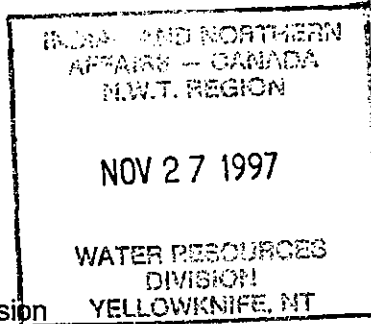


# North of 60 Engineering Ltd.

1710 SB

60

2050, 140 4th Avenue S.W.  
Calgary, Alberta, Canada  
T2P 3N3  
Telephone (403) 263-2121  
Facsimile (403) 263-2122  
E-mail North60\_Engineering@msn.com



1710  
Inuvik Dist  
WB

November 25, 1997

Sevn Bohnet  
DIAND - Water Resources Division  
3<sup>rd</sup> Floor Balanca Building  
Yellowknife, X1A 2R3

Dear Sir:

**Subject: Ikhil Development Class B Water Permit**

As per your request, attached are the following documents in support of the Ikhil Development Class B Water Permit.

- 1) List of Mud Additives with Data Sheets
- 2) Seven copies of the Environmental Overview and Impact Assessment
- 3) Seven copies of the Emergency Response Plan

As per our telephone conversation, I will personally deliver a copy of items two and three to the following individuals in Inuvik.

Organization	Individual
Environmental Screening	Linda Graf
DIAND - Inuvik Office	Rudy Cockney
DIAND - Inuvik Office	Scott Gallupe
Dept. of Fisheries and Oceans	Doug Chipertzak



If you have any questions please call me.

Sincerely,

James C. McDougall P.Eng.  
President

COPY	
BOARD.	5
G.W.	1
E.A.	1
W. RES.	1
File -	1710

## MUD ADDITIVES – FOR IKHIL DEVELOPMENT DRILLING PROGRAM

Mud System Additives that will be used include:

- Alkapam (A1103 & 1703)
- Gypsum
- Kelzan XCD
- Soda Ash
- Sodium Sulfite, Catalyzed
- Staflor-R
- X-Cide 207
- DeFoamer – XL

*Potential* Mud System Treatment Additives Include:

- Alcomer 120 L
- Alkapam N1003
- Barite
- Bicarbonate of Soda
- C Kit
- CaCO<sub>3</sub> "325"
- CaCO<sub>3</sub> "0"
- CaCO<sub>3</sub> Poultry Grit
- B-Free
- Citric Acid
- Drilling Detergent L
- KCl
- Kwik Seal M
- Myacide CAS
- Percol 757
- SAPP
- Sawdust
- Ultra Seal XP



# MATERIAL SAFETY DATA SHEET

#1700, 407 - 2nd Street S.W., Calgary, Alberta T2P 2Y3  
Telephone: (403) 269-2242 Fax: (403) 269-2251

## Section I: IDENTIFICATION OF PRODUCT

Product Name: **ALKAPAM (A-1103 & 1703)**  
Product Use: Drilling Mud Additive  
Chemical Family: Copolymer of Acrylamide and Sodium Acrylate

WHMIS CLASSIFICATION: Not a Controlled Product  
Under WHMIS

TDG CLASSIFICATION: Not Dangerous Goods  
PACKAGE GROUP: Not Applicable  
PIN: Not Applicable

WORK PLACE HAZARD: Not Applicable

## Section II: HAZARDOUS INGREDIENTS

Ingredient	Percent	CAS Number	LD(50)	LC(50)
No Hazardous Ingredients.				

## Section III: TOXICOLOGICAL PROPERTIES

Route of Entry:  SKIN  EYE CONTACT  INHALATION  INGESTION

### EFFECTS OF ACUTE EXPOSURE:

SKIN CONTACT: No effects of exposure expected due to contact. Prolonged contact may cause skin irritation or dermatitis in some individuals.

EYE CONTACT: No effects of exposure expected with the exception of possible irritation.

INHALATION: May cause sneezing, slight irritation of nose and throat.

INGESTION: LD<sub>50</sub> (oral rat): >2,000 mg/kg.

EFFECTS OF CHRONIC EXPOSURE: Skin irritation or dermatitis may occur upon frequent or prolonged contact. Repeated or prolonged contact may cause sensitization in some individuals.

## Section IV: FIRST AID MEASURES

EYE CONTACT: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.

SKIN CONTACT: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

INGESTION: Do not induce vomiting. If conscious, dilute by giving two glasses of water. Call a physician immediately.

## Section V: PHYSICAL DATA

APPEARANCE AND ODOR:	White granular solid; faint odor	MELTING POINT (°C):	Not Available
SPECIFIC GRAVITY:	0.80	pH @ 1.0%:	
BOILING POINT (°C):	Decomposes	EVAPORATION RATE:	Not Available
SOLUBILITY IN WATER:	Soluble	VAPOUR DENSITY (Air = 1):	Not Applicable
PERCENT VOLATILE BY VOLUME:	Not Available		
VAPOUR PRESSURES (mm Hg):	Very Low		

*"dedicated to exceeding customer expectations"*

# ALKAPAM (A-1103 & 1703)

## Section VI: FIRE AND EXPLOSION DATA

FLASH POINT: Not Applicable  
FLAMMABLE LIMITS: Not Applicable  
EXTINGUISHING MEDIA: Dry chemical, foam, CO<sub>2</sub>  
SPECIAL FIRE FIGHTING PROCEDURES: Self-contained respirators required for fire fighting personnel. Water may cause excessive slipperiness.  
HAZARDOUS COMBUSTION PRODUCTS: Oxides of carbon and nitrogen and products of incomplete combustion.  
UNUSUAL FIRE AND EXPLOSION PROCEDURES: Requires a source of ignition, the presence of air, and a temperature greater than the flash point

## Section VII: REACTIVITY DATA

STABILITY                      Stable                       Unstable

INCOMPATIBILITY (conditions to avoid): Avoid contamination with active substances.  
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing and reducing agents  
HAZARDOUS DECOMPOSITION PRODUCTS: Not Available  
HAZARDOUS POLYMERIZATION:

Will not occur                       May Occur

## Section VIII: PREVENTIVE MEASURE

### SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Suggest NIOSH/MESA approved dust mask  
VENTILATION: As required to prevent exposure  
PROTECTIVE GLOVES: Suggest plastic or rubber  
EYE PROTECTION: Suggest goggles  
OTHER PROTECTIVE EQUIPMENT (specify): Clothing as required to prevent contact.

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid prolonged or frequent contact when handling material. Do not inhale dust or breathe vapour. Wear a NIOSH-approved mechanical-filter respirator, if adequate ventilation cannot be provided. Avoid skin or eye contact. Protective measures during repair/maintenance of equipment: Wash equipment thoroughly with steam or warm water until clean. Check for flammables with an "explosion meter" and also check the oxygen level with an oxygen meter. In all cases, follow good industrial safety practices before entering equipment.

### STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Ventilate area. Wear rubber boots, gloves and a self-contained breathing apparatus if ventilation is not adequate. Collect into waste container. Avoid raising dust. Wash spill site after material pick-up. Water solutions are very slippery. May constitute a hazard following a spill.

### WASTE DISPOSAL METHOD

Dispose of waste according to federal, provincial, and local regulations.

## Section IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED: December 1, 1993                      BY: Product Safety Committee  
DATE UPDATED: October 01, 1996



# MATERIAL SAFETY DATA SHEET

#1700, 407 - 2nd Street S.W., Calgary, Alberta T2P 2Y3  
Telephone: (403) 269-2242 Fax: (403) 269-2251

## Section I: IDENTIFICATION OF PRODUCT

Product Name: **GYPSUM**  
Product Use: Drilling Mud Additive  
Chemical Family: Calcium Sulphate

WHMIS CLASSIFICATION: Not a controlled product under WHMIS

TDG CLASSIFICATION: Not Dangerous Goods

PACKAGE GROUP: Not Applicable

WORK PLACE HAZARD: Not Applicable

PIN: Not Applicable

## Section II: HAZARDOUS INGREDIENTS

Ingredient	Percent	CAS Number	LD(50)	LC(50)
No hazardous ingredients				

## Section III: TOXICOLOGICAL PROPERTIES

Route of Entry:  SKIN  EYE CONTACT  INHALATION  INGESTION

Gypsum dust presents no more hazard than any common dust and, accordingly, an exposure limit of 5 milligrams per cubic meter has been established for a worker who spends 8 hours in such an atmosphere. At greater concentration levels than this special precautions must be taken or exposure times must be reduced. Gypsum dust is not hazardous to the skin or eyes but may cause skin dryness or eye irritation. If dust does get in the eyes, it can be washed out with cool, clean water.

## Section IV: FIRST AID MEASURES

EMERGENCY AND FIRST AID PROCEDURES: Treat as nuisance dust.:

## Section V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Light grey; odourless
SPECIFIC GRAVITY:	2.9
BOILING POINT (°C):	Not Applicable
MELTING POINT (°C):	1450°C
SOLUBILITY IN WATER:	Not Applicable
PERCENT VOLATILE BY VOLUME:	Not Applicable
EVAPORATION RATE:	Not Applicable
BULK DENSITY (POWDER)	1272 kg/m <sup>3</sup> (80 lbs/cu. ft.)
(GRANULAR)	1096 kg/m <sup>3</sup> (68 lbs/cu. ft.)
	pH @ 1.0%: 6.5

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# GYPSUM

## Section VI: FIRE AND EXPLOSION DATA

FLASH POINT: Not Applicable  
FLAMMABLE LIMITS: Not Applicable  
EXTINGUISHING MEDIA: Water, Water Fog, Foam, Chemical, CO<sub>2</sub>  
SPECIAL FIRE FIGHTING PROCEDURES: No special requirements  
UNUSUAL FIRE AND EXPLOSION PROCEDURES: None

## Section VII: REACTIVITY DATA

STABILITY                              Stable                               Unstable

INCOMPATIBILITY (conditions to avoid):              Strong acids  
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Dioxide  
HAZARDOUS POLYMERIZATION:  
   Will not occur                               May Occur

## Section VIII: PREVENTIVE MEASURE

### SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:                              NIOSH/MESA mask; nuisance dust  
VENTILATION:    No special requirements  
PROTECTIVE GLOVES:                                      Gloves or hand lotion (to avoid dry skin)  
EYE PROTECTION:    Suggest goggles; nuisance dust  
OTHER PROTECTIVE EQUIPMENT (specify):              None required

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid ingestion. Practice reasonable caution and personal cleanliness.

### STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Treat like sand spill; this material is not water soluble. Sweep or vacuum up.

### WASTE DISPOSAL METHOD

Dispose of material in accordance with local ordinances. Landfill is suggested.

## Section IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED:              December 1, 1993                              BY:              Product Safety Committee  
DATE UPDATED:              October 1, 1996

**Section I: IDENTIFICATION OF PRODUCT**

Product Name: **KELZAN XCD**  
Product Use: Drilling Mud Additive  
Chemical Family: Polymer

WHMIS CLASSIFICATION: Not a controlled  
product under WHMIS

TDG CLASSIFICATION: Not Dangerous  
Goods

PACKAGE GROUP: Not Applicable

WORK PLACE HAZARD: Not Applicable

PIN: Not Applicable

**Section II: HAZARDOUS INGREDIENTS**

Ingredient	Percent	CAS Number	LD(50)	LC(50)
No Hazardous Ingredients				

**Section III: TOXICOLOGICAL PROPERTIES**

Route of Entry:  SKIN  EYE CONTACT  INHALATION  INGESTION

Essentially non-toxic - LD<sub>50</sub> (rats) is greater than 5 mg/kg

NUISANCE DUST: 10 mg/m<sup>3</sup> total dust

INHALATION: Excessive inhalation of dust impedes respiration due to hygroscopic properties.

**Section IV: FIRST AID MEASURES**

EYE CONTACT: Flush with plenty of water. If irritation develops, call a physician.

SKIN CONTACT: Ordinary measure of personal hygiene should be adequate.

INHALATION: Symptomatic treatment.

INGESTION: Essentially non-toxic

**Section V: PHYSICAL DATA**

APPEARANCE AND ODOUR:	Light beige powder, slight odour		
SPECIFIC GRAVITY:	1.5		
BOILING POINT (°C):	Not Applicable		
MELTING POINT (°C):	Not Applicable		
SOLUBILITY IN WATER:	Complete	pH @ 1.0%:	5.4-8.6
PERCENT VOLATILE BY VOLUME:	15% Maximum (H <sub>2</sub> O)		
EVAPORATION RATE:	Not Applicable		
VAPOUR PRESSURES (mm Hg):	Not Applicable		
VAPOUR DENSITY (Air = 1):	Not Applicable		

**Section VI: FIRE AND EXPLOSION DATA**

FLASH POINT: Not Applicable  
FLAMMABLE LIMITS: Not Applicable  
EXTINGUISHING MEDIA: Dry chemical, foam, water fog, spray  
SPECIAL FIRE FIGHTING PROCEDURES: Self-contained respirators required for fire fighting personnel  
*\*Do not use high pressure water stream. Airborne dust creates explosion hazard.*  
UNUSUAL FIRE AND EXPLOSION PROCEDURES: Combustible dust in the finely divided and suspended state.

**Section VII: REACTIVITY DATA**

STABILITY Stable  Unstable   
INCOMPATIBILITY (conditions to avoid): Strong oxidizing agents  
HAZARDOUS DECOMPOSITION PRODUCTS: None  
HAZARDOUS POLYMERIZATION: Will not occur  May Occur

**Section VIII: PREVENTIVE MEASURE**

**SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION: Suggest NIOSH/MESA approved dust mask.  
VENTILATION: 10 changes per hour suggested  
PROTECTIVE GLOVES: None required  
EYE PROTECTION: None required  
OTHER PROTECTIVE EQUIPMENT (specify): None required

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING**

Product becomes very slippery when wet. Wash thoroughly after handling. Keep container closed. Exercise caution in the storage and handling of all chemical substances. Use in ventilated area.

**STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED**

Sweep-up spilled material and repackage. Hose spill area very thoroughly. This product becomes very slippery when wet.

**WASTE DISPOSAL METHOD**

Handle as non-hazardous material.

**Section IX: PREPARATION**

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED: December 1, 1993 BY: Product Safety Committee  
DATE UPDATED: October 1, 1996



**Section I: IDENTIFICATION OF PRODUCT**

Product Name: **SODA ASH**  
Product Use: Drilling Mud Additive  
Chemical Family: Sodium Carbonate, Anhydrous

WHMIS CLASSIFICATION:  
D-2B

WORK PLACE HAZARD:  
Skin and Eye Irritant

TDG CLASSIFICATION: Not Regulated  
PACKAGE GROUP: Not Regulated  
PIN: Not Regulated

**Section II: HAZARDOUS INGREDIENTS**

Ingredient	Percent	CAS Number	LD(50)	LC(50)
Sodium Carbonate	>99	(497-19-8)	4 g/kg	Not determined

**Section III: TOXICOLOGICAL PROPERTIES**

Route of Entry:  SKIN  EYE CONTACT  INHALATION  INGESTION

SKIN CONTACT: May cause skin irritation from prolonged contact, especially in hot weather.

EYE CONTACT: May irritate or burn eyes.

INHALATION: Inhalation of product may irritate nose throat and lungs.

INGESTION: Although low in toxicity, ingestion can be harmful. May cause nausea, vomiting, stomach ache and diarrhea.

ACUTE TOXICITY: Moderately toxic LD<sub>50</sub> (rat): 2800 mg/kg

**Section IV: FIRST AID MEASURES**

EYE CONTACT: Immediately flush eyes with lots of running water for 15 minutes, lifting the upper and lower eyelids occasionally. GET IMMEDIATE MEDICAL ATTENTION.

SKIN CONTACT: Immediately wash skin with lots of soap and water. Remove contaminated clothing and shoes; wash before reuse. Get medical attention if irritation persists after washing.

INHALATION: Remove to fresh air. Give artificial respiration if not breathing. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION: DO NOT INDUCE VOMITING. If conscious, give lots of water or milk. GET IMMEDIATE MEDICAL ATTENTION. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSING PERSON.

**Section V: PHYSICAL DATA**

APPEARANCE AND ODOUR:	Odourless, white powder or granular solid or crystal.		
SPECIFIC GRAVITY:	2.533		
BOILING POINT (°C):	N/A	MELTING POINT (°C):	851.111
SOLUBILITY IN WATER:	30%	pH: 10.5 (5% solution)	
PERCENT VOLATILE BY VOLUME:	Not Applicable	EVAPORATION RATE:	Not Applicable
VAPOUR PRESSURES (mm Hg):	Not Applicable	VAPOUR DENSITY (Air = 1):	Not Applicable

# SODA ASH

## Section VI: FIRE AND EXPLOSION DATA

FLASH POINT: Not Applicable  
FLAMMABLE LIMITS: Not Applicable  
EXTINGUISHING MEDIA: Use extinguishing media appropriate for surrounding fire.  
SPECIAL FIRE FIGHTING PROCEDURES: Self-contained respirators required for fire fighting personnel.  
UNUSUAL FIRE AND EXPLOSION PROCEDURES: Extinguish nearby sources of ignition.

## Section VII: REACTIVITY DATA

STABILITY Stable  Unstable

INCOMPATIBILITY (conditions to avoid): Contact with acids will release carbon dioxide gas. Can react violently with red hot aluminum metal; fluorine gas; lithium; and 2, 4, 6 trinitrotoluene.

HAZARDOUS DECOMPOSITION PRODUCTS: Heating soda ash liberates CO<sub>2</sub>. When dissolving, add to water cautiously and with stirring; solutions can get hot.

HAZARDOUS POLYMERIZATION: Will not occur  May Occur

## Section VIII: PREVENTIVE MEASURE

### SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Suggest NIOSH/MESA approved dust mask  
VENTILATION: Local mechanical  
PROTECTIVE GLOVES: Suggest plastic or rubber  
EYE PROTECTION: Suggest goggles  
OTHER PROTECTIVE EQUIPMENT (specify): As a minimum, wear long-sleeved shirt, and trousers.

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid contact with eyes or prolonged skin contact. Avoid breathing dust. Use good personal hygiene and housekeeping.

Store in a cool, dry, well-ventilated place away from acids. Prolonged storage may cause product to cake and become wet from atmospheric moisture. ALWAYS OBEY HAZARD WARNINGS AND HANDLE EMPTY CONTAINERS AS IF THEY WERE FULL.

### STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Wear appropriate safety gear. Shovel up dry chemical and place into an empty container with cover. Cautiously spray residue with plenty of water. Keep contaminated water from entering sewers and water courses.

### WASTE DISPOSAL METHOD

Consistent with the requirements of local waste disposal authorities. If permitted by applicable disposal regulations, bury in a solid waste landfill or dissolve and neutralize as follows: Dissolve in water using caution as solution can get hot. Neutralize with acid and flush to sewer with plenty of water. Good ventilation is required during neutralization due to release of CO<sub>2</sub> gas. Neutralized wastes may have to be disposed of by an approved contractor.

## Section IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED: December 1, 1993  
DATE UPDATED: October 1, 1996

BY: Product Safety Committee

**Section I: IDENTIFICATION OF PRODUCT**

Product Name: **SODIUM SULFITE, Catalyzed**  
Product Use: Drilling Mud Additive  
Chemical Family: Sodium Sulfite

WHMIS CLASSIFICATION:  
Class D-2(B)  
WORK PLACE HAZARD:  
Skin and Eye Irritant

TDG CLASSIFICATION: Not Dangerous Goods.  
PACKAGE GROUP: Not Applicable  
PIN: Not Applicable

**Section II: HAZARDOUS INGREDIENTS**

Ingredient	Percent	CAS Number	LD(50)	LC(50)
Sodium Sulfite	94.5 - 96.5	7757-83-7	2825 mg/kg	Not Determined
Cobalt Sulfate	0.04	10124-24-3	424 mg/kg	Not Determined
Sodium Metabisulfite	2.20	7681-57-4	115 mg/kg	Not Determined
Mineral Oil	.07	8012-95-1		

**Section III: TOXICOLOGICAL PROPERTIES**

Route of Entry:  SKIN  EYE CONTACT  INHALATION  INGESTION

SKIN CONTACT: Dust or mist may cause skin irritation from prolonged contact. Solutions will irritate.

EYE CONTACT: Dust or mist may irritate or burn eyes. Solutions will irritate or burn/

INHALATION: Inhalation of dust or mist may irritate respiratory tract.

INGESTION: Ingestion may irritate gastrointestinal tract. May cause severe allergic reaction in some asthmatics and sulfite sensitive individuals. Large doses may cause violent colic and diarrhea; circulatory disturbances, central nervous system depression and even death.

**Section IV: FIRST AID MEASURES**

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention  
SKIN CONTACT: Promptly wash with plenty of soap and water.  
INHALATION: Remove to fresh air. If symptoms persist, get medical attention.  
INGESTION: If conscious, immediately give 2 to 4 glasses of water or milk, and induce vomiting by touching finger to back of throat. Get immediate medical attention.

**Section V: PHYSICAL DATA**

APPEARANCE AND ODOUR: White granular crystals or powder. Odourless  
SPECIFIC GRAVITY: 2.63 MELTING POINT (°C): Not Applicable  
BOILING POINT (°C): Decomposes at 900°C  
SOLUBILITY IN WATER: 17% by wt. @ 10°C/ 28% by wt. pH 9.8  
PERCENT VOLATILE BY VOLUME: Not Applicable EVAPORATION RATE: Not Applicable  
VAPOUR PRESSURES (mm Hg): Not Applicable VAPOUR DENSITY (Air = 1): Not Applicable

# SODIUM SULFITE

## Section VI: FIRE AND EXPLOSION DATA

FLASH POINT: Not Applicable  
FLAMMABLE LIMITS: Not Applicable  
EXTINGUISHING MEDIA: Use water spray to keep containers cool and to knock down fumes.  
SPECIAL FIRE FIGHTING PROCEDURES: Self-contained respirators required for fire fighting personnel.  
UNUSUAL FIRE AND EXPLOSION PROCEDURES: Not Applicable

## Section VII: REACTIVITY DATA

STABILITY Stable  Unstable

INCOMPATIBILITY (conditions to avoid): Strong oxidizers cause vigorous exothermic reactions. Acids release sulfur dioxide gas.  
HAZARDOUS DECOMPOSITION PRODUCTS: Sulfur dioxide gas-toxic & corrosive. Sodium sulphide residue-flammable, dangerous fire risk, strong irritant to skin and tissue, incompatible with acids.  
HAZARDOUS POLYMERIZATION:

Will not occur  May Occur

## Section VIII: PREVENTIVE MEASURE

### SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: NOISH approved self-contained breathing apparatus.  
VENTILATION: 10 changes per hour  
PROTECTIVE GLOVES: Suggest plastic or rubber  
EYE PROTECTION: Suggest goggles (do not wear contact lenses)  
OTHER PROTECTIVE EQUIPMENT (specify): Suggest rubber apron. Long-sleeved shirt & trousers.

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid contact with eyes, skin and clothing. Avoid breathing dust or mist. When dissolving, add water cautiously while stirring. Local exhaust if dusty or misty condition prevails or if there is release of sulfur dioxide gas. Keep incompatible materials out of hoods, ducts, etc. Provide eyewash facility near work place. Use good personal hygiene and good housekeeping practices.

Store in a cool, dry area, away from acids or oxidizers. Keep container closed. Protect from physical damage.

### STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Promptly shovel up dry chemical into an empty container and cover. Store as above. Cautiously spray residue with water. Neutralize and dispose as noted below.

### WASTE DISPOSAL METHOD

Dissolve in water, using caution as solution can get hot. Neutralize with acid. Good ventilation is required due to release of SO<sub>2</sub> gas. Oxidation to sodium sulfate, may be required, by adding a slight excess of dilute hydrogen peroxide carefully and stirring. Dispose of neutralized waste consistent with the requirements of local and/or provincial waste disposal authorities.

## Section IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED: December 1, 1993  
DATE UPDATED: October 1, 1996

BY: Product Safety Committee

**Section I: IDENTIFICATION OF PRODUCT**

Product Name: **STAFLO-R**  
Product Use: Drilling Mud Additive  
Chemical Family: Sodium Carboxymethylcellulose

WHMIS CLASSIFICATION: Not a Controlled  
Product Under WHMIS

TDG CLASSIFICATION: Not Dangerous  
Goods

PACKAGE GROUP: Not Applicable

WORK PLACE HAZARD: Not Applicable

PIN: Not Applicable

**Section II: HAZARDOUS INGREDIENTS**

Ingredient	Percent	CAS Number	LD(50)	LC(50)
------------	---------	------------	--------	--------

No Hazardous Ingredients.

**Section III: TOXICOLOGICAL PROPERTIES**

Route of Entry:  SKIN  EYE CONTACT  INHALATION  INGESTION

THRESHOLD LIMIT VALUE: None

EFFECTS OF OVEREXPOSURE: Not Determined

**Section IV: FIRST AID MEASURES**

EMERGENCY AND FIRST AID PROCEDURES: Treat as Nuisance Dust

**Section V: PHYSICAL DATA**

APPEARANCE AND ODOUR:	Free flowing white powder; no appreciable odour
SPECIFIC GRAVITY:	1.55
BOILING POINT (°C):	Not Applicable
MELTING POINT (°C):	Not Applicable
SOLUBILITY IN WATER:	Soluble
PERCENT VOLATILE BY VOLUME:	Not Applicable
EVAPORATION RATE:	Not Applicable
VAPOUR PRESSURES (mm Hg):	Not Applicable
VAPOUR DENSITY (Air = 1):	Not Applicable

pH @ 1.0%: 6-9 (at 10 g/l water)

**Section VI: FIRE AND EXPLOSION DATA**

FLASH POINT:	>350°C
FLAMMABLE LIMITS:	Not Determined
EXTINGUISHING MEDIA:	Water, water fog, foam, chemical, CO <sub>2</sub>
SPECIAL FIRE FIGHTING PROCEDURES:	No special requirements
UNUSUAL FIRE AND EXPLOSION PROCEDURES:	Material becomes very slippery when contacted with water

**Section VII: REACTIVITY DATA**

STABILITY	Stable <input checked="" type="checkbox"/>	Unstable <input type="checkbox"/>
INCOMPATIBILITY (conditions to avoid):	Strong oxidizing agents and caustic solutions	
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon dioxide; carbon monoxide	
HAZARDOUS POLYMERIZATION:	Will not occur <input checked="" type="checkbox"/>	May Occur <input type="checkbox"/>

**Section VIII: PREVENTIVE MEASURE**

**SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION:	Suggest dust mask; nuisance dust
VENTILATION:	No special requirements
PROTECTIVE GLOVES:	None required
EYE PROTECTION:	Suggest goggles; nuisance dust
OTHER PROTECTIVE EQUIPMENT (specify):	None required

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING**

Store in a dry place and keep containers closed. Avoid ingestion. Practice reasonable caution and personal cleanliness. Avoid skin and eye contact. Material becomes slippery when wet. When using organic materials one must always take into account the risk of a dust explosion.

**STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED**

Vacuum or sweep-up if dry. If wet, pick up with dry material such as sand or dirt. Avoid flushing with water as material becomes slippery.

**WASTE DISPOSAL METHOD**

Dispose of material in accordance with local ordinances. Landfill is suggested.

**Section IX: PREPARATION**

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED:	December 1, 1993	BY:	Product Safety Committee
DATE UPDATED:	October 1, 1996		

**Section I: IDENTIFICATION OF PRODUCT**Product Name: **X-CIDE 207**

Product Use: Industrial Microbiocide

Chemical Family: Biocide

WHMIS CLASSIFICATION: E, D1B

WORK PLACE HAZARD: Corrosive

SHIPPING NAME: Corrosive solid, n.o.s.

CHEMICAL DESCRIPTION: (contains 5-Chloro-2-methyl-4-isothiazolin-3-one)

HAZARD CLASS: 8

ID#: UN 1759

**Section II: HAZARDOUS INGREDIENTS**

Ingredient	%	CAS #	TLV-TWA AGCIH	PEL-TWA OSHA
2-methyl-4-isothiazolin-3-one	1-5	02682-20-4	not established	not established
Magnesium chloride	5-10	7786-30-3	not established	not established
Magnesium Nitrate	5-10	10377-60-3	not established	not established
Crystalline silica, quartz	0.1-1	14808-60-7	0.05 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
5-chloro-2-methyl-4-isothiazolin-3-one	5-10	26172-55-4	not established	not established
Natural diatomaceous earth	30-60	61790-53-2	10 mg/m <sup>3</sup>	6 mg/m <sup>3</sup>

**Section III: TOXICOLOGICAL PROPERTIES**Route of Entry:  SKIN  EYE CONTACT  INHALATION  INGESTION

Corrosive to skin and eyes. Irritating to the respiratory tract. Contains a material which can cause cancer. Contains a material which may cause skin and/or respiratory sensitization. Contains a material which can cause noncancerous lung disease.

**EYE CONTACT:** Corrosive to the eyes! Direct contact with eyes will cause severe irritation and may lead to burns and permanent eye damage. Mists and vapors may cause moderate to severe eye irritation.

**SKIN CONTACT:** Contact with skin can produce severe irritation or burns with possible in-depth injury. Repeated skin contact may produce an allergic sensitization. In such cases, incidental (minor) contact may cause allergic rashes.

**INHALATION:** Inhalation may cause intense irritation to the respiratory tract (nose, mouth, mucous membranes). Prolonged, repeated, or high exposures may cause chemical pneumonitis and, in extreme cases, pulmonary edema.

**INGESTION:** Harmful if swallowed. Corrosive!! May cause severe irritation or burns to the mouth and the gastrointestinal tract. In extreme cases may cause liver and kidney damage.

**CHRONIC EFFECTS:** Crystalline silica is known to cause silicosis, a noncancerous lung disease. Exposure is by route of inhalation. If material is in a liquid matrix it is unlikely to be inhaled. A component of this product has been reported to cause contact dermatitis and depigmentation on prolonged or repeated contact. Systemic effects may occur from absorption through skin.

**CARCINOGENICITY:** Quartz has been identified as a suspect cancer agent by the National Toxicology Program (NTP) and/or by the International Agency for Research on Cancer (IARC).

**Section IV: FIRST AID MEASURES**

**EYE:** Flush with water immediately for 15 minutes. Consult a physician.

**SKIN:** In case of contact, immediately flush skin with plenty of water while removing contaminated clothing and shoes. If rash, irritation or burns develop, consult a physician. Launder clothing before re-use.

**INGESTION:** DO NOT induce vomiting. If conscious, drink 8-10 oz of water promptly. Call a physician immediately. *NOTE TO PHYSICIAN:* Probable mucosal damage may contandicate the use of gastric lavage. Measures against circulatory shock and convulsion may be necessary.

**INHALATION:** Remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe.

**Section V: PHYSICAL DATA**

APPEARANCE AND ODOUR:	Light green to yellow solid; mild odour
Solubility in Water:	Dispersible
Density @ 60 F (16 C):	6.00 lb/USgal
Specific Gravity @ 60 F (16 C):	0.72
Flash Point SFCC ASTM D-3828:	>200 F (>93 C)
Boiling Range ASTM D-86:	Not determined
Vapor Pressure:	Not determined
Pour Point ASTM D-97:	Not determined
pH @ 5.0% in 75/25 Isopropanol/Water:	Not determined
Viscosity ASTM D-445	
@ 60 F (16 C)	Not determined
@ 30 F (-1 C):	Not determined
@ 0 F (-18 C):	Not determined
Freezing Point:	Not determined
Odor threshold:	Not determined
Evaporation Rate:	Is slower than ether
Vapor Density:	Is heavier than air
Coefficient of Water/Oil Distribution:	Not determined
Physical State:	Not determined

**Section VI: FIRE AND EXPLOSION DATA**

FLASH POINT:	>200 F (>93 C) SFCC ASTM D-328
FLAMMABLE LIMITS:	Not Established
EXTINGUISHING MEDIA:	Alcohol foam, CO <sub>2</sub> , dry chemical, foam, water fog
HAZARDOUS COMBUSTION PRODUCTS:	Oxides of carbon
SPECIAL FIRE FIGHTING PROCEDURES:	Use a self-contained breathing apparatus with full face piece operated in pressure-demand or other positive pressure mode. Non-flammable. Cool fire-exposed containers using water spray.
UNUSUAL FIRE AND EXPLOSION PROCEDURES:	No known information



<b>Section VII: REACTIVITY DATA</b>
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STABILITY

Stable Unstable 

INCOMPATIBILITY (conditions to avoid): Keep away from strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: No known information

HAZARDOUS POLYMERIZATION:

Will not occur May Occur 

<b>Section VIII: PREVENTIVE MEASURE</b>
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**RESPIRATORY PROTECTION:** When concentrations exceed the exposure limits specified, use of a NIOSH approved full face piece organic vapor cartridge respirator is recommended. Where the protection factor may be exceeded, use of a full facepiece supplied air respirator or self contained breathing apparatus (SCBA) may be necessary.

**VENTILATION:** Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

**PROTECTIVE GLOVES:** Chemical resistant gloves should be used.

**EYE PROTECTION:** Chemical goggles, face shield should be used.

**OTHER PROTECTIVE EQUIPMENT (specify):** A face shield and synthetic apron or coveralls should be used to prevent contact with skin or clothing. Safety shower and eyewash station should be located in immediate work area.

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:** Avoid breathing of vapors and contact with eyes, skin or clothing. Keep container closed when not in use. Hazardous product residue may remain in emptied container. Do not reuse container without commercial cleaning or reconditioning. Use in well ventilated area.

**STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED:**

Small spills: Use personal protective equipment as necessary. Absorb with suitable chemical adsorbent. Dispose of material in accordance with all federal, provincial and local regulations.

Large spills: Dike to prevent entering any sewer or waterway. Transfer liquid to a holding container. Adsorb residue with suitable chemical adsorbent. Dispose of material in accordance with all federal, provincial and local regulations. Use personal protective equipment as necessary.

**WASTE DISPOSAL METHOD:** Dispose of material in accordance with applicable federal, provincial and local regulations.

<b>Section IX: PREPARATION</b>
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The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

DATE CREATED: December 1, 1994

BY: Product Safety Committee

DATE REVISED: January 31, 1995

DATE UPDATED: October 1, 1996

*"dedicated to exceeding customer expectations"*

**Section I: IDENTIFICATION OF PRODUCT**

Product Name: **DEFOAMER - XL**  
Product Use: Drilling Mud Additive  
Chemical Family: High Molecular Weight Alcohol Anionic low foaming Surfactant

WHMIS CLASSIFICATION: D-2(B) and B-3

TDG CLASSIFICATION: Not Dangerous Goods

PACKAGE GROUP: Not Applicable

WORK PLACE HAZARD: Skin and eye irritant &  
Combustible Liquid.

PIN: Not Applicable

**Section II: HAZARDOUS INGREDIENTS**

Ingredient	Percent	CAS Number	LD(50)	LC(50)
Confidential Business Information Exemption Application in process.				

**Section III: TOXICOLOGICAL PROPERTIES**Route of Entry:  SKIN  EYE CONTACT  INHALATION  INGESTION

THRESHOLD LIMIT VALUE: Not determined

EFFECTS OF OVEREXPOSURE: Skin contact may cause irritation to the skin and eyes; may cause dermatitis. Ingestion may cause nausea, vomiting and diarrhea, weakness, increased salivation and rhinitis. If large amounts are ingested, depression of central nervous system may occur. This material has a low order of Toxicity. Inhalation may cause anesthetic effect dizziness.

**Section IV: FIRST AID MEASURES**

EYE CONTACT: In case of eye contact, flush with water for 15 minutes and seek medical attention

SKIN CONTACT: In case of skin contact, wash with water.

INHALATION: In case of inhalation, remove patient to fresh air. Consult a physician.

INGESTION: IF INGESTED, DO NOT INDUCE VOMITING. GET PATIENT TO PHYSICIAN IMMEDIATELY.

**Section V: PHYSICAL DATA**

APPEARANCE AND ODOUR:	Clear water white liquid	
SPECIFIC GRAVITY:	0.90 g/cc	
BOILING POINT (°C):	Not Determined	
MELTING POINT (°C):	Not Determined	
SOLUBILITY IN WATER:	Insoluble; Dispersible	pH @ 1.0%: 7.0-8.0
PERCENT VOLATILE BY VOLUME:	60%	
EVAPORATION RATE:	Not Determined	
VAPOUR PRESSURES (mm Hg):	Not Determined	
VAPOUR DENSITY (Air = 1):	Not Determined	

# DEFOAMER XL

## Section VI: FIRE AND EXPLOSION DATA

FLASH POINT: >80°C (Pensky-Martens)  
FLAMMABLE LIMITS: Not Determined  
EXTINGUISHING MEDIA: CO<sub>2</sub>; Foam; Dry Chemical; Water Fog  
SPECIAL FIRE FIGHTING PROCEDURES: Respirators required for fire fighting personnel  
UNUSUAL FIRE AND EXPLOSION PROCEDURES: Explosive vapour may form at boiling point.

## Section VII: REACTIVITY DATA

STABILITY Stable  Unstable

INCOMPATIBILITY (conditions to avoid): Strong oxidizing agents  
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide; carbon monoxide  
HAZARDOUS POLYMERIZATION: Will not occur  May Occur

## Section VIII: PREVENTIVE MEASURE

### SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: In absence of proper ventilation, recommend approved organic vapour-type respirator.  
VENTILATION: General mechanical; 10 changes per hour suggested.  
PROTECTIVE GLOVES: Suggest plastic or rubber  
EYE PROTECTION: Suggest goggles  
OTHER PROTECTIVE EQUIPMENT (specify): Suggest rubber apron

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid ingestion. Practice reasonable caution and personal cleanliness. Avoid skin and eye contact.

### STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

(Use appropriate safety equipment) Soak up with absorbent material. Dike to contain spill to prevent water pollution. Recover diked material; return recovered material to plant.

### WASTE DISPOSAL METHOD

Absorb spilled material with absorbent compound, incinerate/dispose to conform with local disposal regulations.

## Section IX: PREPARATION

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DATE ISSUED: December 1, 1993 BY: Product Safety Committee  
DATE UPDATED: October 1, 1996