucous membranes. Prolonged exposure may cause central nervous system effects including headache, dizziness, nausea, fatigue or excitement.

INGESTION: May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression.

EYE CONTACT: May cause mild eye irritation.

SKIN CONTACT: May cause irritation or dermatitis. Skin sensitizer. Harmful if absorbed through the skin.

EXPOSURE LIMITS:

HAZARDOUS COMPONENT	ACGIH TLV	OSHA PEL	LC50 (inhalation)	LD50 (oral)
Ethylene glycol	NA	NA	NA	4700 mg/kg rat
Diethylene glycol	NA	NA	NA	12565 mg/kg rat

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. Only trained personnel should administer oxygen. Get medical attention.

INGESTION:
DO NOT induce vomiting. Give victim plenty of water. Never give anything by mouth to an unconscious person.

EYES:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

SKIN:
In case of contact, immediately flush skin with plenty of soap and water. Seek medical attention.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD):	> 200° F (TCC)
LOWER EXPLOSION LIMIT (% v/v):	Not available
UPPER EXPLOSION LIMIT (% v/v):	Not available
AUTO-IGNITION TEMPERATURE:	Not available

SPECIAL HAZARDS:
None
EXTINGUISHING MEDIA:
Use appropriate media for surrounding fire.
SPECIAL FIREFIGHTING PROCEDURES:
Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires.
HAZARDOUS COMBUSTION PRODUCTS:
Oxides of carbon. Smoke and fumes.

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Small spills - Cover spill with absorbent material. Scoop absorbed material into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal.

7 HANDLING AND STORAGE

HANDLING:
Avoid contact with skin and eyes. Do not inhale vapors.

STORAGE REQUIREMENTS:
Keep container tightly closed, in a cool, well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:
Adequate ventilation should be provided to keep concentrations below acceptable exposure limits. Local exhaust. Mechanical ventilation.

PERSONAL PROTECTIVE EQUIPMENT:
Impermeable gloves Chemical resistant goggles.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Colorless/pale yellow
ODOR:	Mild
ODOR THRESHOLD:	Not available
SPECIFIC GRAVITY:	1.18

VAPOR PRESSURE:	Not available
VAPOR DENSITY (air = 1):	Not available
EVAPORATION RATE:	Not available
BOILING POINT:	> 212° F @ 760mm Hg
FREEZING POINT:	- 35° F
pH:	6.5 - 8.5
VISCOSITY (F):	Not available
SOLUBILITY IN WATER:	Complete

10 STABILITY AND REACTIVITY

STABILITY:
Stable.
INCOMPATIBILITY/CONDITIONS OF REACTIVITY:
Strong alkalis. Strong acids. Contact with oxidizing agents.
HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:
Oxides of carbon. Smoke.
HAZARDOUS POLYMERIZATION:
Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:
Liver and kidney damage. May cause delayed and serious nerve and eye damage or other systemic effects.

SENSITIZATION:
Not known.
CARCINOGENICITY:
None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC-International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety & Health Administration (US)).
MUTAGENICITY:
Not known.
REPRODUCTIVE TOXICITY:
Not known.

12 ECOLOGICAL INFORMATION

No specific information available.

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Disposal should be made in accordance with national and local regulations. Consult local waste authorities for direction and/or approvals prior to disposal.

14 TRANSPORT INFORMATION

LAND TRANSPORT (DOT)

Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S.
Technical Name(s):	Ethylene glycol
UN/ID No.:	UN 3082
Hazard Class - Primary:	9
Hazard Class - Secondary:	
Packing Group:	III
Reportable Quantity (RQ):	5000 lbs (Ethylene Glycol)
Emergency Response Guide #:	171

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S.
Technical Name(s):	Ethylene glycol
UN/ID No.:	UN 3082
Hazard Class - Primary:	9
Hazard Class - Secondary:	
Packing Group:	III

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S.
Technical Name(s):	Ethylene glycol
UN No.:	UN 3082
Hazard Class - Primary:	9
Hazard Class - Secondary:	
Packing Group:	III
EmS:	F-A, S-F

15 REGULATORY INFORMATION

SARA TITLE III:

SECTION 302/304 This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.
SECTION 311/312 Delayed, Immediate
SECTION 313 This product contains the following substance(s) which appear on the List of Toxic Chemicals:, Ethylene Glycol CAS# 107-21-1

TSCA INVENTORY: The substances in this product are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710).
CALIFORNIA PROP 65: None of the chemicals on the current Proposition 65 list are known to be present in this product.
PRIORITY POLLUTANTS:

16 OTHER INFORMATION

ISSUE DATE: 08/06/2007
PREPARED BY: BJ Services Environmental Department

REFERENCES:

CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2006.
Dangerous Goods Regulations, 48th ed., International Air Transport Association, 2007.
Guide to Occupational Exposure Values - 2006, American Conference of Governmental Industrial Hygienists, 2006.
SAX's Dangerous Properties of Industrial Materials
Supplier's Literature.

Material Safety Data Sheet

1 . Product and company identification

Product name : Superset W

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

Material Uses : Special: Activator.

Code : 499739

Validation date : 1/18/2012.

Print date : 1/18/2012.

Version : 1

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 : Alcohol.

Color : Colorless.

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

Emergency overview : WARNING!

FLAMMABLE LIQUID AND VAPOR. HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE BLINDNESS IF SWALLOWED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.

Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flashback. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Routes of entry : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Inhalation : Toxic by inhalation. Can cause central nervous system (CNS) depression. Irritating to respiratory system.

Ingestion : Toxic if swallowed. Can cause central nervous system (CNS) depression. May cause blindness if swallowed.

Skin : Toxic in contact with skin. Irritating to skin.

Eyes : Severely irritating to eyes. Risk of serious damage to eyes.

Potential chronic health effects

2 . Hazards identification

Chronic effects : Contains material that may cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Teratogenicity : Contains material which may cause birth defects, based on animal data.

Developmental effects : Contains material which may cause developmental abnormalities, based on animal data.

Target organs : Contains material which may cause damage to the following organs: gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, nausea or vomiting, coughing, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness

Ingestion : None known.

Skin : irritation, redness, dryness, cracking

Eyes : pain or irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any 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	%
Methanol	67-56-1	30 - 60
Oxyalkylated alkylphenol	9016-45-9	30 - 60

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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 : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

5 . Fire-fighting measures

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide

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. Shut off all ignition sources. No flares, smoking or flames in hazard area. 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. Use spark-proof tools and explosion-proof equipment. 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). Use spark-proof tools and explosion-proof equipment. 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. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Separate from oxidizing materials. 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**
Methanol	US ACGIH	200	262	-	250	328	-	-	-	-	[1]
	OSHA PEL	200	260	-	-	-	-	-	-	-	
	OSHA PEL 1989	200	260	-	250	325	-	-	-	-	[1]

[1]Absorbed through skin.

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.

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.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

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 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: Viton®/butyl rubber

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

Skin : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid.

Flash point : Closed cup: 14.44°C (58°F) [TCC]

Auto-ignition temperature : Not available.

Flammable limits : Lower: 6%
Upper: 36.5%

Color : Colorless.

Odor : Alcohol.

pH : Not available.

Boiling/condensation point : 64.44°C (148°F)

Initial Boiling Point : Not available.

Melting/freezing point : <-35°C (<-31°F)

Relative density : 0.91

Density : 6.89 (lbs/gal)

Vapor density : 1.1 [Air = 1]

Odor threshold : Not available.

Evaporation rate : >1 (butyl acetate = 1)

9 . Physical and chemical properties

VOC : Not available.

Viscosity : Not available.

Solubility (Water) : Complete.

Vapor pressure : 12.9 kPa (97 mm Hg) at 20°C

Pour Point : Not available.

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 : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials and metals. Aluminum., zinc

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

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

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Methanol	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rabbit	14200 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	8 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours

Chronic toxicity Remarks

1) Methanol

Not available.

2) Oxyalkylated alkylphenol

Not available.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure

12 . Ecological information

Methanol	Acute LC50 2500000 ug/L Marine water	Crustaceans - Common shrimp, sand shrimp - Crangon crangon - Adult	48 hours
	Acute LC50 3289 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 >100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - 0.2 to 0.5 g	96 hours
Oxyalkylated alkylphenol	Acute LC50 1 to 2 ug/L Fresh water	Crustaceans - Fairy shrimp - Thamnocephalus platyurus - Nauplii - 24 hours	48 hours
	Acute LC50 4800 ug/L Fresh water	Daphnia - Water flea - Daphnia pulex - LARVAE - <=24 hours	48 hours
	Acute LC50 1300 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 1 g	96 hours

Conclusion/Summary : Not available.

Biodegradability

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	UN1230	METHANOL	3	II		-
TDG Classification	UN1230	METHANOL	3	II		-
IMDG Class	UN1230	METHANOL	3	II		-

14 . Transport information

IATA-DGR Class	UN1230	METHANOL	3	II		-

PG* : Packing group

DOT Reportable Quantity Methanol, 1451 gal of this product.

Marine pollutant Not applicable.

North-America NAERG : 131

15 . Regulatory information

HCS Classification : Flammable liquid
Toxic material
Irritating material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Methanol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Superset W: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

CERCLA: Hazardous substances.: Methanol: 5000 lbs. (2270 kg); Ethylene oxide: 10 lbs. (4.54 kg); 1,4-Dioxane: 100 lbs. (45.4 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) :
Listed

SARA 313

	Product name	CAS number	Concentration
Supplier notification :	Methanol	67-56-1	30 - 60

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

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
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).

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

16 . Other information

Label requirements : FLAMMABLE LIQUID AND VAPOR. HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE BLINDNESS IF SWALLOWED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	3
Physical hazards	0
Personal protection	g

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 : **1/18/2012.**

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.

Material Safety Data Sheet

1 . Product and company identification

Product name : XLW-32

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

Material Uses : Special: Cross-linking agent.

Code : 499630

Validation date : 12/7/2011.

Print date : 12/7/2011.

Version : 1

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. [Clear.]

Odor : Alcohol-like.

Color : Clear.

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

Emergency overview : WARNING!

FLAMMABLE LIQUID AND VAPOR. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE BLINDNESS IF SWALLOWED. MAY CAUSE EYE AND SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Keep away from heat, sparks and flame. Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flashback. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Routes of entry : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Inhalation : Can cause central nervous system (CNS) depression. Irritating to respiratory system.

Ingestion : Can cause central nervous system (CNS) depression. May cause blindness if swallowed.

Skin : Moderately irritating to the skin.

Eyes : Moderately irritating to eyes.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

2 . Hazards identification

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

Over-exposure signs/symptoms

Inhalation : respiratory tract irritation, nausea or vomiting, coughing, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness

Ingestion : None known.

Skin : irritation, redness, dryness, cracking

Eyes : irritation, watering, redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any 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	%
Methanol	67-56-1	30 - 60
Methyl borate	121-43-7	10 - 30
Boric acid (H3BO3)	10043-35-3	10 - 30

4 . First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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.

5 . Fire-fighting measures

Flammability of the product : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

5 . Fire-fighting measures

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide

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. Shut off all ignition sources. No flares, smoking or flames in hazard area. 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. Use spark-proof tools and explosion-proof equipment. 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). Use spark-proof tools and explosion-proof equipment. 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. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Separate from oxidizing materials. 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**
Methanol	US ACGIH	200	262	-	250	328	-	-	-	-	[1]
	OSHA PEL	200	260	-	-	-	-	-	-	-	
	OSHA PEL 1989	200	260	-	250	325	-	-	-	-	[1]
Boric acid (H3BO3)	US ACGIH	-	2	-	-	6	-	-	-	-	[a]

[1]Absorbed through skin.
Form: [a]Inhalable fraction. See Appendix C, paragraph A. Inhalable Particulate Mass TLVs (IPM–TLVs) for those materials that are hazardous when deposited anywhere in the respiratory tract.

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.

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.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

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 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 other protective clothing to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid. [Clear.]

Flash point : Closed cup: 8.3°C (46.9°F) [TCC]

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Clear.

Odor : Alcohol-like.

pH : Not available.

Boiling/condensation point : Not available.

Initial Boiling Point : Not available.

Melting/freezing point : Not available.

Relative density : 0.9064 (15.6°C)

Density : 7.55 (lbs/gal)

Vapor density : >1 [Air = 1]

Odor threshold : Not available.

9 . Physical and chemical properties

Evaporation rate : Not available.

VOC : Not available.

Viscosity : Not available.

Solubility (Water) : Soluble

Vapor pressure : Not available.

Pour Point : Not available.

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 : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials and reducing materials.
Methanol is incompatible and may react with acetyl bromide, alkyl aluminum solutions, beryllium hydride, boron trichloride, nitric acid, cyanuric chloride, dichloromethane, diethylzinc, metals (granulated forms of aluminum and magnesium – including aluminum and zinc salts), phosphorus III oxide, and potassium tert-butoxide.

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

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

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Methanol	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rabbit	14200 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	8 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LC50 Inhalation Vapor	Mouse	50000 ppm	4 hours
Methyl borate	LD50 Dermal	Rabbit	1980 uL/kg	-
	LD50 Oral	Rat	6140 mg/kg	-
Boric acid (H3BO3)	LD50 Dermal	Rat	2000 mg/kg	-
	LD50 Oral	Mouse	3450 mg/kg	-
	LD50 Oral	Rat	2660 mg/kg	-

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Boric acid (H3BO3)	A4	-	-	-	-	-

Chronic toxicity Remarks

11 . Toxicological information

1) Methanol

Methanol is a component of this product. Because methanol is eliminated from the body more slowly than ethanol, it can have cumulative toxicity with repeated exposures (ACGIH, 1992).

Acute dermal, oral, and inhalation exposure to methanol can cause Central Nervous System effects, optic nerve effects, diminished vision, and brain effects (necrosis and hemorrhaging). (Bennett, I.L. et al, 1953)

Ingestion of methanol can cause Central Nervous System depression, metabolic acidosis, blurred vision and blindness, gastrointestinal effects, and coma and death. (Clayton, G.D. and Clayton, F.E., 1982, Patty's Industrial Hygiene and Toxicology, Vol2C) Dermal exposure to methanol can cause Central Nervous System depression, blurred vision, and gastrointestinal effects. (Downie, A et al, 1992, Occupational Medicine, 42, pp 47-9) Chronic inhalation of methanol can cause Central Nervous System depression, blurred vision, and gastrointestinal effects. (Frederick, L.J. et al, 1984, AIHA Journal, 45, pp 51-5) Chronic inhalation of methanol has caused liver effects in laboratory animals. (Poon, R et al, 1994, Toxocology and Industrial Health 10: 231-245) Chronic oral exposure has caused Central Nervous System effects and eye effects in laboratory animals. [Youssef, A. F. et al (1993) Neurotoxicology and Teratology 15: 223-227; Baumbach, G.L. et al (1977) Archives of Ophthalmology 95: 1859-1865; Hayreh, M.S. et al (1977) Archives of Ophthalmology 95: 1851-1858; Hayreh, M.S. et al (1980) Ocular toxicity of methanol: An experimental study – Raven Press, New York, pages 35-53; and Martin-Amat, G. et al (1977) Archives of Ophthalmology 95: 1847-1850]

Methanol has produced in vivo mutagenicity in animal studies. (Pereira, M.A. et al, 1982) and (Ward, J. B. et al, 1983)

Methanol was mutagenic in yeast (RTECS). Methanol has caused chromosome aberrations in yeast (RTECS) and grasshoppers (Saha & Khudabaksh, 1974).

Methanol has caused birth defects in rats exposed by the oral (Infurna et al, 1981) and inhalation (Nelson et al, 1984; Nelson et al, 1985) routes. Exencephaly (a defect in the skull bone structure that leaves the brain exposed) and cleft palate (a fissure or unformed bone structure in the roof of the mouth (palate), lip, or facial area, occurring during the embryonic stage of development) were increased in fetal mice exposed to methanol at an airborne concentration of 5,000 ppm or higher for 7 hours/day on days 6 to 15 of gestation.

Embryotoxicity and fetotoxicity were seen with maternal exposure to airborne concentrations of 7,500 ppm and above, and reduced fetal weights with concentrations of 10,000 ppm or greater. The NOAEL was 1,000 ppm. Effects similar to those seen in the 10,000 ppm dosage group were also seen in offspring of mice given a dose of 4 g/kg orally (Rogers et al, 1993).

2) Methyl borate

Not available.

3) Boric acid (H3BO3)

Boric acid has caused adverse reproductive and teratogenic effects in experimental animals.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Methanol	Acute LC50 2500000 ug/L Marine water	Crustaceans - Common shrimp, sand shrimp - Crangon crangon - Adult	48 hours
	Acute LC50 3289 to 4395 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 >100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - 0.2 to 0.5 g	96 hours
Boric acid (H3BO3)	Acute LC50 89.07 to 100.7 mg/L	Crustaceans - Opossum shrimp -	48 hours

12 . Ecological information

Marine water	Americamysis bahia - Juvenile (Fledgling, Hatchling, Weanling) - <24 hours	
Acute LC50 133000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate	48 hours
Acute LC50 50 to 100 mg/l	Fish	96 hours
Acute LC50 50 to 100 ppm Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours

Conclusion/Summary : Not available.

Biodegradability

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	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	II		-
TDG Classification	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	II		-
IMDG Class	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	II		Emergency schedules (EmS) F-E S-D
IATA-DGR Class	UN1993	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol)	3	II		-

PG* : Packing group

DOT Reportable Quantity Methanol, 1261 gal of this product.

Marine pollutant Not applicable.

North-America NAERG : 128

15 . Regulatory information

HCS Classification : Flammable liquid
Irritating material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: trimethyl borate; Boric acid; Methanol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: XLW-32: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

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) :
Listed

SARA 313

Product name	CAS number	Concentration
Methanol	67-56-1	30 - 60

Supplier notification :

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

Canada

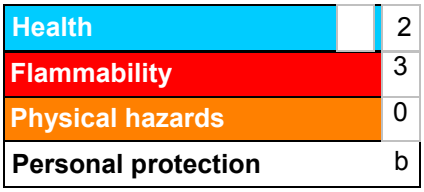
WHMIS (Canada) : Class B-2: Flammable liquid
Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

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

16 . Other information

Label requirements : FLAMMABLE LIQUID AND VAPOR. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE BLINDNESS IF SWALLOWED. MAY CAUSE EYE AND SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :



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.) :

16 . Other information

Date of printing : **12/7/2011.**

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.

ProTechnics
Completion Diagnostics

Material Safety Data Sheet

I Product Name:	**Chemical Frac Tracers (CFT)**	**Updated:** 02-14-12
Generic Name(s):	**CFT 1000 - 2500**	
Usage:	Diagnostic	

Composition:

Ingredients	CAS No	Percent	Hazardous
Proprietary Ingredient supplied as 10% w/v Aqueous Solution	Proprietary	10	No
Water	7732-18-5	90	No

Manufacturer

ProTechnics
Division of Core Laboratories
6510 W. Sam Houston Pkwy N.
Houston, Texas 77041
Tel: 713-328-2320

Emergency Telephone Numbers

24Hr. Response
Emergency: 713-328-2320
Transportation Emergency:
US: 1-800-535-5053
International: 1-352-323-3500 *collect*

II Health Hazard Data/ Identification

EMERGENCY OVERVIEW
PHYSICAL APPEARANCE: Cream colored liquid with no odor
IMMEDIATE CONCERNS: May cause eye and skin irritation
POTENTIAL HEALTH EFFECTS
EYES: May cause irritation to the eyes.
SKIN: May cause irritation to the skin.
INGESTION: May cause irritation to the digestive tract.
INHALATION: May cause irritation to the lungs, upper respiratory Tract and nose.
SIGNS AND SYMPTOMS OF OVEREXPOSURE
EYES: Irritation or tearing of the eyes.
SKIN: Irritation or itching of the skin
INGESTION: Possible nausea and/or vomiting.
INHALATION: Possible coughing, burning, tightness of chest and/or shortness of breath.
ACUTE TOXICITY: No test data is available for acute dermal toxicity.
No test data is available for acute oral toxicity.
No test data is available for acute inhalation toxicity.
CARCINOGENICITY: Not Listed by NTP, IARC, or OSHA
MUTAGENICITY: Not Available
REPRODUCTIVE TOXICITY
REPRODUCTIVE EFFECTS: Not Available
TERATOGENIC EFFECTS: Not Available
MEDICAL CONDITIONS AGGRAVATED: None known
TARGET ORGAN STATEMENT: Contains material which may cause gastrointestinal tract and respiratory tract irritation.
SENSITIZATION: Not Available

III First Aid

EYES: Immediately flush eyes with water for two to three minutes. Remove any contact lenses and continue flushing for 15 minutes. If irritation continues, seek medical attention.
SKIN: Remove contaminated clothing including shoes and wash affected area with soap and water. If irritation continues, seek medical attention. Wash contaminated clothing and shoes before reuse.
INGESTION: Wash out mouth with water. Seek medical attention.
INHALATION: Although unlikely, remove from further exposure. If cough or other symptoms develop, seek medical attention.

IV Fire Fighting Measures

FLASHPOINT AND METHOD: Not Available
FLAMMABLE LIMITS: None – nonflammable
AUTOIGNITION TEMPERATURE: Not Available
FLAMMABLE CLASS: Nonflammable
FLAME PROPAGATION OR BURNING RATE OF SOLIDS: Not Available
GENERAL HAZARD: None
EXTINGUISHING MEDIA: Non-needed
HAZARDOUS COMBUSTION PRODUCTS: None
FIRE FIGHTING PROCEDURES: product is a nonflammable substance
SENSITIVE TO STATIC DISCHARGE: Not Available
SENSITIVITY TO IMPACT: Not Available

V Accidental Release Measures

SMALL SPILL: Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material
Wearing the appropriate personal protective equipment designated in Section 7, move the leaking container to a containment area

Material Safety Data Sheet

VI Handling & Storage

HANDLING: Use appropriate personal protective equipment as specified in Section 7. Handle in a well-ventilated area, and use in a manner consistent with good industrial/manufacturing techniques and practices
STORAGE: Store in unopened containers under cool and dry conditions.

VII Exposure Controls/ Personal Protection

PERSONAL PROTECTIVE EQUIPMENT
EYES AND FACE: Wear safety glasses with side shields or goggles when handling this material.
SKIN: To prevent any contact, wear latex or butyl rubber gloves when handling material.
RESPIRATORY: If airborne dust is present, use a NIOSH approved particulate respirator.
WORK HYGIENIC PRACTICES: Facilities storing or using this material should be equipped with an eyewash facility or a safety shower. Good personal hygiene practices should always be followed.
COMMENTS: No PEL's, TLV's or OEL's for this product or its ingredients are listed in the current issue of ACGIH's guide to Occupational Exposure Values, nor have they been determined by the manufacturer.

VIII Reactivity Data

STABLE: YES
HAZARDOUS POLYMERIZATION: NO
CONDITIONS TO AVOID: Extreme Cold
STABILITY: The product is stable under normal ambient conditions of temperature and pressure.
POLYMERIZATION: Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS: None
INCOMPATIBLE MATERIALS: Strong acids

IX Toxicological Information

ACUTE
DERMAL LD_{50}: Not Available
ORAL LD_{50}: Not Available
INHALATION LC_{50}: Not Available
EYE EFFECTS: This material may cause irritation to the eyes
SKIN EFFECTS: This material may cause irritation to the skin
TARGET ORGANS: Eyes, Skin, Gastrointestinal tract, Respiratory system
CARCINOGENICITY:
IARC: Listed by IARC - No
NTP: Listed by NTP - No
OSHA: Listed by OSHA - No
MUTAGENICITY: Not Available
REPRODUCTIVE EFFECTS: Not Available
TERATOGENIC EFFECTS: Not Available

X Ecological Information

ENVIRONMENTAL DATA: Not Available
ECOTOXICOLOGICAL INFORMATION: Not Available
DISTRIBUTION: Not Available
CHEMICAL FATE INFORMATION: Not Available

XI Disposal Considerations

DISPOSAL METHOD: Dispose of waste at an appropriate waste disposal facility according to current applicable laws and regulations.
PRODUCT DISPOSAL: Dispose of at a supervised appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal.
EMPTY CONTAINER: Contaminated containers should be cleaned and disposed of in the same manner as the product in accordance with applicable regulations.
GENERAL COMMENTS: Refer to Section 5, Accidental Release Measures for additional information.

XII Transport Information

DOT (DEPARTMENT OF TRANSPORTATION)
PROPER SHIPPING NAME: Not Regulated
TECHNICAL NAME: CFT 1000-2500
LABEL: Use Product Identifier, "Trade Name", with technical name below.
AIR (ICAO/IATA)
PROPER SHIPPING NAME: Not Regulated
TECHNICAL NAME: CFT 1000-2500
LABEL: Use Product Identifier, "Trade Name", with technical name below.
VESSEL (IMO/IMDG)
PROPER SHIPPING NAME: Not Regulated
TECHNICAL NAME: CFT 1000-2500
LABEL: Use Product Identifier, "Trade Name", with technical name below.

XIII Regulatory Information United States

UNITED STATES
SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)
311/312 HAZARD CATEGORIES:
FIRE: NO
PRESSURE GENERATING: NO
REACTIVITY: NO
ACUTE: NO
CHRONIC: NO
313 REPORTABLE INGREDIENTS: Not Applicable
TITLE III NOTES: Not Applicable
CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)
CERCLA RQ: Not Applicable
TSCA (TOXIC SUBSTANCE CONTROL ACT)
TSCA REGULATORY: All intentional ingredients are listed on the TSCA Inventory.
NATIONAL RESPONSE CENTER: U.S. Coast Guard National Center telephone # 1-800-424-8802

Material Safety Data Sheet

XIV additional information

CANADA
WHMIS HAZARD SYMBOL AND CLASSIFICATION

WHMIS Toxic

Class D, Division 2, Subdivision B: Toxic Material may cause eye and skin irritation.
WHMIS (WORKER HAZARDOUS MATERIALS INFORMATION SYSTEM): **This product is WHMIS controlled.**
CANADA INGREDIENT DISCLOSURE LIST: **This product does not contain any known ingredient(s) on the "Ingredient Disclosure List"**
CANADIAN ENVIRONMENTAL PROTECTION ACT: **All intentional ingredients are listed on the DSL (Domestic Substance List)**

EUROPEAN COMMUNITY
EEC LABEL SYMBOL AND CLASSIFICATION

EEC Irritant - "Xi"

R 36, R 38: Irritating to eyes and skin.
S 24, S 25: Avoid contact with skin or eyes.
S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 28: After contact with skin, wash immediately with plenty of soap and water.
EUROPEAN COMMUNITY REGULATORY: **All intentional ingredients are listed on the European's**
EINECS Inventory.

MEXICO **This product is considered to be an irritant according to Mexican Standard, Instruction No. 9, ANNEX 1**
STATE REGULATIONS **Not Available**
REGULATIONS
LOCAL REGULATIONS: **Not Available**

COMMENTS: **To the best of our knowledge, this Material Safety Data Sheet conforms to the requirements of US OSHA 29 CFR 1910.1200, 91/155/EEC and Canadian Hazardous Products Act.**